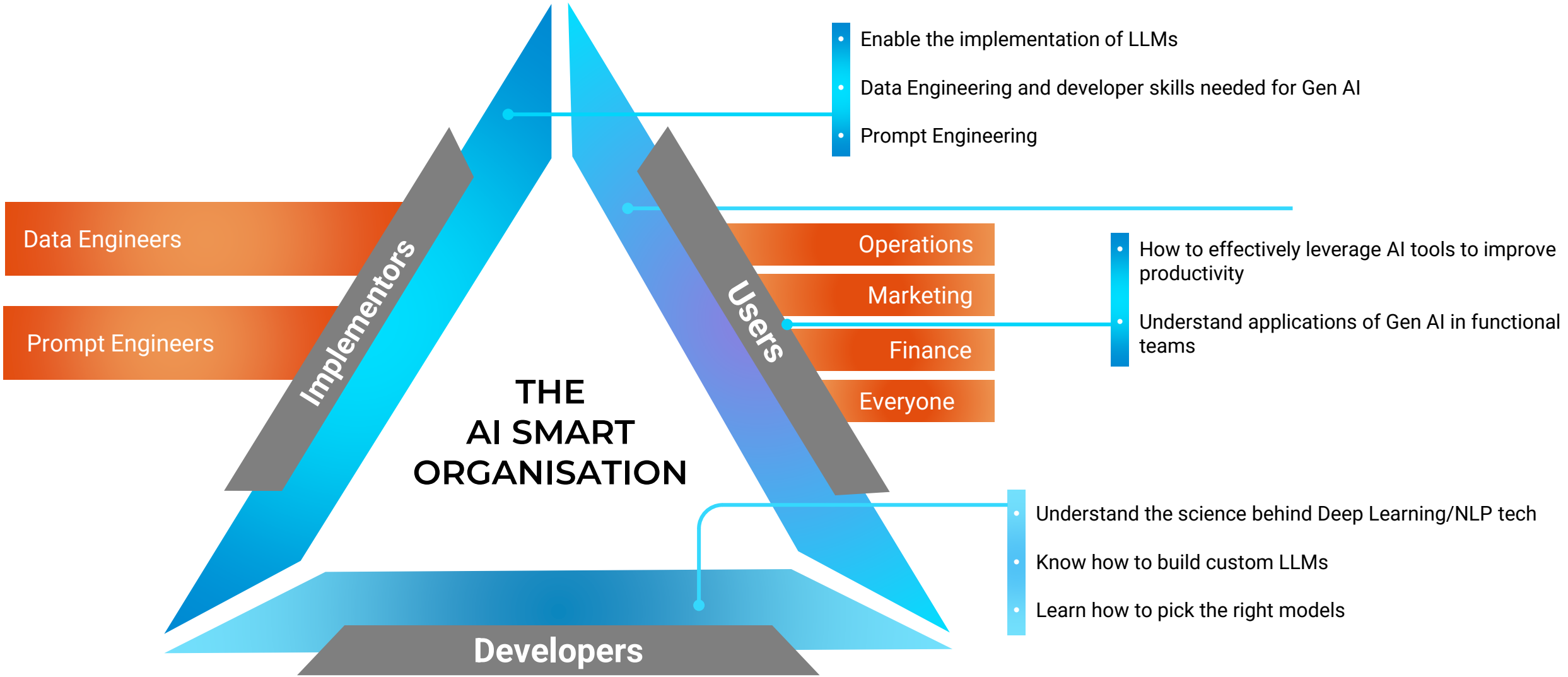
# Capability Deck – Generative AI

# Building AI Capabilities – Multiple Audiences with Multiple Needs

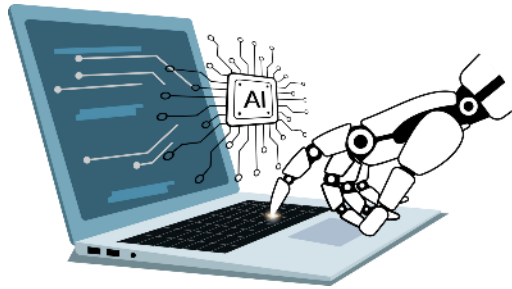



Create /Customize Deep Tech AI solutions

# Our Gen AI Training Journey so far…..

Total Participants Trained/to be trained → 6318

370+ Hours ← Total Duration Covered




Target Audiences Across – Freshers→ Finance Team → Data Science Team → Engineers → Programmers

Self-paced e-learning content developed for diverse audience

# Gen AI - Clientele















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# Gen AI for Business

# Program Summary

## Gen AI for Strategy

- Adaptive Strategic Planning with Generative Models
- Forecasting Market Trends using Generative AI
- Decision Support Systems with Generative Models
- Generative AI in Scenario Planning for Business Strategy
- Dynamic Resource Allocation through Generative Strategies

## Gen AI for Customer Experience

- Personalized Customer Interactions using Generative AI Models
- Sentiment Analysis and Customer Feedback Generation
- Chatbot Enhancement with Generative Language Models
- Customer Journey Mapping with Generative AI
- Real-time Customer Support with Generative Conversational Agents

## Gen AI for Software Development

- Code Generation and Auto-completion with Generative AI
- Bug Detection and Correction using Generative Models
- Automated Documentation Generation with Generative Text Models
- Enhancing Collaboration in Software Teams with Generative AI
- Continuous Integration Optimization through Generative Techniques

## Gen AI for Enterprises

- Enterprise-level Data Synthesis using Generative Models
- Fraud Detection and Prevention with Generative AI
- Generative AI in Human Resources for Talent Management
- Cybersecurity Threat Prediction using Generative Techniques
- Streamlining Business Processes with Generative Automation

# Gen AI Learner Category (1/2)

## User

- Generative AI for All
- Generative AI for Finance Team
- Generative AI for Marketing  Team
- Generative AI for Sales Team
- Generative AI for HR
- Generative AI program for L&D
- Generative AI for Spreadsheets
- Integrated Training Approach
- Generative AI for Manufacturing
- Generative AI for Procurement
- Generative AI for Business Operations

## Implementor

- Generative AI for Data Engineer

## Developer

- AI Assisted Programming  for Developers
- Generative AI for Data Science
- Customised Program for Developers

Click for Detailed Program Summary

Please click the programs for more information

# Gen AI Learner Category (2/2)

Testers


**Generative AI for Testers**

Leaders

**Generative AI for Leaders**

Architects

**Generative AI for Architects**

Click for Detailed Program Summary

Please click the programs for more information

# Program Summary

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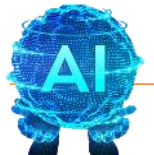
| Si No | Category | Program Name | Duration in Hours | Target Audience |
|---|---|---|---|---|
| 1 | User | Generative AI for All | 16 | All |
| 2 | | Generative AI for Finance Team | 8 | Finance Background |
| 3 | | Generative AI for Marketing Team | 24 | Marketing |
| 4 | | Generative AI for Sales Team | 24 | Sales Team |
| 5 | | Generative AI for HR | 8 | HR's |
| 6 | | Generative AI program for L&D | 16 | L&D team |
| 7 | | Generative AI for Spreadsheets | 3 | All |
| 8 | | Integrated Training Approach | -- | All |
| 9 | | Generative AI in Manufacturing | 8 | Audience in Manufacturing Industry |
| 10 | | Generative AI for Procurement | 8 | Operations & Supply Chain |
| 11 | | Generative AI for Business Operations | 8 | Business Operations |
| 12 | Implementor | Generative AI for Data Engineer | 48 | Audience with Data Science background |
| 13 | Developer | AI Assisted Programming  for Developers | 32 | Developers/ Architects |
| 14 | | Generative AI for Data Science | 40 | Audience with Data Science background |
| 15 | | Customised Program for Developers | Multiple | Developers |
| 16 | Testers | Generative AI for Testers | 16 | Testers |
| 17 | Architects | Generative AI for Architects | 16 | Architects |
| 18 | Leaders | Generative Ai for Leaders | Customizable | Leaders |

# Learner Category -User

# 1.Generative AI for All





# **Program Summary -** Generative AI for All

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**Introduction to Gen AI and types of Generative Models (2h)**

- Familiarize participants with Gen AI concepts, potential applications, and current trends

**Prompt design (6h)**

- Equip participants with the knowledge, skills, and practical expertise needed to create effective and bias-aware prompts for NLP tasks

**Gen AI Tools (6h)**

- Utilize ChatGPT and other day-to-day tools across various applications, including business communication, spreadsheets, and presentations

**Responsible AI and ethical considerations in Gen AI (2h)**

- Educate participants on the principles and practices of responsible AI, and data governance principles

**Generative AI For All**

**16 Hours**

# **Detailed Design -** Generative AI for All

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### Introduction to Gen AI and Types of Generative Models (2h)

- What is Gen AI?
- Evolution of Gen AI
- Applications of Gen AI
- Understand Different Gen AI models:
  - Text to Text: ChatGPT, GPT-4, Google Bard
  - Text to Image: Dalle 2, Stable Diffusion, Mid journey
  - Text to Video: Gen 2, Dream fusion
  - Text to Audio: Riffusion, MusicLM

### Prompt design (6h)

- Introduction - what it is, the importance of well-designed prompts, applications and use cases of prompt design
- Clarity and specificity in prompts
- Bias mitigation in prompt designing
- Fine-tuning and pre-training prompts
- Prompt formatting and styling
- Evaluating prompt performance
- Pitfalls and challenges in prompt design
- Advanced tips and tricks
- Case studies and practical applications

### Gen AI Tools (6h)

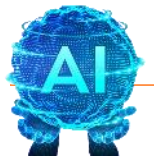
- ChatGPT - what is ChatGPT, ChatGPT interface and features, practical tips for generating high-quality content quickly, alternate free tools (e.g., Hugging Chat), use cases of ChatGPT, demonstration and hands-on practice of ChatGPT's abilities
- Business communication – (e.g., tools: LetterBot , ChatGPT for Gmail, ChatGPT Writer)
- Spreadsheets – (e.g., tools: ChatGPT , Excel Macros, ArcwiseAI, SheetGPT
- Presentations – (e.g., tools: ChatGPT, PowerPoint, Tome)

### Responsible AI and ethical considerations in Gen AI (2h)

- Privacy by design
- Ethical ways of data collection
- Privacy-preserving techniques
- Differential privacy –in data, in algorithms
- Synthetic data
- Data Governance

# 2.Generative AI for Finance Team



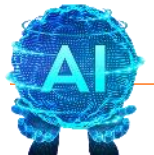


# Generative AI – Finance Team

| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Foundation | ➢ Introduction to Machine Learning<br>➢ Introduction to Deep Learning<br>➢ Introduction to NLP | • Gain a foundational understanding of key concepts in machine learning, including the principles of deep learning and an introduction to natural language processing (NLP), enabling them to gain the knowledge of the fundamental components and applications of these technologies | 1 |
| 2 | Fundamentals of Generative AI | ➢ Introduction to Language Model<br>➢ Introduction to Generative AI<br>➢ Prompt Engineering & Hands On<br>• Elements of a prompt<br>• Designing effective prompts.<br>• Creating prompts for Finance use cases | • Be able to demonstrate proficiency in creating and utilizing language models, understand the fundamentals of Generative AI, apply prompt engineering techniques, and successfully engage in a hands-on exercise to generate AI-driven content. | 3 |
| 3 | Business use cases for Generative AI | ➢ Claims Processing Automation<br>• Document Analysis<br>• Image Recognition<br>➢ Fraud Detection and Prevention<br>• Anomaly Detection<br>• Supervised Learning<br>• Behavioural Analysis<br>➢ Customer Service Support<br>• AI driven Chatbots<br>• Intent Recognition<br>➢ Personalized Insurance Recommendations<br>• Content-based filtering<br>• Recommendation engines.<br>➢ Predictive Analytics for Portfolio Management<br>• Time Series Analysis<br>• Monte Carlo Simulation<br>➢ Generative AI Tools for Finance | • Acquire a comprehensive understanding of leveraging AI in finance. Develop proficiency in utilizing advanced techniques like document analysis, anomaly detection, behavioural analysis, intent recognition, time series analysis, Monte Carlo simulation, and generative AI tools.<br>• Be equipped with the knowledge and skills to harness AI for informed decision-making, risk mitigation, and enhanced customer interactions in the dynamic landscape of financial services. | 3.5 |
| 4 | Introduction to Ethics and Responsibilities in GenAI | ➢ Ethical challenges, biases, and the responsible use of GenAI<br>➢ Legal considerations and compliance requirements when implementing GenAI | • Be proficient in identifying and addressing ethical challenges and biases in the application of Generative AI. | 0.5 |
| **Total Duration – 08 Hours** | | | | |

# 3.Generative AI for Marketing Team





# Generative AI – Marketing Team (1/2)

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| SL No | Module | Topic | Sub Topics | Learning Outcomes | Duration |
|---|---|---|---|---|---|
| 1 | Introduction to Generative AI in Marketing | AI in Marketing | • Understanding the Role of AI in Marketing<br>• The Power of Automation in Marketing | • Understand the role of AI in marketing and marketing automation.<br>• Grasp the concept of Generative AI and its significance for marketers.<br>• Explore recent Generative AI architectures like Stable Diffusion and Transformers.<br>• Familiarize yourself with chatbots and prompt engineering techniques. | 4 Hours |
| | | What is Generative AI and Its Relevance in Marketing | • Unravelling the World of Generative AI<br>• Why Marketers Should Pay Attention | | |
| | | Recent Generative Architectures | • Exploring Stable Diffusion and Transformers<br>• Evolution of Generative AI Models | | |
| | | Chatbots and Prompt Engineering | • A Closer Look at ChatGPT, Claude, Bard, and More<br>• Harnessing the Potential of Prompt Engineering | | |
| 2 | Generative AI in Content Creation | Introduction | • The Role of Generative AI in Content Creation | • Discover the impact of Generative AI on content creation.<br>• Learn to generate AI-driven text, visuals, and audio for various marketing purposes.<br>• Gain proficiency in creating stunning product images | 4 Hours |
| | | AI-Generated Content Types | • Creating AI-Generated Text: Blogs, Articles, and Social Media Posts<br>• Crafting AI-Generated Visuals: Images, Videos, and Graphics<br>• Producing AI-Generated Audio: Voiceovers, Music, and Podcasts | | |
| 3 | The Future of Search, SEO, and Digital Marketing | ChatGPT Plugins and the Future of Search | • Rethinking Search with ChatGPT Plugins<br>• Redefining Digital Marketing with AI | • Understand the evolving landscape of search and SEO in the context of Generative AI.<br>• Explore the potential of ChatGPT plugins in search. | 4 Hours |

# Generative AI – Marketing Team (2/2)

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| SL No | Module | Topic | Sub Topics | Learning Outcomes | Duration |
|---|---|---|---|---|---|
| 4 | Generative AI for Personalization | Creating and Targeting Buyer Personas | • Crafting Buyer Personas with Generative AI<br>• The Art of Targeting | • Learn to create and target buyer personas using Generative AI.<br>• Implement AI-driven personalization strategies in marketing campaigns.<br>• Discover how to leverage AI for data-driven experimentation in marketing | 4 Hours |
| | | Implementing AI-Driven Personalization | • Putting AI-Personalization into Action<br>• Delivering Tailored Experiences | | |
| | | Leveraging AI for Data-Driven Experimentation | • Experimentation Strategies Powered by AI | | |
| 5 | Analysing and Optimizing Campaigns with AI | Measuring Attribution in a Post-ATT World | • Navigating Attribution Challenges<br>• AI in Measuring Marketing Success | • Master techniques for measuring attribution in a post-ATT (App Tracking Transparency) world.<br>• Explore the use of Generative AI in marketing analytics. | 4 Hours |
| | | Generative AI for Marketing Analytics | • Revolutionizing Marketing Analytics with AI | | |
| 6 | Current Landscape of Generative AI in Marketing | Real-World Examples of Generative AI in Marketing | • Showcasing Real Marketing Success Stories<br>• Inspiring Applications of Generative AI | • Discover real-world examples of Generative AI in marketing and gain inspiration for your own projects.<br>• Familiarize yourself with Generative AI tools and their applications in marketing.<br>• Learn the importance of ethical and responsible usage of AI in marketing. | 4 Hours |
| | | Generative AI Tools for Marketers | • A Toolbox for Marketers: Generative AI Tools like :<br>➢ ChatGPT<br>➢ Dalle<br>➢ Tome<br>➢ Midjourney etc… | | |
| | | Ethical and Responsible AI Usage | ➢ Ensuring Ethical and Responsible Use of Generative AI | | |
| **Total Duration – 24 Hours** | | | | | |

# 4.Generative AI for Sales Team

# Generative AI – Sales (1/2)

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| SL No | Module | Topic | Sub Topics | Learning Outcomes | Duration |
|---|---|---|---|---|---|
| 1 | Introduction to Generative AI in Sales | AI in Sales | • Understanding the Role of AI in Sales<br>• The Power of Automation in Sales | • Understand the role of AI in sales and sales automation.<br>• Grasp the concept of Generative AI and its significance for the sales team<br>• Explore recent Generative AI architectures like Stable Diffusion and Transformers.<br>• Familiarize yourself with chatbots and prompt engineering techniques. | 4 Hours |
| | | What is Generative AI and Its Relevance in Sales | • Unravelling the World of Generative AI<br>• Benefits of GenAI in Sales | | |
| | | Recent Generative Architectures | • Exploring Stable Diffusion and Transformers<br>• Evolution of Generative AI Models | | |
| | | Chatbots and Prompt Engineering | • A Closer Look at ChatGPT, Claude, Bard, and More<br>• Harnessing the Potential of Prompt Engineering | | |
| 2 | Sales Forecasting with AI | Predicting future sales and revenue using AI models | • The Role of Generative AI in Sales Forecasting<br>• Methods for Sales forecasting<br>• Forecasting tools | • Discover the benefits of Generative AI in sales forecasting<br>• Learn choose appropriate sales forecasting methods<br>• Develop the ability to generate precise sales forecasts using selected methods | 4 Hours |
| 3 | Customer Relationship Management (CRM) | Leveraging AI for improved CRM and customer insights | • Personalization of Customer Experience<br>• Customer Data Analysis and Segmentation | • Gain deeper understanding of customer behaviour and preferences<br>• Learn to use AI-powered CRM to enhance customer engagement | 4 Hours |

# Generative AI – Sales (2/2)

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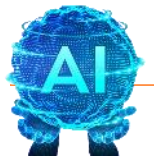
| SL No | Module | Topic | Sub Topics | Learning Outcomes | Duration |
|---|---|---|---|---|---|
| 4 | Generative AI for Personalization | Personalized Sales Recommendations | • Crafting Buyer Personas with Generative AI<br>• Leveraging AI to tailor recommendations<br>• Enhance Customer Engagement | • Learn to strategically craft buyer personas using GenerativeAI<br>• Provide highly personalized sales recommendations<br>• Learn to develop and implement AI-driven engagement strategies | 4 Hours |
| 5 | Building a GenAI Sales Strategy | Developing a GenAI sales strategy tailored to your organization | • Developing a GenAI roadmap for sales<br>• Integration and change management<br>• Revolutionizing Sales Analytics with AI | • Learn to develop a strategic roadmap for integrating GenerativeAI into sales operations<br>• Learn strategies for seamless integration of GenAI into existing sales processes<br>• Learn to make data-driven decisions by applying AI to sales analytics | 4 Hours |
| 6 | Current Landscape of Generative AI in Sales | Real-World Examples of Generative AI in Sales | • Showcasing Real Sales Success Stories<br>• Inspiring Applications of Generative AI | • Discover real-world examples of Generative AI in sales and gain inspiration for your own projects.<br>• Familiarize yourself with Generative AI tools and their applications in sales<br>• Learn the importance of ethical and responsible usage of AI in sales | 4 Hours |
| | | Generative AI Tools for Sales | • Generative AI Tools like :<br>➢ ChatGPT<br>➢ Breakcold<br>➢ FinalScout<br>➢ ObviouslyAI etc… | | |
| | | Ethical and Responsible AI Usage | ➢ Ensuring Ethical and Responsible Use of Generative AI | | |
| **Total Duration – 24 Hours** | | | | | |

# 5.Generative AI for HR





# Generative AI – HR

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| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Foundation | ➢ Introduction to Machine Learning<br>➢ Introduction to Deep Learning<br>➢ Introduction to NLP | • Gain a foundational understanding of key concepts in machine learning, including the principles of deep learning and an introduction to natural language processing (NLP), enabling them to gain the knowledge of the fundamental components and applications of these technologies | 1 |
| 2 | Generative AI | ➢ Introduction to Language Model<br>➢ Introduction to Generative AI<br>➢ Prompt Engineering & Hands On<br>• Elements of a prompt<br>• Designing effective prompts.<br>• Creating prompts for HR use cases | • Be able to demonstrate proficiency in creating and utilizing language models, understand the fundamentals of Generative AI, apply prompt engineering techniques, and successfully engage in a hands-on exercise to generate AI-driven content. | 2 |
| 3 | Business use cases for Generative AI | ➢ Recruitment and Talent Acquisition<br>• AI-driven Candidate Screening<br>• Chatbot-Assisted Recruitment<br>➢ Employee Onboarding<br>• Personalized Onboarding Experience<br>➢ Workforce Planning<br>• Predictive Analytics for Workforce Trends<br>➢ HR Analytics<br>• Predictive HR Analytics<br>➢ Employee Well-being<br>• Wellness Programs<br>• Chatbots for Mental Health Support | • Be able to strategize, deploy, and optimize AI-driven solutions in HR processes, specifically focusing on enhancing Recruitment and Talent Acquisition, Employee Onboarding, Workforce Planning, Predictive Analytics, Employee Well-being, and utilizing Chatbots for mental health support. | 3.5 |
| 4 | Generative AI Tools for HR | ➢ ChatGPT<br>➢ Juicebox AI (PeopleGPT)<br>➢ Attract.ai<br>➢ Tome<br>➢ EffyAI etc | • Develop proficiency in utilizing generative AI tools for HR applications, enabling enhanced talent acquisition, workforce optimization, and innovative HR strategies. | 1 |
| 5 | Introduction to Ethics and Responsibilities in GenAI | ➢ Ethical challenges, biases, and the responsible use of GenAI<br>➢ Legal considerations and compliance requirements when implementing GenAI | • Be proficient in identifying and addressing ethical challenges and biases in the application of Generative AI. | 0.5 |
| **Total Duration – 08 Hours** | | | | |

# 6.Generative AI Program for L&D

# Program Outcome

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- Introduction to AI, ML and Gen-AI
- AI Tools that can be leveraged in order to:
  - **Improve Content Creation, Production & Summarization**.
    - Automated presentation creation tool with Gen-AI
      - Create presentations 10X faster than google slides / PowerPoint.
      - Create templates (with layouts, pertinent text, images and icons) from a text prompt.
    - Augmenting SME capability for custom learning solutions
      - Using AI tools to summarize text-based content, offer images and add voice overs before turning it into a video.
  - **Foster adaptive learning and achieve higher personalization of learning content.**
    - Democratize learning by utilizing AI, making it available and customized for employees from different backgrounds.
  - **Enhance Assessment and Evaluation**
  - **Accomplish sustainability**
    - Keeping the learning assets relevant and up to date
- Introduction to Prompting for better outcomes with Gen-AI tools
- Best Practices, Limitations & Risks

# Detailed Design Generative AI (1/2)

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| Topic | Sub-topic | Description | Hours |
|---|---|---|---|
| **Day 1: Introduction to AI-ML and GenAI tools for L&D** | | | |
| Introduction | Introduction to AI | The evolution of AI and its various technologies<br>The impact of AI in various domains as well as in our day-to-day activities<br>Types of AI – narrow, general and super | 3 |
| | Introduction to ML | What is Machine Learning?<br>Types of Machine Learning<br>Use Cases for Machine Learning<br>Machine Learning v/s Statistical models<br>How ML models drive data-driven decision making | |
| | Generative AI | What is Generative AI?<br>How does a Generative AI tool work?<br>Generative AI v/s AI<br>Use cases for Generative AI by Industry<br>Benefits and Limitations<br>Popular concerns surrounding GenAI tools<br>Popular Generative AI tools in the market at present.<br>Best practices for using Generative AI<br>The future of Generative AI | |
| Tools | ChatGPT | An AI-enabled platform called ChatGPT uses natural language processing (NLP) to have conversations with users. It is a versatile tool that can understand and respond to both spoken and written language, making it helpful for a wide range of applications**. ChatGPT has the potential to improve curation and content production, foster truly adaptive learning, and contribute to higher personalization of learning content in L&D. Organisations may democratise learning by utilising AI, making it available and customised for employees from a variety of backgrounds.** | 1 |
| | DALL-E | Dall-E generates original and imaginative graphics from textual descriptions using a neural network. Dall-E, a creation of OpenAI, can produce any form of images. People have been astounded by the tool's capacity to think creatively and produce visuals that are nearly indistinguishable from actual photographs. **DALLE is extremely useful in L&D for creating images for content, for social media as well as for creating materials for any internal campaigns that are being run.** | 1 |
| | Fliki (NVIDIA) | **Fliki uses artificial intelligence to summarise text-based content, offer images, and add voiceovers before turning it into a video.** Fliki's clever feature is that it summarises your information, which helps you save time and work. Fliki contains thousands of free stock images and videos, over 1000 voices in 75 different languages, all to help create stunning content. | 1 |
| | Beautiful.ai - DesignerBot | Create stunning presentations 10 times faster than with Google Slides or PowerPoint. Elements are automatically aligned, and given a presentation topic, suggested templates can even be generated. An automated presentation creation tool with generative AI, DesignerBot creates complete templates from a text prompt, complete with layout, pertinent text, images, and icons that can all be edited by the user and exported to PowerPoint. | 1 |
| | Copy.ai | A multilingual AI email-writing tool, Copy.AI creates text variations for various email formats and a variety of target markets. Utilize Copy.AI in addition to your standard apps like Google Docs, Gmail, and others because it includes a Chrome plugin. The usage can extend from running campaigns within specific cohorts, making it easier to address a bulk of the population. | 1 |

# Detailed Design Generative AI (2/2)

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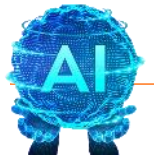
| Topic | Sub-topic | Description | Hours |
|---|---|---|---|
| **Day 2: Introduction to Prompting for Better Outcomes with GenAI tools** | | | |
| Prompt Engineering for GPT-3 and Other Tools | Introduction to Prompt Engineering | What is Prompt Engineering and why is it important? | 1 |
| | | History and evolution of Prompt Engineering | |
| | | Applications of Prompt Engineering for L&D Teams | 1 |
| | | Role of Prompts in guiding Language Models | |
| | Effective Prompt Design | Characteristics of effective prompts | 1 |
| | | Best practices for prompt design | |
| | | Examples of successful prompts and their impact | 1 |
| | Generating Effective Prompts | Techniques for generating effective prompts | 2 |
| | | Strategies for improving prompt quality and relevance | |
| | | The role of human feedback in prompt generation | |
| | Analysing GPT-3.5 Output | Techniques for analysing GPT-3.5 output | 2 |
| | | Common issues and errors in GPT-3.5 output | |
| | | Strategies for improving GPT-3.5 output quality | |
| **Total Duration - 16 Hours** | | | |

# 7.Generative AI for Spreadsheets





# **Detailed Design -** Generative AI for Spreadsheets – 3 Hours

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| Topic | Sub-Topics | Delivery type | Learner Experience | Duration | Dependency |
|---|---|---|---|---|---|
| **Introduction** | Generative AI Technologies<br>Benefits & Limitations<br>Best Practices<br>Ethical Considerations | Instructor led | Conceptual discussion | 15mins | |
| **Getting started with Prompting** | Getting started with Chat GPT<br>Use Prompts to get recommendations for Excel Formulas | Instructor led | Hands-on practice | 15mins | |
| **Designing Prompts for custom requirements** | Case study<br>Use Prompts to get recommendations for Excel Formulas<br>- Logical functions<br>- Lookup functions<br>- Aggregate functions | Instructor led | Hands-on practice | 60mins | |
| **Leveraging on Excel Gen AI Add-Ins** | Excel Gen AI Add-Ins<br>- Data Analysis<br>- AI recommendations | Instructor led | Hands-on practice | 30mins | Add-ins need to be approved by the internal IT Team |
| **Designing Prompts for getting recommendations on Excel Macros** | Use Prompts to get recommendations for Excel Macros<br>- Macros to automate simple tasks<br>- Macros to automate medium to complex tasks | Instructor led | Hands-on practice | 30mins | |
| **Knowledge check** | Quiz<br>Discussion | Participant led | Survey | 15mins | |
| **Summary** | Retrospective<br>Q&A | Participant led | Discussion | 15mins | |

# 8. Integrated Training Approach

# Integrated Training Approach

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- Learners are presented with a specific dataset, and they learn how to prompt these AI tools strategically in order to solve the business problem

- Learners will  formulate queries that yield not only insightful analyses but also code snippets to address end-to-end analytics challenges

- Strong emphasis on the art of effective prompting and using the right tools to solve parts of the problem

# Integrated Training Process

# Integrated Training Process

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The following Gen AI tools will be used to assist in solving the business problem:

- **ChatGPT** – for strategizing and code snippets
- **ArcwiseAI** – for Data exploration and preparation
- **AWS Code Whisperer** – for code generation
- **Tome** – for ppt generation

# Integrated Session Delivery Approach

# Integrated Session Delivery Approach - Example

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Taking the **Marketing domain as an example**, here's how the candidates will leverage various tools to solve different aspects of the problem:

- **Problem Introduction:** Presentation of the marketing business problem to the candidates. This could be related to market analysis, campaign optimization, or customer segmentation
- **Strategy Design:** Candidates will use the help of ChatGPT to gather strategic advice.
- **Data Analysis:** Candidates will be taken through the elaborate process of data cleaning.
- **Deck Creation:** After the initial data analysis, candidates will learn how to use tools like TOME or Fliki to automatically create presentation decks.
- **Content Creation:** Content creation, such as generating ad copy, blog posts, or social media content, can be obtained with the use of tools like Midjourney, DALL-E, etc.
- **Data-Driven Decision Making:** Emphasize the importance of making data-driven decisions by combining insights from ChatGPT, visualizations from TOME/Fliki, and content generated by Midjourney.
- **Feedback and Iteration:** Candidates will sift through different marketing strategies using the materials generated with the help of the AI tools. Discussion followed on how best to refine strategies and content.

# 9.Generative AI for Manufacturing

# Detailed Design

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| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Foundation | ➢ Introduction to Machine Learning<br>➢ Introduction to Deep Learning<br>➢ Introduction to NLP | • Gain a foundational understanding of key concepts in machine learning, including the principles of deep learning and an introduction to natural language processing (NLP), enabling them to gain the knowledge of the fundamental components and applications of these technologies | 1 |
| 2 | Fundamentals of Generative AI | ➢ Introduction to Language Model<br>➢ Introduction to Generative AI<br>➢ Prompt Engineering & Hands On<br>• Elements of a prompt<br>• Designing effective prompts.<br>• Creating prompts for Manufacturing use cases | • Be able to demonstrate proficiency in creating and utilizing language models, understand the fundamentals of Generative AI, apply prompt engineering techniques, and successfully engage in a hands-on exercise to generate AI-driven content. | 3 |
| 3 | Business use cases for Generative AI | ➢ Predictive Maintenance<br>• Text Summarization<br>• Image Classification<br>➢ Quality Control<br>• Object Identification<br>• Anomaly Detection<br>➢ Supply Chain Optimization<br>• Time Series Analysis<br>• Principal Component Analysis<br>➢ Energy Management<br>• Recommendation techniques<br>• Semantic Segmentation<br>➢ Safety and Human Wellbeing<br>• Voice-to-Text recognition<br>• Object Identification | • Be able to identify, evaluate, and propose solutions leveraging Generative AI techniques for specific applications such as Predictive Maintenance, Image Classification, Anomaly Detection, and Supply Chain Optimization. | 3.5 |
| 4 | Introduction to Ethics and Responsibilities in GenAI | ➢ Ethical challenges, biases, and the responsible use of GenAI<br>➢ Legal considerations and compliance requirements when implementing GenAI | • Be proficient in identifying and addressing ethical challenges and biases in the application of Generative AI. | 0.5 |
| **Total Duration – 08 Hours** | | | | |

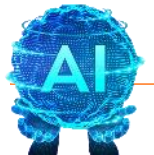
# 10.Generative AI for Procurement

# Detailed Design - Procurement

| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Foundation | ➢ Introduction to Machine Learning<br>➢ Introduction to Deep Learning<br>➢ Introduction to NLP | • Gain a foundational understanding of key concepts in machine learning, including the principles of deep learning and an introduction to natural language processing (NLP), enabling them to gain the knowledge of the fundamental components and applications of these technologies | 1 |
| 2 | Fundamentals of Generative AI | ➢ Introduction to Language Model<br>➢ Introduction to Generative AI<br>➢ Prompt Engineering & Hands On<br>• Elements of a prompt<br>• Designing effective prompts.<br>• Creating prompts for Finance use cases | • Be able to demonstrate proficiency in creating and utilizing language models, understand the fundamentals of Generative AI, apply prompt engineering techniques, and successfully engage in a hands-on exercise to generate AI-driven content. | 3 |
| 3 | Generative AI use cases | ➢ Automated Contract Generation<br>• NLP<br>• OpenAI's GPT models,<br>• Contract Lifecycle Management (CLM) software.<br>➢ Market Intelligence and Supplier Analysis<br>• Data mining<br>• Sentiment analysis<br>➢ Demand Forecasting<br>• Time series analysis,<br>• Regression models<br>➢ Risk Assessment and Mitigation<br>• Predictive modelling<br>• Anomaly detection<br>• Risk scoring algorithms.<br>➢ Personalized Procurement Assistance<br>• Conversational AI<br>• AI Chatbots | • Gain proficiency in leveraging generative AI and data techniques for efficient procurement, supplier analysis, accurate demand predictions, and proactive risk mitigation in the dynamic domain and tech sectors. | 3.5 |
| 4 | Introduction to Ethics and Responsibilities in GenAI | ➢ Ethical challenges, biases, and the responsible use of GenAI<br>➢ Legal considerations and compliance requirements when implementing GenAI | • Be proficient in identifying and addressing ethical challenges and biases in the application of Generative AI. | 0.5 |
| **Total Duration – 08 Hours** | | | | |

# 11.Generative AI for Business Operations





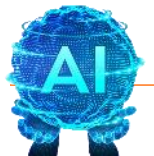
# Detailed Design – Business Operations

| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Foundation | ➢ Introduction to Machine Learning<br>➢ Introduction to Deep Learning<br>➢ Introduction to NLP | • Gain a foundational understanding of key concepts in machine learning, including the principles of deep learning and an introduction to natural language processing (NLP), enabling them to gain the knowledge of the fundamental components and applications of these technologies | 1 |
| 2 | Fundamentals of Generative AI | ➢ Introduction to Language Model<br>➢ Introduction to Generative AI<br>➢ Prompt Engineering & Hands On<br>• Elements of a prompt<br>• Designing effective prompts.<br>• Creating prompts for Finance use cases | • Be able to demonstrate proficiency in creating and utilizing language models, understand the fundamentals of Generative AI, apply prompt engineering techniques, and successfully engage in a hands-on exercise to generate AI-driven content. | 3 |
| 3 | Generative AI use cases | ➢ Content Generation<br>• NLP<br>• Transformer Models<br>• Open AI<br>➢ AI assistance for Customer Support<br>• Gen AI driven Chatbots<br>➢ Supply Chain Optimization<br>• Predictive Analytics<br>• Operations Research<br>• Machine Learning<br>➢ Automated Reporting and Analytics<br>• Data Analysis<br>• Data Visualization<br>➢ Gen AI tools for Business Operations | • Gain proficiency in developing AI-driven chatbots for customer support, optimizing supply chains, implementing predictive analytics, and utilizing machine learning in business operations<br>• Master automated reporting, data analysis, and visualization, providing a comprehensive skill set for leveraging Generative AI tools in diverse business scenarios. | 3.5 |
| 4 | Introduction to Ethics and Responsibilities in GenAI | ➢ Ethical challenges, biases, and the responsible use of GenAI<br>➢ Legal considerations and compliance requirements when implementing GenAI | • Be proficient in identifying and addressing ethical challenges and biases in the application of Generative AI. | 0.5 |
| **Total Duration – 08 Hours** | | | | |

# Learner Category - Implementor

# 1. Generative AI for Data Engineers





# Learning Path

Back »


| Background | Modules | |
|---|---|---|
| Data Engineer | Foundation Program<br>24 Hours | Gen AI for Data Engineers<br>24 Hours |

| Learning Outcome | Business Outcome |
|---|---|
| **Fine Tune, Deploy and Manage Gen AI models** | **Data Engineers able to deploy fine tuned LLM models** |

# Foundation Program

Back »


- Introduction to Statistics, Probability and EDA – 4 Hours
- Introduction to OpenAI, Azure ML/Python – 4 Hours
- Introduction to Machine Learning – 4 Hours
- Deep Learning – 4 Hours
- Introduction to NLP – 8 Hours

**Total Duration – 24 Hours**

# Detailed Design (1/2)

| Day | Module | Topics | Remarks | Learning Outcomes | Mode | Duration in Hours |
|---|---|---|---|---|---|---|
| 1 | Introduction to Statistics, Probability and EDA | • Introduction to inferential statistics, probability distributions binomial, Poisson, normal<br>• Hypothesis Testing: Central Limit Theorem<br>• Z-test, t-test,ChiSquare test, ANNOVA, Hypothesis testing and sampling theory, Central Limit Theorem, Concept of p-value<br>• Feature Engineering - handling missing values, imputing, dealing with outliers, binning continuous variables, Data Encoding Techniques | Theory | • Understand inferential statistics, including probability distributions and hypothesis testing. Proficiency in tests like Z-test, t-test, ChiSquare, and ANOVA, along with a solid grasp of Central Limit Theorem and p-value, will be achieved. | Instructor led | 4 |
| | Introduction to OpenAI, Azure ML | • OpenAI LLM Models<br>• Parameters (Temperature, top_p etc.)<br>• Introduction to Azure ML and Azure OpenAI<br>• Creating pipeline in Azure ML<br>• Hyper parameter tuning<br>• Accessing API using Python<br>• Deploying the models on Azure<br>• Capabilities provided features and limitations | Hands-On using Azure ML and Open AI access | • Understand OpenAI LLM models, exploring parameters like temperature and top_p. Gain practical skills in creating pipelines, hyperparameter tuning, accessing APIs using Python, and deploying models on Azure. | | 4 |
| 2 | Introduction to Machine Learning | • Introduction to Machine Learning: Supervised and Unsupervised Learning,<br>• Linear Regression: Linear Regression: Predicting continuous variable, assumptions of Linear Model, constructing a regression model, Model evaluation using loss functions, RMSE, R-Square<br>• Applications discussed with case studies<br>• Logistic Regression: Logistic Regression: Predicting a binary variable, interpreting model output, to create a logistic model<br>• Checking model diagnostics, computing accuracy metrics, ROC, AUC, doing kfold cross validation<br>• Applications discussed with case studies<br>• Clustering:<br>• Introduction to Clustering,<br>• K-means, Hierarchical Clustering, Gaussian Mixture Models ,<br>• Practical Issues in clustering | Theory and Demo using Azure ML | • Understand machine learning basics: supervised and unsupervised learning. Explore linear regression for continuous variables, logistic regression for binary prediction, and model evaluation metrics. Explore clustering with K-means, hierarchical clustering, and Gaussian Mixture Models, addressing practical issues. Real-world application is discussed and demonstrated through a case study. | | 4 |

# Detailed Design (2/2)

| Day | Module | Topics | Remarks | Learning Outcomes | Mode | Duration in Hours |
|---|---|---|---|---|---|---|
| 2 | Deep Learning | • Overview of Artificial Intelligence,Introduction to Neural Networks<br>• Understanding Gradient Descent, Loss Functions and Learning Rate<br>• Batch Gradient, Mini-batch Gradient and Stochastic Gradient, optimizers like Adagrad, RMSProp, Adam optimizer etc.<br>• Concepts of FFNN and Backpropagation algorithms. | Theory | • Gain knowledge on Artificial Intelligence fundamental concepts such as Gradient Descent, Loss Functions, and Learning Rate. Understand different gradient descent variants concepts of Feedforward Neural Networks (FFNN) and Backpropagation algorithms | Instructor led | 4 |
| | | • Understanding Regression using Deep learning.<br>• Exploring the impact of learning rate on model.<br>• Running the model for multiple epochs<br>• Hyperparameter optimization<br>• Understanding Classification using deep learning<br>• Concepts of Categorical Cross Entropy , Sigmoid, Softmax function<br>• Importance of Categorical Cross Entropy Loss in model evaluation | Demo using Azure ML | • Learn how Regression and Classification can be done using Neural Networks through explanations and demo. | | |
| 3 | Introduction to NLP | • Tokenization, n-grams, Bag of words, tfidf<br>• Stemming, lemmatization, POS and NER Tagging<br>• Word Embeddings - word to vec, Skipgram, CBOW, Glove, fasttext | Theory | • Understand essential natural language processing (NLP) techniques, including tokenization, n-grams, Bag of Words, and tf-idf. Learn Text processing methods such as stemming, lemmatization, POS/NER tagging are explored. Gain insights into workings of word embeddings (word2vec, Skipgram, CBOW, Glove, fasttext) and provides an understanding of RNN and LSTM architectures. | | 2 |
| | | • Understanding RNN,LSTM architecture<br>• Advantages and disadvantages of RNN and LSTM<br>• Case study using LSTM | | | | 2 |
| | | • Implementing BERT usecases<br>• Using BERT for text classification<br>• BERT Question Answering system | Hands On | • Understand BERT architecture and its application for text classification. | | 4 |
| **Total Duration - 24 Hours** | | | | | | |

# Gen AI for Data Engineers

Back »


- Introduction to Generative AI – 1 Hour
- Prompt Engineering – 1 Hour
- Introduction to Language Model and Diffusion Model Architectures – 4 Hours
- Building LLM Apps and deployment -10 Hours
- LLM fine tuning and deployment – 8 Hours

**Total Duration – 24 Hours**

# Detailed Design (1/3)

| Day | Module | Topics | Remarks | Learning Outcomes | Mode | Duration in Hours |
|---|---|---|---|---|---|---|
| 1 | Introduction to Generative AI | • Generative AI Overview<br>• How GenAI is different from other AI ?<br>• How GenAI models are created and how they work.<br>• Modalities - text, image, audio, video, and code<br>• Zero-shot, Single shot, Few shot<br>• "Potential applications and current trends: Use cases across industries like CPG, E-commerce, Healthcare, Supply Chain, Financial Services"<br>• Major tech players - Google, Meta, OpenAI, Databricks, nvidia, Huggingface and their offerings<br>• Risks and Limitations<br>• Casestudy : Financial Services/Health care/Supply chain/E - Commerce | Theory and Hands-On | • Acquire a comprehensive understanding of how Generative AI sets itself apart through creative capabilities across diverse modalities, including text, image, audio, video, and code. Participants will develop proficiency in creating GenAI models, learning the intricacies of training on diverse datasets using architectures like Transformers and GANs. Learning outcomes will include the ability to recognize the versatility of GenAI, understand various learning paradigms such as zero-shot, single-shot, and few-shot, and gain awareness of major industry players like Google, Meta, OpenAI, Databricks, Nvidia, and Hugging Face, along with their unique contributions. Participants will also grasp the potential applications of GenAI across industries such as CPG/ E-commerce/ Healthcare/ Supply Chain/ Financial Services, while being equipped with an understanding of emerging trends. | Instructor Led | 1 |
| 2 | Prompt Engineering | • What is Prompt Engineering and why is it important?<br>• Types of prompt Single Prompt , Multiple Prompt, Hierarchical prompt<br>• Elements of prompt, role of prompts on the output of Language Models,<br>• Prompts & Tokens<br>• "Prompt TuningCPG Use case "<br>• "P-tuningBFSI Use case"<br>• "Chain of thoughtData Science Use case"<br>• "Instruction TuningE-Commerce usecase"<br>• Best Practices for prompt engineering | | • Participants will delve into the crucial practice of shaping language models through carefully crafted prompts. They will comprehend the significance of prompt engineering in directing the output of language models and learn about the various types of prompts, including single prompts, multiple prompts, and hierarchical prompts, with insights into when to use each. Participants will gain a deep understanding of the elements within prompts and their pivotal role in influencing language model responses, considering the interplay between prompt design and model output. Additionally, the course will cover the relationship between prompts and tokens, emphasizing the importance of managing token limitations. The exploration of prompt tuning and P-tuning will be enriched with real-world applications. | | 1 |

# Detailed Design (2/3)

| Day | Module | Topics | Remarks | Learning Outcomes | Mode | Duration in Hours |
|---|---|---|---|---|---|---|
| 2 | Introduction to Language Model and Diffusion Model architectures | • Timeline of Generative AI and Important Model Architectures<br>• Model architectures (NLP): Transformer architecture, Attention is all you need<br>• GPT architecture overview<br>• T5 architecture overview<br>• BART architecture overview<br>• Model Architecture (CV): Diffusion models | Theory | • Understand the Architectures of GPT, Bert, T5 models. | Instructor Led | 4 |
| | Building LLM Apps and deployment | • Implementing Generative AI Use Cases using ChatGPT, Langchain and Huggingface models<br>• Code generation and debugging<br>• Data Analysis and Insights<br>• Customer Support and Virtual Assistants (Chat bots)<br>• Scientific Research and Analysis<br>• Synthetic Data Generation<br>• **Implementing End to end Machine Learning workflow with GenAI**<br>• "Implementing end to end Machine Learning case study according toCRISP- DM, using GenAI" | Hands On | • Build GenAI applications for different use cases utilizing all the concepts learned in previous sessions.<br>• Utilizing GenAI to implement ML work flow | | 10 |

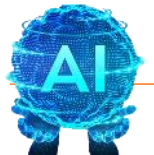
# Detailed Design (3/3)

| Day | Module | Topics | Remarks | Learning Outcomes | Mode | Duration in Hours |
|---|---|---|---|---|---|---|
| 3 | Building LLM Apps and deployment | • Introduction to Huggingface LLM Models<br>• Parameters (Temperature, top_p etc.)<br>• Introduction to Langchain<br>• Creating chains and agents<br>• Hands-on development of RAG apps<br>• RAG using wikipedia, youtube<br>• RAG using database<br>• RAG using documents | Hands On | • Learn to implement RAG apps using different data sources | Instructor Led | 6 |
| | | • "Deployment of apps on local machine using streamlit, flask.Deployment of apps on cloud Azure/AWS/GCP using Flask/Django." | | • Deploy the apps on local and cloud infrastructure | | 2 |
| 3 | LLM fine tuning and deployment | • Prompt tuning<br>• P-tuning<br>• Instruction fine-tuning and LLM | | • Learn how to fine tune an LLM for a specific use case. Deploy the fine tunes LLM on local or cloud | | 2 |
| | | • Transfer Learning<br>• Quantization of LLM<br>• LLM evaluation techniques<br>• Deployment of finetuned LLM | | | | 6 |
| **Total Duration – 24 Hours** | | | | | | |

# Learner Category - Developer

# 1.AI Assisted Programming for Developer





# Program Flow

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## Day 1

- Prompt Engineering

## Day 2

- AI Tools
  - ✓Co-Pilot
  - ✓Tab Nine
  - ✓Code Whisperer
  - ✓Mutable

## Day 3

- Advanced Prompts

## Day 4 onwards

- Hands on project
  based on type of problem and technology use cases, co-developed with business inputs

Total – 32 Hours

# Program Coverage

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## Day 1 Coverage – Prompt Engineering

| Prompt Engineering |
| --- |
| **Introduction to Prompt Engineering**<br>• What is Prompt Engineering and why is it important?<br>• History and evolution of Prompt Engineering<br>• Applications of Prompt Engineering in various industries and fields |
| **Language Models and Prompts**<br>• Overview of Language Models and their capabilities<br>• Role of Prompts in guiding Language Models<br>• Understanding GPT-3 and its architecture |
| **Effective Prompt Design**<br>• Characteristics of effective prompts<br>• Best practices for prompt design<br>• Examples of successful prompts and their impact |

# Program Design

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**Day 2 Coverage – AI Tools**

**Co-Pilot, Tab Nine, Code Whisperer,** Mutable. Through examples, each tool will be introduced, walk throughs for different languages, pros and cons. If time permits, ChatGPT/GPT 4.0 for data analysis, and emails/content. How to use prompt engineering to code faster and better.

**Day 3 Coverage – Advanced Prompts**

Advanced Prompts and other AI tools (for content, emails, presentations, strategy, etc) - essential for client facing roles and team leads.

**Day 4 onwards – Project**

One day hands on projects based on type of problem and technology use cases, co-developed with business inputs.

Example - developing a new ensemble model in data science from scratch for a client. An ensemble model uses existing model output from multiple iterations followed by a voting mechanism to create a final set of predictions. Multiple ensemble models like Random Forest, XGBoost or Bagging are already available as libraries in Python. However, under certain circumstances, multiple models may be ensembled to create a new model if the predictive power of the new model is higher for certain types of data. This is often a complex problem solved by data science teams. However, most data scientists do not have the coding expertise to create Python libraries from scratch. A code helper tool can help generate both the shallow learners from scratch and also produce code which will use an existing or new ensemble voting mechanism and then merge the two. This can easily be then tested by data scientists. But what would have been a multi-team multi-month exercise can be completed within the data science team in a much shorter time frame.

# Pair Programming with AI tool

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- Using prompts, auto-complete suggestions to write efficient code
- Write and validate test cases
- Debug and fix code errors
- Refactoring code
- Identify potential security vulnerabilities in code and fixing
- Generate comments from code

# Program - Outcome

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- Work seamlessly on the tool
- Understand prompting in the context of tool and problem statement at hand
- Code Generation
  - What the tool does right
  - What the tool cannot do (limitations)
  - Best practices

- Expertise on leveraging tool for enhanced productivity

# Sample TOC

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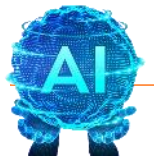
| Day | Topics | Coverage | Duration (in Minutes) |
|---|---|---|---|
| **Day 1** | GitHub Copilot - Overview | Purpose and features<br>Using AI to write code for you<br>List of Supported Languages<br>Language-Specific Features and Capabilities | 60 |
| | Setup and demo | Installation and Setup for VS code and IntelliJ | 30 |
| | | Q&A | 30 |
| **Day 2** | Back end - Java | Creating simple POJO classes using Copilot in IntelliJ<br>Creating core java application on banking domain using Copilot in IntelliJ | 60 |
| | Back end - MS | Creating the backend RESTful service for the Student listing application with CRUD operation. Creating the Repository, Service and Controller layer for the Student listing application. (VS code +IntelliJ) | 60 |
| **Day 3** | Front end - Angular/React | Creating basic JavaScript functions using Copilot<br>Creating typescript functions inside components of React/Angular SPA application. Creating dynamic HTML UI elements in React/Angular components using Copilot. (VS code) | 60 |
| | Practice | Stepwise explanation of the Code<br>Cleaning the Code<br>Making the Code Robust<br>Documenting the Code<br>Debugging and fixing bugs | 60 |
| | Total | | 360 |

# 2.Generative AI for Data Science





# Generative AI for Data Science – Program Summary

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**Data Scientist/Machine Learning Specialist**

**Topics**

1.Introduction to Generative AII
2.Types of Generative Models
3.Overview of Large Language Models
4.Recurrent Neural Networks and LSTMs
5.Auto-encoders and Variational Auto-encoders (VAEs)
6.Generative Adversarial Networks (GANs)
7.Transformer Models for Generative AI
8.Language Models and Generative Pre-trained Transformers (GPTs)
9.Evaluation Metrics and Techniques for Generative Models
10.Advanced Concepts in Large Language Models
11.Case Studies and Applications
12.Hands-on Projects and Exercises
13.Deployment and Deployment Challenges
14.Ethical Considerations in Generative AI
15.Interdisciplinary Considerations
16.Recent Advances and Research Trends
17.Guest Lectures and Industry Perspectives
18.The Future of Generative AI and Language Models

Total – 40 Hours

# Session Details- Data Scientist/Machine Learning Specialist (40 Hours)

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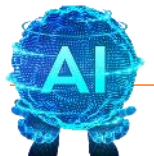
1. **Introduction to Generative AI**
   - Overview of Generative AI
   - Applications and significance of Generative AI
2. **Types of Generative Models**
   - Key concepts and terminology
   - Comparison of Generative Models
3. **Overview of Large Language Models**
   - Key concepts and terminology
   - LSTM, GPT, BERT, and transformers
4. **Recurrent Neural Networks and LSTMs**
5. **Auto-encoders and Variational Auto-encoders (VAEs)**
6. **Generative Adversarial Networks (GANs)**
7. **Transformer Models for Generative AI**
8. **Language Models and Generative Pre-trained Transformers (GPTs)**
9. **Evaluation Metrics and Techniques for Generative Models**
10. **Advanced Concepts in Large Language Models**
    - Fine-tuning
    - Zero-shot learning
    - Few-shot learning
    - Discussion on current research and developments
11. **Case Studies and Applications**
    - Image generation
    - Text generation
    - Music generation
    - Real-world applications
12. **Hands-on Projects and Exercises**
13. **Deployment and Deployment Challenges**
    - Scalability
    - Model compression
    - Inference efficiency
    - Best practices for deployment
14. **Ethical Considerations in Generative AI**
    - Bias in Language Models
    - Fairness and accountability
    - Privacy and data handling
15. **Interdisciplinary Considerations**
    - Integration with natural language processing, computer vision, and robotics
16. **Recent Advances and Research Trends**
    - Self-supervised learning
    - Unsupervised representation learning
    - Novel architectures
17. **Guest Lectures and Industry Perspectives**
18. **The Future of Generative AI and Language Models**

# 3.Customized Programs for Developers





# Gen AI – Masterclass

# **Program Details -** GitHub Copilot Masterclass

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| | |
|---|---|
| **Program Name** | GitHub Copilot Masterclass (Awareness Session) |
| **Duration** | 2.5 Hours |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

# **Program Details -** Tabnine Masterclass

**Back »**


| | |
|---|---|
| **Program Name** | Tabnine Masterclass (Awareness Session) |
| **Duration** | 2.5 Hours |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

# **Program Details -** Amazon CodeWhisperer Masterclass

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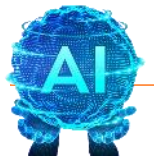
| | |
|---|---|
| **Program Name** | Amazon CodeWhisperer Masterclass (Awareness Session) |
| **Duration** | 2.5 Hours |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

# Gen AI – GitHub Copilot - Deep dive session for Java Developers (Studio)





# **Program Details -** GitHub Copilot - Deep dive session for Java Developers (Studio)

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| | |
|---|---|
| **Program Name** | GitHub Copilot - Deep dive session for Java Developers (Studio) |
| **Duration** | 56 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

# Detailed Design (1/4)

| Day | Module | Learning Outcomes | Topic Coverage |
|---|---|---|---|
| Day 1 | Overview of GitHub Copilot | By end of this Module you will be able to :<br>1. Install and Setup Github Copilot<br>2. Use AI to write code | What is GitHub Copilot? |
| | | | Purpose and Features |
| | | | Learn to use AI to write code for you |
| | | | List of Supported Languages |
| | | | Language-Specific Features and Capabilities |
| | | | Installation and Setup |
| | How GitHub Copilot Works | By the end of this Module you will be able to:<br>1. Integrate Copilot with IDEs and Code Editors<br>2. Filter out common vulnerable coding patterns<br>3. Support for offline code<br>4. Write code to make code more efficient | Integration with IDEs and Code Editors (IntelliJ, Visual Studio Code) |
| | | | Language Models and Machine Learning Techniques |
| | | | Code Generation Process |
| | | | Multi-line function suggestions |
| | | | Test generation |
| | | | Implement Algorithms and Patterns (Search, FCFS, Aggregator) |
| | | | Filter out common vulnerable coding patterns |
| | | | Block suggestions matching public code |
| | | | Indicate that licensed / copyright code is not suggested by tool or display. |
| | | | Support for offline mode |
| | | | Provide code assistance in the style of my company's style guide and org policies |
| | | | Write code to make code more efficient (e.g. run faster) |
| | | | Explain the logic of any existing methods (point by point). |
| | | | Explain an entire class and the methods inside it (with logic), in points. |
| | | | Add comments for existing method / class |
| | Programming Language Constructs and Patterns | By the end of this Module you will be able to:<br>1.Write code using OOPs concepts in Copilot<br>2. Implement patterns | Struct, While loop, Constant / Variable declarations, data types, creating arrays (Single, Multi) |
| | | | Class / Object creation using OOPs Concept ( Inheritance, Overloading, Polymorphism, Abstraction, Encapsulation, Enum ) |
| | | | Implement Patterns - Create Singleton, Abstract Factory, Prototype, Proxy, State, Visitor, Observer pattern classes |
| | | | Make code cheaper to run (less API calls) |
| | | | Convert any Java for loop with Java Streams |

# Detailed Design (2/4)

| Day | Module | Learning Outcomes | Topic Coverage |
|---|---|---|---|
| Day 2 | Writing Regex Patterns | By the end of this Module you will be able to:<br>1. Implement code based on regex pattern with Copilot | Based on regex pattern output switch case to be implemented. |
| | | | Based on the regex pattern output If..else condition code to be implemented . |
| | Static Web Pages with Copilot (HTML5+CSS3+BootStrap) (Case Study) | By the end of this Module you will be able to:<br>1. Create Static Web Pages with Copilot | Create the Home Page for a Static Web Page |
| | | | Create the Login Page |
| | | | Create the Contact Us Page |
| | | | Create the Service Page |
| | | | Creating css classes and use that in Html tags |
| Day 3 | Angular Single Page Application with Copilot (Case Study) | By the end of this Module you will be able to:<br>1. Create Angular Single Page Application with Copilot | Create Html pages for About, Help |
| | | | Create Angular components for About, Help |
| | | | Create Html pages for login |
| | | | Create Angular component for Login |
| | | | Create Html pages for Pet Allocation |
| | | | Create Angular component for Pet Allocation |
| | | | Create application main module in Angular |
| | | | Routing modules |
| | | | File validation / Upload |
| | | | Validate UI Inputs (Regex) |
| Day 4 | React Single Page Application with Copilot (Case Study) | By the end of this Module you will be able to:<br>1. Create React Single Page Application with Copilot | Create Html pages for About, Help |
| | | | Create Angular components for About, Help |
| | | | Create Html pages for login |
| | | | Create Angular component for Login |
| | | | Create Html pages for Pet Allocation |
| | | | Create Angular component for Pet Allocation |
| | | | Create application main module in Angular |
| | | | Routing modules |
| | | | File validation / Upload |
| | | | Validate UI Inputs (Regex) |

# Detailed Design (3/4)

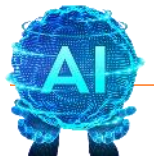
| Day | Module | Learning Outcomes | Topic Coverage |
|---|---|---|---|
| Day 5 | Back-End Code Generating using Copilot + SpringBoot (Case Study) | By the end of this Module you will be able to:<br>1. Develop Back-end for SPA with Spring Boot using Copilot<br>2. Generate a model from an existing database using Copilot<br>3. Create SQL queries using PetClinic Database<br>4. Write FCFS algorithm using Copilot<br>5. Implement OAuth authentication type using Copilot<br>6. Integrate Back-end Server with Frontend Application | Create Factory method pattern to get the Pet object in PetClinic application |
| | | | Create Builder pattern to build the Pet object in PetClinic application |
| | | | Create entire POJO class & CRUD Endpoints for pet treatment |
| | | | Generate a model from an existing database Table (by providing the field names and types as input). (@Entity, @Table) |
| | | | Pet owner email address validation with regex patterns |
| | | | Once a model is created, write repository interface by extending JpaRepository. |
| | | | Write complex JPA query methods on repository interface (more complex than findByFirstName(String name)) |
| | | | Microservices methods to be enclosed with Try..catch.. Exception blocks. |
| | | | Creating sql queries which will look for pet to owner mapping from different tables in PetClinic Database |
| | | | Write a FCFS algorithm for Pet Treatment based on available Veterinarians including critical cases. |
| | | | Creating Async & CompletableFuture methods in PetClinic application. |
| | | | Algorithms to encrypt the Sensitive data, credentials which will be used for most of the applications to clone the data and check-in the code |
| | | | Loop through the available Veterinarians and assign the pets using for loop |
| | | | Implement OAuth authentication type |
| | | | Integrate Back-end Server with Frontend Application |
| Day 6 | JGit library | By the end of this Module, you will be able to:<br>1. Use the JGit Library for version control of source code | JGit library for source code activities ( Clone, Pull, Push etc..) |
| | Migrating Code | By the end of this Module, you will be able to:<br>1. Migrate Spring Boot application to Quarkus | Convert Spring Boot annotations to Quarkus annotations |
| | | | Convert Spring Boot main method to Quarkus main method |

# Detailed Design (4/4)

| Day | Module | Learning Outcomes | Topic Coverage |
|---|---|---|---|
| Day 7 | Creating Terraform | By the end of this Module, you will be able to:<br>1. Write Terraform configurations using Copilot | To create compute data store and messaging |
| | | | Auto identify and update packages that needs to be imported. |
| | Cloud Programming and Deployment | By the end of this Module you will be able to:<br>1. Deploy the application to Cloud by configuring CI/CD<br>2. Write Lambda using Copilot | Containerize the Application |
| | | | Create Build & deploy Jenkins scripts for CI CD |
| | | | CI/CD Deployment to Cloud |
| | | | A/B experimentation |
| | | | AWS CW |
| | | | Lambda function to fetch cost for the treatment and notify the pet owner with details in an email. |
| | | | AWS SES to Send email from application |
| **Total Duration – 56 Hours** | | | |

# Gen AI – GitHub Copilot - Deep dive session for .Net Developers (Studio)



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# **Program Details -** GitHub Copilot - Deep dive session for .Net Developers (Studio)

Back »


| | |
|---|---|
| **Program Name** | GitHub Copilot - Deep dive session for .Net Developers (Studio) |
| **Duration** | 56 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

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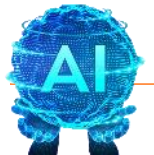
# Gen AI – Amazon CodeWhisperer - Deep dive session for Java Developers

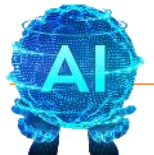




# **Program Details -** Amazon CodeWhisperer - Deep dive session for Java Developers

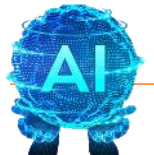
| | |
|---|---|
| **Program Name** | Amazon CodeWhisperer - Deep dive session for Java Developers |
| **Duration** | 56 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |





# Gen AI – Prompt Engineering - Deep dive session for Python Developers





# **Program Details -** Prompt Engineering - Deep dive session for Python Developers

| | |
|---|---|
| **Program Name** | Prompt Engineering - Deep dive session for Python Developers |
| **Duration** | 80 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |

# Detailed Design (1/2)

| Day | Module | Learning Outcomes | Topics |
|---|---|---|---|
| 1 | AI / Machine Learning + Hands-on | Apply a holistic understanding of AI and Machine Learning concepts, from foundational principles to advanced topics such as deep learning, while mastering practical skills in utilizing machine learning libraries, solving real-world problems, addressing issues of bias and fairness, deploying models in production, and effectively monitoring and scaling ML systems through hands-on projects and case studies | • Introduction to the course<br>• Introduction to Machine Learning<br>• Supervised Learning: regression,classification<br>• Unsupervised learning : Clustering<br>• Deep learning : neural network for text and vision usecase<br>• Analyze Machine Learning Libraries and Tools<br>• Practical problems : bias and fairness, deploying ML models in production, Monitoring and scaling ML systems<br>• Hands on – project/casestudy |
| 2 | Natural Language Processing (NLP) - 1 | Gain comprehensive knowledge and practical skills in NLP, covering fundamental concepts, preprocessing techniques, text representation methods, text classification, language models, sentiment analysis, opinion mining, as well as text classification and categorization strategies. | • Introduction to Natural Language Processing<br>• Preprocessing and Text Representation<br>• Text classification<br>• Understand Language Models<br>• Explore Sentiment Analysis and Opinion Mining<br>• UnderstandText Classification and Categorization |
| 3 | Natural Language Processing (NLP) -2 | Be proficient in analyzing NLP libraries and tools, possess a comprehensive understanding of neural networks and word embeddings, and be able to apply Named Entity Recognition (NER) techniques effectively through hands-on projects or case studies. | • Analyze NLP Libraries and Tools<br>• Neural Network Overview Word embedding<br>• Explore Named Entity Recognition (NER)<br>• hands on – project/casestudy |
| 4 | Large Language Models (LLMs) | Gain proficiency in Large Language Models (LLMs) by mastering their architecture, industry practices, vector stores, and the crucial embedding and ETL pipeline processes. | • Introduction to Large Language Models<br>• Architecture of LLM stack<br>• Industry practices , infrastructure and tools related to LLM stack<br>• Vector store and related infrastructure<br>• Embedding and ETL(Extraction,Transformation,Loading) pipeline |

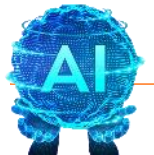
# Detailed Design (2/2)

Back »


| Day | Module | Learning Outcomes | Topics |
|---|---|---|---|
| 5-6 | Prompt Engineering - 1 | Be able to proficiently apply prompt engineering principles and techniques, specifically focusing on understanding the elements of a prompt and implementing prompt engineering strategies for Software Development Life Cycle (SDLC) processes. | • Introduction to Prompt Engineering<br>• Explore Elements of a prompt<br>• Explore different prompt engineering principles/techniques<br>• Prompt engineering for SDLC – part1 |
| 7-8 | Prompt Engineering - 2 | Master strategic prompt engineering for SDLC (Part 2), adeptly create prompts for vectorized data, and skilfully craft prompts tailored to specific use cases. | • Prompt engineering for SDLC – part2<br>• Prompt engineering for working with vectorized data<br>• Create Prompts for Specific Use Cases |
| 9 | Open AI | Demonstrate proficiency in utilizing OpenAI products and features, including understanding Python SDK basics, implementing OpenAI integrations for various use cases with and without embeddings, addressing practical challenges such as rate limiting and data security, and applying acquired knowledge through hands-on projects or case studies. | • Introduction to OpenAI Products and Features<br>• python sdk basics<br>• openai integration for usecases -without embeddings<br>• openai integration for usecases- with embeddings<br>• practical problems : rate limiting, data security<br>• hands on – project/casestudy |
| **Total Duration - 80 Hours** | | | |

# Gen AI – Prompt Engineering - Deep dive session for Java Developers

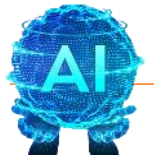




# **Program Details -** Prompt Engineering - Deep dive session for Java Developers

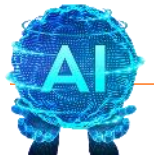
| | |
|---|---|
| **Program Name** | Prompt Engineering - Deep dive session for Java Developers |
| **Duration** | 80 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |





# Gen AI – Prompt Engineering - Deep dive session for .Net Developers

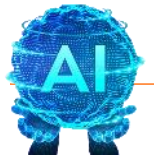




# **Program Details -** Prompt Engineering - Deep dive session for .Net Developers

| | |
|---|---|
| **Program Name** | Prompt Engineering - Deep dive session for Java Developers |
| **Duration** | 80 Hrs / 8 Hrs per day |
| **Target Audience** | Developers & Senior Developers |
| **Delivery Mode** | Instructor Led/VILT |





# Learner Category – Testers

# Detailed Design – Testers

| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Introduction to Generative AI | ➢ Overview of Generative AI - what it is, how it works, and its potential.<br>➢ Types of Generative Models - GANs, VAEs, Transformers, their strengths and weaknesses.<br>➢ Machine Learning & Deep Learning Basics - fundamentals relevant to generative models.<br>➢ Applications of Generative AI - beyond testing, examples in different industries. | • Define Generative AI and its key concepts.<br>• Understand the difference between generative and discriminative models.<br>• Identify various types of generative models (GANs, VAEs, Transformers).<br>• Explain the basic principles of machine learning and deep learning used in generative models. | 2 |
| 2 | Generative AI in Software Testing | ➢ Applications of Generative AI in Testing - test data generation, regression testing, API testing, etc.<br>➢ Test Scenario Generation - using text formats, code, or existing tests.<br>➢ Data Augmentation for Testing - creating diverse and realistic test data.<br>➢ Benefits & Challenges - improved coverage, speed, but potential biases and interpretability issues. | • Identify testing areas where generative AI can be applied.<br>• Explain how generative AI can improve test coverage and efficiency.<br>• Understand the different ways generative AI can be used for test data generation.<br>• Analyse the benefits and challenges of using generative AI in testing. | 6 |
| 3 | Using Generative AI Tools for Testing | ➢ Popular Generative AI Tools for Testing - Katalon Studio, TestRigor AI, DeepTest, BotFather.<br>➢ Hands-on Exercises - using tools for text-based and data-based test generation.<br>➢ Evaluating & Refining Generated Test Data - ensuring test case effectiveness and data quality.<br>➢ Integration with Existing Testing Frameworks - how Generative AI complements traditional testing tools. | • Choose appropriate generative AI tools and libraries for specific testing needs.<br>• Implement basic text-based test scenario generation with tools like GPT-3.<br>• Use tools for generating various types of test data (images, audio, API payloads).<br>• Evaluate the outputs of generative models and ensure their quality for testing. | 6 |
| 4 | Ethical Considerations and Future of Generative AI in Testing | ➢ Biases in Generative Models - understanding and mitigating potential biases in test data.<br>➢ Responsible AI Testing Practices - transparency, explainability, and fairness.<br>➢ Future of Generative AI in Testing - emerging trends and opportunities.<br>➢ Ethical Guidelines and Best Practices - ensuring responsible use of generative AI in testing processes. | • Understand the potential biases and risks associated with using generative AI in testing.<br>• Develop best practices for responsible and ethical use of generative AI tools.<br>• Stay informed about the latest advancements and trends in generative AI for testing. | 2 |
| **Total Duration - 16 Hours** | | | | |

# Learner Category – Architects

# Detailed Design – Architects

| Sl No | Module | Topics | Learning Outcome | Duration In Hours |
|---|---|---|---|---|
| 1 | Introduction to Generative AI | ➢ What is generative AI?<br>➢ Different types of generative models (e.g., GANs, VAEs, Transformers)<br>➢ Applications of generative AI in IT (e.g., code generation, data augmentation, network optimization)<br>➢ Ethical considerations of generative AI | • Gain a foundational understanding of generative AI concepts, including its different types, applications, and potential impact on IT architecture. | 2 |
| 2 | Generative AI for Infrastructure Automation | ➢ Using generative models to generate infrastructure configurations based on desired specifications<br>➢ Automating infrastructure deployment and management with AI-powered tools<br>➢ Benefits and challenges of using generative AI for infrastructure automation | • Learn how to use generative AI to automate infrastructure tasks, such as provisioning, configuration, and management. | 3 |
| 3 | Generative AI for Network Optimization | ➢ Using generative models to predict network traffic patterns and optimize resource allocation<br>➢ AI-driven anomaly detection and automated network security responses<br>➢ Benefits and challenges of using generative AI for network optimization | • Understand how generative AI can be used to optimize network performance, security, and resource allocation. | 3 |
| 4 | Generative AI for Application Development | ➢ Using generative models to automatically generate code based on specifications<br>➢ AI-powered test generation and bug detection<br>➢ Generative design for creating user interfaces and user experiences | • Explore how generative AI can be used to streamline application development, including code generation, testing, and user interface design. | 4 |
| 5 | Security Considerations of Generative AI | ➢ Potential vulnerabilities of generative models (e.g., adversarial attacks, data poisoning)<br>➢ Security best practices for deploying and using generative AI in IT systems<br>➢ Strategies for monitoring and mitigating generative AI security risks | • Understand the security risks associated with generative AI and learn how to mitigate them. | 4 |
| **Total Duration - 16 Hours** | | | | |

# Learner Category – Leaders

# Sample Program Flow

Foundation

Prompt Engineering

AI / Gen AI Use Cases

Applying AI for Business Value Creation

Leading in an AI driven World

+

*Identification of Uses case for implementation

**Duration – Customizable ( 4 / 8 / 16 ) Hours**

*Applicable only for 16 hour program

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# Program Delivered for :

# Indian Public Sector Oil and Gas Company

# Context

## Objective

Equip business leaders with the knowledge, skills, and strategic insight to effectively leverage Generative AI technologies for driving innovation and value creation within their organizations. By covering foundational AI concepts, prompt engineering, and practical use cases, leaders will gain a comprehensive understanding of how to apply AI in business contexts. The program will also focus on the role of leadership in AI adoption, enabling participants to lead their teams in an AI-driven world with confidence and foresight.

## Target Audience Profile

Business Leaders

## Mode of Training

F2F

## No of Participants

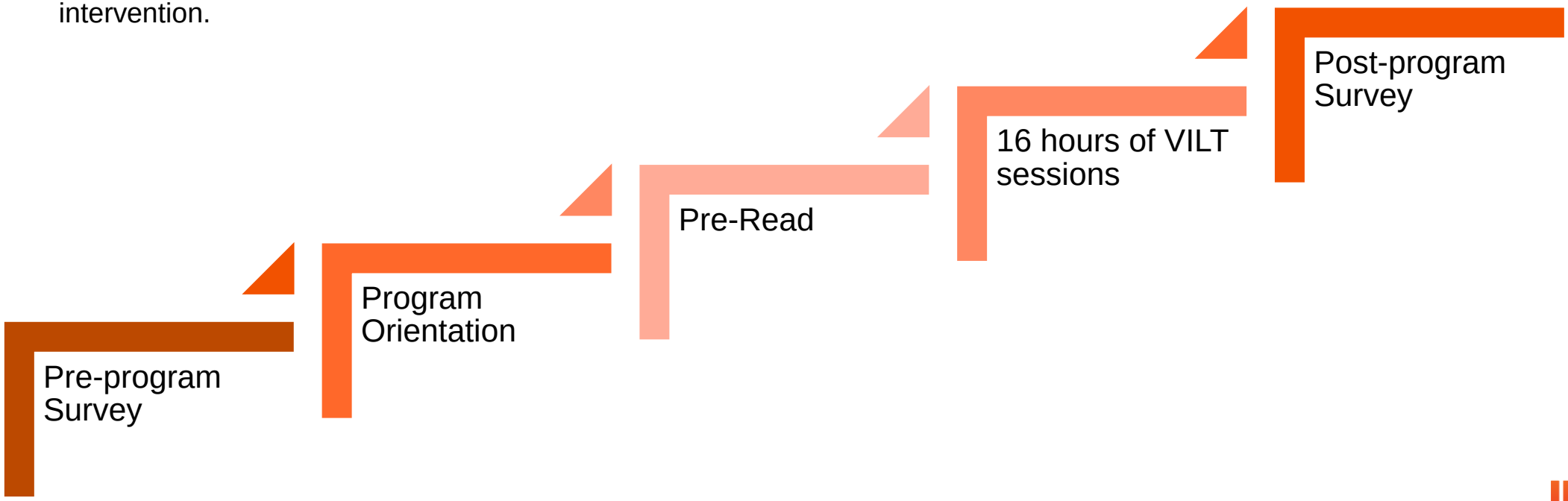
25 - 30

## Duration

16 Hours

# Program Flow

- **Pre-program Survey**
  - ✓ MCQ based Pre-program survey covering the program topics. This will help baseline participants knowledge
- **Program Orientation**
  - ✓ In this session we will introduce participants on course coverage, learning outcomes, and expectations from the participants themselves
- **Pre-Read**
  - ✓ Watch / Read /Do the videos/articles/tasks shared as a pre-requisite for the session
- **ILT Sessions**
  - ✓ 16 hours of VILT sessions
- **Post-program Survey**
  - ✓ MCQ based Post-program Survey will be rolled out to gauge the depth of knowledge participants have acquired through this intervention.



# Summary

Day 1

Day 2

- Foundation ( 2 Hours)
- Prompt Engineering (4 Hours)
- AI / Use Cases (2 Hours)
- Gen AI Use Cases (2 Hours)
- Applying AI for Business Value Creation (2 Hours)
- Leading in an AI driven World (2 Hours)

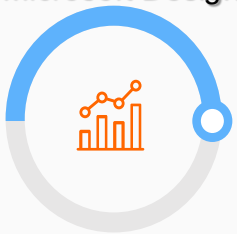
+

**Identification of Uses case for implementation( 2 Hours )**

**Total Duration – 16 Hours**

# Detailed Design (Day 1)

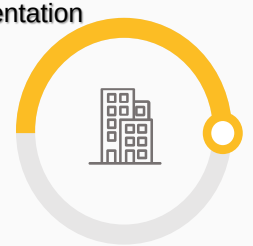
- Evolution of AI
  - Statistics, Machine Learning ,Artificial Intelligence, Deep Learning and Generative AI
- Overview of Deep Learning Architectures
- Overview of Popular Generative AI Tools
  - Chatbot : ChatGPT, Copilot
  - Presentation : Gamma, Tome
  - Image Generation: Microsoft Designer, Nightcafe etc
  - GenAI in Excel



Foundation
(2 Hours )

- Gain a foundational understanding of key concepts in Statistics, Machine Learning, including the principles of Deep Learning. Get an introduction to Artificial Intelligence, Deep Learning architectures and Generative AI tools.

- Characteristics of effective prompts
- Zero-shot, Single shot, Few shot, Chain-of-Thought (CoT) prompting
- LLM's
- Deep Learning AI
- Hands On – Prompting techniques and Design
  - Text to Text / Text to Image
  - Text Summarization
  - Generate Insight / Presentation



Prompt Engineering
(4 Hours)

- Be equipped with the skills to create prompts and elicit desired responses, foster Hands-on prompting skills using ChatGPT.

# Detailed Design (Day 1 & Day 2)

## Sample Use Cases

### Discussion (2 hours)

#### AI Use Cases

- Analyze machinery sensor data for predictive maintenance & reduced downtime.
- Analyse real time data of oil extraction rates for performance optimization of well operations.
- Identify corrosion in pipelines or rigs by analyzing environmental conditions and historical data.
- Leak detection in pipelines or storage tanks. reduces environmental harm and ensure regulatory compliance.
- Petrochemicals : Address variability in product quality and high rejection rates

Day 1

### Discussion (2 hours)

#### Gen AI Use Cases

- Virtual Assistants for guided troubleshooting for on-site technicians, reducing downtime.
- Analyze historical accident data, environmental factors, and real-time sensor data to generate risk assessments for proactive operational safety.
- Realtime incident summarization of plant operations for faster root-cause analysis and corrective actions.
- Auto report generation of rig operations for faster, accurate and data-driven reporting for site managers.
- Smart Meters : Identifying energy theft, malfunctions and service interruptions

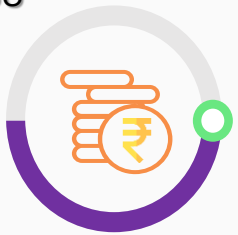
#### Functional Use Cases

- Sales | Automated Contract Drafting reducing legal review time and accelerating deal closure.
- Customer Service | sentiment analysis and prompt response for enhance customer experience / relationship.
- Finance and Administration | Automatic processing of key documents for quick generation of key insights and shorter reporting cycles.
- Supply Chain | Analyze & forecast demand to optimize inventory levels and streamline logistics.

Day 2

# Detailed Design (Day 2)

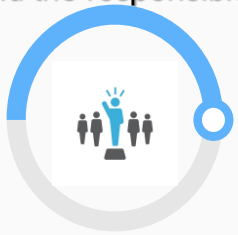
- Digital Business Transformation & Innovation with AI
- How Businesses across industries are leveraging AI
- Using AI for **strategy, planning, performance management, market research & decision making**
- Using AI for Data manipulation, analysis and content creation
- Evolving **Employee skills & work practices** to leverage AI at work
- **Multiple Case studies** –successful industry adoption and implementation of AI –in the respective BU



Applying AI for Business Value Creation
( 2 Hours )

- Be equipped to leverage AI for digital business transformation, including understanding AI trends in various industries, applying AI for strategic decision-making and productivity enhancement, and adapting employee skills for the AI-driven workplace.

- Visioning in a AI first/ AI driven world
- **Frameworks** for discovering & prioritising AI use cases, converting business problems to AI problems and assessing adoption readiness
- Building a AI-driven, AI-first culture- Change Management strategies
- Collaborative leadership- AI & Human-in-the-loop/ synergy
- Continuous learning, adaptability and skill development, AI skills as a differentiator
- Ethical challenges, biases, and the responsible use of Generative AI



Leading in an AI driven World
(2 Hours)

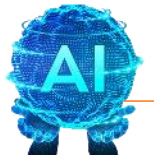
- Gain a comprehensive understanding of AGI, Sentient AI, and envisioning an AI-first world.
- Develop strategies for fostering an AI-driven culture, emphasizing collaborative leadership and continuous skill development to leverage AI as a competitive advantage.
- Understand the ethical challenges in implementing Generative AI

# Day 2: Template for use cases identification - by participants (2 Hours)

| Topic | Question | Business Impact | Tech Complexity | Resource readiness |
|---|---|---|---|---|
| Customer Service Improvement | How can Gen AI enhance the personalization of customer interactions to improve satisfaction levels in our retail outlets? | High | Medium | Medium |
| | How can we use Gen AI to predict customer service issues before they arise and proactively address them? | High | Medium | High |
| Process Improvement via Automation and/or Intelligence | How can Gen AI streamline our supply chain operations to reduce downtime and increase efficiency? | High | Medium | Medium |
| | How can we deploy Gen AI to automate routine maintenance tasks to minimize operational disruptions? | High | Medium | Low |
| Improvement in Analysis and Decision Making | How can Gen AI improve the accuracy of demand forecasting to better align production with market needs? | High | High | Low |
| | How can we leverage Gen AI to analyze operational data for identifying potential safety risks and mitigating them proactively? | High | High | Medium |
| Creating New Revenue Models | How can Gen AI help identify and capitalize on emerging market trends to create new revenue streams? | High | High | Low |
| | How can we use Gen AI to develop personalized product offerings that cater to niche customer segments? | Medium | Medium | Medium |

# AI / Gen AI Use Cases Across Domains





# AI / Gen AI Use Cases

## Finance & Accounting

- Claims Processing Automation
- Fraud Detection and Prevention
- Customer Service  Support
- Personalized Insurance Recommendations
- Predictive Analytics for Portfolio Management
- Financial Report Generation

## Business Operations

- Content Generation
- AI assistance for Customer Support
- Supply Chain Optimization
- Automated Reporting and Analytics

## Procurement

- Automated Contract Generation
- Market Intelligence and Supplier Analysis
- Demand Forecasting
- Risk Assessment and Mitigation
- Personalized Procurement Assistance

# AI / Gen AI Use Cases

## HR

- Recruitment and Talent Acquisition
- Employee Onboarding
- Workforce Planning
- HR Analytics
- Employee Well-being

## L&D

- Upskilling & Development
- Content Creation & Delivery
- Efficiency & Operations
- Engagement & Innovation

# Sample Use Cases | Insurance

## AI Use Cases

- **Anomaly Detection** | Detect suspicious patterns in claims to prevent fraud
- **NLP and CV** | Automate claims processing for faster settlements
- **Predictive Analytics** | Optimize pricing based on customer profiles and risk assessments
- **Geospatial AI** | Predict risks from natural disasters for better policy design
- **ML Risk Models** | Enhance underwriting decisions by profiling risks

## Gen AI Use Cases

- **Text Generation (LLMs)** | Create accurate and customized policy documents
- **Conversational AI** | Explain claim rejections or approvals in simple terms
- **Content Generation** | Generate creative marketing content to promote insurance products
- **Scenario Simulation** | Generate risk scenarios for better underwriting
- **Summarization Models** | Generate concise summaries of claim narratives

## Functional Use Cases

- **AI for Demand Forecasting** | Predict procurement needs for better inventory management
- **Gen AI for Personalized Content Generation** | Generate onboarding materials tailored to employee roles
- **AI for Financial Analysis** | Streamline financial reporting for improved accuracy
- **NLP for Contract Analysis** | Simplifies reviewing legal contracts and identifying risks
- **AI for Regulatory Adherence** | Ensure internal compliance with regulations

# Sample Use Cases | HR

## AI Use Cases

- **Employee Attrition Prediction**: Analyze employee engagement data, performance trends, and historical turnover to predict and reduce attrition rates.
- **Candidate Screening Automation:** Use AI-driven tools to filter resumes and rank candidates based on job requirements, reducing manual effort.
- **Employee Engagement Analysis:** Leverage sentiment analysis of surveys, emails, or chats to identify areas for improvement in workplace satisfaction.
- **Learning & Development:** Personalize training recommendations based on individual skill gaps, career goals, and performance metrics.

## Gen AI Use Cases

- **Virtual HR Assistants:** Provide employees with instant answers to HR-related questions, like leave policies or benefit details, reducing dependency on HR teams.
- **Job Description Generation:** Create tailored job descriptions or postings by analyzing existing data and benchmarks.
- **Performance Feedback Summarization:** Automatically generate detailed performance review summaries from manager inputs and employee data.
- **Interview Preparation for Managers:** Summarize candidate profiles and generate relevant interview questions based on job roles.

## Functional Use Cases

- **Sales |** Automated Contract Drafting reducing legal review time and accelerating deal closure.
- **Customer Service |** sentiment analysis and prompt response for enhance customer experience / relationship.
- **Finance and Administration |** Automatic processing of key documents for quick generation of key insights and shorter reporting cycles.
- **Supply Chain |** Analyze & forecast demand to optimize inventory levels and streamline logistics.

# Sample Use Cases Across Industries and Functions

### BFSI

- Personalized Portfolio recommendations
- Fraud Detection alerts
- Enhanced Loan and Credit scoring

### Telecom (Infrastructure)

- Asset Management & Monitoring
- Infrastructure Planning & Design

### Sales

- Automated Contract Drafting
- Lead Scoring and Prioritization

### Manufacturing (Food Processing)

- Recipe Optimization
- New flavor development
- Predict Consumer Preference

### Oil & Natural Gas

- Guided troubleshooting for on-site technicians
- Risk assessments for proactive operational safety.

### Finance and Administration

- Automatic processing of documents
- Expense and Budget Management Insights

### Insurance

- Dynamic policy generation
- Voice-based claims filing
- Claims review & summary

### IT BPM

- Sentiment Analysis
- Loyalty/Discount Program
- Virtual Assistance for feature search

### Supply Chain

- Analyze, forecast demand to optimize inventory
- Real-Time Order Tracking and alerts

# Example 1 | Enhancing Financial Operations with Systematic Reconciliation

## Challenge | Unreconciled Balance Sheets

### Lack of Defined Reconciliation System
- Open items unresolved for over a decade
- Over 1800 pending reconciliations

### Missing Documentation
- Inaccurate reconciliations
- Timelines not met due to documentation gaps

### Financial Risk Management
- No criteria to address balance gaps
- Financial risks not identified / communicated

### Review and Oversight Deficiencies
- Absence of reviewer for balance sheet account reconciliation

## Recommendation

### AI-Powered Reconciliation Platform
- Automate data extraction, matching, and reconciliation workflows

### AI Models for Discrepancy Identification
- Identify risks & prevent financial data fraud

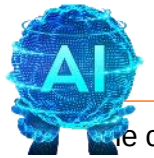
### AI for Cash Flow Forecasting
- Optimize resources with improved visibility

### AI-Based Data Analysis Tools
- DDDM with financial performance insights

### Continuous Process Improvement with AI
- Identify automation opportunities and efficiency gains

# Example 1 | Invoice Management – Benefits with Gen AI

- **Improved Ontime payment performance**
  - Analyze historical payment data
  - Predict potential delays for proactive measures
  - Enable intervention to prevent delays
- **Enhanced Vendor relationships:**
  - 24X7 support through AI virtual assistants
- **Reduce risk of fraud and errors**
  - Automated detection of suspicious invoices and flag potential fraud for review
  - Minimize human errors in invoice processing
- **Increased efficiency and cost savings**
  - Automate repetitive tasks and enable human resources to focus on higher-value activities

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# Example 2 | Gen AI for Service Offerings

- **Reimagining Customer Experience with Generative AI**
  - **Personalized Interactions**: Gen AI empowers chatbots and virtual assistants. Delivers real-time, personalized support across channels.
  - **Content Creation**: AI-Driven Marketing Materials, Product descriptions, Legal document generation
  - **Sentiment Analysis**: Analyze customer feedback effectively, Interpret Social media conversations, identify service area improvement

- **Automate and Streamline processes**:
  - **Document Automation:** Reduction in manual effort through automation
  - **Data entry and processing:** Streamline data entry processes

- **Enhance Decision-Making Capabilities** :
  - **Predictive Analytics:** Forecast customer behaviour and market trends, identify potential risks and enhance business outcomes
  - **Personalized recommendations:** Tailor product and service recommendations and enhance customer experience and satisfaction
  - **Risk Assessment:** Analyse data for potential risks and uncover vulnerabilities

# Example 2 | Gen AI for Service Offerings

- **Foster innovation and creativity with Generative AI**
  - **Creative content assistant**: Support for writers and designers, generating of marketing materials, scriptwriting for training videos
  - **Research & Development**: Generating hypothesis for new studies, analyzing complex data sets and identifying potential scientific breakthroughs

- **Implementation Considerations:**
  - Data Security and Privacy
  - Human-AI collaboration
  - Model training and finetuning for business alignment

# Example 3 | Transforming Underwriting Risk Management

**Challenge | Analyze Insurance risk efficiently**

- **Inefficient Data Management**: Manual data collection leads to errors and process delays
- **Inconsistent Risk Assessment**: Varying criteria and methodologies result in subjective underwriting decisions
- **High Operational Costs**: Manual processes increase labor costs and reduce productivity.
- **Lack of Integration**: Disparate systems hinder seamless information flow.
- **Customer Dissatisfaction**: Lengthy processing times lead to poor customer experiences and retention issues.

**Recommendation**

- **AI-Driven Risk Analysis:** ML algorithms assess risk factors and enhance decision-making accuracy.
- **Standardized Underwriting Guidelines:** Consistent criteria for risk assessment to ensure uniformity across teams.
- **Integrated Data Systems:** Develop a centralized data repository to streamline information access and management.
- **Automated Workflows:** Implement automation tools to reduce manual tasks, accelerate processing times, and improve operational efficiency.

# Example 4: How AI can speed up Hospital Discharges & tackle Fraud

Medi Assist (3rd party administrators for health insurance) is using AI to ensure patients face less financial anxiety while tackling the systemic issue of fraud (Streamlining claims processing & patient experience by speeding up patient discharges and detecting fraudulent claims).

## Use Case and Business Value

In Sept 2024, 7,000 patients across Fortis, HN Reliance Foundation, Sahyadri, others were discharged without the usual long wait for final bills. Discharges typically used to stretch for hours.

Uncertainty around bills at discharge can be as stressful as the treatment itself. The AI powered system lets patients settle their accounts quickly and avoid frustrating wait.

## Historical process before AI intervention

Manually processed 70% of hospital bills, down to the individual line items, categorizing everything from surgeries to non-medical supplies. This created the structured data necessary for AI models. Millions of insurance policy documents were standardized to allow for automated interpretation.

## Solution approach & details

- AI predicts each patient's out-of-pocket expenses with a margin of plus-minus 500 rupees, allowing for faster settlements and fewer delays.
- AI improved efficiency when handling > 8 million insurance claims annually across 15,000 hospitals.
- ML models analyzed over 160 parameters for each claim, have doubled insurers' savings by identifying fraudulent claims before making payments.
- The models continuously learn, spotting patterns often invisible to manual processes
- Data challenge- fragmented, inconsistent data, ranging from handwritten hospital notes to scanned bills and unstructured insurance documents. Digitizing data & reducing paper flow was a priority. (hospitals still rely on handwritten documents, even simple medications like Crocin 500 can be listed in varying ways depending on the hospital's system.)
- Data challenge- No standard formats. In the beginning, manually digitized millions of documents-hospital bills, insurance policies-with no immediate return on that investment.
- Every detail, every line item, had to be organized for AI to learn from it. AI models were trained on millions of records-claims, member interactions, hospital data. Goals: 1. automate tasks 2. get insights on data 3. making the AI smarter and more accurate over time. Data needed to be structured so that AI could continuously learn and improve."

# Example 5 | Gen AI in Health Care

- Non-Clinical Care Managers in US Hospitals
  - Assist patients in their journey – ER, Tests, IP/OP, home
  - For example - Care managers ensure that Medicare patients are getting the right treatment and not overloading ER which isn't good for patients or the hospitals
  - Value Based Care is important in some states – so Care Managers have to work with patients to capture their overall health journey
- Care Managers typically can manage 100 patients a month
- Gen AI Based care managers can manage 10X of that easily – these are voice based and not chat
- These Gen AI care managers are monitored by other Gen AI agents or human supervisors and a call gets diverted to a human when required
- Key Takeaways to identify the Gen AI Use Case
  - Non-regulated
  - There is a need for scale
  - Pain points in the industry – patient dissatisfaction

# Gen AI Insights for ROI

# Gen AI Insights

. At which organizational level will job roles be most impacted by generative AI in 2025?

## The AI revolution has reached an inflection point.

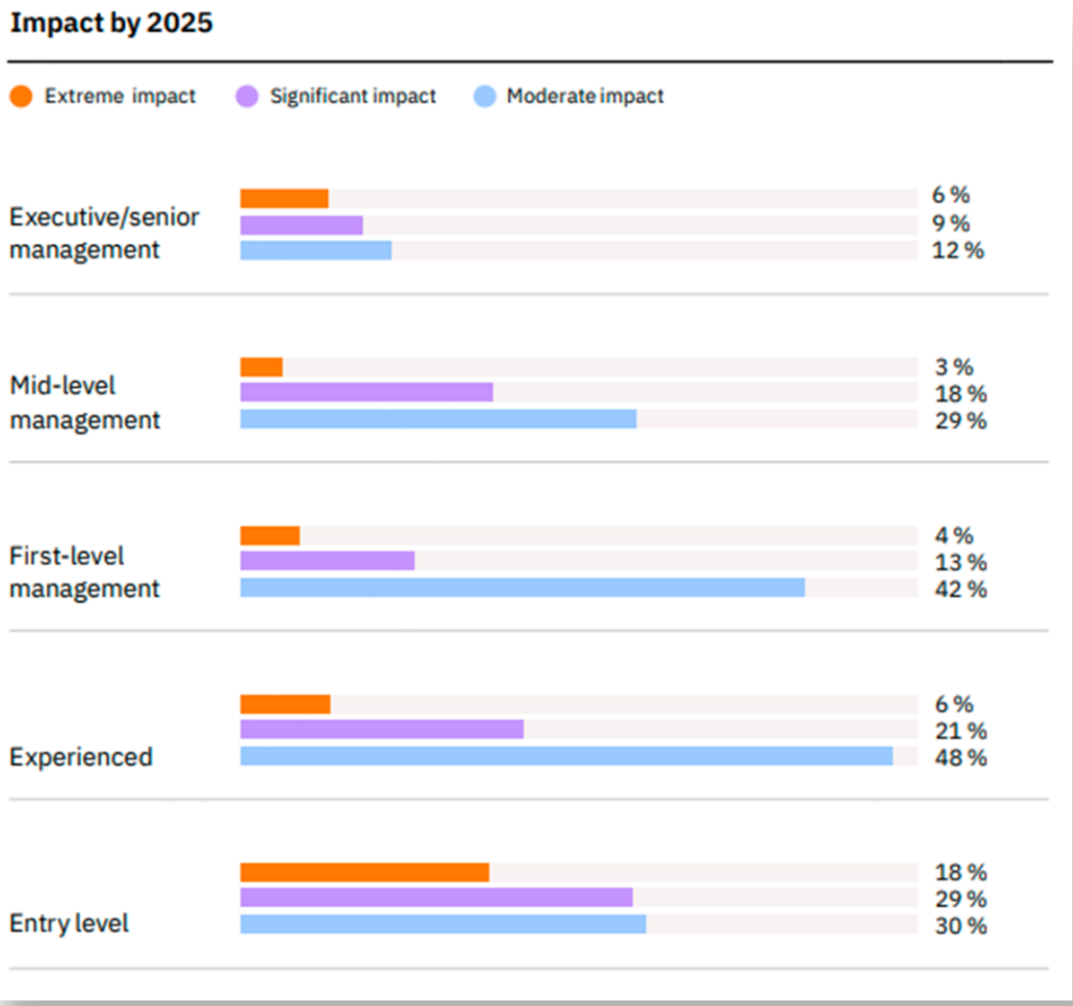
Executives estimate that 40% of their workforce will need to reskill as a result of implementing AI and automation over the next three years.

## Structuring work strategically is the secret to success.

Organizations focused on evolving their operating model are already outperforming on revenue growth.

## Employees are motivated by meaningful work.

Employees prioritize impactful work over autonomy, equity, flexible work arrangements, and growth opportunities.




**Source :** Augmented work for an automated, AI-driven world (ibm.com)

# Gen AI Insights

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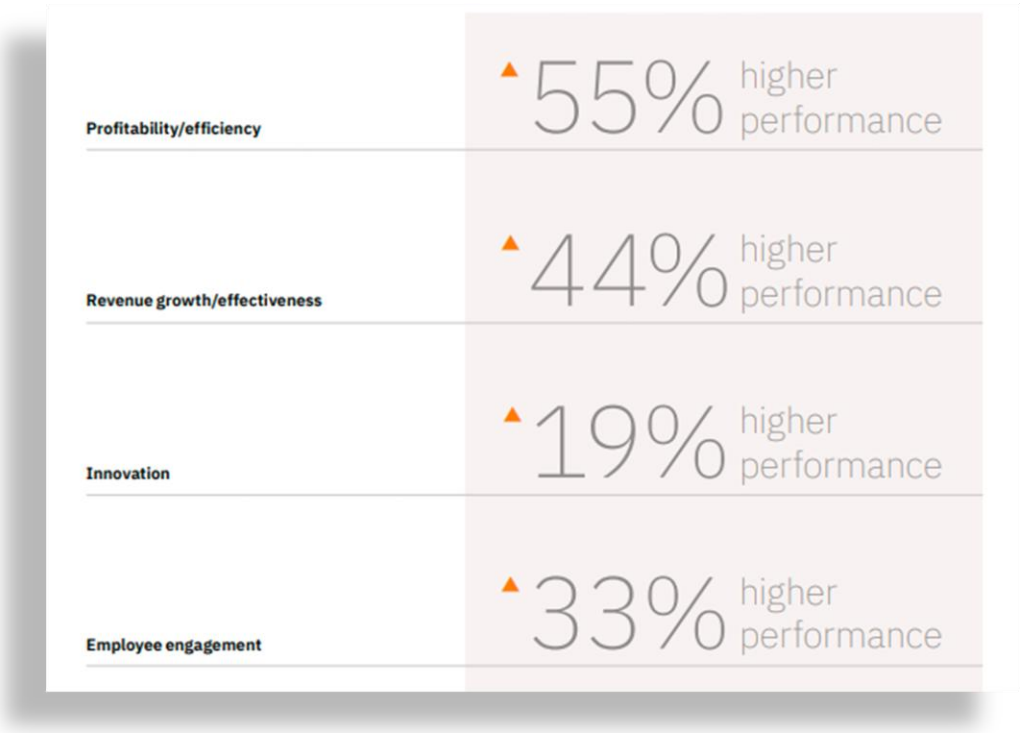
How does your organization's performance compare to that of your competitors over the last three years?

**Organizations that prioritize their operating model as an enabler of transformation outperform their skills-centric peers in multiple dimensions.**




**Source :** Augmented work for an automated, AI-driven world (ibm.com)

With a goal of skilling approximately **400 million** workers, the scale of India's aspiration is expansive. And this ambition reflects not only its domestic objectives but also a commitment to global development

**Generative AI** can facilitate the scaling of high-quality skilling through personalised coaching, on-the-job training through simulations and customised role-playing, and rapid production of tailored content.

While there are, undoubtedly, pros and cons to harnessing generative AI in pedagogy, focusing on the positives, and utilising the technology's inherent strengths, could be transformative for skilling in India.

**Source :** Leapfrogging India's skilling agenda with generative AI - Hindustan Times


Thank You