

AI-900: Microsoft Azure AI Fundamentals

Course Overview

- Introduction to AI concepts and Azure AI services
- Overview of machine learning and deep learning
- Understanding Azure AI capabilities (Cognitive Services, Bots, and more)
- Responsible AI principles and applications
- Hands-on exercises and real-world AI implementation

Introduction to AI

- Definition and Evolution of AI
- AI in everyday life (virtual assistants, recommendation systems, autonomous cars)
- Difference between AI, Machine Learning (ML), and Deep Learning (DL)
- Real-world AI case studies
- Example: How Netflix uses AI for personalized recommendations
- Example: AI-powered fraud detection in banking

Machine Learning Basics

- What is Machine Learning?
- Types of Machine Learning:
 - Supervised Learning: Spam detection, sentiment analysis
 - Unsupervised Learning: Customer segmentation, anomaly detection
 - Reinforcement Learning: Self-driving cars, AlphaGo
- Key ML concepts: features, training, testing, and evaluation

Introduction to Azure AI

- Overview of Azure AI services
- Azure AI platform and ecosystem
- Key services: Cognitive Services, Azure Machine Learning, and Bot Service
- Industry use cases: healthcare, finance, retail

Azure Cognitive Services

- Vision Services: Image recognition, object detection, OCR
- Speech Services: Speech-to-text, text-to-speech, speech translation
- Language Services: Text analytics, sentiment analysis, translation
- Decision Services: Personalizer, anomaly detection

Azure Machine Learning

- Introduction to Azure ML
- Key components: Designer, Automated ML, Notebooks
- Model training, deployment, and monitoring
- Integration with Python, TensorFlow, and PyTorch
- Hands-on: Creating a simple ML model using Azure ML Studio

Azure Bot Services

- What is a chatbot?
- Microsoft Bot Framework
- Conversational AI and natural language processing (NLP)
- Hands-on: Building and deploying a chatbot in Azure
- Example: AI-powered customer support chatbot for e-commerce

Responsible AI

- Importance of ethical AI
- Fairness, reliability, privacy, security, inclusiveness
- AI governance and compliance in Azure
- Microsoft's responsible AI initiatives
- Example: AI bias in hiring and how to mitigate it

AI-900 Certification Details

- AI-900 exam overview
- Exam structure: multiple-choice questions
- Topics covered: AI workloads, ML principles, Azure AI services
- Exam preparation tips and resources

Hands-on Labs & Demo

- Lab 1: Using Azure AI Studio to create a text analytics solution
- Lab 2: Deploying a simple AI model with Azure Machine Learning
- Lab 3: Implementing a chatbot using Azure Bot Services
- Lab 4: Responsible AI case study and bias detection

AI in the Real World

- AI applications in different industries:
 - Healthcare: AI for diagnostics, patient monitoring
 - Finance: AI-driven risk assessment, fraud detection

- - Retail: AI-powered recommendation engines, inventory forecasting
- - Manufacturing: AI-driven predictive maintenance
- Example: How Tesla uses AI for self-driving technology

Future of AI & Career Opportunities

- AI trends and advancements
- Career paths in AI and machine learning
- Certifications and learning paths beyond AI-900
- How to start an AI career with Azure

Q&A & Next Steps

- Open floor for questions
- Suggested learning paths and advanced certifications
- Further reading and practice resources
- Next steps: Join Azure AI community, hands-on projects