A comprehensive study guide that will provide you with great preparation tools for the AI-102: Designing and Implementing a Microsoft Azure AI Solution exam

AI-102 Official Course Study Guide

Introduction

Welcome to the AI-102 Study Guide. This guide will go over each topic of the skills outline, provided by Microsoft for the AI-102: Designing and Implementing a Microsoft Azure AI Solution.

Microsoft Azure AI engineers build, manage, and deploy AI solutions that make the most of Azure Cognitive Services and Azure services. Their responsibilities include participating in all phases of AI solutions development—from requirements definition and design to development, deployment, integration, maintenance, performance tuning, and monitoring.

These professionals work with solution architects to translate their vision and with data scientists, data engineers, IoT specialists, infrastructure administrators, and other software developers to build complete end-to-end AI solutions.

Azure AI engineers have experience developing solutions that use languages such as Python or C# and should be able to use REST-based APIs and software development kits (SDKs) to build secure image processing, video processing, natural language processing (NLP), knowledge mining, and conversational AI solutions on Azure. They should be familiar with all methods of implementing AI solutions. Plus, they understand the components that make up the Azure AI portfolio and the available data storage options. Azure AI engineers also need to understand and be able to apply responsible AI principles.

About the exam

Pricing

Taking the exam will cost you $165 US dollars (price based on the country or region in which the exam is proctored).

Scoring

All technical exam scores are reported on a scale of 1 to 1,000. A passing score is 700 or greater. As this is a scaled score, it may not equal 70% of the points. A passing score is based on the knowledge and skills needed to demonstrate competence as well as the difficulty of the questions.

When answering most multi-part questions, you'll receive one point for each correctly answered component. You can earn all, some, or none of the points possible for that question. If a question is worth more than one point, it will be noted in the question. Usually, you'll receive one point for each correctly answered component.

There's no penalty for guessing. If you choose an incorrect answer, you simply won't earn the point for that question or part. No points are deducted for incorrect answers.

Some questions on the exam may not be included in your score. These questions are used to gather data to update and improve the quality of each exam. However, as soon as we have the necessary data to evaluate their quality, questions that meet our psychometric standards will be scored. You won't know which questions are unscored, so you should answer every question as if it will be included in your score.
Microsoft continues to introduce new and innovative question types that may require different approaches to scoring. Alternate approaches to scoring will be noted in the question text.

Renewing

The AI-102 exam will need to be renewed every year. Microsoft will from time to time retire certifications, however, and you may also find exam numbers evolve (this is what happened with the

previous exam AI-100) when Microsoft changes the curriculum substantially for the certification. You can take the renewal assessment any time during your six-month eligibility window, via Microsoft Learn. Once you pass, your certification will be extended one year from the expiration date.

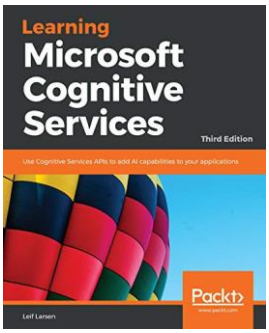
There's no cost to renew your certification, just make sure you pass the online assessment before your certification expires. Fundamentals certifications do not expire.

Assessments focus on recent technological and industry updates, so they're shorter than the original exam(s) and are open book. You can take the assessment as many times as you need as long as you pass before your certification expires.

Additional info

- The exam will have around 40-60 questions for which you have 130 min to answer.
- As of this moment of writing, there're no labs.

Book/e-book:

	**Learning Microsoft Cognitive Services** Use Cognitive Services APIs to add AI capabilities to your applications Amazon.com: Learning Microsoft Cognitive Services: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition: Larsen, Leif: 9781789800616: Amazon.com: Books Amazon.nl: Learning Microsoft Cognitive Services - Third Edition: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition : Larsen, Leif Henning: Amazon.nl: Boeken Amazon.de: Learning Microsoft Cognitive Services: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition (English Edition) : Larsen, Leif: Amazon.de: Books Amazon.co.uk: Learning Microsoft Cognitive Services: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition: Amazon.co.uk: Larsen, Leif: 9781789800616: Books Amazon.fr: Learning Microsoft Cognitive Services: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition (English Edition) eBook: Larsen, Leif: Amazon.fr: Kindle Store Amazon.ca: Learning Microsoft Cognitive Services: Use Cognitive Services APIs to add AI capabilities to your applications, 3rd Edition: Larsen, Leif: 9781789800616: Books - Amazon.ca

Video training:

Udemy	This course goes through all of the skills needed to take and pass the AI-102 exam: Designing and Implementing a Microsoft Azure AI Solution. This course teaches all of the requirements for the exam, one by one. Each of the things that Microsoft tests will be covered in this course. AI-102 Microsoft Azure AI Solution Complete Exam Prep | Udemy
PLURALSIGHT	This path is designed for Microsoft Azure AI Engineer Associate certification preparation. It focuses on the skills needed to build computer vision, natural language processing, knowledge mining, and conversational AI solutions on Azure. Microsoft Exam AI-102: Designing and Implementing a Microsoft Azure AI Solution Path | Pluralsight
	Linkedin's Microsoft Azure Exam AI-102 Online Course helps Professionals to prepare themselves for the actual certification exam. Learning Microsoft Cognitive Services for Developers (linkedin.com)

Microsoft Learn:

Those tutorials/paths have been combined by Microsoft and published for free. They contain a collection of text, videos, and exercises for the exam.

	**Prepare for AI engineering** AI Engineers design and develop intelligent solutions that encapsulate artificial intelligence (AI) capabilities. As an aspiring Azure AI Engineer, it's important to understand some of the key foundational concepts on which AI is based, and the various services in Microsoft Azure that you can use to build AI solutions. Prepare for AI engineering - Training | Microsoft Learn

	**Provision and manage Azure Cognitive Services** Azure Cognitive Services are building blocks of AI functionality that you can integrate into your applications. In this learning path, you'll learn how to provision, secure, monitor, and deploy cognitive services resources and use them to build intelligent solutions. Provision and manage Azure Cognitive Services - Training | Microsoft Learn
	**Process and translate text with Azure Cognitive Services** A large volume of the data that applications need to process is in text format. Using Azure Cognitive Services, you can create apps that extract semantic meaning from text and translate it between languages. Process and translate text with Azure Cognitive Services - Training | Microsoft Learn
	**Process and Translate Speech with Azure Cognitive Speech Services** Learn how to develop speech-enabled applications by using the Speech service. Process and Translate Speech with Azure Cognitive Speech Services - Training | Microsoft Learn
	**Create a Language Understanding solution with Azure Cognitive Services** Natural language processing (NLP) solutions use language models to interpret the semantic meaning of written or spoken language. You can use the Language Understanding service to build language models for your applications. Create a Language Understanding solution with Azure Cognitive Services - Training | Microsoft Learn
	**Build a question answering solution** A common pattern for intelligent apps is to enable users to ask questions using natural language and receive appropriate answers. This kind of solution brings conversational intelligence to a traditional frequently asked questions (FAQ) publication. Build a question answering solution - Training | Microsoft Learn

	**Build custom text analytics solutions** Build solutions with newer text analytics services such as custom text classification and custom name entity recognition. These services allow for customizing the built-in features available in the Language service for exactly what your application needs. Build custom text analytics solutions - Training | Microsoft Learn
	**Create conversational AI solutions** Conversational AI solutions are based on interactions between human users and AI agents called bots. In this learning path, you'll learn how to build bots that can be delivered on Microsoft Azure. Create conversational AI solutions - Training | Microsoft Learn
	**Create computer vision solutions with Azure Cognitive Services** Computer vision is an area of artificial intelligence that deals with visual perception. Azure Cognitive Services include multiple services that support common computer vision scenarios. Create computer vision solutions with Azure Cognitive Services - Training | Microsoft Learn
	**Extract text from images and documents** Learn how to implement text extraction solutions with images and documents using form recognizer service's OCR Test Tool, pre-built models, and custom models. Extract text from images and documents - Training | Microsoft Learn
	**Implement knowledge mining with Azure Cognitive Search** Do you have information locked up in structured and unstructured data sources? Using Azure Cognitive Search, you can extract key insights from this data, and enable applications to search and analyze them. Implement knowledge mining with Azure Cognitive Search - Training | Microsoft Learn

	**Develop Generative AI solutions with Azure OpenAI Service** Azure OpenAI Service provides access to OpenAI's powerful large language models such as ChatGPT, GPT, Codex, and Embeddings models. These models enable various natural language processing (NLP) solutions to understand, converse, and generate content. Users can access the service through REST APIs, SDKs, and Azure OpenAI Studio. Develop Generative AI solutions with Azure OpenAI Service - Training | Microsoft Learn

Practice exams

Those are practice exams and not dumps. I do not encourage dumps as they ruin the certification value for everyone.

	**Whizlabs – Microsoft Azure Exam AI-102 Practice Tests** The AI-102 Azure AI Engineer Associate certification is to measures your ability to accomplish the following technical tasks: plan and manage an Azure Cognitive Services solutions; implement Computer Vision solutions; implement natural language processing solutions; implement knowledge mining solutions; and implement conversational AI solutions. What's inside: • 3 Practice tests (110 unique questions) • Exhaustive Explanation with every question • Reports to assess strengths and weaknesses Microsoft Azure Exam AI-102 Certification - Whizlabs

This guide is divided up into the following sections and is also part of the exam:

- Plan and manage an Azure AI solution (25–30%)
- Implement image and video processing solutions (15–20%)
- Implement natural language processing solutions (25–30%)
- Implement knowledge mining solutions (5–10%)
- Implement conversational AI solutions (15–20%)

Feel free to join our Facebook Azure Study Group, or check out the other Azure courses on Udemy. Errors and suggestions can also be reported in the Azure Group on Facebook.

Thank you,

Get Cloud Skills team
Jordi Koenderink

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Plan and Manage an Azure AI Solution (25-30%)

Select the appropriate Azure AI service

Select the appropriate service for a vision solution

- Choosing a cognitive services technology - Azure Architecture Center | Microsoft Docs
- What are Azure Cognitive Services? - Azure Cognitive Services | Microsoft Docs
    - What is Computer Vision? - Azure Cognitive Services | Microsoft Docs
    - What is Custom Vision? - Azure Cognitive Services | Microsoft Docs
    - What is the Azure Face service? - Azure Cognitive Services | Microsoft Docs
    - What is Form Recognizer? - Azure Cognitive Services | Microsoft Docs
    - What is Azure Video Indexer? - Azure Video Indexer | Microsoft Learn

Select the appropriate service for a language analysis solution

- What are Azure Cognitive Services? - Azure Cognitive Services | Microsoft Docs
    - Language Understanding (LUIS) Overview - Azure Cognitive Services | Microsoft Docs
    - What is QnA Maker service? - Azure Cognitive Services | Microsoft Docs
    - Text mining and analysis with the Text Analytics API - Azure Cognitive Services | Microsoft Docs
    - Microsoft Translator service - Azure Cognitive Services | Microsoft Docs
    - What is the Immersive Reader? - Azure Cognitive Services | Microsoft Docs

Select the appropriate Service for a decision support solution

- What are Azure Cognitive Services? - Azure Cognitive Services | Microsoft Docs
    - What is the Anomaly Detector API? - Azure Cognitive Services | Microsoft Docs
    - What is Azure Content Moderator? - Azure Cognitive Services | Microsoft Docs
    - What is the Metrics Advisor service? - Azure Cognitive Services | Microsoft Docs
    - What is Personalizer? - Azure Cognitive Services | Microsoft Docs

Select the appropriate service for a speech solution

- What are Azure Cognitive Services? - Azure Cognitive Services | Microsoft Docs
    - What is the Speech service? - Azure Cognitive Services | Microsoft Docs
        - Speech-to-text overview - Speech service - Azure Cognitive Services | Microsoft Docs
        - Text-to-speech overview - Speech service - Azure Cognitive Services | Microsoft Docs
        - Speech translation overview - Speech service - Azure Cognitive Services | Microsoft Docs
        - Intent recognition quickstart - Speech service - Azure Cognitive Services | Microsoft Docs
        - Speaker Recognition overview - Speech service - Azure Cognitive Services | Microsoft Docs

Select the appropriate Applied AI services

- Azure Applied AI Services | Microsoft Azure
- What are Azure Applied AI Services? - Azure Applied AI Services | Microsoft Learn
- Why Azure Applied AI Services? - Azure Applied AI Services | Microsoft Learn

Plan and configure security for Azure AI services

Manage account keys

- Create a Cognitive Services resource in the Azure portal - Azure Cognitive Services | Microsoft Docs
- az cognitiveservices account keys | Microsoft Docs
- What's New? A Single Key for Cognitive Services | AI Show | Channel 9 (msdn.com)

Manage authentication for a resource

- Authentication - Azure Cognitive Services | Microsoft Docs

Secure Cognitive Services by using Azure Virtual Network

- Virtual Networks - Azure Cognitive Services | Microsoft Docs

Plan for a solution that meets responsible AI principles

- Responsible AI principles from Microsoft
- Build powerful and responsible AI solutions with Azure | Azure Blog and Updates | Microsoft Azure

Create and manage an Azure AI service

Create an Azure AI resource

- Create a Cognitive Services resource in the Azure portal - Azure Cognitive Services | Microsoft Docs
- Create a Cognitive Services resource using the Azure CLI - Azure Cognitive Services | Microsoft Docs

Configure diagnostic logging

- Diagnostic logging - Azure Cognitive Services | Microsoft Docs

Manage costs for Azure AI services

- Plan to manage costs for Azure Cognitive Services - Azure Cognitive Services | Microsoft Docs

Monitor an Azure AI resource

- Monitor operations and activity - Azure Cognitive Search | Microsoft Docs

Deploy Azure AI services

Determine a default endpoint for a service

- Configure Virtual Networks for Azure Cognitive Services - Azure Cognitive Services | Microsoft Learn
- Develop Azure Cognitive Services applications with Key Vault - Azure Cognitive Services | Microsoft Learn
- Introducing Azure OpenAI Service On Your Data in Public Preview - Microsoft Community Hub

Create a resource by using the Azure portal

- Create a Cognitive Services resource in the Azure portal - Azure Cognitive Services | Microsoft Learn
- How-to - Create a resource and deploy a model using Azure OpenAI Service - Azure OpenAI | Microsoft Learn
- Create workspace resources - Azure Machine Learning | Microsoft Learn

Integrate Azure AI services into a continuous integration/continuous deployment (CI/CD) pipeline

- Azure Cognitive Services development options - Azure Cognitive Services | Microsoft Learn

Plan a container deployment

- Use Azure Cognitive Services Containers on-premises - Azure Cognitive Services | Microsoft Docs
- Cognitive Services containers frequently asked questions (FAQ) - Azure Cognitive Services | Microsoft Docs

Implement prebuilt containers in a connected environment

- Q: How do I use connected containerized Azure Cognitive Services? - Microsoft Community Hub

Create solutions to detect anomalies and improve content

Create a solution that uses Anomaly Detector, part of Cognitive Services

- What is Anomaly Detector? - Azure Cognitive Services | Microsoft Learn

Create a solution that uses Azure Content Moderator, part of Cognitive Services

- What is Anomaly Detector? - Azure Cognitive Services | Microsoft Learn

Create a solution that uses Personalizer, part of Cognitive Services

- What is Anomaly Detector? - Azure Cognitive Services | Microsoft Learn

Create a solution that uses Azure Metrics Advisor, part of Azure Applied AI Services

- What is the Azure Metrics Advisor service? - Azure Applied AI Services | Microsoft Learn

Create a solution that uses Azure Immersive Reader, part of Azure Applied AI Services

- What is Azure Immersive Reader? - Azure Applied AI Services | Microsoft Learn

Implement image and video processing solutions (15–20%)

Analyze images

Select appropriate visual features to meet image processing requirements

- What is Computer Vision? - Azure Cognitive Services | Microsoft Learn

Create an image processing request to include appropriate image analysis features

- Quickstart: Image Analysis - Azure Cognitive Services | Microsoft Learn

Interpret image processing responses

- Call the Image Analysis API - Azure Cognitive Services | Microsoft Learn

Extract text from images

Extract text from images or PDFs by using the Computer Vision service

- Cognitive Services APIs Reference (microsoft.com)
- What is Optical character recognition? - Azure Cognitive Services | Microsoft Docs

Convert handwritten text by using the Computer Vision service

- OCR - Optical Character Recognition - Azure Cognitive Services | Microsoft Learn
- cognitive-services-quickstart-code/python/ComputerVision/REST/python-hand-text.md at master · Azure-Samples/cognitive-services-quickstart-code · GitHub
- Azure Computer Vision API - OCR to Text on PDF files - Stack Overflow

Extract information using pre-built models in Azure Form Recognizer

- Receipts - Form Recognizer - Azure Cognitive Services | Microsoft Docs

Build and optimize a custom model for Azure Form Recognizer

- How to build a training data set for a custom model - Form Recognizer - Azure Cognitive Services | Microsoft Docs
- Quickstart: Form Recognizer client library or REST API - Azure Cognitive Services | Microsoft Docs
- Quickstart: Form Recognizer client library or REST API - Azure Cognitive Services | Microsoft Docs

Implement image classification and object detection by using the Custom Vision service, part of Azure Cognitive Services

Choose between image classification and object detection models

- Object Detection vs Image Classification: Simple Comparision - KiKaBeN
- Images Classification and Object Detection Metrics (analyticsvidhya.com)

Specify model configuration options, including category, version, and compact

- How to specify a detection model - Face - Azure Cognitive Services | Microsoft Learn
- Export your model to mobile - Custom Vision Service - Azure Cognitive Services | Microsoft Learn

Label images

- Label images faster with Smart Labeler - Azure Cognitive Services | Microsoft Docs

Train custom image models, including classifiers and detectors

- Quickstart: Build a classifier with the Custom Vision website - Azure Cognitive Services | Microsoft Docs
- Quickstart: Build an object detector with the Custom Vision website - Azure Cognitive Services | Microsoft Learn
- Quickstart: Image classification with Custom Vision client library or REST API - Azure Cognitive Services | Microsoft Docs

Manage training iterations

- Quickstart: Build a classifier with the Custom Vision website - Azure Cognitive Services | Microsoft Docs

- Use prediction endpoint to programmatically test images with classifier - Custom Vision - Azure Cognitive Services | Microsoft Docs

Evaluate model metrics

- Quickstart: Build a classifier with the Custom Vision website - Azure Cognitive Services | Microsoft Docs

Publish a trained iteration of a model

- Use prediction endpoint to programmatically test images with classifier - Custom Vision - Azure Cognitive Services | Microsoft Docs

Export a model to run on a specific target

- Export your model to mobile - Custom Vision Service - Azure Cognitive Services | Microsoft Docs

Implement a Custom Vision model as a Docker container

- Tutorial - Deploy Custom Vision classifier to a device using Azure IoT Edge | Microsoft Docs
- #CustomVision – Running a Custom Vision project in a local #Docker Container – El Bruno

Interpret model responses

- Use Python to interpret & explain models (preview) - Azure Machine Learning | Microsoft Learn
- Model understanding with Azure Machine Learning (microsoft.com)

Analyze video by using Azure Video Analyzer for Media (formerly Video Indexer)

Process a video by using Azure Video Indexer

- Sign up for Azure Video Indexer and upload your first video - Azure - Azure Video Indexer | Microsoft Learn
- Upload and index videos with Azure Video Indexer using the Video Indexer website - Azure Video Indexer | Microsoft Learn

Extract insights from a video or live stream by using Azure Video Indexer

- Azure Video Indexer insights overview - Azure Video Indexer | Microsoft Learn
- Video Indexer - Unlock Insights from your video | AI Show | Channel 9 (msdn.com)
- Live stream analysis using Video Indexer - Azure Media Services | Microsoft Docs

Implement content moderation by using Azure Video Indexer

- azure-docs/articles/azure-video-indexer/video-indexer-overview.md at main · MicrosoftDocs/azure-docs · GitHub
- Video Moderation with Content Moderator | AI Show | Channel 9 (msdn.com)
- Customizing content models in Azure Video Indexer - Azure Video Indexer | Microsoft Learn

Integrate a custom language model into Azure Video Indexer

- Customize a Language model with Azure Video Indexer API - Azure Video Indexer | Microsoft Learn
- azure-docs/articles/azure-video-indexer/customize-language-model-with-website.md at main · MicrosoftDocs/azure-docs · GitHub

Implement Natural Language Processing Solutions (20-30%)

Analyze text

Retrieve and process key phrases

- Key phrase extraction using the Text Analytics REST API - Azure Cognitive Services | Microsoft Docs

Retrieve and process entities

- Supported Categories for Named Entity Recognition - Azure Cognitive Services | Microsoft Docs
- Use entity recognition with the Text Analytics API - Azure Cognitive Services | Microsoft Docs

Retrieve and process sentiment

- Use Azure Databricks for sentiment analysis | Microsoft Docs

Detect the language used in text

- Detect language with the Text Analytics REST API - Azure Cognitive Services | Microsoft Docs

Detect personally identifiable information (PII)

- What is the Personally Identifying Information (PII) detection feature in Azure Cognitive Service for Language? - Azure Cognitive Services | Microsoft Learn
- How to detect Personally Identifiable Information (PII) - Azure Cognitive Services | Microsoft Learn
- PII Detection cognitive skill - Azure Cognitive Search | Microsoft Learn

Process speech

Implement and customize text-to-speech

- Text-to-speech overview - Speech service - Azure Cognitive Services | Microsoft Docs
- Text-to-speech quickstart - Speech service - Azure Cognitive Services | Microsoft Docs
- Implement custom speech-to-text solutions that use AI - Azure Architecture Center | Microsoft Learn

Implement and customize speech-to-text

- Custom Speech overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Deploy a custom speech-to-text solution that uses AI - Azure Architecture Center | Microsoft Learn
- Implement custom speech-to-text solutions that use AI - Azure Architecture Center | Microsoft Learn

Improve text-to-speech by using SSML and Custom Neural Voice

- Custom Neural Voice overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Speech Synthesis Markup Language (SSML) overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Voice and sound with Speech Synthesis Markup Language (SSML) - Speech service - Azure Cognitive Services | Microsoft Learn

Improve speech-to-text by using phrase lists and Custom Speech

- Custom Speech overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Improve recognition accuracy with phrase list - Azure Cognitive Services | Microsoft Learn
- Improve speech-to-text accuracy with Azure Custom Speech | Azure Blog | Microsoft Azure

Implement intent recognition

- Intent recognition overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Intent recognition quickstart - Speech service - Azure Cognitive Services | Microsoft Learn
- What are intents in LUIS - Azure Cognitive Services | Microsoft Learn

Implement keyword recognition

- Keyword recognition overview - Speech service - Azure Cognitive Services | Microsoft Learn
- Key Phrase Extraction cognitive skill - Azure Cognitive Search | Microsoft Learn
- Keyword recognition recommendations and guidelines - Speech service - Azure Cognitive Services | Microsoft Learn

Translate language

Translate text and documents by using the Translator service

- Tutorial: Create a translation app with WPF, C# - Translator - Azure Cognitive Services | Microsoft Docs

Implement custom translation, including training, improving, and publishing a custom model

- What is Custom Translator? - Azure Cognitive Services | Microsoft Learn
- Train model - Azure Cognitive Services | Microsoft Learn

Translate speech-to-speech by using the Speech service

- Speech translation quickstart - Speech service - Azure Cognitive Services | Microsoft Docs

Translate speech-to-text by using the Speech service

- Speech-to-text quickstart - Speech service - Azure Cognitive Services | Microsoft Docs

Translate to multiple languages simultaneously

- Translator Translate Method - Azure Cognitive Services | Microsoft Learn

Build and manage a language understanding model

Create intents and add utterances

- Add intents - LUIS - Azure Cognitive Services | Microsoft Docs
- Intents and entities - LUIS - Azure Cognitive Services | Microsoft Docs
- Entity types - LUIS - Azure Cognitive Services | Microsoft Docs
- Add entities - LUIS - Azure Cognitive Services | Microsoft Docs
- Good example utterances - LUIS - Azure Cognitive Services | Microsoft Docs

Create entities

- How to use entities in LUIS - Azure Cognitive Services | Microsoft Learn
- Entities - Azure Cognitive Services | Microsoft Learn

Train, evaluate, deploy, and test a language understanding model

- How to train and evaluate models in Conversational Language Understanding - Azure Cognitive Services | Microsoft Learn
- How to deploy a model for conversational language understanding - Azure Cognitive Services | Microsoft Learn
- How to use train and test - Azure Cognitive Services | Microsoft Learn

Optimize a Language Understanding (LUIS) model

- Design with models - LUIS - Azure | Microsoft Learn
- How to improve LUIS application - Azure Cognitive Services | Microsoft Learn
- LUIS.AI: Automated Machine Learning for Custom Language Understanding | Azure Blog | Microsoft Azure

Integrate multiple language service models by using Orchestrator

- Orchestration workflows - Azure Cognitive Services | Microsoft Learn
- Integrate custom question answering and conversational language understanding with orchestration workflow - Azure Cognitive Services | Microsoft Learn
- Create orchestration workflow projects and use Azure resources - Azure Cognitive Services | Microsoft Learn

Import and export language understanding models

- Quickstart: Language Understanding (LUIS) SDK client libraries and REST API - Azure | Microsoft Learn
- Developer resources - Language Understanding - Azure | Microsoft Learn

Create a Questions Answering solution

Create a question answering project

- Create, test, and deploy your question answering project - Azure Cognitive Services | Microsoft Learn

Add question-and-answer pairs manually

- Best practices - question answering - Azure Cognitive Services | Microsoft Learn

Import sources

- Export/import/refresh - Azure Cognitive Services | Microsoft Learn
- Manage projects - question answering - Azure Cognitive Services | Microsoft Learn

Train and test a knowledge base

- Quickstart: Create, train, and publish knowledge base - QnA Maker - Azure Cognitive Services | Microsoft Learn

Publish a knowledge base

- Quickstart: Create, train, and publish knowledge base - QnA Maker - Azure Cognitive Services | Microsoft Learn

Create a multi-turn conversation

- Add guided conversations with multi-turn prompts - Azure Cognitive Services | Microsoft Learn

Add alternate phrasing

- Best practices - question answering - Azure Cognitive Services | Microsoft Learn
- Enrich your project with active learning - Azure Cognitive Services | Microsoft Learn

Add chit-chat to a knowledge base

- Adding chitchat to a custom question answering project - Azure Cognitive Services | Microsoft Learn

Export a knowledge base

- Export/import/refresh - Azure Cognitive Services | Microsoft Learn

Create a multi-language question answering solution

- Create projects in multiple languages -question answering - Azure Cognitive Services | Microsoft Learn

Create a multi-domain question answering solution

Use metadata for question-and-answer pairs

Implement Knowledge Mining Solutions (5-10%)

Implement a Cognitive Search solution

Provision a Cognitive Search resource

- What is Azure Cognitive Search? - Cloud Adoption Framework | Microsoft Learn
- Create a search service in the portal - Azure Cognitive Search | Microsoft Learn

Create data sources

- Indexer overview - Azure Cognitive Search | Microsoft Learn

Define an index

- Create an index - Azure Cognitive Search | Microsoft Docs

Create and run an indexer

- Create an indexer - Azure Cognitive Search | Microsoft Docs
- Create an indexer - Azure Cognitive Search | Microsoft Docs
- Run or reset indexers - Azure Cognitive Search | Microsoft Learn

Query an index, including syntax, sorting, filtering, and wildcards

- Query types - Azure Cognitive Search | Microsoft Docs

Manage knowledge store projections, including file, object, and table projections

- Projection concepts - Azure Cognitive Search | Microsoft Learn
- Define projections - Azure Cognitive Search | Microsoft Learn

Apply AI enrichment skills to an indexer pipeline

Attach a Cognitive Services account to a skillset

- Attach Cognitive Services to a skillset - Azure Cognitive Search | Microsoft Docs

Select and include built-in skills for documents

- Built-in text and image processing during indexing - Azure Cognitive Search | Microsoft Docs
- Document Extraction cognitive skill - Azure Cognitive Search | Microsoft Docs

Implement custom skills and include them in a skillset

- Interface definition for custom skills - Azure Cognitive Search | Microsoft Docs

Implement incremental enrichment

- Incremental enrichment concepts (preview) - Azure Cognitive Search | Microsoft Learn
- Introducing incremental enrichment in Azure Cognitive Search | Azure Blog | Microsoft Azure

Implement Conversational AI Solutions (15-20%)

Design and implement conversation flow

Design conversation logic for a bot

- Design and control conversation flow - Bot Service | Microsoft Learn
- Analyze and Design the Conversational Flow for a Chatbot » Business Analysis Experts
- Conversation Design: Designing the Flow of your Bot's Conversation (masterofcode.com)
- Design and control conversation flow - Bot Service | Microsoft Learn

Choose appropriate activity handlers, dialogs or topics, triggers, and state handling for a bot

- Create conversations with dialogs and Bot Framework Composer | Microsoft Learn
- Triggers in Bot Framework Composer | Microsoft Learn
- Bot activity handlers - Teams | Microsoft Learn

Build a conversational bot

Create a bot from a template

- Create a bot in Azure - Bot Framework Composer | Microsoft Learn

Create a bot from scratch

- Create a bot in Azure - Bot Framework Composer | Microsoft Learn
- Create a basic bot - Bot Service | Microsoft Learn

Implement activity handlers, dialogs or topics, and triggers

- Event-driven conversations and activity handlers - Bot Service | Microsoft Learn
- Events and triggers for adaptive dialogs - Bot Service | Microsoft Learn

Implement channel-specific logic

- Implement channel-specific functionality using REST API - Bot Service | Microsoft Learn
- Implement channel-specific functionality in Bot Framework SDK - Bot Service | Microsoft Learn

Implement Adaptive Cards

- Adaptive Cards for Bot Developers - Adaptive Cards | Microsoft Learn
- Add rich card attachments to messages - Bot Service | Microsoft Learn

Implement multi-language support in a bot

- Language understanding - Bot Service | Microsoft Learn
- Add multiple language support to Bot Framework Composer bots | Microsoft Learn

Implement multi-step conversations

- Design and control conversation flow - Bot Service | Microsoft Learn

Manage state for a bot

- Basics of the Microsoft Bot Framework - Bot Service | Microsoft Learn

Integrate Cognitive Services into a bot, including question answering, language understanding, and Speech service

- Tutorial: Create an FAQ bot with question answering and Azure Bot Service - Azure Cognitive Services | Microsoft Learn
- Language understanding - Bot Service | Microsoft Learn