

A comprehensive study guide that will
provide you with great preparation tools
for the AI-900: Microsoft Azure AI
Fundamentals

AI-900 Official Course Study Guide

Jordi Koenderink

11/20/2022

Introduction

Welcome to the AI-900 Study Guide. This guide will go over each topic of the skills outline, provided by Microsoft for the AI-900: Microsoft Azure AI Fundamentals exam.

This exam is an opportunity to demonstrate knowledge of machine learning (ML) and artificial intelligence (AI) concepts and related Microsoft Azure services. Candidates for this exam should have familiarity with Exam AI-900's self-paced or instructor-led learning material.

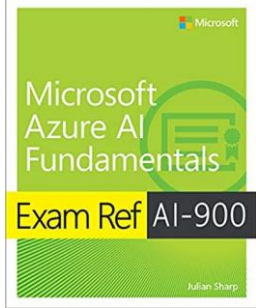
This exam is intended for candidates with both technical and non-technical backgrounds. Data science and software engineering experience are not required; however, awareness of cloud basics and client-server applications would be beneficial.

Azure AI Fundamentals can be used to prepare for other Azure role-based certifications like Azure Data Scientist Associate or Azure AI Engineer Associate, but it is not a prerequisite for any of them.

About the exam:




- Taking the exam will cost you \$99 US dollars.
- Microsoft certification exams are scored out of 1000 points. You need 700 points or higher to pass the AI-900 exam and gain your Azure AI Fundamentals.
- The AI-900 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 when Microsoft changes the curriculum substantially for the certification.
- The exam will have around 55 questions for which you have 3h to answer.
- As of this moment of writing, there're no labs.


Books/e-books:

	<p>Exam Ref AI-900 Microsoft Azure AI Fundamentals</p> <p>Exam Ref AI-900 Microsoft Azure AI Fundamentals offers professional-level preparation that helps candidates maximize their exam performance and sharpen their skills on the job. It focuses on the specific areas of expertise modern IT professionals need to demonstrate real-world mastery of common machine learning (ML) and artificial intelligence (AI) workloads and how to use them in Azure.</p> <p>Amazon.com: Exam Ref AI-900 Microsoft Azure AI Fundamentals: Sharp, Julian: 9780137358038: Amazon.com: Books</p> <p>Amazon Canada: Exam Ref Ai-900 Microsoft Azure AI Fundamentals: Sharp, Julian: 9780137358038: Books - Amazon.ca</p> <p>Amazon NL: Exam Ref AI-900 Microsoft Azure AI Fundamentals: Sharp, Julian: Amazon.nl</p>
---	--

	<p>Amazon UK: Exam Ref AI-900 Microsoft Azure AI Fundamentals: Amazon.co.uk: Sharp, Julian: 9780137358038: Books</p> <p>MS Presstore: Exam Ref AI-900 Microsoft Azure AI Fundamentals Microsoft Press Store</p>
--	---



Video training:





	<p>This course goes over each requirement of the exam in detail. If you have no background in machine learning and want to learn about it and want to learn more about AI / ML concepts and services within Azure or have some background in machine learning and want to progress eventually to an Azure Data Engineer or Data Analyst type role, this course is a great resource for you.</p> <p>AI-900 Azure AI Fundamentals Exam Prep In One Day - SEP 2022 Udemy</p>
	<p>In this fast-paced course, AI: Executive Briefing, you will start at the beginning—with the fundamental concepts and terms of Artificial Intelligence. First, you'll go over the clichés—the things "everybody knows" about AI—and use them to explore several core concepts. Next, you will explore multiple different ways AI can be implemented, including Machine Learning, Deep Learning and Natural Language Processing. Finally, you will explore the AI marketplace and current AI issues and risks. When you are finished with this course, you will have practical, pragmatic understanding of the current state of Artificial Intelligence as it is being used today.</p> <p>AI: Executive Briefing Pluralsight</p>
	<p>Whizlabs' Microsoft Azure Exam AI-900 Online Course helps Professionals to prepare themselves for the actual certification exam.</p> <p>Microsoft Azure Exam AI-900 Certification Online Course Whizlabs</p>

	<p>In this course you'll learn about the features of Microsoft Azure AI and get an overview of the concepts covered in the AI-900 certification exam. Explore AI, machine learning, and data science. Emilio Melo discusses cognitive services, computer vision image analysis, natural language processing (NLP), speech APIs, and more.</p> <p>Exam Tips: Microsoft Azure AI Fundamentals (AI-900) (linkedin.com)</p>
---	---

Microsoft Learn:


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

	<p>Microsoft Azure AI Fundamentals: Get started with artificial intelligence</p> <p>Artificial Intelligence (AI) empowers amazing new solutions and experiences; and Microsoft Azure provides easy to use services to help you get started.</p> <p>Get started with artificial intelligence on Azure - Learn Microsoft Docs</p>
	<p>Microsoft Azure AI Fundamentals: Explore visual tools for machine learning</p> <p>Machine learning is at the core of artificial intelligence, and many modern applications and services depend on predictive machine learning models. Learn how to use Azure Machine Learning to create and publish models without writing code.</p> <p>Use visual tools to create machine learning models with Azure Machine Learning - Learn Microsoft Docs</p>

	<p>Microsoft Azure AI Fundamentals: Explore computer vision</p> <p>Computer vision is an area of artificial intelligence (AI) in which software systems are designed to perceive the world visually, through cameras, images, and video. There are multiple specific types of computer vision problem that AI engineers and data scientists can solve using a mix of custom machine learning models and platform-as-a-service (PaaS) solutions - including many cognitive services in Microsoft Azure.</p> <p>Explore computer vision in Microsoft Azure - Learn Microsoft Docs</p>
	<p>Microsoft Azure AI Fundamentals: Explore natural language processing</p> <p>Natural language processing supports applications that can see, hear, speak with, and understand users. Using text analytics, translation, and language understanding services, Microsoft Azure makes it easy to build applications that support natural language.</p> <p>Explore Natural Language Processing in Microsoft Azure - Learn Microsoft Docs</p>
	<p>Microsoft Azure AI Fundamentals: Explore decision support</p> <p>Learn how to automate decision support processes using Azure.</p> <p>Microsoft Azure AI Fundamentals: Explore decision support - Training Microsoft Learn</p>
	<p>Microsoft Azure AI Fundamentals: Explore knowledge mining</p> <p>Knowledge mining is a discipline in artificial intelligence (AI) that uses a combination of intelligent services to quickly search and learn from vast amounts of information.</p> <p>Microsoft Azure AI Fundamentals: Explore knowledge mining - Training Microsoft Learn</p>

Practice exams

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

	<p>Whizlabs – Microsoft Azure Exam AI-900 Practice Tests</p> <p>Practice tests designed by experts to simulate the real exam scenario. AI-900 questions are based on the exam syllabus outlined by official documentation. The questions that appear in each practice test are unique and not repeated in other practice tests. These practice tests are provided to the candidates to gain more confidence in exam preparation and self-evaluate them against the exam content.</p> <p>What's inside:</p> <ul style="list-style-type: none">• 2 Full-Length Mock Exams (110 Unique Questions)• Exhaustive Explanation with every question• Objective-based Practice Tests• Exhaustive Explanation with every question• Reports to assess strengths & weaknesses• Unlimited Access• 3+ Hours Training Videos for all Exam Objectives (100% Syllabus Covered)• Unlimited Access for 2 years• 16 Scenario-based lab exercise videos recommended for AI-900 Exam <p>Microsoft Azure Exam AI-900 Certification Practice Tests Whizlabs</p>
---	---

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

- Describe Artificial Intelligence workloads and considerations (20-25%)
- Describe fundamental principles of machine learning on Azure (25-30%)
- Describe features of computer vision workloads on Azure (15-20%)
- Describe features of Natural Language Processing (NLP) workloads on Azure (15-20%)

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

Thank you,

Software Architect Team
Jordi Koenderink

Contents

Introduction.....	1
Describe Artificial Intelligence workloads and considerations (20-25%)	8
Identify features of common AI workloads.....	8
Identify guiding principles for responsible AI.....	8
Describe fundamental principles of machine learning on Azure (25-30%).....	9
Identify common machine learning types.....	9
Describe core machine learning concepts	9
Describe capabilities of visual tools in Azure Machine Learning Studio	9
Describe features of computer vision workloads on Azure (15-20%).....	10
Identify common types of computer vision solution	10
Identify Azure tools and services for computer vision tasks.....	10
Describe features of Natural Language Processing (NLP) workloads on Azure (25-30%).....	11
Identify features of common NLP Workload Scenarios	11
Identify Azure tools and services for NLP workloads	11
Identify common use cases for conversational AI.....	11

Describe Artificial Intelligence workloads and considerations (20-25%)

Identify features of common AI workloads

Identify features of anomaly detection workloads

[Anomaly Detector - Anomaly Detection System | Microsoft Azure](#)

Identify computer vision workloads

[Content tags - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

[Object detection - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

[Brand detection - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

[Image categorization - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

[Image descriptions - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

Identify natural language processing

[Natural language processing technology - Azure Architecture Center | Microsoft Learn](#)

Identify knowledge mining workloads

[Microsoft Conversational AI tools enable developers to build, connect and manage intelligent bots | Azure Blog and Updates | Microsoft Azure](#)

Identify guiding principles for responsible AI

Describe considerations for fairness in an AI

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe considerations for reliability and safety in an AI solution

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe considerations for privacy and security in an AI solution

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe considerations for inclusiveness in an AI solution

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe considerations for transparency in an AI solution

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe considerations for accountability in an AI solution

[Responsible AI principles from Microsoft](#)

[FATE: Fairness, Accountability, Transparency, and Ethics in AI - Microsoft Research](#)

Describe fundamental principles of machine learning on Azure (25-30%)

Identify common machine learning types

Identify regression machine learning scenarios

[ML Studio \(classic\): Linear Regression - Azure | Microsoft Docs](#)

Identify classification machine learning scenarios

[ML Studio \(classic\): Initialize Classification Models - Azure | Microsoft Docs](#)

Identify clustering machine learning scenarios

[ML Studio \(classic\): Initialize Clustering Models - Azure | Microsoft Docs](#)

Describe core machine learning concepts

Identify features and labels in a dataset for machine learning

[Framing: Key ML Terminology | Machine Learning Crash Course \(google.com\)](#)

Describe how training and validation datasets are used in machine learning

[About Train, Validation and Test Sets in Machine Learning | by Tarang Shah | Towards Data Science](#)

Describe capabilities of visual tools in Azure Machine Learning Studio

Automated machine learning

[What is automated ML? AutoML - Azure Machine Learning | Microsoft Learn](#)

Azure Machine Learning designer

[What is the Azure Machine Learning designer? - Azure Machine Learning | Microsoft Learn](#)

Describe features of computer vision workloads on Azure (15-20%)

Identify common types of computer vision solution

Identify features of image classification solutions

[Tutorial: Train an example Jupyter Notebook - Azure Machine Learning | Microsoft Docs](#)

Identify features of object detection solutions

[Object detection - Computer Vision - Azure Cognitive Services | Microsoft Docs](#)

Identify features of optical character recognition solutions

[What is Optical character recognition? - Azure Cognitive Services | Microsoft Docs](#)

Identify features of facial detection, facial recognition, and facial analysis solutions

[Face detection and attributes concepts - Azure Cognitive Services | Microsoft Docs](#)

[Face recognition concepts - Azure Cognitive Services | Microsoft Docs](#)

[Example: Real-time video analysis - Face - Azure Cognitive Services | Microsoft Docs](#)

Identify Azure tools and services for computer vision tasks

identify capabilities of the Computer Vision service

[What is Computer Vision? - Azure Cognitive Services | Microsoft Docs](#)

Identify capabilities of the Custom Vision service

[What is Custom Vision? - Azure Cognitive Services | Microsoft Docs](#)

Identify capabilities of the Face service

[What is the Azure Face service? - Azure Cognitive Services | Microsoft Docs](#)

Identify capabilities of the Form Recognizer service

[What is Azure Form Recognizer? - Azure Applied AI Services | Microsoft Docs](#)

Describe features of Natural Language Processing (NLP) workloads on Azure (25-30%)

Identify features of common NLP Workload Scenarios

Identify features and uses for key phrase extraction

[Key phrase extraction using the Text Analytics REST API - Azure Cognitive Services | Microsoft Docs](#)

Identify features and uses for entity recognition

[Entity Recognition cognitive skill - Azure Cognitive Search | Microsoft Docs](#)

Identify features and uses for sentiment analysis

[Tip 72 - Sentiment Analysis with Cognitive Service and Azure | Azure Tips and Tricks \(microsoft.github.io\)](#)

Identify features and uses for language modeling

[MSRLM: a Scalable Language Modeling Toolkit - Microsoft Research](#)

Identify features and uses for speech recognition and synthesis

[What is the Speech service? - Azure Cognitive Services | Microsoft Docs](#)

[Speech-to-text quickstart - Speech service - Azure Cognitive Services | Microsoft Docs](#)

Identify features and uses for translation

[App Features - Microsoft Translator](#)

Identify Azure tools and services for NLP workloads

Identify capabilities of the Language service

[Language Understanding \(LUIS\) Overview - Azure Cognitive Services | Microsoft Docs](#)

Identify capabilities of the Speech service

[What is the Speech service? - Azure Cognitive Services | Microsoft Docs](#)

[Speech-to-text quickstart - Speech service - Azure Cognitive Services | Microsoft Learn](#)

Identify capabilities of the Translator service

[Translator Text API - Microsoft Translator for Business](#)

Identify common use cases for conversational AI

Identify features and uses for bots

[Azure Bot Service – Conversational AI Application | Microsoft Azure](#)

Identify capabilities of the Azure Bot service

[Azure Bot Service – Conversational AI Application | Microsoft Azure](#)