



**Amazon AWS Certified  
Machine Learning - Specialty  
Study Guide  
Exam MLS-C01**

## Table of Contents

[Preface i](#)

[Introduction to Amazon Web Services 1](#)

[Introduction 2](#)

[What is AWS? 2](#)

[What is Machine Learning? 2](#)

[What is Artificial Intelligence? 2](#)

[What is Amazon S3? 3](#)

[Why use S3? 4](#)

[The Basics of Working on AWS with S3 4](#)

[AWS Free-Tier Account 4](#)

[Importing and Exporting Data into S3 5](#)

[How S3 Differs from a Filesystem 5](#)

[Core S3 Concepts 5](#)

[S3 Operations 7](#)

[Data Replication 8](#)

# ExamLabs

## [REST Interface 8](#)

### [Exercise 1: Using the AWS Management Console to Create an S3 Bucket 9](#)

### [Exercise 2: Importing and Exporting the File with your S3 Bucket 12](#)

## [AWS Command-Line Interface \(CLI\) 17](#)

### [Exercise 3: Configuring the Command-Line Interface 17](#)

## [Command Line-Interface \(CLI\) Usage 22](#)

## [Recursion and Parameters 22](#)

### [Activity 1: Importing and Exporting the Data into S3 with the CLI 23](#)

## [Using the AWS Console to Identify Machine Learning Services 24](#)

### [Exercise 4: Navigating the AWS Management Console 24](#)

### [Activity 2: Testing the Amazon Comprehend's API Features 26](#)

## [Summary 27](#)

## [Summarizing Text Documents Using NLP 29](#)

### [Introduction 30](#)

### [What is Natural Language Processing? 30](#)

### [Using Amazon Comprehend to Inspect Text and Determine the Primary Language 31](#)

### [Exercise 5: Detecting the Dominant Language Using the Command-Line Interface in a text document 32](#)

### [Exercise 6: Detecting the Dominant Language in Multiple Documents by Using the Command-Line Interface \(CLI\) 35](#)

### [Extracting Information in a Set of Documents 36](#)

### [Detecting Named Entities – AWS SDK for Python \(boto3\) 36](#)

### [DetectEntites – Input and Output 38](#)

### [Exercise 7: Determining the Named Entities in a Document 38](#)

### [DetectEntities in a Set of Documents \(Text Files\) 40](#)

### [Detecting Key Phrases 41](#)

### [Exercise 8: Determining the Key Phrase Detection. 41](#)

### [Detecting Sentiments 42](#)

### [Exercise 9: Detecting Sentiment Analysis 42](#)

# ExamLabs

[Setting up a Lambda function and Analyzing Imported Text Using Comprehend 44](#)

[What is AWS Lambda? 44](#)

[What does AWS Lambda do? 45](#)

[Lambda Function Anatomy 45](#)

[Exercise 10: Setting up a Lambda function for S3 46](#)

[Exercise 11: Configuring the Trigger for an S3 Bucket 52](#)

[Exercise 12: Assigning Policies to S3\\_trigger to Access Comprehend 56](#)

[Activity 3: Integrating Lambda with Amazon Comprehend to Perform Text Analysis 58](#)

[Summary 60](#)

## [Perform Topic Modeling and Theme Extraction 63](#)

### [Introduction 64](#)

### [Extracting and Analyzing Common Themes 64](#)

### [Topic Modeling with Latent Dirichlet Allocation \(LDA\) 64](#)

### [Basic LDA example 65](#)

### [Why Use LDA? 65](#)

### [Amazon Comprehend–Topic Modeling Guidelines 66](#)

### [Exercise 13: Topic Modeling of a Known Topic Structure 68](#)

### [Exercise 14: Performing Known Structure Analysis 84](#)

### [Activity 4: Perform Topic Modeling on a Set of Documents with](#)

### [Unknown Topics 87](#)

### [Summary 88](#)

## [Creating a Chatbot with Natural Language 91](#)

### [Introduction 92](#)

### [What is a Chatbot? 92](#)

### [The Business Case for Chatbots 92](#)

### [What is Natural Language Understanding? 93](#)

### [Core Concepts in a Nutshell 93](#)

### [Setting Up with Amazon Lex 96](#)

### [Introduction 96](#)

### [Exercise 15: Creating a Sample Chatbot to Order Flowers 97](#)

### [Creating a Custom Chatbot 105](#)

### [A Bot Recognizing an Intent and Filling a Slot 107](#)

### [Exercise 16: Creating a Bot that will Recognize an Intent and Fill a Slot 108](#)

### [Natural Language Understanding Engine 118](#)

### [Lambda Function – Implementation of Business Logic 120](#)

### [Exercise 17: Creating a Lambda Function to Handle Chatbot Fulfillment 121](#)

### [Implementing the Lambda Function 123](#)

[Input Parameter Structure 124](#)

[Implementing the High-Level Handler Function 125](#)

[Implementing the Function to Retrieve the Market Quote 125](#)

[Returning the Information to the Calling App \(The Chatbot\) 126](#)

[Connecting to the Chatbot 127](#)

[Activity 5: Creating a Custom Bot and Configuring the Bot 129](#)

[Summary 129](#)



## [Using Speech with the Chatbot 131](#)

### [Introduction 132](#)

### [Amazon Connect Basics 132](#)

### [Free Tier Information 132](#)

### [Interacting with the Chatbot 133](#)

### [Talking to Your Chatbot through a Call Center using Amazon Connect 134](#)

### [Exercise 18: Creating a Personal Call Center 135](#)

### [Exercise 19: Obtaining a Free Phone Number for your Call Center 141](#)

### [Using Amazon Lex Chatbots with Amazon Connect 143](#)

### [Understanding Contact Flows 144](#)

### [Contact Flow Templates 144](#)

### [Exercise 20: Connect the Call Center to Your Lex Chatbot 145](#)

### [Activity 1: Creating a Custom Bot and Connecting the Bot with Amazon Connect 154](#)

### [Summary 155](#)

## [Analyzing Images with Computer Vision 157](#)

### [Introduction 158](#)

### [Amazon Rekognition Basics 158](#)

### [Free Tier Information on Amazon Rekognition 159](#)

### [Rekognition and Deep Learning 159](#)

### [Detect Objects and Scenes in Images 160](#)

### [Exercise 21: Detecting Objects and Scenes using your own images 163](#)

### [Image Moderation 166](#)

### [Exercise 22: Detecting objectionable content in images 169](#)

### [Facial Analysis 171](#)

### [Exercise 23: Analyzing Faces in your Own Images 172](#)

### [Celebrity Recognition 177](#)

### [Exercise 24: Recognizing Celebrities in your Own Images 179](#)

### [Face Comparison 182](#)

### [Activity 1: Creating and Analyzing Different Faces in Rekognition 184](#)

### [Text in Images 185](#)

[Exercise 25: Extracting Text from your Own Images 186](#)

[Summary 189](#)

## [Appendix A 191](#)