Certified Artificial Intelligence (AI) Practitioner

Length: 5 days
Format: Live Remote
Time: Day

About This Course

Artificial intelligence (AI) and machine learning (ML) have become essential parts of the toolset for many organizations. When used effectively, these tools provide actionable insights that drive critical decisions and enable organizations to create exciting, new, and innovative products and services.

This course shows you how to apply various approaches and algorithms to solve business problems through AI and ML, all while following a methodical workflow for developing data-driven solutions.

Required Exams

This course is designed to assist students in preparing for the CertNexus Certified Artificial Intelligence (AI) Practitioner (Exam AIP-210) certification.

Audience Profile

The skills covered in this course converge on four areas – software development, IT operations, applied math and statistics, and business analysis. Target students for this course should be looking to build upon their knowledge of the data science process so that they can apply AI systems, particularly machine learning models, to business problems.

So, the target student is likely a data science practitioner, software developer, or business analyst looking to expand their knowledge of machine learning algorithms and how they can help create intelligent decision-making products that bring value to the business.

A typical student in this course should have several years of experience with computing technology, including some aptitude in computer programming.

Course Objectives

In this course, you will develop AI solutions for business problems.

You will:

* Solve a given business problem using AI and ML.
* Prepare data for use in machine learning.
* Train, evaluate, and tune a machine learning model.
* Build linear regression models.
* Build forecasting models.
* Build classification models using logistic regression and k-nearest neighbor.
* Build clustering models.
* Build classification and regression models using decision trees and random forests.
* Build classification and regression models using support-vector machines (SVMs).
* Build artificial neural networks for deep learning.
* Put machine learning models into operation using automated processes.
* Maintain machine learning pipelines and models while they are in production.

Outline

Lesson 1: Solving Business Problems Using AI and ML
Topic A: Identify AI and ML Solutions for Business Problems

Topic B: Formulate a Machine Learning Problem

Topic C: Select Approaches to Machine Learning

Lesson 2: Preparing Data
Topic A: Collect Data

Topic B: Transform Data

Topic C: Engineer Features

Topic D: Work with Unstructured Data

Lesson 3: Training, Evaluating, and Tuning a Machine Learning Model
Topic A: Train a Machine Learning Model

Topic B: Evaluate and Tune a Machine Learning Model

Lesson 4: Building Linear Regression Models
Topic A: Build Regression Models Using Linear Algebra

Topic B: Build Regularized Linear Regression Models

Topic C: Build Iterative Linear Regression Models

Lesson 5: Building Forecasting Models Topic A: Build Univariate Time Series Models

Topic B: Build Multivariate Time Series Models

Lesson 6: Building Classification Models Using Logistic Regression and k-Nearest Neighbor Topic A: Train Binary Classification Models Using Logistic Regression

Topic B: Train Binary Classification Models Using k-Nearest Neighbor

Topic C: Train Multi-Class Classification Models

Topic D: Evaluate Classification Models

Topic E: Tune Classification Models

Lesson 7: Building Clustering Models Topic A: Build k-Means Clustering Models

Topic B: Build Hierarchical Clustering Models

Lesson 8: Building Decision Trees and Random Forests Topic A: Build Decision Tree Models

Topic B: Build Random Forest Models

Lesson 9: Building Support-Vector Machines Topic A: Build SVM Models for Classification

Topic B: Build SVM Models for Regression

Lesson 10: Building Artificial Neural Networks Topic A: Build Multi-Layer Perceptrons (MLP)

Topic B: Build Convolutional Neural Networks (CNN)

Topic C: Build Recurrent Neural Networks (RNN)

Lesson 11: Operationalizing Machine Learning Models

Topic A: Deploy Machine Learning Models

Topic B: Automate the Machine Learning Process

Topic C: Integrate Models into Machine Learning Systems

Lesson 12: Maintaining Machine Learning Operations

Topic A: Secure Machine Learning Pipelines

Topic B: Maintain Models in Production