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Course Outline for Certified Machine Learning Developer

FA-0464

Software Development · DevOps, Cloud & Infrastructure · Data & Analytics

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Introduction

This certification is designed to help you understand machine learning and its underlying concepts from a technical viewpoint. The goal of this certification is to provide you skills needed to excel in the machine learning area of computational sciences along with practical experience in machine learning fundamentals, different probability concepts, knowledge representation and applications.

Certified Machine Learning Developer is an exam-based certification well-suited for Finance Professionals, Banking Professionals, Market Analysts, Statisticians, Engineering & Management Students, Programmers & Developers, University Professors, Software Engineers & Architects or any other professional who wants to develop a deeper understanding of machine learning and how it works. This certification will enable you to apply your skills to any dataset project and even build your own machine learning predicting analysis model with the new skills.

Course Outcome

A Certified Machine Learning Developer is a skilled professional who understands what machine learning is and how machine learning works. The developer can use this knowledge to build a model from scratch. Students can use this knowledge to research new algorithms. Being a Machine Learning Developer facilitates you to build a model from sample data in order to automate the decision-making process based on data inputs.

After you successfully complete the certification, you can have various opportunities in your professional growth. You can be:

- Machine learning Developer
- Machine learning researcher

The domains where Machine Learning Developers work:

- Finance & Investing

- Banking
- Marketing
- E-Commerce
- Manufacturing
- Health sector
- Behavioral science

By the of the course, learner may be expected to grasp and utilize:

- Python for Data Science
- Data Preprocessing
- Learn how machine learning works
- Understand different types of machine learning
- Explore business benefits of machine learning
- Know the difference between machine learning and artificial intelligence and deep learning
- Machine Learning
- Supervised Learning - Regression
- Supervised Learning - Classification
- Unsupervised Learning - Clustering
- Dimensionality Reduction
- Recommendation Engine
- Association Rules
- Time Series
- Statistics

Duration

5 days

Certification

- There will be an online examination of multiple choice exam of 100 marks.
- You need to acquire 60+ marks to clear the exam.
- If you fail, you can retake the exam after one day.
- You can take the exam no more than 3 times.

Prerequisites

In order to be able to participate in this course, the learner needs to comply with the following conditions:

- Access to PC [either one of these OS: MS Windows / Mac / Linux (ubuntu)]
- Full admin / root access to the above mentioned PC
- Experience and understanding of filing system
- Internet connection
- Webcam
- Microphone
- Dual screens
- Very basic understanding of server architecture
- Ability to comprehend the English language (as the examination is in English)
- Minimum 99% attendance
- Basic education in mathematics (understanding of linear and non-linear mathematics at high-school level)
- Google account

Training outline

1. Basics of Python for Data Science

1. How to Install Python
2. History of Python
3. Python Variables
4. Loops in Python
5. Python collection Data Types
6. OOPS concepts
7. Exception Handling
8. Regular Expression
9. Python Numpy Arrays
10. Matrix and its operation
11. Functions in Python
12. User Defined functions in Python
13. Scope in Python
14. Introduction to Methods
15. Packages in Python and PIP

16. Pandas and Data frames
17. Import and Export data from CSV

2. Fundamentals of Machine Learning

1. What is Machine Learning?
2. Process of Machine Learning
3. Life Cycle of Machine Learning
4. Application working in Machine Learning
5. Types Of Machine Learning
6. Setting up the development environment lab

3. Data Preprocessing

1. Importing Libraries
2. Importing Dataset
3. Taking care of Missing Data
4. Encoding Data: Categorical Data
5. Splitting the dataset into the Training set and Test set
6. Feature Scaling

4. Supervised Learning Algorithm

1. What is Supervised Learning?
2. Types of Supervised Learning

5. Regression

1. Simple Linear Regression
2. Multiple Regression
3. Polynomial Regression

6. Decision Tree

1. Implementation of Decision Tree

Random Forest Regression

1. Implementation of Random Forest Regression

2. Classification

    Implementation of Logistic Regression

        1. Implementation of Naive Bayes

        2. Implementation of Support Vector Machine (SVM)

7. Clustering

1. K-means Clustering
2. K-means Selecting the Number of Clusters
3. Implementation of k-means clustering
4. Implementation of Hierarchical Clustering
5. Implementation of Apriori

8. Time Series Modeling

1. Implementation of Time Series Modeling

9. Reinforcement Learning

1. Implementation of Upper Confidence Bound (UCB)
2. Implementation of Thompson Sampling

10. Deep Learning and Artificial Neural Network

1. Implementation of Artificial Neural Networks (ANN)
2. Implementation of Convolutional Neural Network (CNN)
3. Implementation of XGBoost

11. Dimensionality Reduction

1. Implementation of Principal Component Analysis
2. Implementation of Linear Discriminant Analysis
3. Implementation of Kernel PCA

12. Communication and Perceiving

1. Implementation of Natural Language Processing in Python

13. Hands on Project

1. Evaluation

14. Certification Exam Practice

1. Practice Review

15. Certification Examination

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