**Machine Learning - Beginner To Professional**

**Machine Learning Master Class with Python**

Complete Roadmap to prepare for Data Science, Machine Learning and Artificial Intelligence

**Prerequisites for this course:**

* **Interest to learn ML**
* Basic Python
* Basic Mathematics
* Statistics

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* Probability
* Calculus
* Linear Algebra

**Hands-on Machine Learning Master Class Course**

**Overview of this course:**

**Module 1:**  Machine Learning Basics:

* 1. Artificial Intelligence Vs. Machine Learning Vs. Deep Learning
  2. Types of Machine Learning :

1. Supervised Learning
2. Unsupervised Learning
3. Reinforcement Learning
   1. Supervised Learning & its types
   2. Unsupervised Learning & its types
   3. Classification & Regression
   4. Evaluating various ML Algorithm
   5. Deep Learning – Basics
   6. Mind Programming MindMap

**Module 2:**  Python Basic for Machine Learning

2.1 Google Colaboratory for Python- Getting system Ready

2.2 Installing Python IDLE

2.3 Python from command window & How to install Python Library

2.4 Installing Anaconda Navigator | Exploring Jupyter Notebook & Spyder

2.5 Python Basics

2.6 Python Basic Data Types – int, float, string, complex, Boolean

2.7 Python Special Data Types – List, Tuple, Set, Dictionary

2.8 Operators in Python

2.9 if else Statement in Python

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2.10 Loops in Python – For Loop & While Loop

2.11 Functions in Python

**Module 3:** Python Libraries Tutorial for Machine Learning:

3.1. Complete Numpy Tutorial for ML

3.2. Complete Pandas Tutorial for ML

3.3. Complete Matplotlib & Seaborn Tutorial for ML

3.4. Complete Sklearn Tutorial for ML

**Module 4**: Data Collection & Processing:

4.1. Where to collect Data & How to collect Data

4.2. Importing Data through Kaggle API

4.3. Handling Missing Values

4.4. Data Standardization

**Module 5**: Math Basics for Machine Learning:

5.1. Linear Algebra

5.2. Calculus

5.3. Statistics

5.4. Probability

**Module 6**: Training the Machine Learning Models:

6.1. What is a Machine Learning Model

6.2. How to select a model for training

6.3. Model Optimization Techniques

6.4. Model Evaluation

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**Module 7**: Classification Models in Machine Learning:

7.1.1. Logistic Regression – Theory & Math

7.1.2. Logistic Regression – Building from Scratch

7.2.1. Support Vector Machines (SVM) – Theory & Math

7.2.2. Support Vector Machines (SVM) – Building from Scratch

7.3.1. Decision Tree Classification – Theory & Math

7.3.2. Decision Tree Classification – Building from Scratch

7.4.1. Random Forest Classification – Theory & Math

7.4.2. Random Forest Classification – Building from Scratch

7.5.1. Naive Bayes – Theory & Math

7.5.2. Naive Bayes – Building from Scratch

7.6.1. K-Nearest Neighbors – Theory & Basics

7.6.2. K-Nearest Neighbors – Building from Scratch

**Module 8:** Regression Models in Machine Learning:

8.1.1. Linear Regression – Theory & Basics

8.1.2. Linear Regression – Building from Scratch

8.2.1. Lasso Regression – Theory & Basics

8.2.2. Lasso Regression – Building from Scratch

8.3.1. Logistic Regression – Theory & Math

8.3.2. Logistic Regression – Building from Scratch

8.4.1. Support Vector Machine Regression – Theory & Math

8.4.2. Support Vector Machine Regression – Building from Scratch

8.5.1. Decision Tree Regression – Theory & Math

8.5.2. Decision Tree Regression – Building from Scratch

8.6.1. Random Forest Regression – Theory & Math

8.6.2. Random Forest Regression – Building from Scratch

**Module 9**: Clustering Models in Machine Learning

9.1.1. K-Means Clustering – Theory & math

9.1.2. K-Means Clustering – Building from Scratch

9.2.1. Hierarchical Clustering – Theory & Math

9.2.2. Hierarchical Clustering – Building from Scratch

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**Module 10:** Association Models in Machine Learning:

10.1.1. Apriori – Theory & Basics

10.1.2. Apriori – Building from Scratch

10.2.1. Eclat – Theory & Math

10.2.2. Eclat – Building from Scratch

**Module 11**: Machine Learning Projects with Python:

Project 1: Face Recognition system

Project 2: SONAR Rock vs Mine Prediction

Project 3: Diabetes Prediction with Python

Project 4: House Price Prediction with Python

Project 5: Fake News Prediction with Python

Project 6: Loan Status Prediction with Python

\*\*\***\*\* And Many More Project\*\*\*\*\***

**Day -1** | **Introduction A.I & Machine Learning**

1. What is A.I
2. What is Machine Learning?
3. How Machine Learning & Data Science can be explored?
4. Why A.I
5. Applications of A.I

**Day -2** | **Exploring various Python Notebooks.**

1. Python from command window & How to install Python Library
2. Installing Anaconda Navigator | Exploring Jupiter Notebook & Spyder.
3. Installing & Exploring Pycharm.

**Day -3** | **Sale Prediction using LOGISTIC REGRESSION**

1. Concept & Mind map for this project -3
2. Project -3
3. Task -3

**Day -4** | **Salary Estimation using K-NEAREST NEIGHBOUR**

1. Concept & Mind map for this project -4
2. Project -4

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1. Task -4

**Day -5** | **Handwritten Digit Recognition using Support Vector Machine classifier**

1. Concept & Mind map for this project -5
2. Project -5
3. Task -5

**Day -6** | **Titanic Survival prediction using NAÏVE BAYES**

1. Concept & Mind map for this project -6
2. Project -6
3. Task -6

**Day -7** | **Plant leaf Iris detection using Decision Tree**

1. Concept & Mind map for this project -7
2. Project -7
3. Task -7

**Day -8** | **Digit recognition using RANDOM FOREST**

1. Concept & Mind map for this project -8
2. Project -8
3. Task -8

**Day -9** | **Evaluating classification model performance**

1. Concept & Mind map for this project -9
2. Project -9
3. Task -9

**Day -10** | **Breast Cancer Detection using various ML Algorithm - Evaluation**

1. Concept & Mind map for this project -10

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1. Project -10
2. Task -10

**Day -11** | **House price prediction using LINEAR REGRESSION single variable**

1. Concept & Mind map for this project -11
2. Project -11
3. Task -11

**Day -12** | **Exam mark prediction using LINEAR REGRESSION – Multiple Values**

1. Concept & Mind map for this project -12
2. Project -12
3. Task -12

**Day -13** | **Salary Prediction using POLYNOMIAL REGRESSION**

1. Concept Mind map for this project -13
2. Project -13
3. Task -13

**Day -14** | **Stock Price Prediction using Support Vector Regression**

1. Concept & Mind map for this project -14
2. Project -14
3. Task -14

**Day -15** | **Height prediction using Decision Tree Regression**

1. Concept & Mind map for this project -15
2. Project -15
3. Task -15

**Day -16** | **Car Price Prediction using RANDOM FOREST REGRESSION**

1. Concept & Mind map for this project -16
2. Project -16
3. Task -16

**Day -17** | **Evaluating Regression Model using R-Squared & Adjusted R-Squared**

1. Concept & Mind map for this project -17
2. Project -17
3. Task -17

**Day -18** | **Regression Model Selection for Engine Energy Prediction**

1. Concept & Mind map for this project -18
2. Project -18

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1. Task -18

**Day -19** | **Income spent clustering using K-MEANS**

1. Concept & Mind map for this project -19
2. Project -19
3. Task -19

**Day -20** | **Income & spent Analysis using Hierarchical clustering**

1. Concept & Mind map for this project -20
2. Project -20
3. Task -20

**Day -21** | **Clustering plant Iris using principal component Analysis**

1. Concept & Mind map for this project -21
2. Project -21
3. Task -21

**Day -22** | **Movie Recommendation system using singular value Decomposition**

1. Concept & Mind map for this project -22
2. Project -22
3. Task -22

**Day -23** | **Market Basket Analysis using APIRIORI**

1. Concept & Mind map for this project -23
2. Project -23
3. Task -23

**Day -24** | **Market Basket Analysis using ECLAT**

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1. Concept & Mind map for this project -24
2. Project -24
3. Task -24

**Day -25** | **Web Ad optimization using upper confidence Bound-Reinforcement**

**Learning**

1. Concept & Mind map for this project -25
2. Project -25
3. Task -25

**Day -26** | **Sentimental Analysis using Natural language processing**

1. Concept & Mind map for this project -26
2. Project -26
3. Task -26

**Day -27** | **Breast Cancer tumor Detection using XGBOOST**

1. Concept & Mind map for this project -27
2. Project -27
3. Task -27

**Day -28** | **Introduction to Deep Learning using sample Neural Network**

1. Intro. To Deep Learning & Pima Indians Diabetes Detection
2. Project -28
3. Task -28

**Day -29** | **Covid-19 Detection using CNN**

1. Concept & Mind map for this project -29
2. Project -29
3. Task -29

**Day -30** | **A.I Snake Game using REINFORCEMENT LEARNING**

1. Path Solver Algorithm
2. A.I snake game application
3. Task -30

**Finally 30 Days Challenge**

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* **Let’s upload and create profile**
* Resume Building
* Naukri.com profile
* LinkedIn profile
* GitHub

**This video covered your question below:**

1. How to become a Data Scientist?

2. How to start preparation for a Data Scientist Step by Step?

3. How to become a Machine Learning Engineer?

4. How to become an Artificial Intelligence Engineer?

5. How do I start learning AI and ML?

**How To Make Best Job Resume for Data Scientist | Data Analyst | Software Developer**

Syed Imran Ahmed

\*\*\***\*\* And More Project Videos Every Week\*\*\*\*\***

**ALL THE BEST!**

**Syed Imran Ahmed**

Mobile : 8179679284(India)

Email ID: [syedimranahmed307@gmail.com](mailto:syedimranahmed307@gmail.com)

Github Link: <https://github.com/SyedImranML>

**IEEE Membership id:- 98152892**