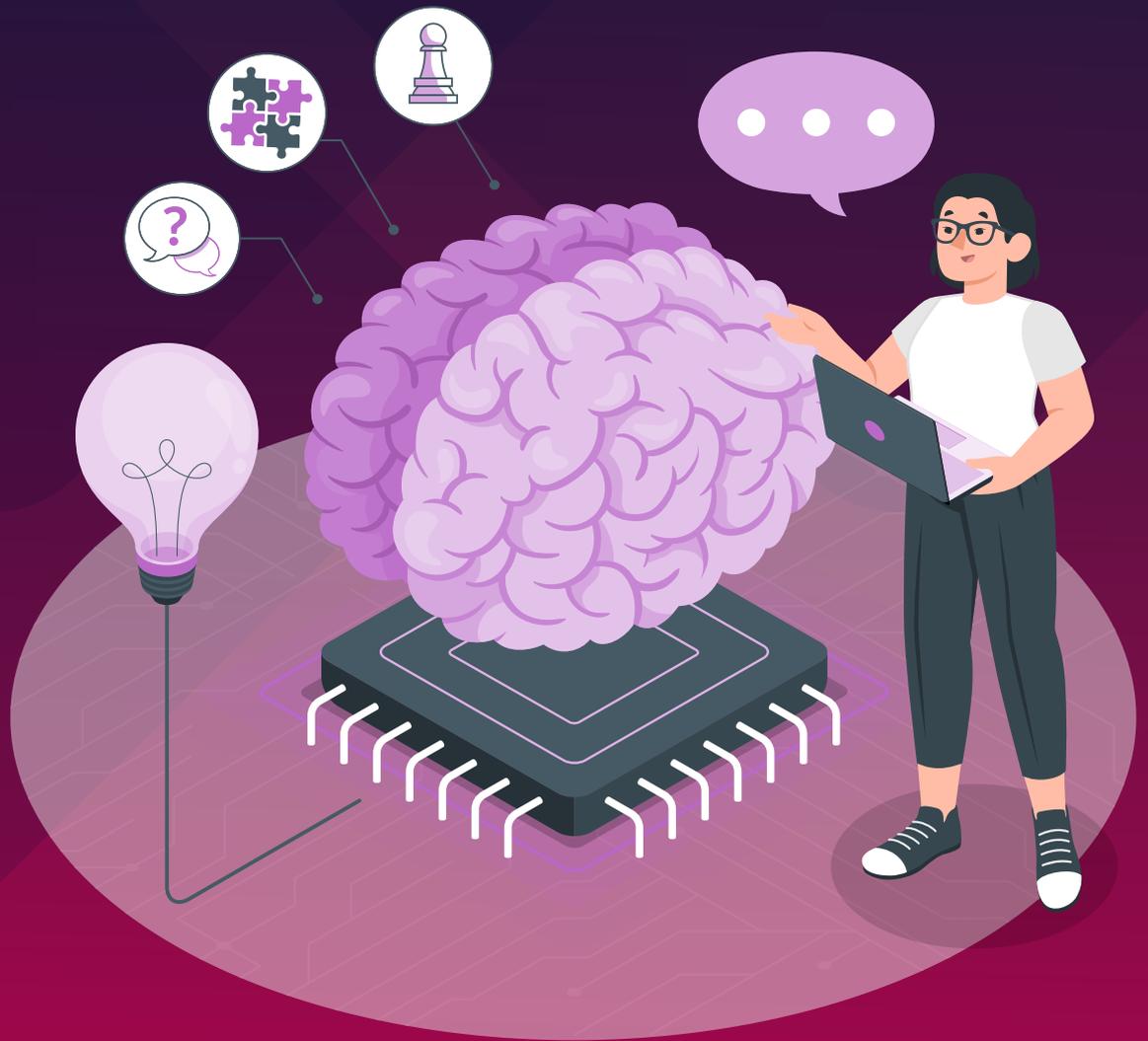# MACHINE LEARNING

Ociuz
SKILLS ACADEMY

AN ISO 9001:2015 CERTIFIED ACADEMY

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What Is MACHINE LEARNING ?

Machine Learning Is A Branch Of Artificial Intelligence That Enables Computers To Learn From Data And Make Predictions Or Decisions Without Being Explicitly Programmed. This Course Provides A Comprehensive Understanding Of Core Machine Learning Concepts, Algorithms, And Practical Implementation Using Python.
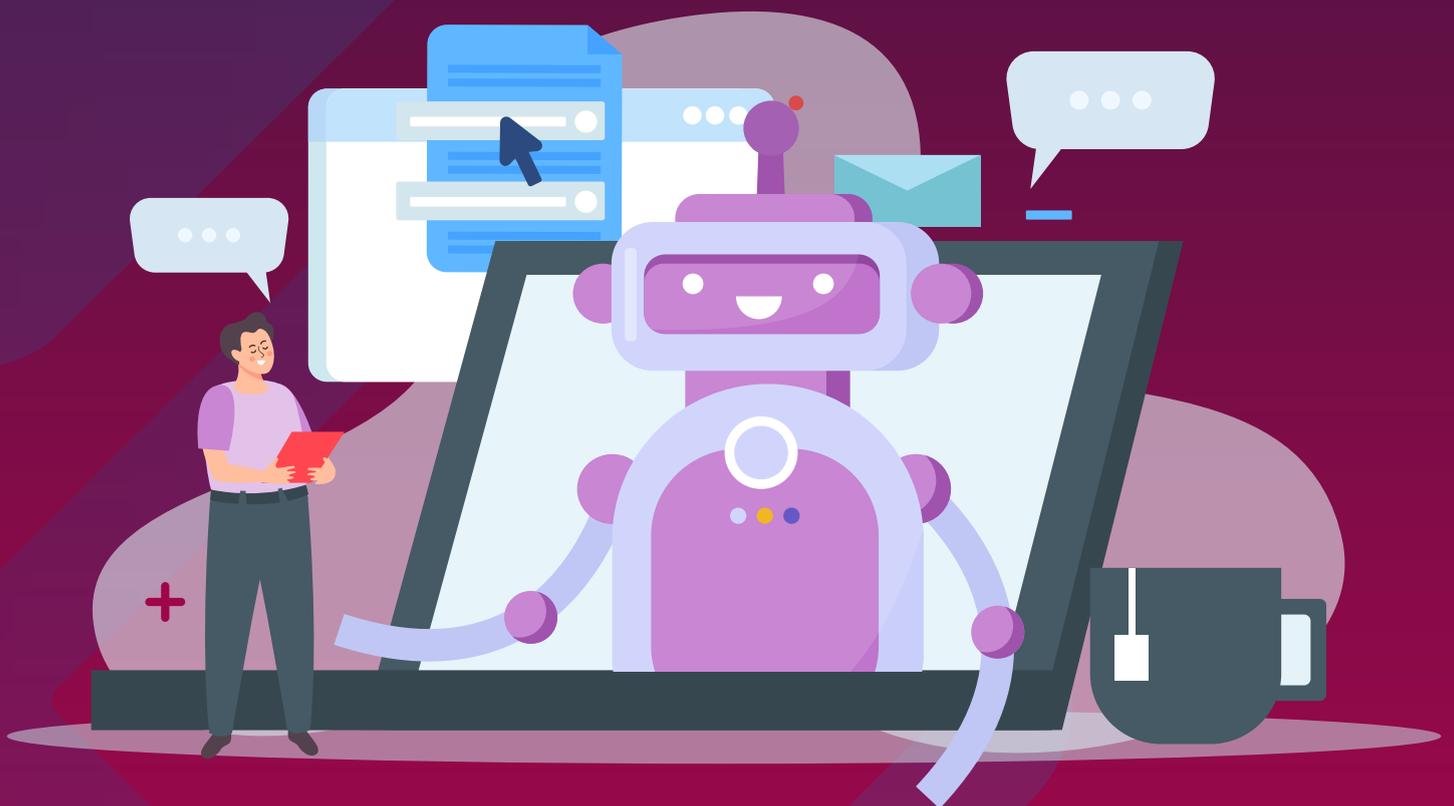
Course Structure

➡ 2 Months Course

➡ 1 Months Internship

➡ 100% Placement Assistance

By the end of the course, you will learn :

- Understand Fundamental Machine Learning Concepts And Techniques.

- Perform Data Preprocessing And Exploratory Data Analysis Using Python.

- Build And Evaluate Regression And Classification Models.

- Apply Clustering Techniques For Data Analysis.

- Optimize Models Using Feature Engineering And Validation Methods.

- Develop And Present An End-To-End Machine Learning Project.

Syllabus

➡ PYTHON FOR DATA SCIENCE

1. Python Basics (Variables, Data Types, Loops, Functions)

2. OOPS Concepts

3. NumPy (Arrays, Indexing, Slicing, Reshape, Aggregations)

4. Pandas (DataFrame, Filtering, GroupBy, Merging, Handling Missing Values)

5. Data Visualization (Matplotlib, Seaborn)

6. Exploratory Data Analysis (EDA)

7. **Practical:**
   - Data Cleaning Task
   - EDA Mini Project

➡ SUPERVISED MACHINE LEARNING

1. **Introduction**
   - What is Machine Learning
   - Types of ML (Supervised vs Unsupervised)

2. **Regression Algorithms**
   - Simple Linear Regression
   - Multiple Linear Regression
   - Polynomial Regression

3. **Classification Algorithms**
   - Logistic Regression
   - K-Nearest Neighbors (KNN)

- Naive Bayes
- Decision Tree
- Random Forest
- Support Vector Machine (SVM)

4. **Model Evaluation**

- Confusion Matrix
- Accuracy, Precision, Recall, F1 Score
- MSE, RMSE, R^2 Score

5. **Practical Projects:**

- Salary Prediction
- Loan Approval Prediction

➡ UNSUPERVISED MACHINE LEARNING

1. K-Means Clustering

2. Hierarchical Clustering

3. **Practical Project:**

- Customer Segmentation

➡ FEATURE ENGINEERING & MODEL OPTIMIZATION

1. Handling Missing Values

2. Encoding Techniques (Label Encoding, One-Hot Encoding)

3. Feature Scaling (StandardScaler, MinMaxScaler)

4. Feature Selection

5. Train-Test Split

6. Imbalanced Data Handling (SMOTE)

7. Scikit-learn Pipelines

8. **Practical:** Complete ML Pipeline Project

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