



# Machine Learning

## Course Curriculum

# Machine Learning

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## Mission

Machine learning brings together computer science, statistics and Data Science to harness that predictive power. It's a must-have skill for anyone else who wants to wrestle all that raw data into refined trends and predictions.

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## Course Description

This comprehensive course will be your guide to learning how to use the power of Python to analyze data, create beautiful visualizations, and use powerful machine learning and deep learning algorithms like SVM, Artificial Neural Network, Convolutional Neural Network. This course is designed for both beginners with some programming experience or experienced developers.

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## Prerequisites

- General Requirements

You are enthusiastic and motivated to learn. Participation in this course requires consistently meeting project deadlines and active participation.

- Program-Specific Requirements

You have access to a computer with an internet connection, on which you'll install a professional code/text editor (VSCode).

You can independently solve and describe your solution to a math or programming problem.

Prior experience in python language.

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## Jobs which you can apply

- Machine Learning intern
- AI Engineer
- Data science

# Machine Learning

05

## Projects

1. Problem Solving Skills, Introduction to Online judges and Python Syntax
2. How to read the documentation and understand packages
3. Data exploration, cleaning and visualisation  
Feature Engineering
4. Intro to Machine Learning, Decision Trees, Random Forests, SVM, Ensembles: Bagging vs Boosting, Clustering for Unsupervised Learning, K-Means on Two-Dimensional Data, K-Means on n-Dimensional Data
5. Learn what is a Neural Network, implementing with Artificial Neural Network, Convolutional Neural Network.

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## Skills you will learn

1. Problems on Hackerrank
2. Plotting Crime Data using folium, and most used Data Science packages
3. Data Exploration on dataset like Titanic from Kaggle
4. Applying machine learning model on the above projects and submitting the solution on Kaggle
5. Cat Dog classification using SVM
6. Clustering movie Dataset
7. Working on MNIST dataset and submit solution on Kaggle  
<https://www.kaggle.com/c/digit-recognizer>
8. **Extra:** Yolo Object detection

Estimated Time	Modules	Learning Outcome	Projects and target
Day 1 & 2	<b>Module 1</b> Python Basic Syntax	Problem Solving Skills, Introduction to Online judges and Python Syntax	Problems on Hackerrank
Day 3 & 4			
Day 5 & 6	<b>Module 1</b> Working with NumPy, Pandas and Matplotlib	How to read the documentation and understand packages	Learning most used packages in Data Science, Cr
Day 7 & 8	<b>Module 3</b> Data Wrangling: Data Exploration and Cleaning	Data exploration, cleaning and visualisation. Feature Engineering	Data Exploration on dataset like Titanic from Kaggle, cleaning the titanic dataset
Day 9 & 10	<b>Module 4</b> Machine learning, SciKitlearn, Hyperparameter Tuning	Intro to Machine Learning, Decision Trees, Random Forests, SVM, Ensembles: Bagging vs Boosting, Clustering for Unsupervised Learning, K-Means on Two-Dimensional Data, K-Means on n-Dimensional Data	Applying machine learning model on the above projects and submitting the solution on Kaggle, Cat Dog classification using SVM, Clustering movie Dataset
Day 11 & 12			
Day 13 & 14			
Day 15 & 16	<b>Module 5</b> Deep Learning	what is a neural network, Implementing with ANN,CNN using Keras Basic <b>Extra:</b> Intro to YOLO object detection	working on MNIST dataset and submit the solution on Kaggle <a href="https://www.kaggle.com/c/digit-recognizer">https://www.kaggle.com/c/digit-recognizer</a> <b>Extra: Yolo Object detection</b>
Day 17 & 18			
Day 19 & 20			



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