Machine Learning - Course Content

Smart Internz

Module	Session duration	Session/Module Name	Topics
1	1 Hour	Introduction to Data Science	What is data science Why is it important Use Cases of Data Science The Various Data Science Disciplines Data Science and Business Buzzwords ML In Data Science Data Science Methodology
2	2 Hours	Python Basics	A quick introduction to Python syntax, variable assignment, and numbers Data Types Variables & Operators Functions Flow Controls Conditional Constructs Working with External Libraries Imports, operator overloading, and survival tips for venturing into the world of external libraries
3	2 Hours	Python Packages: Numpy & Pandas	**Python Packages** NUMPY: Array Array Manipulations Functions Numerical Operations Indexing & Slicing Append & Concatenate **Pandas:** Creating, Reading and Writing Indexing, Selecting & Assigning Summary Functions and Maps Grouping and Sorting Data Types and Missing Values Renaming and Combining
4	1.5 Hours	Data Visualization	**Introduction to Data Visualization** Data Visualization with Matplotlib & Seaborn Line Charts Bar Charts Heatmaps Scatter Plots Area Chart Pie Chart Distributions Box Plot Choosing Plot Types and Custom Styles
5	2.5 Hours	Data Wrangling Techniques	Introduction to Data preprocessing Importing the Dataset Character Encodings Handling Missing Values Inconsistent Data Entry Parsing Dates Working with categorical Data Splitting the data into Train and Test set Outlier Analysis Feature Scaling

6	3 Hours	Supervised Learning – Regression	Introduction to Regression
			Linear Regression
			Multi Linear Regression
			Polynomial Regression
7	6 Hours	Supervised Learning - Classification	Introduction to Classification
			Logistic Regression
			Decision Tree Classification
			Random Forest Classification
			K-nearest Neighbors
			Naïve-Bayes
			Support Vector Machine
			XGboost
8	3 Hours	Model Evaluation Metrics	**Regression Evaluation Metrics**
			MAE
			MSE
			R Squared
			RMSE
			Classification metrics
			Confusion Metrics
			Accuracy
			Precision
			Recall F1 Score
			AUC ROC Curves
9	3 Hours	Hyper-parameter Optimization	**Handling Imbalanced Data** Oversampling
			Undersampling
			Ensembling Techniques
			SMOTE
			Hyper-parameter tuning Grid Search
			Randomize Search
10	3 Hours	Unsupervised Learning	Introduction to Clustering
			K-Means Clustering
			Hierarchical Clustering
			Clustering use cases
11	3 Hours	Build & Deploy ML Application	Introduction to different modes of deployment
			Working with Flask Framework
			Building application with flask framework
			Integrating Machine Learning model with web application