

CETPA INFOTECH PVT. LTD.
CURRICULUM OF MACHINE LEARNING

6-weeks

<p><u>REVISITING PYTHON</u></p> <ul style="list-style-type: none"> • Revisiting Python • List and dictionary comprehension • Programming assignment <p><u>INTRODUCTION TO MACHINE LEARNING</u></p> <ul style="list-style-type: none"> • What is ML? Why ML? • Python Libraries for ML • Types of ML- <ul style="list-style-type: none"> ➤ Introduction to Supervised ML ➤ Introduction to Unsupervised ML ➤ Introduction to Reinforcement ML • Mathematical Background for ML- <ul style="list-style-type: none"> ➤ Matrix ops Probability Theory(Bayes' Theorem) • Statistical knowledge for ML- <ul style="list-style-type: none"> ➤ Mean ➤ Median ➤ Mode ➤ Z-scores ➤ bias -variance dichotomy • Tools required for development- <ul style="list-style-type: none"> ➤ Anaconda ➤ Jupyter NB 	<p><u>ML LIBRARIES EXPLAINED:</u></p> <ul style="list-style-type: none"> ➤ Scipy ➤ Numpy ➤ Matplotlib ➤ Pandas ➤ Seaborn ➤ scikit-learn <ul style="list-style-type: none"> • ML Glossary- Variable types, k-fold, CV, AUC , • F1 score, Overfitting / Underfitting, Generalization, • Data split & hyper parameter training • Data wrangling using Pandas • Preprocessing data and feature engineering • Exploratory Data analysis using Visualization • Scikit-learn Library for ML • Code Exercises <p><u>SUPERVISED LEARNING:</u></p> <p>Regression:</p> <ul style="list-style-type: none"> • Different types of Regression <ul style="list-style-type: none"> ➤ Linear Regression ➤ Logistic Regression • Decision tree Algorithms • Real-world code exercises 	<p><u>SUPERVISED LEARNING-CLASSIFICATION</u></p> <ul style="list-style-type: none"> • Naive- Bayes' Classification • KNN Classification • Real-world code exercises : <p><u>UNSUPERVISED LEARNING:</u></p> <ul style="list-style-type: none"> • Clustering Introduction <ul style="list-style-type: none"> ➤ k-means clustering • Code Exercises <p><u>ADVANCED TOPICS:</u></p> <ul style="list-style-type: none"> • Curse of Dimensionality-PCA algorithm • SVM Classification <p><u>INTRODUCTION TO OPENCV:</u></p> <ul style="list-style-type: none"> • Core functionality of OPEN CV • Image processing • GUI and Media interfacing • Image input and output • Video input and output <p>Real-time mini project</p> <p>Note:</p> <p><u>PREREQUISITES:</u></p> <ul style="list-style-type: none"> • Students are required to have the following prerequisites: <ul style="list-style-type: none"> ➤ Python programming ➤ Basic statistics ➤ Basic calculus ➤ Basic linear algebra
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