**Machine Learning Syllabus Covered in this Repo:**

1. **Data Preprocessing and Cleaning**
2. **Python Libraries:**

* Numpy
* Pandas
* Matplotlib
* Seaborn
* Scikit-Learn

1. **Introduction of Machine Learning**
2. What is Machine Learning?
3. Difference between machine learning, deep learning and data science?
4. Application of machine learning
5. Types of machine learning
6. Difference between supervised, unsupervised and reinforcement learning
7. Life cycle of machine learning
8. Bias- variance trade off
9. Overfitting and under fitting
10. **Supervised Learning**
11. **Regression**

* **Linear Regression**
* Model Representaion (Linear Equation)
* Cost Function
* **Optimization**
* Gradient Descent
* Batch and Mini Batch
* Stochastic
* **Confusion Matrix**
* **Bias-Variance Trade-off**
* **Multiple Linear Regression**
* **Polynomial Regression**
* **Overfitting and under-fitting**
* **Support Vector Regression (SVR)**
* **Decision Tree Regression**
* **Random Forest Regression**

1. **Classification**

* **Logistic Regression**
* **K-Nearest Neighbours**
* **Support Vector Machine (SVM)**
* Kernel SVM
* **Naiive Bayes**
* **Decision Tree Classification**
* **Random Forest Classification**

1. **Unsupervised Learning**
2. **Clustering**

* K-Means Clustering
* Hierarichal Clustering

1. **Association Rule Mining (Used for Recommendation System)**

* Apriori
* Eclat

1. **Dimensionality Reduction (When we have large amount of dataset available but we want to train our model using small dataset)**

* Principal Component Analysis
* Linear Discriminant Analysis (LDA)
* Kernel PCA

1. **Regularization (To reduce model error and increase its accuracy)**

* Ridge
* Lasso

1. **Model Selection**

* K-fold cross validation
* Grid search

1. **Ensemble Learning**

* Bagging and boosting
* XG Boost

1. **Reinforcement Learning**

* Upper Confidence Bound (UCB)
* Thomson Sampling

1. **NLP**
2. **Deep Learning**
3. **Real Time Machine Learning Projects**
4. **Model Deployment**