

### List of Assignments of LP3:

1. Write a program to calculate Fibonacci numbers and find its step count. (DAA)
2. Implement job sequencing with deadlines using a greedy method. (DAA)
3. Write a program to solve a fractional Knapsack problem using a greedy method. (DAA)
4. Write a program to solve a 0-1 Knapsack problem using dynamic programming or branch and bound strategy. (DAA)
5. Predict the price of the Uber ride from a given pickup point to the agreed drop-off location.  
Perform following tasks: 1. Pre-process the dataset. 2. Identify outliers. 3. Check the correlation. 4. Implement linear regression and random forest regression models. 5. Evaluate the models and compare their respective scores like R2, RMSE, etc. Dataset link:  
<https://www.kaggle.com/datasets/yasserh/uber-fares-dataset> (ML)
6. Classify the email using the binary classification method. Email Spam detection has two states: a) Normal State – Not Spam, b) Abnormal State – Spam. Use K-Nearest Neighbors and Support Vector Machine for classification. Analyze their performance. Dataset link: The emails.csv dataset on the Kaggle <https://www.kaggle.com/datasets/balaka18/email-spam-classification-dataset-csv>. (ML)
7. Given a bank customer, build a neural network-based classifier that can determine whether they will leave or not in the next 6 months. Dataset Description: The case study is from an open-source dataset from Kaggle. The dataset contains 10,000 sample points with 14 distinct features such as CustomerId, CreditScore, Geography, Gender, Age, Tenure, Balance, etc. Link to the Kaggle project: <https://www.kaggle.com/barelydedicated/bank-customer-churn-modeling>. (ML)  
Perform following steps: 1. Read the dataset. 2. Distinguish the feature and target set and divide the data set into training and test sets. 3. Normalize the train and test data. 4. Initialize and build the model. Identify the points of improvement and implement the same. 5. Print the accuracy score and confusion matrix (5 points).
8. Implement K-Nearest Neighbors algorithm on diabetes.csv dataset. Compute confusion matrix, accuracy, error rate, precision and recall on the given dataset. Dataset link :  
<https://www.kaggle.com/datasets/abdallamahgoub/diabetes> (ML)
9. Implement K-Means clustering/ hierarchical clustering on sales\_data\_sample.csv dataset. Determine the number of clusters using the elbow method. Dataset link :  
<https://www.kaggle.com/datasets/kyanyoga/sample-sales-data>. (ML)
10. Write a smart contract on a test network, for Bank account of a customer for following operations: (BT)
  1. Deposit money
  2. Withdraw Money
  3. Show balance
11. Write a program in solidity to create Student data. Use the following constructs:  
Structures (BT)
  - Arrays
  - FallbackDeploy this as smart contract on Ethereum and observe the transaction fee and Gas values.