**LP-III Index**

**Programming tools recommended: - Java / Python & Solidity**

**DAA**

1. Write a program non-recursive and recursive program to calculate Fibonacci numbers and analyze their time and space complexity

2. Write a program to implement Huffman Encoding using a greedy strategy.

3. Write a program to solve a fractional Knapsack problem using a greedy method.

4. Write a Program for 8 Queens matrix having first Queen placed. Use backtracking to place remaining Queens to generate the final 8-queen’s matrix.

**ML**

**Note:** Dataset will be stored on every PC

1 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. Evaluate the models and compare their respective scores like R2, RMSE, etc. Dataset link: <https://www.kaggle.com/datasets/yasserh/uber-fares-dataset>

2 Implement K-Nearest Neighbors algorithm on diabetes.csv dataset. Compute confusionmatrix, accuracy, error rate, precision and recall on the given dataset. Dataset link : https://www.kaggle.com/datasets/abdallamahgoub/diabetes

3) 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-dat

4 Implement Gradient Descent Algorithm to find the local minima of a function. For example, find the local minima of the function y=(x+3)² starting from the point x=2.

**BT**

1 Installation of MetaMask and study spending Ether per transaction.

2 Create your own wallet using Metamask for crypto transactions.

3 Write a program in solidity to create Student data. Use the following constructs:  Structures  Arrays  Fallback Deploy this as smart contract on Ethereum and Observe the transaction fee and Gas values.

4 . Write a survey report on types of Blockchains and its real time use cases.