|  |  |
| --- | --- |
| **Sr. No.** | List of LP-I Assignments |
| 1 | Implement Parallel Reduction using Min and Max operations. |
| 2 | Implement Parallel Reduction using Sum and Average operations. |
| 3 | Write a CUDA program that, given an N-element vector, find-   * The maximum element in the vector * The minimum element in the vector |
| 4 | Write a CUDA program that, given an N-element vector, find-   * The arithmetic mean of the vector * The standard deviation of the values in the vector |
| 5 | **Vector and Matrix Operations-**  Design parallel algorithm to  1. Add two large vectors  2. Multiply Vector and Matrix |
| 6 | **Vector and Matrix Operations-**  Design parallel algorithm to  1. Multiply Vector and Matrix  2. Multiply two N × N arrays using n2 processors |
| 7 | **Vector and Matrix Operations-**  Design parallel algorithm to  1. Add two large vectors  2. Multiply two N × N arrays using n2 processors |
| 8 | Implement parallel bubble sort and merge sort. |
| 9 | Implement parallel K Nearest Neighbors Classifier. |
| 10 | Solve 8-puzzle problem using A\* algorithm. Assume any initial configuration and define goal configuration clearly. |
| 11 | Implement medical expert system for Diagnosis of 10 diseases based on adequate symptoms. |
| 12 | Develop elementary chatbot for suggesting investment as per the customers need. |
| 13 | Implement Best first search using heuristic Search Technique. |
| 14 | Implement A\* search using heuristic Search Technique. |
| 15 | Use Python/R and Perform following on Iris dataset.   * How many features are there and what are their types (e.g., numeric, nominal)? * Compute and display summary statistics for each feature available in the dataset. (eg. minimum value, maximum value, mean, range, standard deviation, variance and percentiles * Data Visualization-Create a histogram for each feature in the dataset to illustrate the feature distributions. Plot each histogram. * Create a boxplot for each feature in the dataset. All of the boxplots should be combined into a single plot. Compare distributions and identify outliers. |
| 16 | Use Naive Bayes Algorithm for classification on Pima Indians Diabetes dataset.   * Summarize the properties in the training dataset so that we can calculate probabilities and make predictions. * Classify samples from a test dataset and a summarized training dataset. * Create confusion matrix and print accuracy rate. |
| 17 | Trip History Analysis: Use trip history dataset that is from a bike sharing service in the United States. The data is provided quarter-wise from 2010 (Q4) onwards. Each file has 7 columns. Predict the class of user. |
| 18 | Bigmart Sales Analysis: For data comprising of transaction records of a sales store. Predict the sales of a store. |
| 19 | Design and implement parallel algorithm utilizing all resources available for Binary Search for Sorted Array |
| 20 | Design and implement parallel algorithm utilizing all resources available for  Depth-First Search ( tree or an undirected graph ) |
| 21 | Design and implement parallel algorithm utilizing all resources available for  Breadth-First Search ( tree or an undirected graph) |
| 22 | Design and implement parallel algorithm utilizing all resources available for  Best-First Search that ( traversal of graph to reach a target in the shortest possible path) |