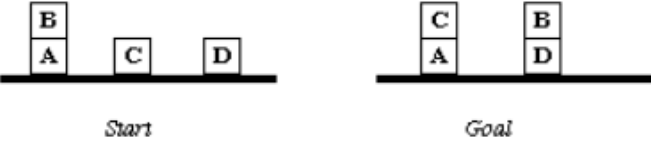


## BE Computer--Laboratory Practice I

### Assignment List

Date: 24/6/2018

Group A		410241:: High Performance Computing	Submission Date																
1	a) Implement Parallel Reduction using Min, Max, Sum and Average operations. b) Write a CUDA program that, given an N-element vector, find- The maximum element in the vector The minimum element in the vector The arithmetic mean of the vector The standard deviation of the values in the vector  Test for input N and generate a randomized vector V of length N (N should be large). The program should generate output as the two computed maximum values as well as the time taken to find each value.		17/09/2018																
2	<b>Vector and Matrix Operations-</b> Design parallel algorithm to 1. Add two large vectors 2. Multiply Vector and Matrix 3. Multiply two N × N arrays using n2 processors		30/07/2018																
3	<b>Parallel Sorting Algorithms-</b> For Bubble Sort and Merger Sort, based on existing sequential algorithms, design and implement parallel algorithm utilizing all resources available.		20/08/2018																
4	<b>Parallel Search Algorithm-</b> Design and implement parallel algorithm utilizing all resources available. for <b>Binary Search for Sorted Array</b> <b>Depth-First Search</b> ( tree or an undirected graph ) <b>OR</b> <b>Breadth-First Search</b> ( tree or an undirected graph) <b>OR</b> <b>Best-First Search that</b> ( traversal of graph to reach a target in the shortest possible path)		27/8/2018																
5	Parallel Implementation of the K Nearest Neighbors Classifier using MPI		24/09/2018																
	Miniproject		01/10/2018																
	<b>Generic Compression</b> Run length encoding concurrently on many core GPU																		
	<b>Encoding</b> Huffman encoding concurrently on many core GPU																		
Group B		10242: Artificial Intelligence and Robotics																	
1.	Implement Tic-Tac-Toe using A* algorithm OR Implement 3 missionaries and 3 cannibals problem depicting appropriate graph. Use A* algorithm.		30/07/2018																
2	Solve 8-puzzle problem using A* algorithm. Assume any initial configuration and define goal configuration clearly. OR Solve following 6-tiles problem stepwise using A* algorithm, <table border="1"><tr><td>Initial Configuration</td><td>B</td><td>W</td><td>B</td><td>W</td><td>B</td><td>W</td><td></td></tr><tr><td>Final Configuration</td><td>B</td><td>B</td><td>B</td><td>W</td><td>W</td><td>W</td><td></td></tr></table> Constraint: Tiles can be shifted left or right 1 or 2 positions with cost 1 and 2 respectively.		Initial Configuration	B	W	B	W	B	W		Final Configuration	B	B	B	W	W	W		20/08/2018
Initial Configuration	B	W	B	W	B	W													
Final Configuration	B	B	B	W	W	W													
3	Implement alpha-beta pruning graphically with proper example and justify the pruning.		03/09/2018																
4	Implement goal stack planning for the following configurations from the blocks world,		17/09/2018																

		
5	Constraint Satisfaction Problem: Implement crypt-arithmetic problem or n-queens or graph coloring problem ( Branch and Bound and Backtracking)	28/09/2018
	Miniproject	08/10/2018
	Develop a chatbot for suggesting investments/as tourist guide/ as a product advisor <ul style="list-style-type: none"> <li>Identify the Opportunities for an AI-Based <b>Chatbot</b>. ...</li> <li>Understand the Goals of Customers. ...</li> <li>Design a <b>Chatbot</b> Conversation. ...</li> <li><b>Develop a Chatbot</b> Using Non-Coding Frameworks.</li> </ul>	
<b>Group C 410243:: Data Analytics</b>		
1	Download the Iris flower dataset or any other dataset into a DataFrame. (eg <a href="https://archive.ics.uci.edu/ml/datasets/Iris">https://archive.ics.uci.edu/ml/datasets/Iris</a> ) Use Python/R and Perform following – <ul style="list-style-type: none"> <li>How many features are there and what are their types (e.g., numeric, nominal)?</li> <li>Compute and display summary statistics for each feature available in the dataset. (eg. minimum value, maximum value, mean, range, standard deviation, variance and percentiles</li> <li>Data Visualization-Create a histogram for each feature in the dataset to illustrate the feature distributions. Plot each histogram.</li> <li>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.</li> </ul>	30/07/2018
2	Download Pima Indians Diabetes dataset. Use Naive Bayes" Algorithm for classification <ul style="list-style-type: none"> <li>Load the data from CSV file and split it into training and test datasets.</li> <li>Summarize the properties in the training dataset so that we can calculate probabilities and make predictions.</li> <li>Classify samples from a test dataset and a summarized training dataset.</li> </ul>	20/08/2018
3	Write a Hadoop program that counts the number of occurrences of each word in a text file.	03/09/2018
4	Use Movies Dataset. Write the map and reduce methods to determine the average ratings of movies. The input consists of a series of lines, each containing a movie number, user number, rating, and a timestamp: The map should emit movie number and list of rating, and reduce should return for each movie number a list of average rating.	10/09/2018
5	Bigmart Sales Analysis: For data comprising of transaction records of a sales store. The data has 8523 rows of 12 variables. <b>Predict the sales of a store.</b> Sample Test data set available here <a href="https://datahack.analyticsvidhya.com/contest/practice-problem-big-mart-sales-iii/">https://datahack.analyticsvidhya.com/contest/practice-problem-big-mart-sales-iii/</a>	17/09/2018
6	Twitter Data Analysis: <b>Use</b> Twitter data for sentiment analysis. The dataset is 3MB in size and has 31,962 tweets. <b>Identify the tweets which are hate tweets and which are not.</b> Sample Test data set available here <a href="https://datahack.analyticsvidhya.com/contest/practice-problem-twitter-sentiment-analysis/">https://datahack.analyticsvidhya.com/contest/practice-problem-twitter-sentiment-analysis/</a>	28/09/2018
	Miniproject	12/10/2018

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