Artificial Intelligence Lab, B.Tech 4th Semester

Instructions

1. You are required to submit your assignment responses by 12 PM today through the Google Form that has been emailed to you.
2. There will be evaluation for this assignment.
3. Plagiarism checking will be performed on all the submissions for this assignment. If plagiarism is detected, your assignment will not be evaluated.

Evaluation Assignment 1

1. Generate two 2-dimensional matrices A and B with dimensions m × n and p × q, respectively. Populate matrix A with random values drawn from a normal distribution with a mean of 0 and a standard deviation of 1. Fill matrix B with random values obtained from a uniform distribution within the range [0, 1]. Perform the following calculations:

   (a) Compute the product of the inverse of matrix A and matrix B .

   (b) Calculate the product of the transpose of matrix A and matrix B.

   Print the resulting matrices and display the time taken to complete each operation. (10)

2. Given the following initial state of the N-puzzle problem, formulate the state space search. Solve it using Breadth First Search. (20)

   Initial state
   3 8 1
   6 2 5
   4 7

   Goal state
   1 2 3
   8 4
   7 6 5