

M.Tech 5 Years

Course Name: Advanced Algorithms - Lab Component

Batch: G1 and G2

LAB Assignment 4

Answer any two of the following questions.

1. Write a program that solves the Vertex Cover Problem using Approximation Algorithm. Take at least 10 vertices and draw the graph. Provide suitable comments in the program to explain your answer.
2. Write a program to find the shortest path to a goal node from a start node using A\* algorithm. Explain it using a search graph consisting of A as the start node and G as the goal node and B, D, F as descendants of A from left sub tree and C, E and H as the descendants of A in the right sub tree.
3. Write a program to sort an array of integers using Randomized Quick Sort algorithm. Give a sample set of numbers as examples and simulate the steps of the algorithm.
4. Write a program to implement any two bin packing algorithms from the following algorithms.
  - a. Next fit algorithm
  - b. First fit algorithm
  - c. Best fit algorithm
  - d. First fit decreasing algorithm
  - e. Best fit decreasing algorithm