

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam - 603 110  
(An Autonomous Institution, Affiliated to Anna University, Chennai)

## UCS2403: DESIGN & ANALYSIS OF ALGORITHMS

### Assignment 8

1. Given the adjacency matrix representation and the adjacency list representation of a simple graph  $G = (V, E)$ , write a Python program to perform:
  - Depth First Search (DFS) traversal on  $G$
  - Breadth First Search (DFS) traversal on  $G$
2. Given the adjacency matrix representation and the adjacency list representation of a simple graph  $G = (V, E)$ , write a Python program to perform:
  - Depth First Search (DFS) traversal on  $G$
  - Breadth First Search (DFS) traversal on  $G$
3. Given the adjacency matrix representation of a simple weighted, directed graph  $G = (V, E)$ , write a Python program to implement the Floyd-Warshall algorithm.
4. You are given a string  $S$  consisting of lowercase letters. Find the length of the longest palindromic subsequence in the string. A palindromic subsequence is a subsequence of the string that is read the same forward and backward. Implement a dynamic programming algorithm to solve this problem efficiently.  
Example: Input string: abacbca  
The solution is 5.