



KONGU ENGINEERING COLLEGE
(Autonomous)



Perundurai, Erode – 638060

DEPARTMENT OF INFORMATION TECHNOLOGY

**FLOYD'S ALGORITHM VISUALIZATION FOR
ALL-PAIRS SHORTEST PATH PROBLEM**

A MICRO PROJECT REPORT FOR

DESIGN AND ANALYSIS OF ALGORITHMS (22ITT31)

SUBMITTED BY

ROHANTH R B

(23ITR133)



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Course Code : 22ITT31

Course Name : DESIGN AND ANALYSIS OF ALGORITHMS

Semester IV

Certified that this is a bonafide record of work for application project done by the above student for 22ITT31-DESIGN AND ANALYSIS OF ALGORITHMS during the academic year 2024-2025.

Submitted for the Viva Voice Examination held on _____

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ABSTRACT

The All-Pairs Shortest Path problem is a fundamental concept in graph theory and network optimization, with critical applications in routing, network analysis, and distance computation. In this project, I implement an interactive visualization of Floyd's algorithm, which efficiently computes the shortest paths between all pairs of vertices in a weighted directed graph. The algorithm uses a dynamic programming approach to systematically improve distance estimates between vertices by considering all possible intermediate nodes. This implementation allows users to visualize the algorithm's execution step-by-step, observe how path distances are updated, and compare its performance with the Bellman-Ford algorithm. The visualization provides a deep understanding of how the $O(V^3)$ algorithm operates and demonstrates its practical efficiency in computing comprehensive shortest path information. This project showcases core principles of graph algorithms, dynamic programming, and interactive algorithm visualization, with potential applications in network design, transportation systems, and computer networks.

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