Simulation of Travelling Salesman Problem

Samrajya Raj Acharya
Abhay Sharma
Diya Shrestha

Department of Mathematics
Kathmandu University School of Science

Coordinator: Dr. Ganga Ram Phaijoo

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Presentation Outline

Introduction

- Travelling Salesman Problem (TSP) is a procedure of determining the shortest route to minimise the total distance travelled and travel cost
- Widely studied in Combinatorial Optimization and Computer Science, is a NP-hard i.e; its solution can be guessed and verified in polynomial time
- The optimal routes for data to travel between various nodes is approximated

Objectives

- We set up nodes as locations with varying edge as distances

Objectives

- Learn about TSP, its variations and applications like vehicle scheduling, IC's design, physical mapping problems

Objectives

- Understand the algorithms and then implement those using high level programming language

Objectives

- Visualisation of the problem and project writing

Literature Review

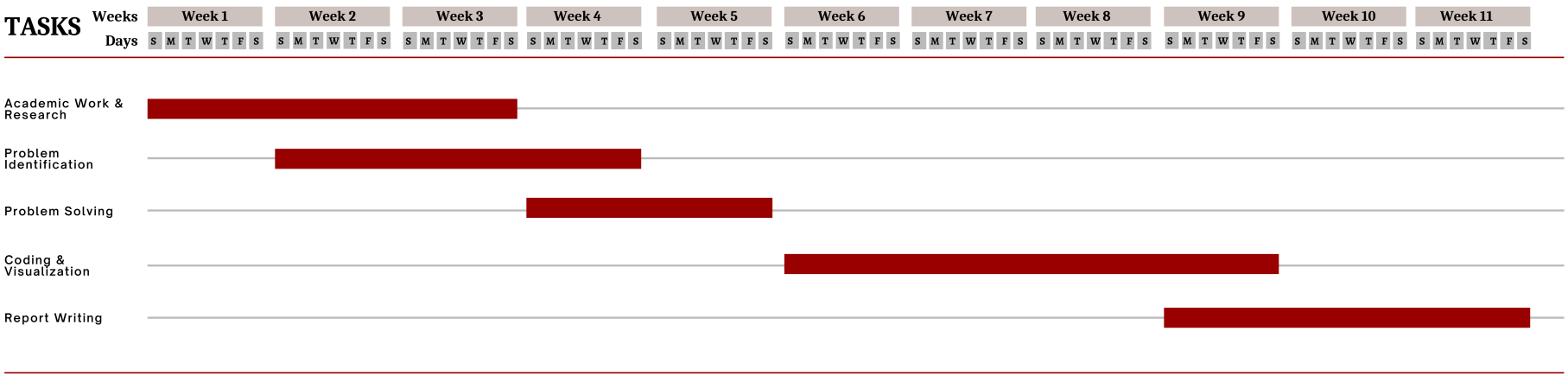
- **1800s - Sir William Rowan Hamilton** and **Thomas PenyngtonKirkman** looked for shortest distance
- **1930s - Hassler Whitney** at Princeton University, main proponent of the problem
- **1930s - Studied by Karl Menger** from Hassler Whitney and Merrill Flood at Princeton

Literature Review

- **1950s** - **George Dantzig**, **Delbert Ray Fulkerson** and **Selmer M. Johnson** made notable contributions at the RAND Corporation in Santa Monica
- **1960s** - Integer linear program and developed the cutting plane method for its solution and solved an instance with 49 cities to optimality by constructing a tour and proving that no other tour could be shorter
- **1972** - **Richard M. Karp** showed in that the Hamiltonian cycle problem was NP-complete
- **1990** - **Applegate, Bixby, Chvátal,** and **Cook** developed the program Concorde

Project Roadmap

GANTT CHART



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Thank You