

DS & OOP

TRAFFIC SIMULATOR

PROJECT GOAL

Develop a **Traffic Simulator** that models traffic scenarios and optimizes flow using data structures, helping planners make better traffic management decisions.

TRAFFIC CONGESTION CAUSES:

- Increased commute time
- Air pollution & health risks
- Economic losses

A data-driven simulation allows planners to test improvements before applying costly real-world changes.

DATA STRUCTURES USED

Queue

Simulates normal vehicle flow at intersections and on roads.,

Stack

Models reversible traffic situations (e.g., one-way lanes or emergency detours).,

Priority Queue

Gives priority to emergency vehicles, public transport, or VIP routes.

REAL WORLD APPLICATIONS

- Traffic light timing optimization
- Emergency response planning
- Infrastructure improvement testing
- Urban planning simulations

