Project Proposal: Urban Traffic Flow Simulation

Project Overview
The proposed project is an Urban Traffic Flow Simulation, designed to model and analyze the dynamics of traffic within a metropolitan area. This discrete-event simulation will emulate the behavior of vehicles navigating through a city's road network, capturing interactions at intersections, traffic signal changes, and vehicle movements over time.

Implementation

The data structure I plan to use is map<string, array<list<type T> 3>>;, where the key represents the identifier of each intersection and the value represents lists of vehicles approaching from north, east, south, and west. The simulation will read data from an external file containing at least 100 lines of data with each line specifying intersection identifier, initial number of vehicles in each direction, and traffic signal timings.

Simulated Events

The simulation will focus on four events: new vehicles arriving at intersections, switching traffic lights based on predefined timings or congestion levels, vehicles passing through intersections or waiting in queues, as well as accumulation of vehicles leading to traffic jams