

Project Title: Real-Time Traffic Analysis

Week#1:First Milestone of the Project to Understand the project.

Prepared By:

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- **Dawood Baig (FA24-BCS-395)**

1:Introduction:

1. Team Members:

- ❖ Muneeb – *Team Lead*, Graph Guru, Organizer.
- ❖ Dawood – *DS Wizard*, Stack Sentinel, Idea Machine.

2. Fun DS Roles

- ❖ Muneeb the Graph Guru – connects all roads, intersections, and paths.
- ❖ Dawood the Stack Sentinel – manages urgent alerts using LIFO.

2: Creative Project Story:

(Issue or problem):

In the busy digital city of London, traffic changes every second.

To solve daily road chaos, **Muneeb** and **Dawood** created “**the Real-Time Traffic Analysis System.**”

Graph Guru **Muneeb** mapped every intersection as a node and each road as an edge, building a perfect graph of the city.

His graph detected shortest paths, heavy traffic zones, and alternate routes.

Meanwhile, Stack Sentinel **Dawood** managed incoming traffic alerts using a stack—latest and most urgent alerts were handled first.

Whenever sensor spikes happened, alerts were pushed onto the stack and processed in order.

The system showed real-time congestion, smart routes, and automated summaries.

With Graph ensuring smooth navigation and Stack ensuring fast alert handling, London moved

efficiently again.

Together, they built a smart, reliable, DS-powered real time traffic analysis project.

3.DS Character Creation:

Graph:

Graph Guru **Muneeb** – Master of nodes & edges; builds the full traffic network.

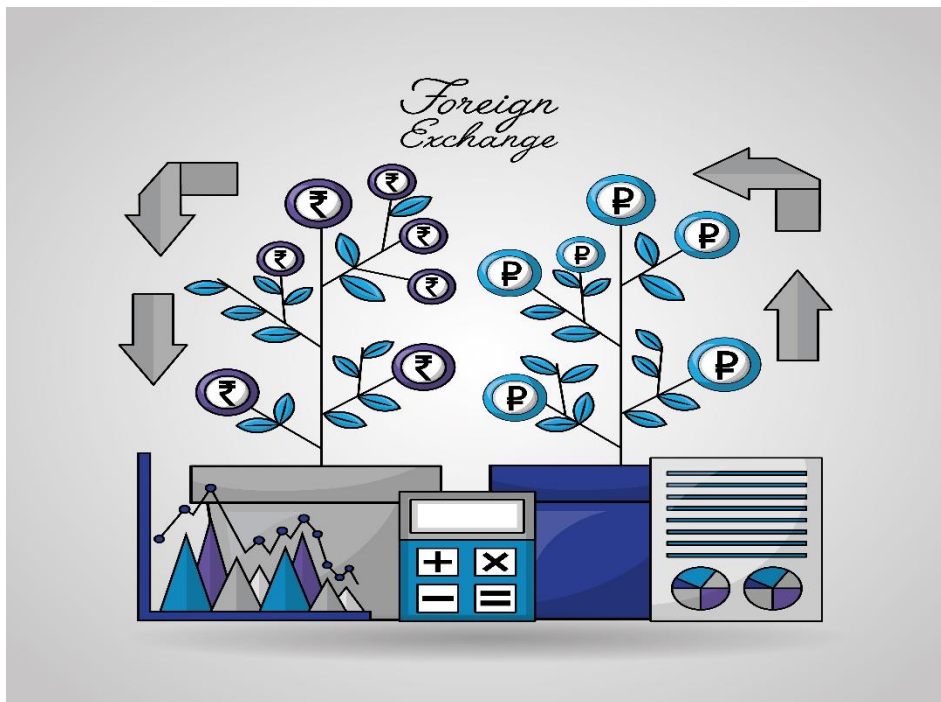
Graph Navigator – Directs drivers through intersections and turns.

Graph Pathfinder – Finds shortest and fastest routes.

Graph Monitor – Detects traffic jams and congested nodes.

Picture:

representing Graphs nodes as leaf, and also edges such as connection representation of graph



Stack:

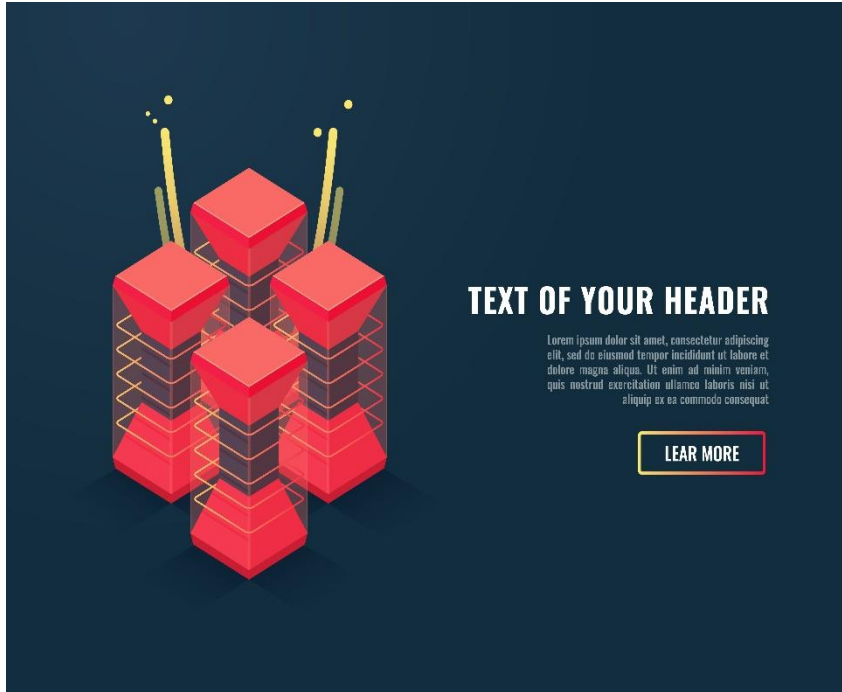
Stack Sentinel **Dawood** – Handles urgent traffic alerts using LIFO.

Stack Checker – Verifies new alerts before adding them to the stack.

Stack Watcher – Tracks processed and dismissed alerts

Picture:

Representing stack (LIFO) last in first out as these four blocks as ring that are set as stack.

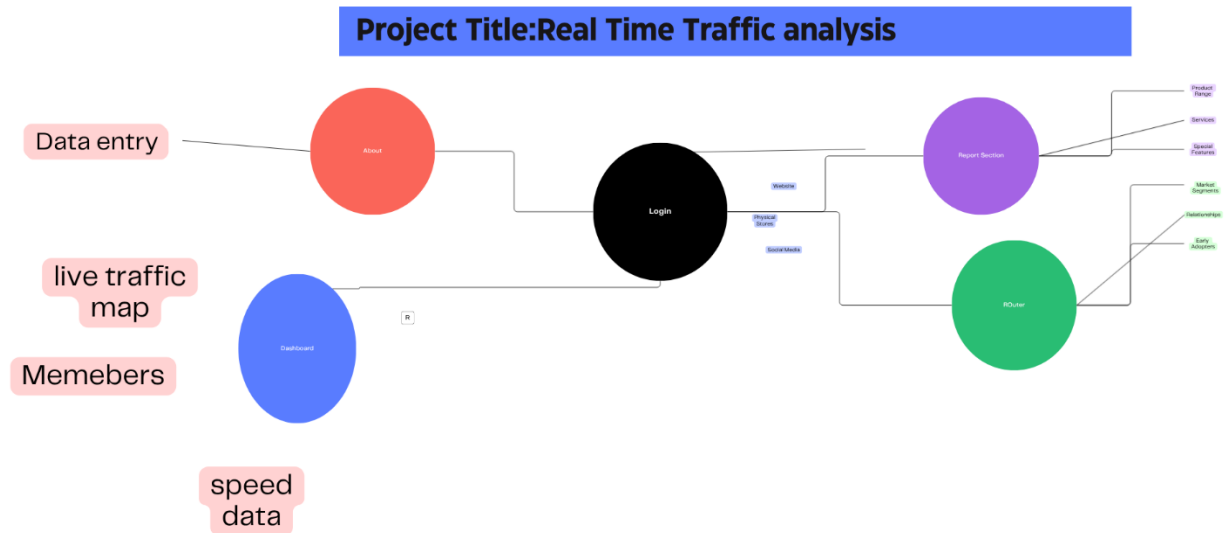


System Mapping:

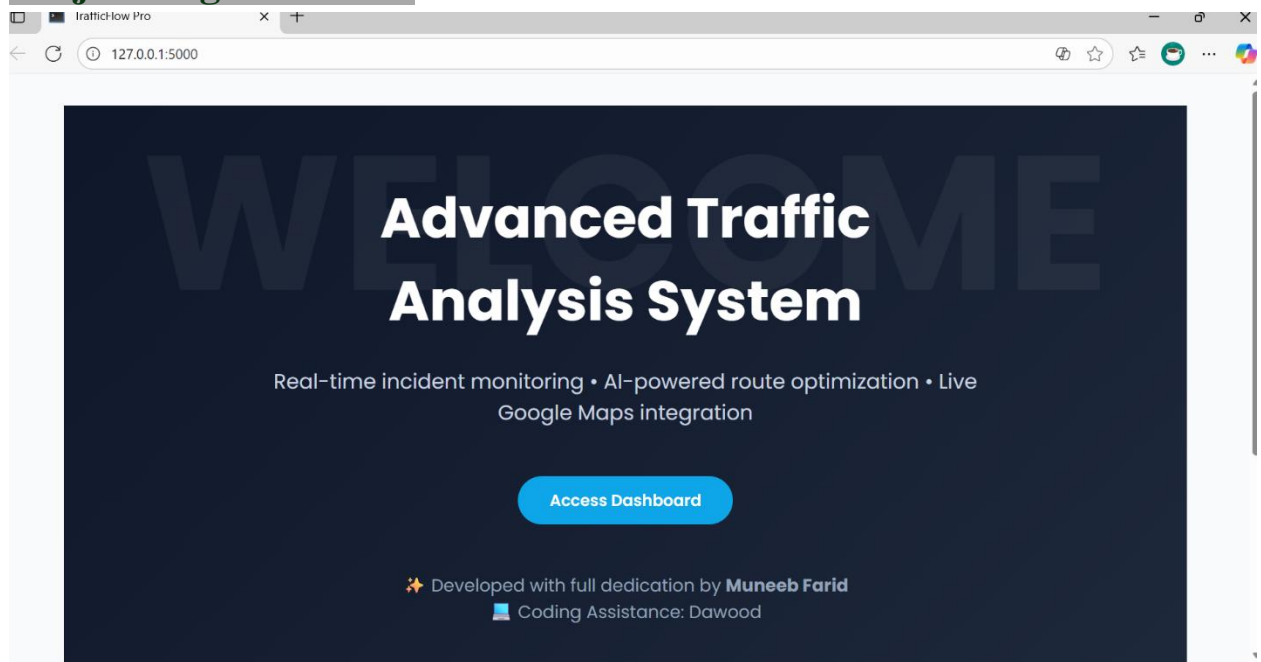
- ❖ There are four pages:
- ❖ First page of login
- ❖ Second page About
- ❖ Third Page of Map (router)
- ❖ Fourth Page (report Section)

There are following system mapping through canvas which is digital platform of system mapping or presentation etc:

As Shown:



Project Pages Picture:



Login - TrafficFlow Pro

127.0.0.1:5000/login

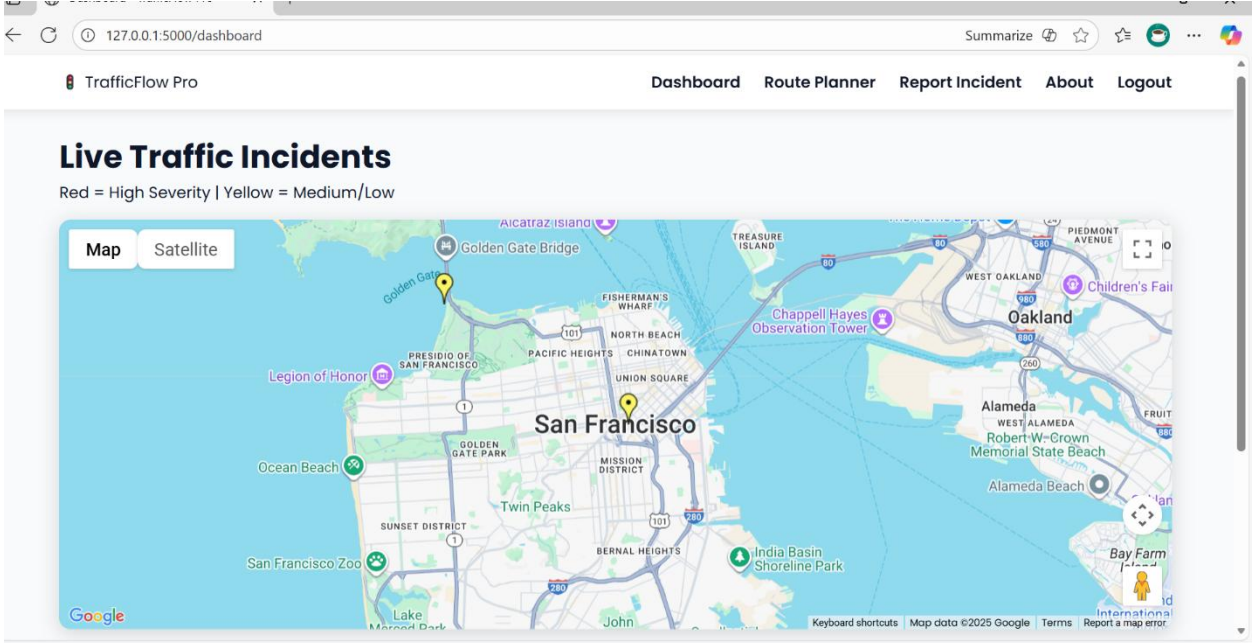
Summarize

Admin Login

Muneeb Farid

.....

Login



127.0.0.1:5000/dashboard

Summarize

TrafficFlow Pro


DashboardRoute PlannerReport IncidentAboutLogout

Live Traffic Incidents

Red = High Severity | Yellow = Medium/Low

T. Barnes

View on Google Maps



Google


Keyboard shortcuts | © T. Barnes | Terms | Report a problem

127.0.0.1:5000/route-planner

Summarize

TrafficFlow Pro

DashboardRoute PlannerReport IncidentAboutLogout

Route Planner (Dijkstra Demo)

Enter source and target nodes (e.g., A → C)

Source (e.g., A)

Target (e.g., C)

Calculate Shortest Path

Report Incident - TrafficFlow Pro

127.0.0.1:5000/report

Summarize

TrafficFlow Pro Dashboard Route Planner Report Incident About Logout

Report Traffic Incident

Latitude (e.g., 37.7749)

Longitude (e.g., -122.4194)

Low (e.g., slow traffic)

Describe the incident...

Submit Report

About - TrafficFlow Pro

127.0.0.1:5000/about

Summarize

TrafficFlow Pro Dashboard Route Planner Report Incident About Logout

About This Project

TrafficFlow Pro

An intelligent real-time traffic analysis and route optimization system developed as Semester Project.

Lead Developer
Muneeb Farid

- Designed system architecture
- Developed full-stack implementation (Flask + Frontend)
- Integrated Google Maps & Dijkstra's algorithm
- Implemented CSV-based incident storage
- Created responsive UI with professional styling
- Tested API functionality

Coding Assistant
Dawood

- Supported frontend debugging
- Assisted in form validation and UI enhancements

4:Github Activity:

Muneeb Github Profile:

Picture:

Link:

Dawood Github Profile:

Picture:

Link:

6:Linked Activity:

Muneeb Profile:

Dawood Profile: