

Project Title: Real-Time Traffic Analysis

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

Prepared By:

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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.

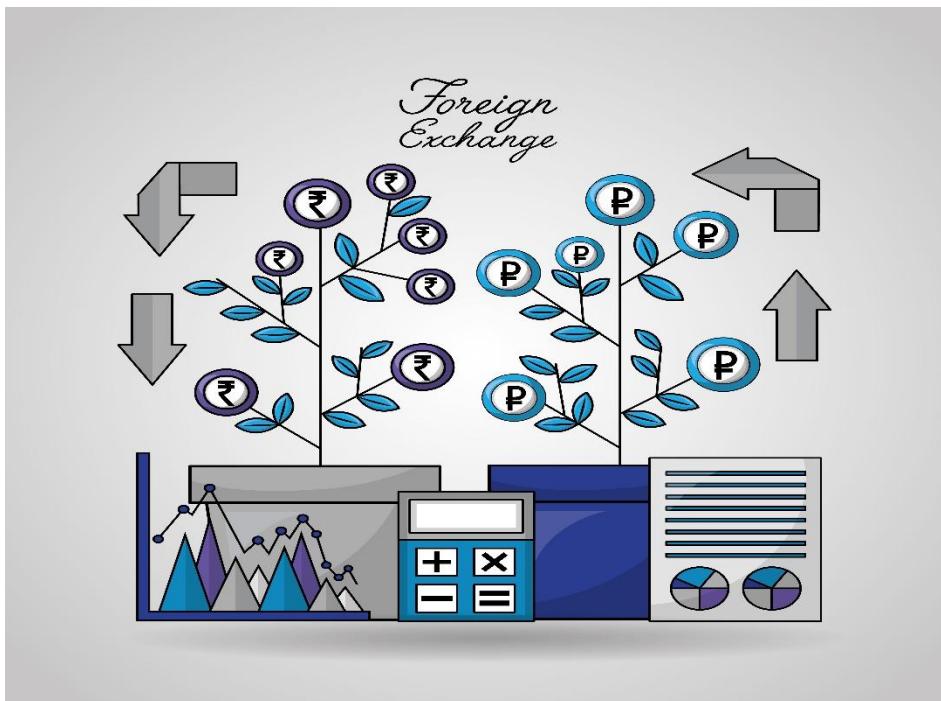
Graph Navigator – Directs drivers through intersections and turns.

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:

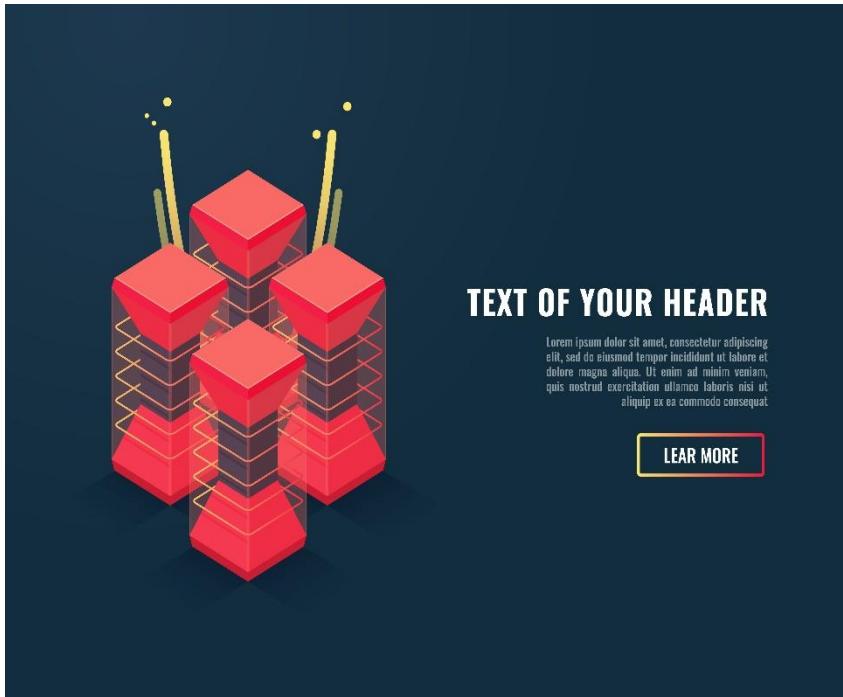
Stack Sentinel **Dawood** – Handles urgent traffic alerts using LIFO.

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.

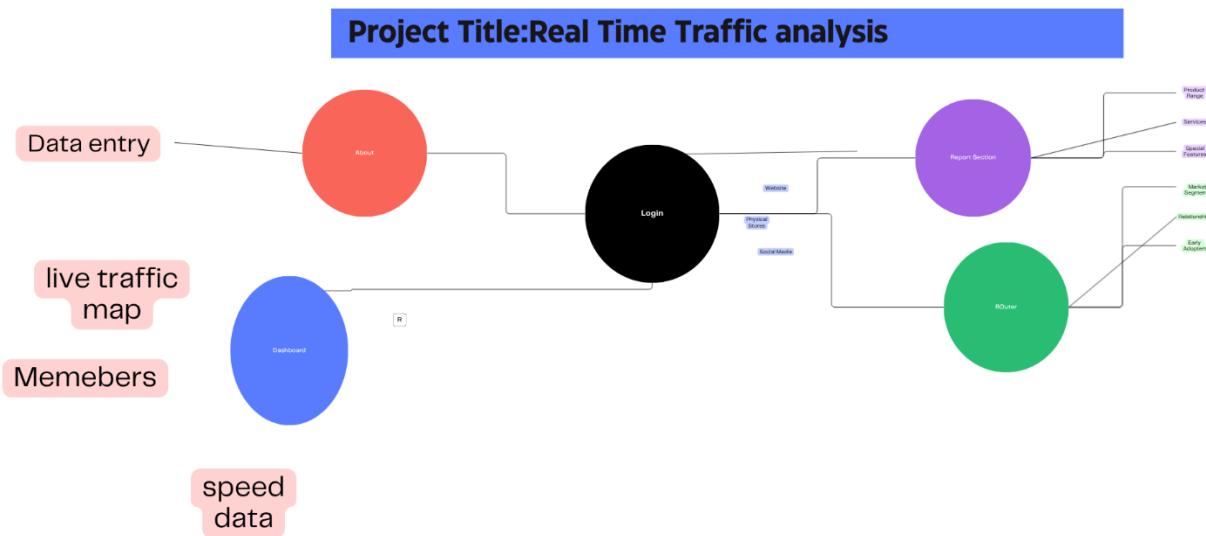


System Mapping:

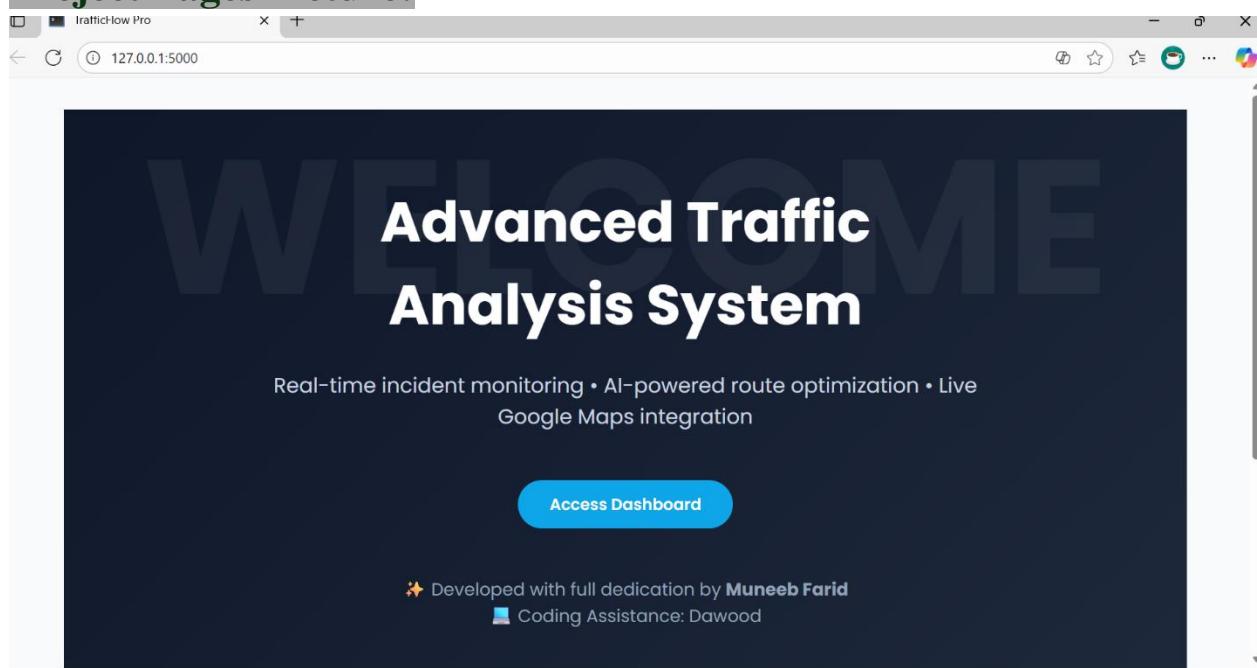
- ❖ There are four pages:
- ❖ First page of login
- ❖ Second page About
- ❖ Third Page of Map (router)
- ❖ Fourth Page (report Section)

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

Admin Login

Muneeb Farid

.....

Login

127.0.0.1:5000/dashboard

TrafficFlow Pro

Dashboard Route Planner Report Incident About Logout

Live Traffic Incidents

Red = High Severity | Yellow = Medium/Low

The map displays traffic conditions across the San Francisco Bay Area. Key locations labeled include the Golden Gate Bridge, Alcatraz Island, Presidio of San Francisco, Legion of Honor, Ocean Beach, Twin Peaks, San Francisco Zoo, North Beach, Chinatown, Union Square, Mission District, Bernal Heights, India Basin Shoreline Park, Alameda, West Alameda, Robert W. Crown Memorial State Beach, and Children's Fair. A legend indicates that red dots represent high-severity incidents and yellow dots represent medium/lower severity. The map also shows major roads like I-80, I-580, I-280, and various local streets.

127.0.0.1:5000/dashboard

TrafficFlow Pro Dashboard Route Planner Report Incident About Logout

Live Traffic Incidents

Red = High Severity | Yellow = Medium/Low

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

127.0.0.1:5000/route-planner

TrafficFlow Pro Dashboard Route Planner Report Incident About Logout

Route Planner (Dijkstra Demo)

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

Source (e.g., A)

Target (e.g., C)

Calculate Shortest Path

The screenshot shows a web browser window titled "Report Incident - TrafficFlow Pro". The URL in the address bar is "127.0.0.1:5000/report". The page header includes "TrafficFlow Pro" and navigation links for "Dashboard", "Route Planner", "Report Incident", "About", and "Logout". The main content area is titled "Report Traffic Incident" with a traffic light icon. It contains four input fields: "Latitude (e.g., 37.7749)", "Longitude (e.g., -122.4194)", a dropdown menu set to "Low (e.g., slow traffic)", and a text area for "Describe the incident...". A blue "Submit Report" button is at the bottom.

The screenshot shows a web browser window titled "About - TrafficFlow Pro". The URL in the address bar is "127.0.0.1:5000/about". The page header includes "TrafficFlow Pro" and navigation links for "Dashboard", "Route Planner", "Report Incident", "About", and "Logout". The main content area is titled "About This Project" with a person icon. It features a section for "TrafficFlow Pro" described as an intelligent real-time traffic analysis and route optimization system developed as Semester Project. Below it, there are two sections: "Lead Developer" (Muneeb Farid) and "Coding Assistant" (Dawood). Both sections list bullet points detailing their contributions.

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: