**Slide 1 introduction**

Introduce self and say project title.

Glasgow is a bustling and vibrant city, the way people navigate their way around it has a huge impact on important matters such as traffic jams to air pollution levels.

This is a software development-based project where I will be developing a web application that will visualise urban mobility in Glasgow. I am going to do this by fetching JSON data through the Glasgow open data hub various API’S. Then represent the data in a visually appealing way whilst also making it easy to understand.

**Slide 2 aims and objectives:**

* I have decided the best sole aim for the project would be to monitoring and visualising urban mobility within Glasgow. I hope to do this by utilising the datasets from the Glasgow Open Data hub and present this data through an interactive map and graph. This will portray the movement and flow of Glasgow’s population. I am hoping this will help people identify areas of congestion and give insights into Glasgow’s infrastructure.

**Objectives:**

* Collecting and displaying the data from the Glasgow Open Data hub.
* Allowing users to enter a specific date range.
* Develop and implementing an interactive graph and map.
* Helping users visualise the data in a clear and concise manner.

**Slide 3 summary of related work:**

The paper "Visualizing the structure of urban mobility with bundling: A case study of the city of São Paulo" focuses on addressing the challenges of visualizing complex and large urban mobility datasets. It utilizes a technique called "trail bundling," which groups close motion lines on a map for a simpler representation.

However, differences between this case study and my project are:

* I aim to visualise urban mobility in Glasgow with a more user-friendly approach in mind. The way I am planning on doing this is through implementing an interactive map using markers instead of a static one that does not pinpoint exact locations.

**Slide 4 and 5 Project Specification**

Let’s delve into the more technical aspects of the project.

Read out functional and non-functional requirements and user stories.

I believe that achieving all the functional, on-functional requirements are critical for separates an average application from a successful one. By ensuring it is easy to use, has an elegant design and engaging features. This will encourage users to return to the application instead of forgetting about it. The main requirements are It must be easy to navigate and visually appealing, ensure map and the graph is interactive. Having all these requirements will result in a well-built application.

**slide 6 (Progress to date):**

So, this is the progress that has been made up to date, as you can see by the screenshots on the board, the application reads and displays all the required data from the footfall API. As you can see the popups display relevant information when you click on one on the application. The home and footfall pages have been styled.

The rightmost image is a screenshot of the Glasgow open data hub API sensor information from the. Some of the locations have more parameters and some have less.

Demonstrate Prototype.

I have managed to stick to most of my deadlines however I faced some issues during my development process. As you can see from this image on the screen some of the APIS have been deprecated due to a report I gave to Glasgow open hub developers reporting that they are unstable. Currently trying to find an alternative solution, so I can start on the traffic and cyclist pages.

**slide 7 (Approach to development):**

For the approach to development**,** I opted to use an Agile development approach as this gives me the most flexible approach. I meet with my supervisor Fredrik Forsberg Nordvall every fortnight as this allows for regular feedback and continual improvement, when building the application.

The main programming language I am using to develop my application is JavaScript. The technology I have used to implement the graph is chart JS and for the map I am using leaflet js.

For styling the application I am using a combination of CSS and Bootstrap.

Currently have a function that gets the data from the footfall API then converts the data so it can be plotted on the map and graph. Example for the map that JSON is converted into GeoJSON.

**slide 8 (Testing and evaluation)**

Before my final application is complete, I will conduct rigorous testing. For my code I am going to write unit tests to ensure the application can is technically sound. I will also be conducting an emulator to test that it runs fine on various devices.

For evaluating the application, I am planning on doing on analyse on its performance metrics. For example, what is the load time for the map to be fully interactive when the user loads it up.will also be conducting User Acceptance Testing to ensure the application meets users’ requirements and is ready for final submission. Gather user feedback through surveys or interviews to gain deeper insights into potential improvements.

**slide 9 (Progress moving forward)**

**Feature implementation:**

* Get traffic and cyclist API’s running again 08/01/24 – 15/01/24.
* Finish traffic and cyclist pages 15/01/24 – 31/01/24.
* Include information to help users analyse results 18/01/24 – 31/01/24.
* Finish styling application complete by 03/01/24- 31/01/2024.
* Improve user interface and experience 22/02/24 – 4-03-24.
* Accessibility Compliance Adjustments 21/02/24 – 26-02-24.

**Testing stages**

* Unit Testing Start by 11-01-2024.
* Integration Testing start by 25/01/2024.
* User Survey and applying for ethics approval 24/01/2024.
* Final Review of Application Start by 12/03/2024.

**Slide 10 conclusion:**

I am hoping my project could be used for other cities as well as Glasgow and help make a real impact in the world in terms of the way we view urban mobility.

Adjustments made between progress report and presentation report:

Added:

Have decided to add to implement a graph as a new functional requirement.

Created a new non-functional requirement that states users should be able to download the graph for further use.

Use an emulator to test devices. Added to testing section

Removed:

The map and graph must load within ten seconds to ensure a responsive user experience. This non functional requirement is impossible as if the user requests a large amount of data it won’t happen.

The other key aim is to encourage active travel aiming to improve public health and easier to understand traffic congestion. I Believe it may be beneficial for me to remove this aim and just focus solely on my first one?