

DESIGN PROJECT REPORT

The goal of the Block 1 project is to design, using the ideas we've learnt so far, a route planning assistant for people travelling on public transport in London.

- Operates on some network of locations
- E.g Places, bus stops, rail stations
- And connections
- Roads, routes, lines

- Network may be simple or complex
- Helps users to plan or make journeys

User-Centred Design

- Who will use this?
- What will they want to do?

These questions can be answered fairly simply. Commuters in London, will use this in order to plan or make journeys to and from locations, on public transport.

Use-Cases

Use Cases are pathways that show the process of an actor (the user) and any other users involved in the process of achieving the objective (goal) that a certain design aims to achieve.

In this case a Use Case would be of a commuter using the route planning assistant to, for example

- Travel from location A to B
- Plan a route for later

This would contain the things the user does in order to achieve this goal using the system. Having appropriate use cases can help develop appropriate requirements for a system.

Requirements

Requirements are the system's behaviour and appearance. As we are creating a route planning assistant, an obvious requirement would be to say that we must be able to plan routes!

Requirements must be clear and they must be **atomic**, meaning that each requirement describes a single thing the system must do and nothing more.

The system may require the user being able to select the date and the time of travel, whether to arrive or depart at these times, and what methods of public transport to be used. As such this will provide the requirements

- User must be able to choose the date of travel
- User must be able to choose the time of travel
- User must be able to choose whether to arrive or depart at a selected time
- User must be able to choose methods of public transport to use

A use case will provide us with these requirements as we can decipher them from the actions the user will have to take.

In our Use Case, the user will choose the date and time of travel, therefore we can say that this is a requirement.

Sketching

Finally, using our requirements, we can begin to sketch the different concepts for aspects of our app, such as the home screen, the route planner, the map and so on.

Sketches should be quick, but useful. They will be annotated and clear to understand, and they will take into consideration the requirements of the project.

Sketches can point into other sketches to display how the connections are formed between the different aspects of the application.

Sketches can and will be thrown away, they should be used to put ideas from mind to paper about ways the design could be made. There are no bad ideas, but there will be better ones and communication and discussion about these sketches can then be done to finalise a sketch that will represent the final design .

Our Process

The process we've opted for in designing our app is based upon individual work first, then group work.

Together we have decided our user groups, using this each of us develop use cases for a select few, split between us. After this we compare these use cases and decide whether they can be improved or if anything is missing.

Using the use cases we have now developed, we individually create a set of requirements from them. Once again we compare these requirements and finalise a set of requirements together.

Finally we use these requirements to sketch each aspect of the design in our own way, which we once again compare in order to develop our final sketch.

This doesn't mean that there is a lack of communication during the process, as we still continue to discuss what processes to use and how to structure certain developments, but it also allows us to have a full representation of our individual ideas without any getting overshadowed by another person.

This method employs both top-down design and iterative design. Top-down design refers to breaking down a problem into smaller parts in order to solve it more easily, also known as decomposition. Iterative design refers to continuously improving a product through concepts, then prototypes and repeating this cycle until the goal is achieved (iterative meaning repetition or a looping).

We split the design into our use-cases, requirements and then sketches, with each of these once again being split into a first individual development cycle, then an iterative group development cycle.

In this Report, you will find:

- A page written by each team member on their use case, the requirements they have developed from it, the sketches they have developed, and an explanation on how all of these were created and why
- A set of final use cases, requirements, and sketches that are the final representation of the design and an explanation on how this was achieved within the team
- Some examples of discussion between the team and how group-work was achieved, including examples of SOBs achieved

Section 1

Prior to beginning our individual work, we first discussed user groups. User groups are the individuals who would be making use of the program.

The user groups we decided were

- Commuters
- Students
- Tourists
- Foreigners
- 16+ to 99

The reason these groups were decided is due to the fact that all of them have individual reasons to require a travel app to assist their journey through London.

Commuters is a generalisation of people who regularly travel from home to work. Workers use public transport to reach their jobs, some don't drive and especially in the city, it is more difficult to use vehicles such as cars.

Students regularly need to travel to schools that are most commonly outside walking distance. TfL provides discounts and free travel for these students.

"Of those aged 11- 15, 78% use the bus at least once a week (far higher than 61% of all Londoners)"

**Main purpose of today's visit to the TfL website (2012) [34]
Using Journey Planner to plan a route <16: 60%, 16-24: 79%"**

From: **Understanding the travel needs of London's diverse communities, Younger People (April 2012)**

Albeit a fairly old statistic, you can only expect that this number has gone up with the rise of access to technologies. It's a clear representation of how many people use public transport, and how many make use of a Journey Planner with it.

Out of the above two groups, Tourists & Foreigners are the least likely to have a familiarity with London's transport systems. A journey planner can greatly ease finding routes to places they'd like to visit and getting them around.

Section A: Samy Wanás

The use case that I chose to do was that of the **Student**. They travel from home to school.

User: Student

Goal: Travel from home to school

Course of action:

- Input location that is being travelled from
- Input location that is being travelled to
- Input time of travel
- Input date of travel
- Input whether to arrive or depart at this time
- Choose methods of transport to use
- Choose a route from listed available routes
- Travel to location of first transport service
- Use transport service to travel to next transport service
- Continue to use services until arriving at the destination.

Alternative Courses:

What if a more accessible route is required? List only routes that are accessible

What if a time selected has strikes or delays at that time? Display strikes or delay information and show alternative routes

What if information about a given route is unavailable? Inform the user no available route was found and indicate for them to give feedback if this is believed to be incorrect

What if arrival time is set to later than possible to achieve? Inform the user that the arrival time is unachievable and displayed estimated late time

What if a severe incident or delay occurs during the user's travel? Push a prompt that indicates that it seems something has occurred with their journey. Display new information about incidents or delays and ask the user if they require alternative routes.

This use case encompasses all the actions the user will take in order to get to their destination, they have a to and from location, the time and date of travel, whether to arrive or depart at this time, the methods of transport they choose to use, the ability to select from available routes, and then they can use the planner until their route is complete.

The alternative courses cover events where the original use case could not be complete, such as incompatibility with accessibility, strikes or delays, lack of information, "impossible" journeys and unforeseen events.

Building off the "what if a more accessible route is required", I created a use case for those with disabilities, these use cases also became more generalised as many of them were similar with small exceptions. You will see the finalisation of this at the end of the report.

User: Individual with disabilities

Goal: Travel from location A - B

Course of action:

- Select disability accessibility mode

- If user selects blind, provide audio prompts (in tandem with phone narration features)
- If user selects deaf, provide on screen readable text
- If user selects colour blind, change colours to selected colour blind mode
- If user selects step-free access, display routes only with step free accessibility

Aside from these few, the rest of the use case remains the same, as does the alternative courses (excluding “What if a more accessible route is required”. Other than “Step-free”, as this is linked to the app, most modern phones now come with these features built in, but having them directly in the app allows them to be optimised for our design and useful for those users who may not have these features in their phone.

Finally the last use case is for an individual who wishes to “Plan” a route instead of taking one at the given time.

User: Individual

Goal: Plan a route

Course of action:

- The course of action here remains the same until after “choose a route from available routes”
- Save the route
- Select the route from saved routes or select for notification to begin route at selected time.

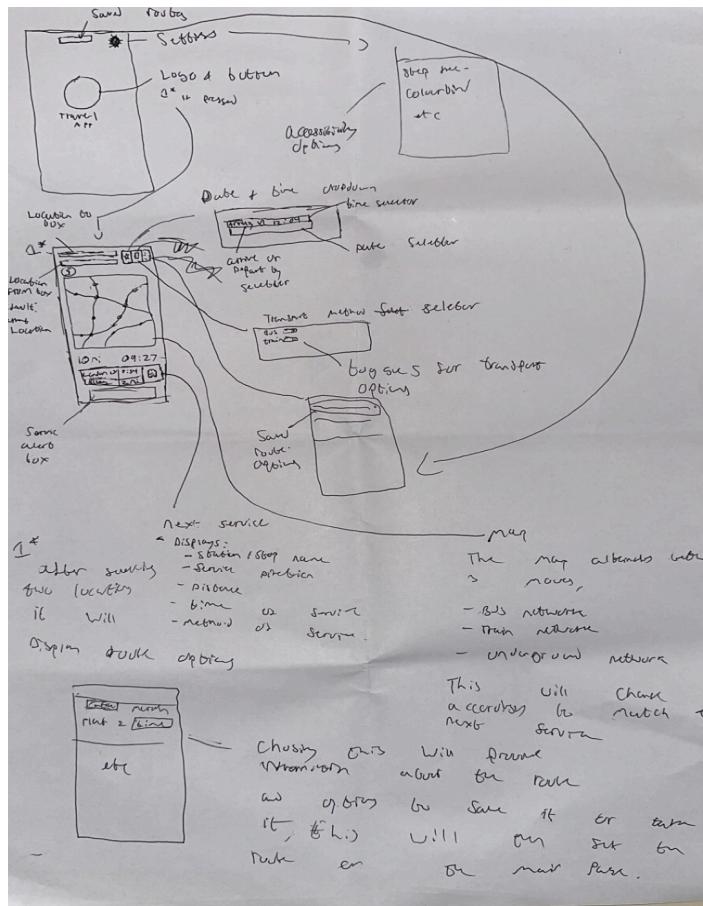
Alternative Courses also remain the same, however they apply once the route has actually begun.

From these I began to derive my requirements

- App can connect to the internet
- Users can select a final destination
- Users can select a starting destination
- App displays available routes
- User can choose from available routes
- User can get information about each route
- User can get information about service status
- User can use the map to select locations
- User can select date of travel
- User can select time of travel
- User can select method of transport
- User should be able to provide feedback when no info is available
- User should be able to save routes
- User should be able to select from saved routes
- Accessibility Toggle for step-free access
- Accessibility Toggle for blind individuals (VoiceOver narration)
- Accessibility Toggle for deaf individuals (Voice prompts replaced with text prompts)
- Accessibility Toggle for colour blind individuals (greyscale and various colour blind options)

You can see how certain requirements are made generally from use cases, where others such as “save routes” are specifically from journey planning, although not used explicitly for planning a journey in the future. “Accessibility Toggle” is taken from the disability use case, and “App can connect to the internet” is a general requirement for the function of the app.

Finally, using these requirements I developed my first sketches



The image is slightly small, so zooming should increase clarity.

I went with a simple design that does specifically what the app needs to do and nothing more.

Upon opening the app you have the option to press to enter the main map app or choose directly from saved routes as well as a settings option (Where accessibility options will be and etc)

In the main app you can enter to and from location, select date and time and whether to arrive or depart in one drop down menu.

There is another drop down for public transport options to use and one more menu to take you back to saved routes.

There is a quick toggle for step-free access.

The main map can be interacted with to select locations and display information about them. It has 3 modes of map network

- National rail
- Underground
- Bus service

Upon inputting your location to and from, the page of available routes will show with information about them, once selected it will link back to the main screen where the map, information and service box will work in tandem.

The map will switch between its 3 network modes depending on the current method of transport (which is displayed in the information box on the far right). It will highlight the route of the current service you are on.

Above the information box you have a distance measurement of the total trip, and a time of arrival. The information box itself contains the details of the next service you are to take on your journey.

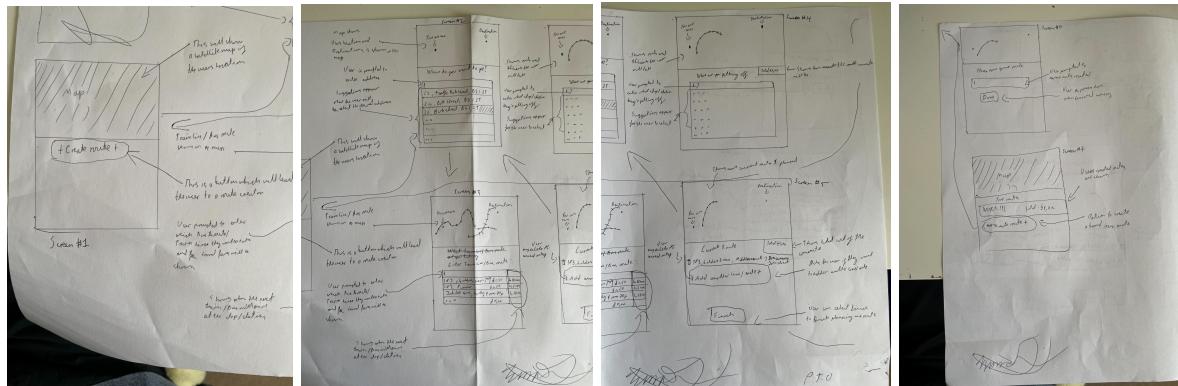
- The stop it is at
- The direction it is going
- The time of its departure
- The distance of its travel
- The type of service you are using

The box underneath will pop up with service alerts such as delays and other unforeseen events.

Section B: Emanuel

Use Case	Requirements
<p>User: People commuting to work Goal: Planning the way to work</p> <p>Course of action:</p> <ol style="list-style-type: none"> 1. locate how far work is from home 2. Use Google Maps to put in your address and the location of your work 3. select public transport to see available routes 4. choose the wanted route 5. look at the costs of using public transport 6. look at the time duration 7. make notes of what train lines and buses you're taking 8. write down train and bus stops which the user needs to take or get off 9. look at the bus and train schedules which the user will use 10. look at alternative routes in case the desired route experiences delays/closures 	<ol style="list-style-type: none"> 1. user must have access to the internet 2. user must be able to use Google Maps comfortably <ol style="list-style-type: none"> a. user must be able to type the work address 3. user must select public transport on Google Maps 4. user must select the desired route 5. user notes down costs 6. user notes down important times 7. user needs to write down what important train lines/ bus routes need taking 8. user needs to write down what stations/ stops they're getting off 9. User needs to write down the bus and train schedules they're taking 10. user needs to write down alternative routes in case of delays/closures

Sketches



The reason I chose this use case was because when I commute using train lines and bus lines, I often get confused about which platform, but line I should take. So if I had a route planner, where I could plan my route, it would massively help me on my commute. Especially when it comes to commuting to University and work. With my sketches, it shows a brief sketch of what a possible app solution would look like. On-screen 1, it prompts the user to create a new route. On-screen 2, it asks for the user's desired destination. On-screen 3, it asks what train lines/ bus routes the user wants to take. On-screen 4, it asks the user what bus stop/ train line they'll want to get off. On-screen 5, it will ask the user if they want to add another line/ route or to finish the route creation for that route. On-screen 6, it will ask the user to name the route created. And on screen 7, the route created will show up where they will be able to select what route they want to take or the option to create another route.

Section C: Edward

Use Case ID:
001
User:
Commuter
Goal:
Plan a journey from point A to point B using public transport in London.
Course of Action:
<ol style="list-style-type: none">1. Open the app and log in or enter journey details as a guest.2. Enter the starting point (Node A) and destination (Node B) for the journey.3. Select preferences such as fastest route, fewest transfers, or least walking.4. Specify any specific modes of transport preferences (e.g., bus, train, tube).5. View a list of suggested routes with details like estimated time and number of transfers.6. Select a preferred route from the list.7. View a detailed itinerary for the chosen route, including specific stops and modes of transport.8. Optionally, save the journey for future reference or share it with others.9. Follow the provided directions and information during the journey.
Alternative course of action (optional):
If the user encounters unexpected disruptions or closures on the selected route:
<ol style="list-style-type: none">1. Receive real-time notifications about disruptions.2. Choose an alternative route suggested by the app.3. If necessary, modify the journey details to find a new route based on current conditions.

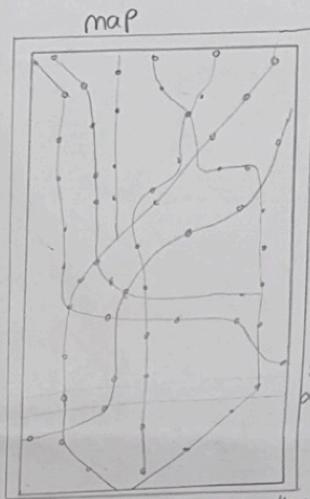
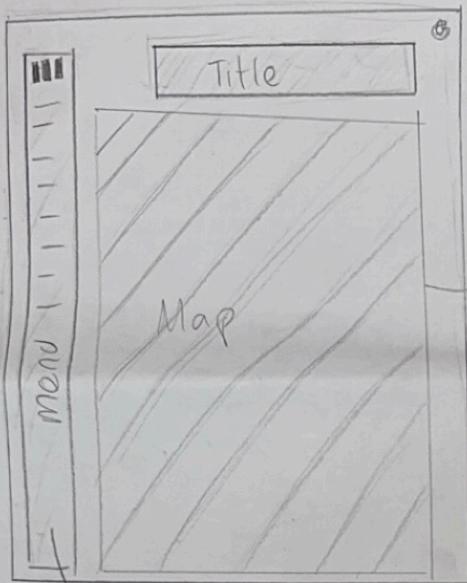
Use Case ID:
002
User:
Tourist
Goal:
Explore popular landmarks and attractions in London using public transport.
Course of action:
<ul style="list-style-type: none">• Open the app and choose the "Explore" feature.• Browse a list of popular landmarks or enter specific destinations of interest.• Select the starting point or use the current location as the starting point.• View suggested routes to the chosen destinations, considering various modes of transport.• Customize preferences based on scenic routes, historical significance, or specific areas of interest.• Select a preferred route and view detailed information about the journey.• Save the exploration plan for reference or modify it based on preferences.• Follow the provided directions and explore London using the suggested public transport routes.
Alternative course of action (optional):
If the normal course of action isn't possible or doesn't achieve the goal, what can the actors do instead?
If the normal course of action isn't possible or doesn't achieve the goal, what can the actors do instead?
<ol style="list-style-type: none">1. Modify the exploration plan by adding or removing destinations.2. View updated routes and details based on the modified plan.3. Continue the exploration based on the adjusted itinerary.

Use Case ID: 003
User: Accessibility-Needs User
Goal: Plan a journey considering accessibility features and options.
Course of action: <ul style="list-style-type: none"> • Open the app and log in or enter journey details as a guest. • Specify accessibility needs, such as wheelchair accessibility or step-free access. • Enter the starting point (Node A) and destination (Node B) for the journey. • Select preferences for routes that prioritize accessibility features. • View a list of suggested routes with details on accessibility options at each stop. • Choose a preferred route that meets accessibility requirements. • View a detailed itinerary highlighting accessible stops and modes of transport. • Save the journey or share it with others.
Alternative course of action (optional): If the normal course of action isn't possible or doesn't achieve the goal, what can the actors do instead? <ul style="list-style-type: none"> • Report the issue through the app, providing details about the problem. • Receive alternative route suggestions that prioritize accessibility. • Modify the journey details based on real-time accessibility information.

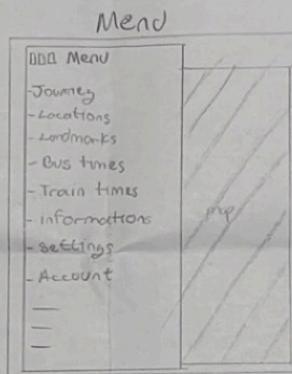
Requirement ID	Requirement description	Testing criteria	Use case ID
REQ001	The app must allow users to log in or use the app as a guest.	Users should be able to access the login or guest functionality from the app's main screen.	001, 002, 003
REQ002	Users must be able to enter the starting point and destination for their journey.	The app should provide input fields for users to enter both starting and ending locations.	001, 002, 003
REQ003	The app must allow users to specify preferences for their journey, such as fastest route, fewest transfers, or least walking.	Users should be able to select preferences before viewing suggested routes.	001, 002
REQ004	Users must be able to customize their journey based on specific modes of transport preferences	The app should provide options for users to choose preferred modes of transport.	001
REQ005	The app must display a list of suggested routes based on user input and preferences.	Users should see a clear list of routes with details such as estimated time and number of transfers.	001, 002, 003
REQ006	Users should be able to view detailed itineraries for each suggested route, including specific stops and modes of transport.	The app should provide a detailed breakdown of the chosen route.	001, 002, 003
REQ007	The app must allow users to save their journeys for future reference.	Users should be able to save journeys, and the saved journeys should be accessible in the app.	001, 002, 003
REQ008	Users should have the option to share their journey details with others.	The app should provide a sharing feature, and shared links should direct recipients to the correct journey information.	001, 002, 003
REQ009	The app must provide real-time notifications about disruptions or closures on selected routes.	Users should receive timely notifications if disruptions occur on their selected route.	001

REQ010	The app should suggest alternative routes in case the chosen route is disrupted or closed.	Users should see alternative routes when disruptions are detected.	001
REQ011	The app must allow users to modify their journey details based on real-time information or personal preferences.	Users should be able to make changes to their journey plans and see updated routes.	001, 002, 003
REQ012	The app must provide a feature for exploring popular landmarks and attractions in London.	Users should be able to access the exploration feature from the app's main screen.	002
REQ013	The app must allow users to browse a list of popular landmarks or enter specific destinations.	Users should have options to explore popular destinations within the app.	002
REQ014	The app must suggest routes to chosen destinations, considering various modes of transport	Users should see routes based on their chosen destinations and preferences.	002
REQ015	The app must provide options for customizing exploration plans based on preferences such as scenic routes, historical significance, or specific areas of interest.	Users should be able to customize their exploration plans.	002
REQ016	The app must consider accessibility needs, such as wheelchair accessibility or step-free access, when suggesting routes.	Users should see routes that meet their specified accessibility requirements.	003
REQ017	The app must allow users to report accessibility issues during the journey.	Users should have a feature to report accessibility problems, and reports should be sent successfully.	003
REQ018	The app should suggest alternative routes that prioritize accessibility in case of reported issues.	Users should see alternative routes that address reported accessibility problems.	003
REQ019	The app must provide real-time accessibility information for each stop.	Users should see up-to-date information about the accessibility features at each stop.	003

Design 1



- train arrival times
- delay
- accessibility
↑
Selecting on station will show you info about it
Select station
Select specific lines
clicking on the map within the app redirects you on a page where you can interact with the map
↓ zoom in



clicking on the menu side in the app will make the menu extend from left to right, making the text bigger and it gives you access to select anything within the menu

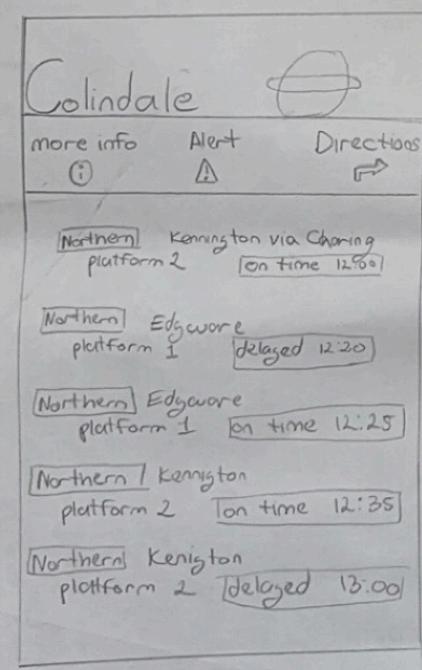
the menu will include features and the services we offer.

→ clicking on a certain service or feature will redirect the user to the specified page

when selecting a certain station within the map page, this page will pop-up presenting the station, information about it and train times.

features:

Alert → this feature will allow you to select a station/train and if there is any changes or delays, it will notify you before hand.



Final Design

This section will be the final design and a discussion on how this was achieved. We will begin with our user groups, use cases and requirements and finish with our final sketches.

User Groups

- Commuters
- Students
- Tourists
- Foreigners
- 16+ to 99

Use Cases

Use Case ID: 1
User: Individual (Traveller)
Goal: Travel from location A - B
<p>Course of action:</p> <ul style="list-style-type: none">- Input location that is being travelled from- Input location that is being travelled to- Input time of travel- Input date of travel- Input whether to arrive or depart at this time- Choose methods of transport to use- Choose a route from listed available routes- Travel to location of first transport service- Use transport service to travel to next transport service- Continue to use services until arriving at the destination.
<p>Alternative course of action:</p> <p>What if the user suffers from disabilities?</p> <p>Select disability accessibility mode</p> <ul style="list-style-type: none">- If user selects blind, provide audio prompts (in tandem with phone narration features)- If user selects deaf, provide on screen readable text- If user selects colour blind, change colours to selected colour blind mode- If user selects step-free access, display routes only with step free accessibility <p>What if a time selected has strikes or delays at that time? Display strikes or delay information and show alternative routes</p> <p>What if information about a given route is unavailable? Inform the user no available route was found and indicate for them to give feedback if this is believed to be incorrect</p> <p>What if arrival time is set to later than possible to achieve? Inform the user that the arrival time is unachievable and displayed estimated late time</p>

What if a severe incident or delay occurs during the user's travel? Push a prompt that indicates that it seems something has occurred with their journey. Display new information about incidents or delays and ask the user if they require alternative routes.

Use Case ID: 2

User: Individual (Route Planning)

Goal: Plan Route from location A - B

Course of action:

- Input location that is being travelled from
- Input location that is being travelled to
- Input time of travel
- Input date of travel
- Input whether to arrive or depart at this time
- Choose methods of transport to use
- Choose a route from listed available routes
- Save the route
- Select the route from saved routes or select for notification to begin route at selected time.

Alternative course of action:

What if the user suffers from disabilities?

Select disability accessibility mode

- If user selects blind, provide audio prompts (in tandem with phone narration features)
- If user selects deaf, provide on screen readable text
- If user selects colour blind, change colours to selected colour blind mode
- If user selects step-free access, display routes only with step free accessibility

What if a time selected has strikes or delays at that time? Display strikes or delay information and show alternative routes

What if information about a given route is unavailable? Inform the user no available route was found and indicate for them to give feedback if this is believed to be incorrect

What if arrival time is set to later than possible to achieve? Inform the user that the arrival time is unachievable and displayed estimated late time

What if a severe incident or delay occurs during the user's travel? Push a prompt that indicates that it seems something has occurred with their journey. Display new information about incidents or delays and ask the user if they require alternative routes.

You can see how these use cases have been generalised to two things, taking a route and planning a route. Although the places they visit and the way they do so may be different for each person the way they do this through the app will remain the same for everyone.

These use cases represent how someone can set a route to travel or plan a route for any location, even if they have accessibility requirements.

Requirements

Requirement ID	Requirement Description	Testing Criteria	Use Case ID
1	App can connect to the internet	User can use their internet connection within the apps (Maps, Times etc display correctly)	N/A
2	User can select starting destination	User can input a starting destination which will save correctly and apply to displayed routes	1, 2
3	User can select final destination	User can input a final destination which will save correctly and apply to displayed routes	1, 2
4	User can select date of travel	User can input a date of travel which will save correctly and apply to displayed routes	1, 2
5	User can select time of travel	User can input a time of travel which will save correctly and apply to displayed routes	1, 2
6	User can select method of transport	User can select or deselect specific transport options and only selected ones will be used for displayed routes	1, 2
7	User can save a route	User can choose to save a route and the route will be added to saved routes	2
8	User can select from saved routes	User can select from saved routes and the journey will begin from them	2
9	User can toggle “step-free” mode	User can toggle step-free mode and if active, only step-free routes will be shown	ALT 1, 2
10	User can toggle “blind” mode	User can toggle blind mode and if active, voice narration will be used for app features	ALT 1, 2
11	User can toggle “deaf” mode	User can toggle deaf mode and if active, text-displays will be used for app features	ALT 1, 2
12	User can toggle “colour blind” mode	User can choose between various colour blind options and if active, colour blind mode	ALT 1, 2

		will be applied on screen	
13	User should be notified of strikes or delays	Strikes or delays will be displayed and the user will be notified of them	ALT 1, 2
14	User should be notified if their arrival time is unachievable	User will be told that their arrival time is unachievable	ALT 1, 2
15	User should be told how long they will be late by	Time difference between wanted arrival and expected arrival will be shown	ALT 1, 2 (REQ)
16	User should be prompted if anything unforeseen happens during travel	Prompt asking if something has gone wrong if incident or delay occurs during travel	ALT 1, 2
17	User should be provided with alternative routes if anything unforeseen happens during travel	Alternative routes displayed	ALT 1, 2 (REQ)
18	Information should be displayed about selected route	Details such as time of arrival, distance, the current service etc. Will be displayed	N/A
19	User can select a stop / station on the map to get information about it	Information will be displayed such as location, distance etc.	N/A
20	User can switch between map networks	User can switch between the 3 network options - National Rail - Underground - Bus	N/A
21	User can provide feedback when no info is available	User will be prompted to provide feedback if no info is available and this is believed to be incorrect	ALT 1, 2
22	App uses google maps for network of locations	App will be able to use locations such as places, certain stops and known connections based on google maps	N/A
23	User can select imperial or metric data types	User can select between imperial or metric in settings	N/A
24	User can view their route history	User can view their route history in menu	N/A
25	User can view transport timetables	User can view transport timetables in menu	N/A
26	User can change selected language	User can choose a different language in settings (Default: System Language)	N/A

27	App displays must not be cluttered	No overlaps or crowding of UI elements	N/A
28	App displays must be clear	No blurry UI elements	N/A
29	App displays must be legible	No illegible words on UI	N/A
30	App displays must be consistent with different languages	No differentiation between the way the UI is presented when the language is changed	N/A
31	App must display estimated cost of journey	Using info about peak times, contactless and whether a ticket is needed or not	N/A
32	App must have a familiarisation “Tutorial” available	User can select to do the tutorial where app features will be explained	N/A

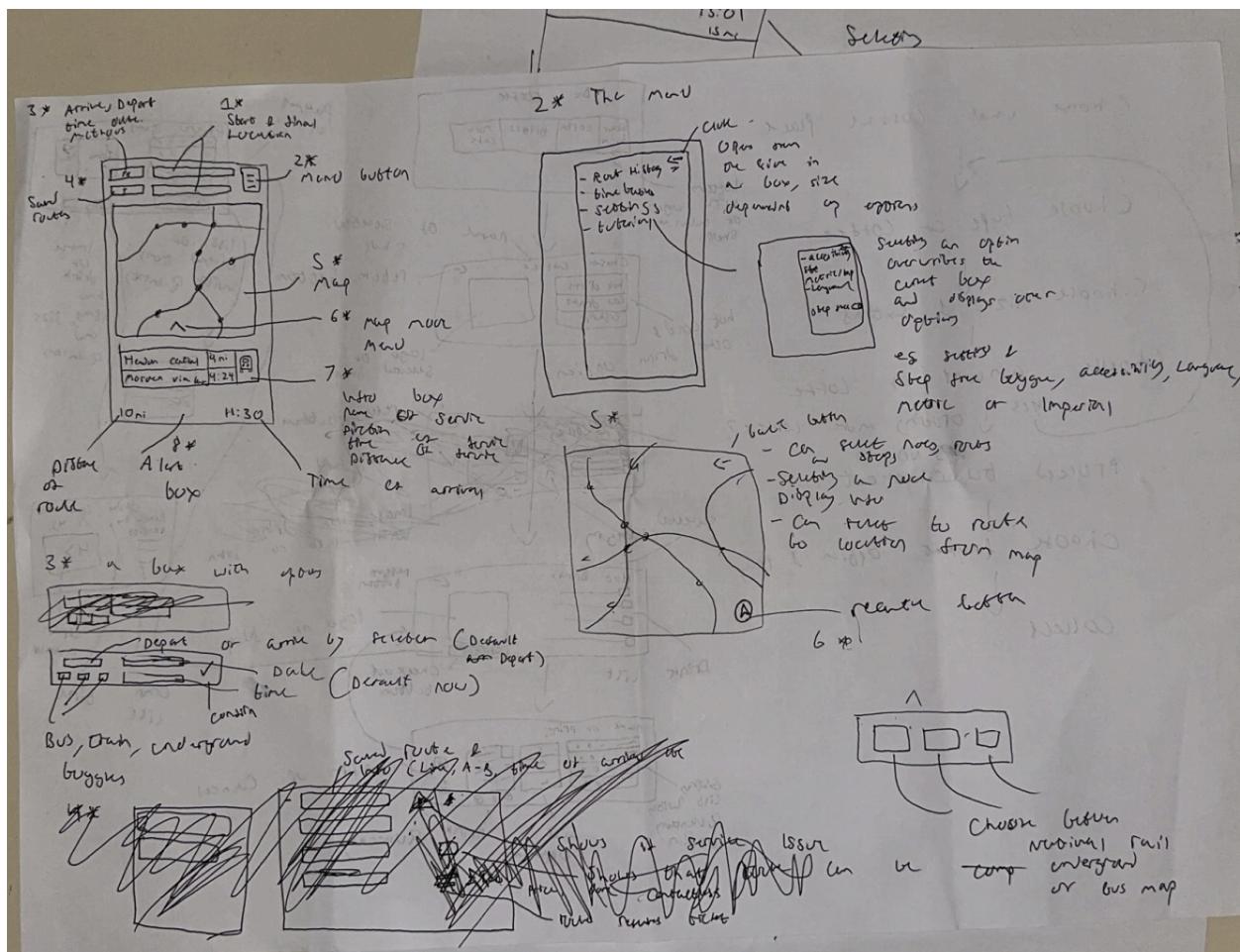
The requirements cover everything needed for the app to function, as well as some other non-functional requirements.

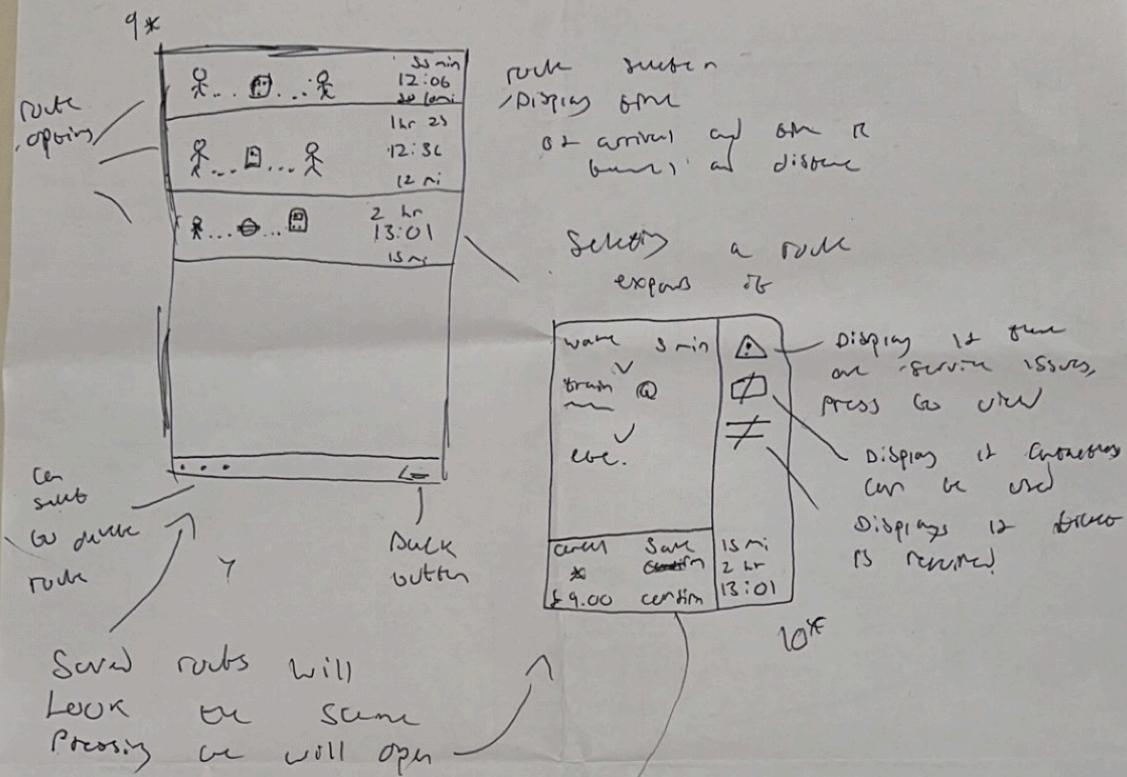
Selecting a starting location is a functional requirement for example, whereas changing between imperial and metric is not.

Functional requirements are required for the specific function of the app, in this case choosing your route. A non-functional requirement is however not, but can improve the useability of the app.

The user's specific needs, if they are using this app, to be able to make and plan journeys in London, on public transport. This can be deciphered using these requirements.

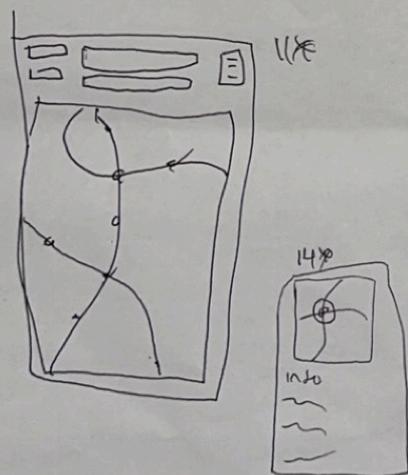
Final Sketch





When nothing is saved
map will turn off
or where been

centring will move to now
go display, map will show
no or route



1* This is where you can input your starting and final location, by default the start is set to your current location (if allowed)

2* The button in the top right opens this drop-down menu, this menu is opaque and disables interaction with other elements of the app to prevent issues

The menu contains options such as Route History, Transport timetables, Settings and a button to use the tutorial if someone wishes to complete it again.

Route History will resemble the route selector which will be discussed shortly and will allow all the same options.

Transport timetables will be those made available by public transport services and the option to download them will be provided so that they can be viewed at any time.

Settings will contain options such as accessibility options, language options, metric / imperial unit options and a step-free access toggle switch.

Any one of these secondary menus will open in the same box replacing the previous elements for continuity, there is a close button to return from each menu.

3* This button is another drop-down similar to the menu, it is also opaque and disables other interactions. It has a box to select time, a box to select the date (both of which default to current time and date), a smaller drop down to select whether to arrive or depart at these times, and 3 toggles for which transport options are to be used when searching (bus, train or underground)

4* Saved routes will look exactly the same as the route selector (**9***), however, it will display routes that you have saved, the 3 dots present on the image of the route selector allow someone to delete or edit saved routes

5* The map will commonly cover the entire lower half of the screen (**11***) until a route is selected. The map can be interacted with in various ways. Nodes on the map, such as stops, stations and routes themselves can be pressed on to view information about them. (**14***)

Information such as strikes, delays, accessibility options and such will be displayed when selecting something, as well as this options to save a route to this location or to set a route to this location will be available

It also has a recentre button if you've moved it around and wish to locate yourself again.

6* The map selector is a small box that lets you choose between displaying the bus, train or underground network maps. The map will automatically change depending on the current service you are using.

7* The info box, only present after a route has been selected. It displays the current service that you are going to be using, once it is complete it'll update to the next.

The info box displays the station / stop that your service is at, the direction/name of your service, the time of the service and the distance the service will travel. As well as this a small logo next to it will display what type of service it is.

The total distance and time of arrival also only display once a route has been selected otherwise the map will be there instead.

8* is the alert symbol that will show up in the alert box while a route is selected. If any events such as delays or strikes and so on occur during travel, the alert symbol will appear, pressing on it will give you details about the strikes or delays that are occurring.

9* is the route selector, after you've inputted your travel to location, this will show up and display different routes. It will show an abstract version of what you will have to do, such as walk, take a bus, train etc, the distance, time of arrival, and time of travel.

10* upon selecting a route, the confirm screen is shown. This shows a more detailed view of the services a user will be using, the time they take individually and the process of taking them.

On the right, icons display to represent either delays or issues, whether the route can be completed with contactless, and whether or not the route requires a ticket. It also displays the time of arrival, total trip time and distance.

The final box displays options to confirm this route, save the route or cancel it, and an estimated price based on peak and off-peak times.

12* is an example of the arrows on the map displaying the route which you are taking

13* is an example of the missing info report screen if nothing is available and the user believes this is a mistake.

As mentioned in the requirements, it is worth noting that if a time is not achievable, the time of arrival is highlighted in red, and the actual time of arrival and late time are displayed below it (elements are all shifted to make space)

This design takes in a lot of elements from our individual designs and those that you can find in various transport applications.

For example, Google Maps and TfL Go. Both of these allow you to select a location to find information about it, provide you with various methods available to get to these locations, provide accessibility options for these routes, allow you to save these routes and are centred around an interactive map. Going straight into the app instead of having a screen before cuts down on unneeded features and makes things quicker.

They also provide information about delays and service issues and present a variety of routes that a person can use. Some also provide features such as selecting certain sightseeing locations for example, but as this is centred around public transport, things like that haven't been included.

With everything being in one place on the main screen and all the necessary information such as distance, time and cost being available, it makes the app widely useful for its users. You can understand it visually and quickly. A UI that is text heavy or image heavy can sometimes be difficult to figure out. With a reasonable mix of both you can create better representations that people can understand. Knowing this helps you carefully choose your UI design and represent its features in a way that is understandable to many people.

The easiest way to test for issues in your UI is to show it to a test audience, surveys for example. You will definitely understand what you are attempting to represent with your own design, someone else may not.

By comparing designs within our team members, without explaining them prior, we can have honest open opinions about what they infer from your design choices and how they understand them. We use this to develop better choices that are more widely understandable

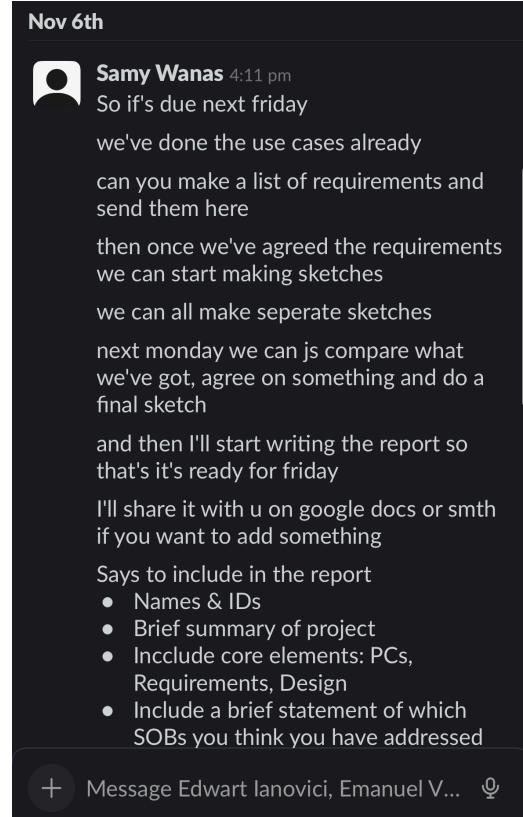
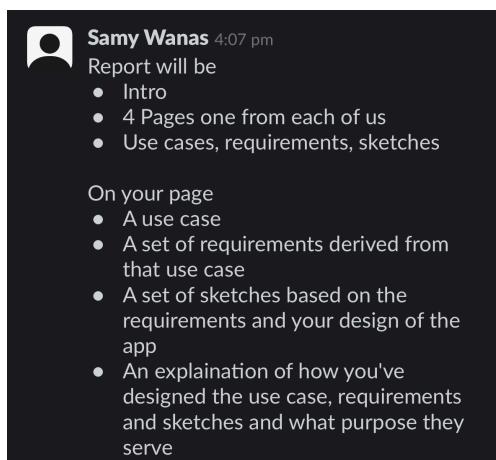
Commonly you will find a lack of information about whether trips can be completed with contactless or require a ticket and what you are expecting to pay for the trip in apps such as these. This will be especially helpful for foreigners who may not be familiar with these systems.

It is important that the UI is familiar to people, and since this looks familiar to many other map applications you can find, you can assume that it would be fairly intuitive to use.

It has all the necessary required features and accessibility features including options such as language and different units of measurement. I can safely say that this design does meet the requirements set above.

Some examples of group work relating to SOBS

13th Nov, all arrived early and began working, we had been communicating over slack about what was expected to be done and deadlines for this. We collaborated using our individual work to put together a final set of use cases, requirements and a final sketch.



SOB	TEAM MEMBER	What was done? Why does it achieve the SOB?
13: Write simple design documentation, including reference to appropriate existing products, materials or literature	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	General report, including individual pages and references to apps such as google maps & tfl go.
20: Demonstrate personal time management skills, arriving on time for scheduled sessions, using the available time productively and not missing sessions without excellent reason.	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	13th Nov, arrived early and used lesson time effectively to develop final design elements such as our use cases, requirements and sketches.
21: Work effectively as part of a group, demonstrating respect for others and contributing to shared goals	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	Communication over slack and individual work put together, helpful and respectful of all ideas without discourse
26: Demonstrate the ability to describe functional and non-functional requirements and user needs, and to assess whether a design meets its requirements	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	General report, short description of functional vs non-functional requirements and how these are useful
110: As part of a project, take an open problem such as a simple design task, refine the problem in sensible ways and propose possible solutions.	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	Completed design task, appropriately designed product and various solutions proposed
131: Demonstrate an understanding of design approaches such as top-down design and iterative design.	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608)	General report, top-down design and iterative design methodologies discussed and how they link into our design process explained

	Edwart Ianovici (M00946886)	
137: Create and represent a Use Case	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	Individual Pages and final use cases
112: Demonstrate a clear awareness of the importance of user interface design issues, and how they can be addressed systematically in a design project.	(Samy Wanas M00949455) (Emanuel Viorel Vochitoiu M00942608) Edwart Ianovici (M00946886)	Careful design element choices and requirements such as legibility, as well as discussion indicate the importance of UI design issues and how they can be addressed.
144: Working individually or in a group, present the work of a project using appropriate slides or other visual aids.	For completion on 20th Monday	