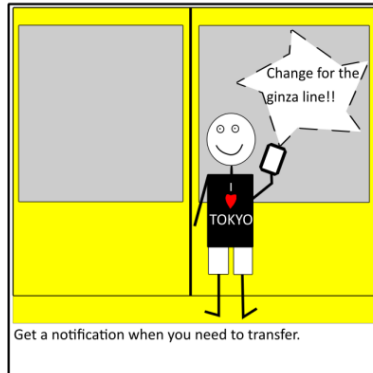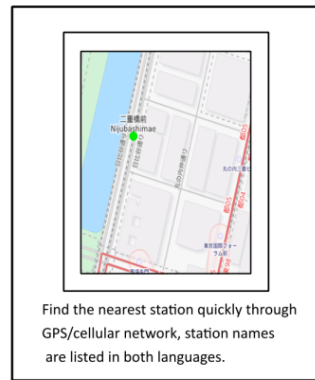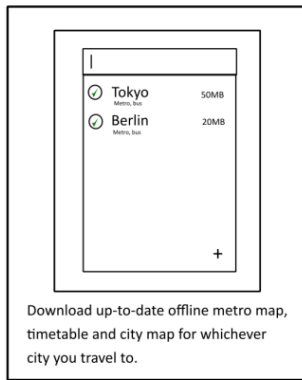# Metro App

A friendly, intuitive app for navigating commuter transport services and planning journeys in many cities, with maps and schedules available for offline use.

時　中目黒方面
改正日：平成29年4月21日
5　21

I cant figure this out!! Is this the right train, and where do I transfer?

Tokyo — Metro, bus — 50MB
Berlin — Metro, bus — 20MB

Download up-to-date offline metro map, timetable and city map for whichever city you travel to.

二重橋前
Nijubashimae

Find the nearest station quickly through GPS/cellular network, station names are listed in both languages.

● 二重橋前駅 Nijubashimae
towards 各停Meijijingu-Mae
12 mins, 4 stops
● 表参道駅 Omote-sando
● 表参道駅 Omote-sando
towards 各停Shibuya
1 min, 1 stop
● 各停Shibuya

Get simple directions for a journey.

Change for the ginza line!!

Get a notification when you need to transfer.

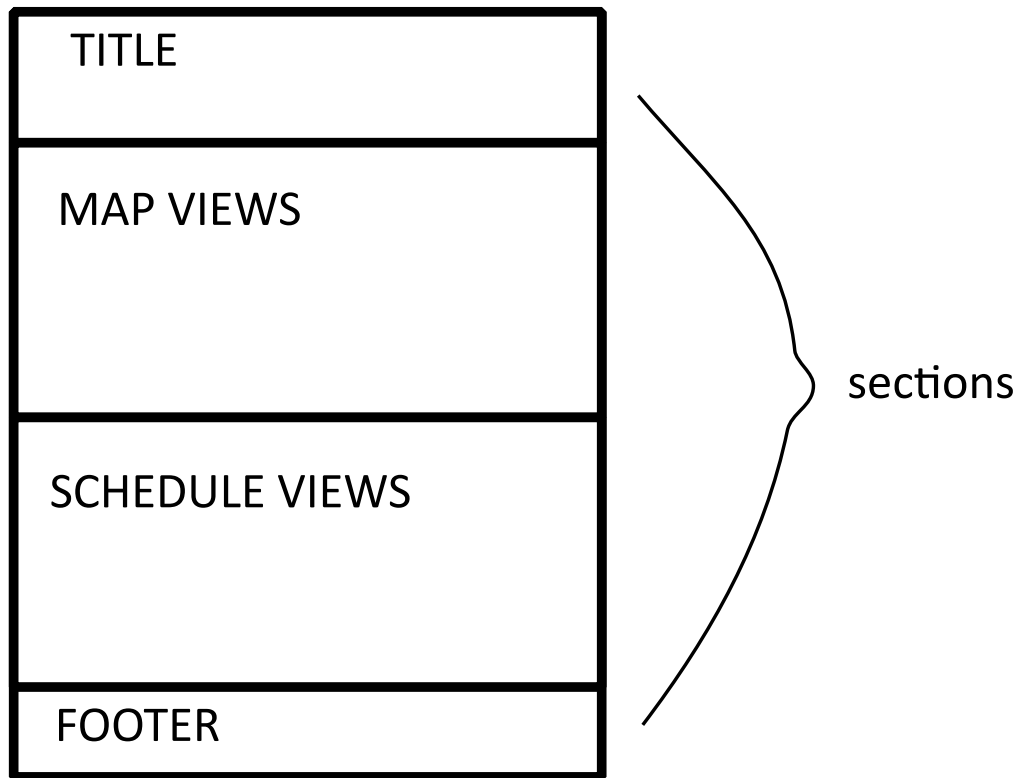Check the timetable wherever, whenever, and never miss the last train again!

Considerations
- Have different views of the map and schedules to
  enable different questions to be answered quickly.
- When a User chooses to download a city's metro data,
  show space requirement. The city map is optional.

Main Screen

```
┌─────────────────────────────┐
│  TITLE                      │
├─────────────────────────────┤
│  MAP VIEWS                  │
│                             │
│                             │         ⎞
├─────────────────────────────┤          ⎠  sections
│  SCHEDULE VIEWS             │
│                             │
├─────────────────────────────┤
│  FOOTER                     │
└─────────────────────────────┘
```

1. If a change is made in the Map Views section, then the Title section will be updated.

2. The footer has controls that can control the appearance of some of the other sections.

Title Section

FROM {origin} TO {destination} : {fare}

1. Shows the origin station and destination stations, and shows the single fare for that journey. Typically, only used to display values from other sections.

2. User can input the stations by clicking on the textboxes and typing in the names. After 2 characters, suggestions are shown

3. User can select the fare type by clicking on the {fare} link, options will typically be: short single; single, return; day pass, 3-day pass, weekly, monthly. A short description is available on hovering .

Map Views Section
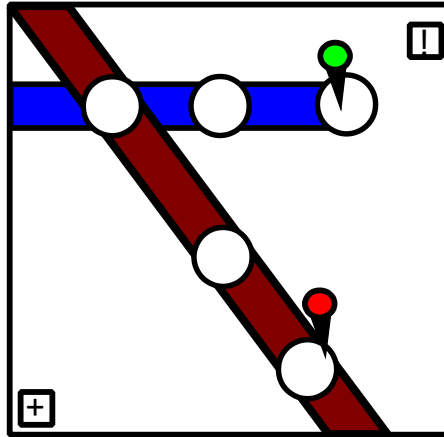
1. Allows origin station and destination stations to be selected by placing "from" and "to" pins

2. Map can be zoomed in and out by pinching/mouse wheel.

3. Map can be panned by dragging

4. "+" button will open the "layout" subsection. The subsection slides in from left in an eased transition. The button will change into an "x" to indicate that it will close the subsection when clicked again

5. "!" button will show a drop-down list with some of the following options: show journey times (false by default), show stations names (true by default) depending on the layout selected
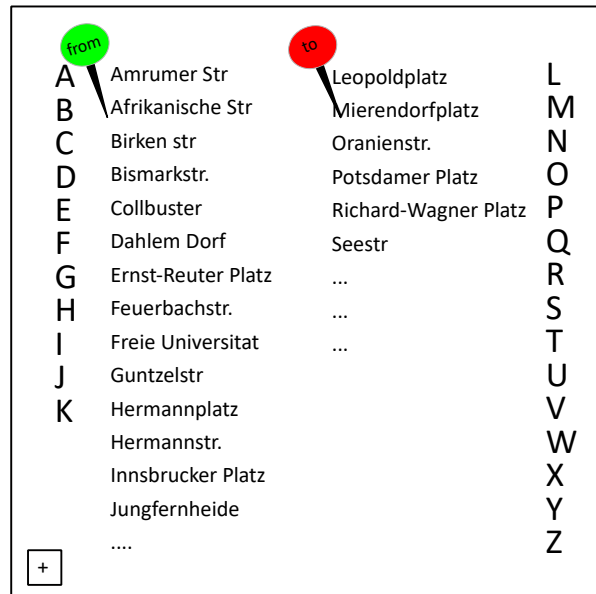
QUESTION: should I only show pins when a User clicks on station and show a pop-up window that allows them to select as a "from" or "to" station? Then dragging is not required.

Layout subsection
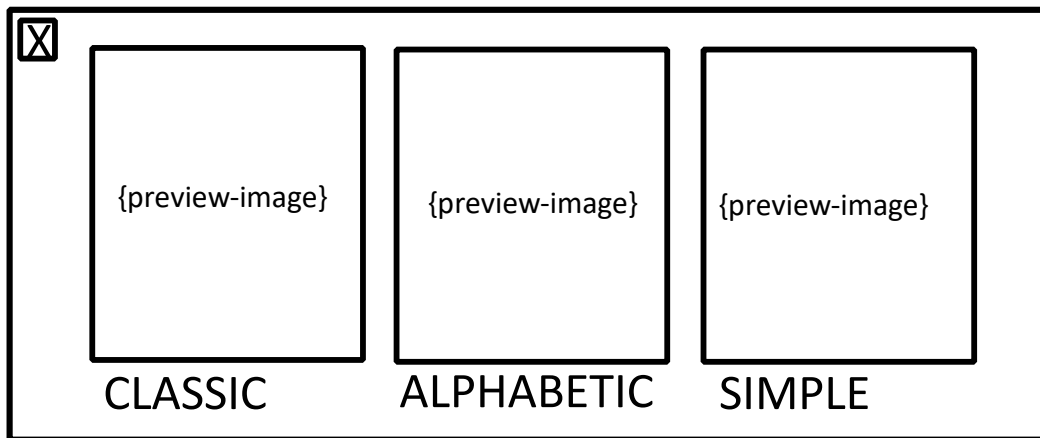
1. Classic: a copy of the map that is provided by the Metro Company. This must be produced manually but can be built from the simple layout fairly quickly..I think!

2. Alphabetic: an alphabetic list with 2 columns of the all station names. This can be generated.

3. Simple: a map where the lines are projected onto a grid with stations equidistant and clustered tightly for a compact view. Geography is largely ignored. This can be generated. Make default?

4. Flat: lines are listed individually, transfers are shown by a symbol adjacent to the station. This can be generated.

5. Real: stations are overlayed on a real slipply map e.g. Google Maps. This can be generated.

Alphabetic Layout

| from		to	
A	Amrumer Str	Leopoldplatz	L
B	Afrikanische Str	Mierendorfplatz	M
C	Birken str	Oranienstr.	N
D	Bismarkstr.	Potsdamer Platz	O
E	Collbuster	Richard-Wagner Platz	P
F	Dahlem Dorf	Seestr	Q
G	Ernst-Reuter Platz	...	R
H	Feuerbachstr.	...	S
I	Freie Universitat	...	T
J	Guntzelstr		U
K	Hermannplatz		V
	Hermannstr.		W
	Innsbrucker Platz		X
	Jungfernheide		Y
	....		Z
+			

1. Split all stations into 2 equal lists

2. Quick find letters are beside each list to jump up/down the list. Similar to what is used on contacts list. Must be fully visible on screen by default
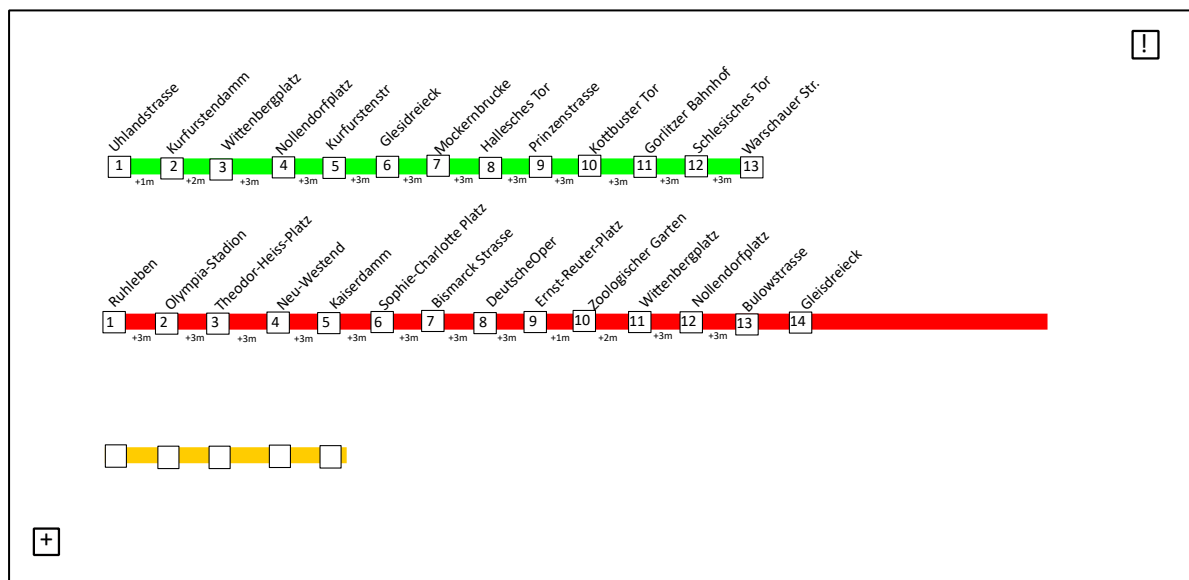
Simple Layout
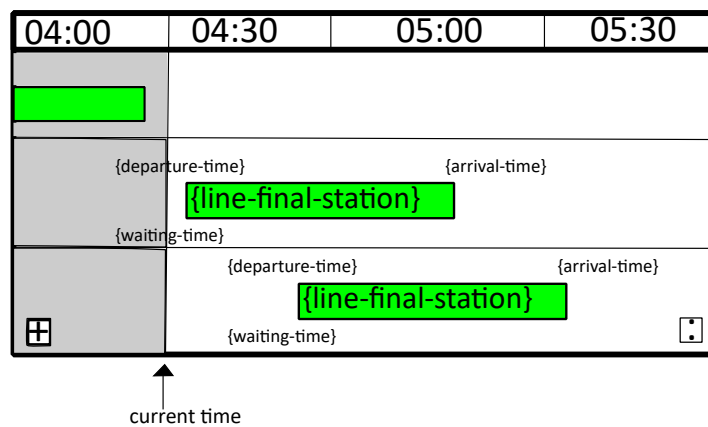
Flat Layout
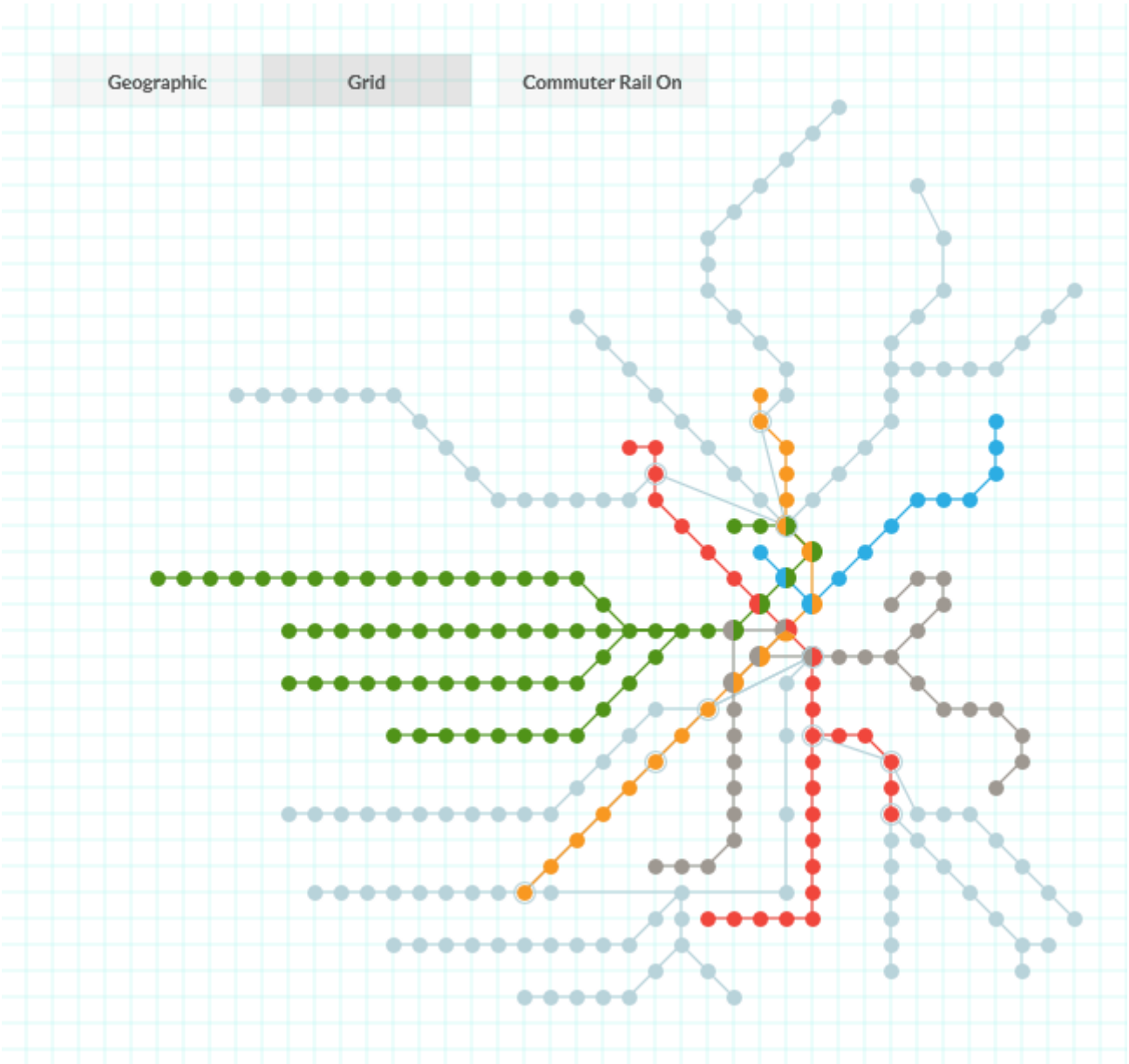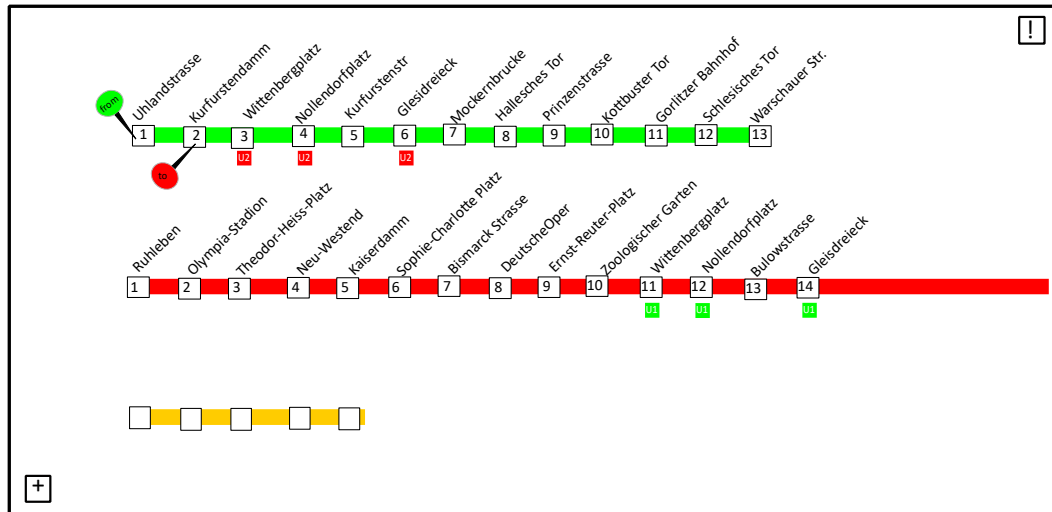
With journey-times shown:

Real Layout

1. Can show station names according to zoom level and scale the shapes accordingly for optimum clarity, to ensure other map features are not obscured too much. Can play with the opacity to find right balance.

2. Can give option to select different tilesets such as Openstreet Maps (preferred) or custom tilesets also.

3. Typical zoom and pan actions for a slippy map.

4. No need for zoom or up/down/left/right pan buttons.

INVESTIGATE: Is it sensible to download the city raster tileset for offline viewing? Can check size and see what is required for rendering

Robert O'Leary ©

Schedule View Section

04:00	04:30	05:00	05:30

{departure-time}   {arrival-time}

{line-final-station}

{waiting-time}

{departure-time}   {arrival-time}

{line-final-station}

{waiting-time}

current time

1. Default layout is this "bar" layout

2. "+" button shows the "layout" subsection. The layouts are: bar, and text

3. ":" button opens the "date" subsection to select time and date of trip.

4. If one subsection is already open, and the other is selected, it will close the first subsection.

Bar Layout
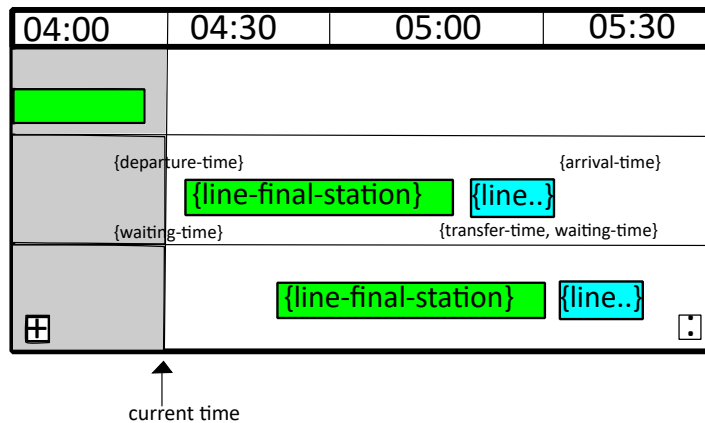
1. Transfers are shown as a second bar, a gap is left if the trains are not back-to-back i.e. same platform

2. The transfer time is taken into account to show when you can get your transfer.

3. If the {line-final-station} is too long it is abbreviated or truncated, can show as tooltip on hover to show full text

4. Can scroll to see past and future trains, would be nice to have a diagonal shift to keep rows centered

QUESTION: Does zoom make sense? Maybe, if it is restricted to a certain zoom level. Max zoom out = 6 trains, max zoom in = 1 train?

Date subsection
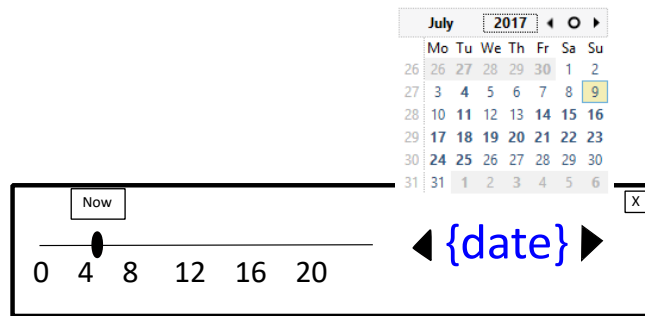
1. Time slider allows a time to be picked. To be very specific e.g 5:15, the slider is used in conjugation with the Schedule Views section.

2. A now button will reset it to the current time.

3. Today's date is shown and can be incremented/decremented by 1 day using the arrows.

QUESTION: Should we include a popup calendar? Not really necessary for commuter services that have same timetable every week.

Text Layout

```
weekday                      saturday                    ▶
04 00 05 10 15 20 25 (45) 55   04 00 05 10 15 20
05 00 05 10 15 20 25 45 55   05 00 05 10 15 20 45
06 00 05 10 15 20 25 45 55   06 00 05 10 15 20
07 00 05 10 15 20 25 45 55   07 00 05 10 15 20 25
08 00 05 10 15 20 25 45 55 ▼ 08 00 05 10 15 20 25
---                          ---
{line -final-station} {transfer} {line -final-station} {arrival-time}
```

1. By default, the current group (i.e. weekday here) is aligned to the left. The next train is circled in red.

2. Arrows in the top-right or top-left corner indicate there is more data in that direction to scroll horizontally.

3. Times can be scrolled vertically. Arrows indicate more data above or below.

4. The User can select a time by clicking on it will be circled in yellow (or whatever colour)

5. The journey info at the bottom should be summarized in a concise format. If there are multiple ways to get to a destination, show second and third options also, taking rows from the timetable

Footer Section
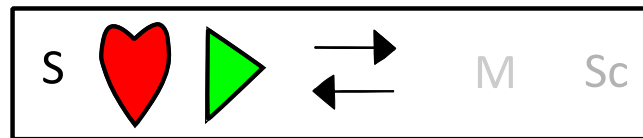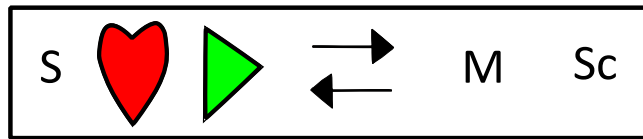
1. M = Map Views section button, Sc = Schedule Views section button. These buttons show/hide that section. They are coloured grey when that section is hidden.

2. 2 arrows = reverse button. It for reversing the stations of the trip. It will update all of the other sections.

3. The green triangle = play button. This will play a simulation for the trip, it will give a warning announcement when to transfer or get off for your final destination. The simulation is calculated based on the journey times according to the timetable and is approximate. It can be augmented by GPS when available.

4. Heart = favourite button. It will show list of favourites and allow current trip to be added.

5. S = settings button. Show app settings:

   1. Favourites: full editable list of favourite trips.

   2. Map Views: be able to reorder list of views and set default, pick if journey times are shown, pick if station names are shown.

   3. Schedule Views: be able to reorder list of views and set default, maybe change font and font size for text layout, the fields to include in the journey summary for text layout.

   4. Data: Be able to download map/schedule data for a city for offline use, show size and be able to add/delete cities. And pick a default city.

Design Heuristics

1. Minimal, clean interface

2. Default context is: time = now and stations = last selected trip when app was used

3. Try to minimize clicks and actions to achieve a goal, especially with commonly used features

4. Give feedback with transitions for changing data

5. Re-use buttons when state has changed

6. Try to create fun and fluid feel to interface, leveraging transport analogies e,g, make trains roll into view, steam from a steam-train when downloading /loading

Todo

1. Produce more complete and polished UI Design that includes desktop and mobile specification.

2. Research to see if HTML5 design would be sufficient using media queries..etc to produce initial mobile version.

3. Research libraries needed for Android.

4. Draft tech design including schedule/timetable data format, look at routing.js

Extra Features

1. Be able to make a route with > 2 stations to plan a multi-leg trip

2. Make fun/useful map views that overlays something city-specific onto the map e.g. [Berlin U-Bahn Bar Map](#) , [Berlin U-Bahn Burger Map](#) , [Berlin Rent Price U-Bahn Map](#)

3. Make editor to create or save custom map (probably desktop only, maybe tablet/phablet)

4. Editor for custom timetable and export as GTFS

5. Animate route when hovering over route summary