Intro

Age friendly Nottingham believe that all older citizens should be able to
However, as they get older many citizens are no longer going out around their city because they can only travel for a short period of time before they need to rest. Therefore nottingham city council introduced a scheme called Take a Seat. Take a Seat is a community run project with over 300 participating businesses across the city which offer a chair for elderly people to have a break and somewhere to sit while they are going around the city. Right now they have to look for participating retailers by looking out for the take a seat logo, a multi-coloured flower. The aim of this project is to create an android application which will make it much easier for senior citizens to find a seat and plan their route accordingly so they can take regular breaks. The app will be simple to use and clearly display only the information relevant to quickly and reliably find a seat for the user.

The map allows users to see exactly where they are in the city and where all the seats are so they know which areas they can go to and be guaranteed a place to rest. I have created a feature to quickly find and highlight the nearest seat to them to create a stress free easy to use environment. I have also implemented a feature which will pop up a notification when the user walks within 50M of a seat so they don't have to keep getting the app out and manually finding a seat.

Design guidelines

My app is aimed at an older demographic so when creating it I always had to think about usability over sleek design. Therefore each of buttons I have in the app are much larger than you would normally expect so they are easier to press and read for people with limited or bad eyesight. The design guidelines say buttons should be at least 48dp but I have made mine much bigger to help the audience I am aiming for navigate the app easier. I have also chosen not to use a side pull out navigation as suggested in the material design guidelines because after some research I found that older people prefer to press on something and receive immediate feedback than swipe something to access more options then have to carefully press on a button between 2 others. I have added haptic feedback to the buttons in my app so the user knows they are hit it correct.

I have also decided to change my original design which was 4 pages, down to simply 2 so to save the user from having to navigate back and forth constantly. I made the map nearly full screen so hopefully it will be easier to read than before which was only about the third of the screen.

Notifications have been designed following the official android design so they present concise and relevant details to the user and include the logo of the app so they can easily recognize what it is for, they are also non intrusive so they will only appear while the app is running, appearing when the user is in range of a seat, and disappearing when they go out of range of it.

I've also decided to change the location markers on the map from the standard google map pointers into the take a seat logo to stand out better on the map because originally the current location icon and place icons are very similar so I wanted something that the user would instantly recognise and know what it meant on the map even if they had never used google maps before.

To make sure the app is usable by anyone I have included contentDesciption parameters in the xml so when using a screen reader it will correctly read to the user what each of the buttons do and places say. I have also tried to keep the app easy to read by having high colour contrast black on white without much color.

User testing 1
Add a page here which explains the results of your first user testing session, ideally testing of you paper prototype. You should provide the comments from the users and how you have addressed them. You may want to link to guidelines and principles to further justify your decisions.

User testing 1 was carried out between the paper prototype being completed and the start of creating the app. I asked each user to look at my paper version and use it how they normally would/expect it to work. The user's I tested on where classmates and not the target audience for my app, but at this stage it was more important to get feedback from many people than find 1 or 2 members of the target audience to give their opinion.
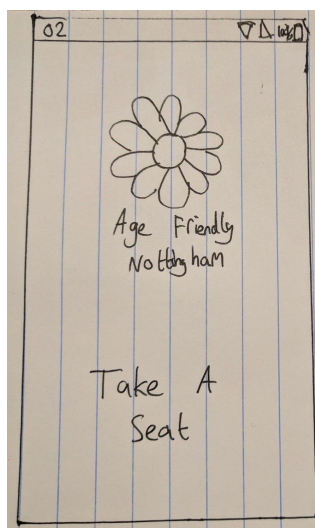
Firstly when the app boots there is a splash screen with the company logo and the name of the app/scheme.

The initial reaction of the majority of people (I gave the prototype to a group of 6) was to tap the screen immediately when nothing happened as to proceed to the app. 1 or 2 noted this is a fairly unnecessary step and the app should just jump straight into the menu, or the screen disappear by itself after a moment or too.

I had planned to display this while all the data in the app is being pulled from databases and such but now considering getting rid of it all together.
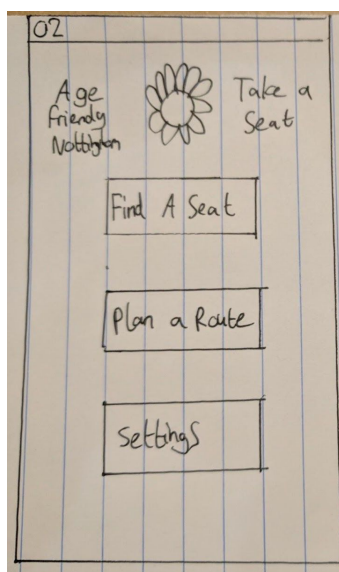

My main menu in the app. The initial reaction i got from everyone was the it looked simple and easy to use, especially for its intended audience. The buttons were nice and large and easy to press without accidentally hitting another.

One user noted that maybe I should include somewhere here that tells you about the scheme if you have not heard of it, because I had failed to explain it to them and they were unsure of what the app actually did.
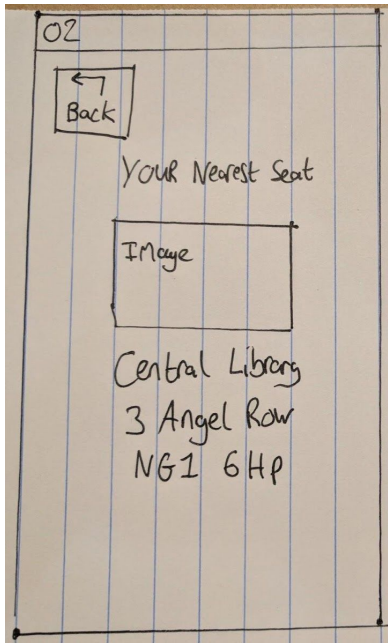
The nearest seat page is fairly straightforward but it was greeted with mixed opinions. Some people said they liked it and though the image idea was good but to maybe make it a little bigger. Others said it would be a bit confusing to be told the nearest place then only given its name and a photo without any idea were it was in relation to you or how far away it is. I agreed with these comments and need to should a way of displaying the location of it compared to where you are now.

Most people said the back button was unnecessary because android has the back button built into the system dock but one user said they liked it as it was nice and big and you would understand how to navigate better.
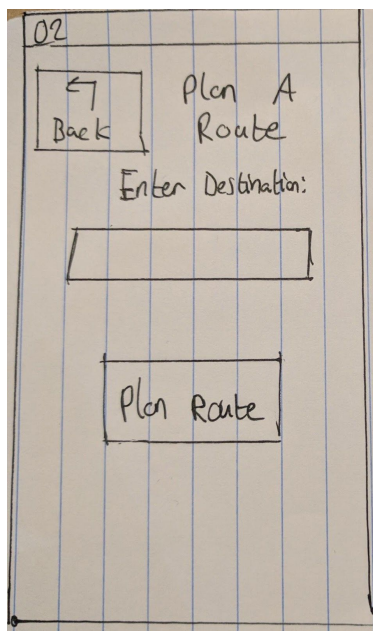
The plan a route page was the one I was most unsure about after finishing prototyping, It allows the user to enter a destination which uses google maps to show there route with markers for seats along that path, I thought this might be fairly complicated to create a simple to use UI for so I'm not sure how close to this the final version will look.

Users asked about how I'm going to get the destinations and whether they will appear in a drop down while the user types. I said they will then they can pick from the drop down where they want to go. Rightfully so I was told this may be confusing for the target audience because if they type in 'Boots' for example it will bring up all the boots nearby and the input field may not be large enough to display all the location data and I want this app to be very easy to use for the target audience without much of a learning curve. Again when the drop down does appear it could be fiddly for people to hit the one they mean to from it. I am unsure how to overcome the learning curve but I can scale the UI much larger to make selecting the right option easier.

As for the map displayed most said it was easy to read, the key was a nice addition but it could be fullscreen if nothing else needed to be displayed here. Also the back button was greeted better here and some people said maybe it's
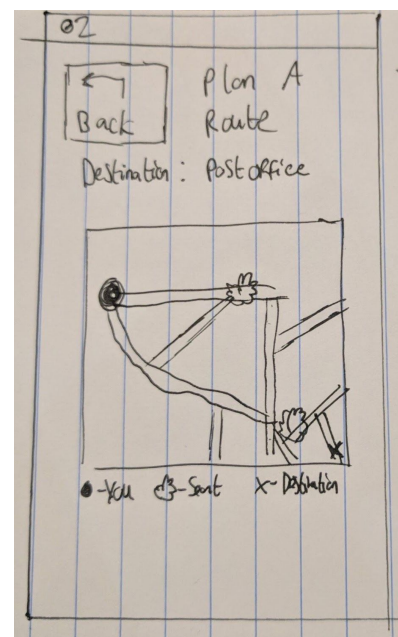
alright because its always in the same place on every page so you know where to hit.

The overall opinion of the app was that it looks simple and easy to use for the target audience but it needs to look more enticing, but this was hard to get across in a black and white prototype. The feedback has been insightful and will allow by to go forward with a better idea of what needs to be done.

User testing 2
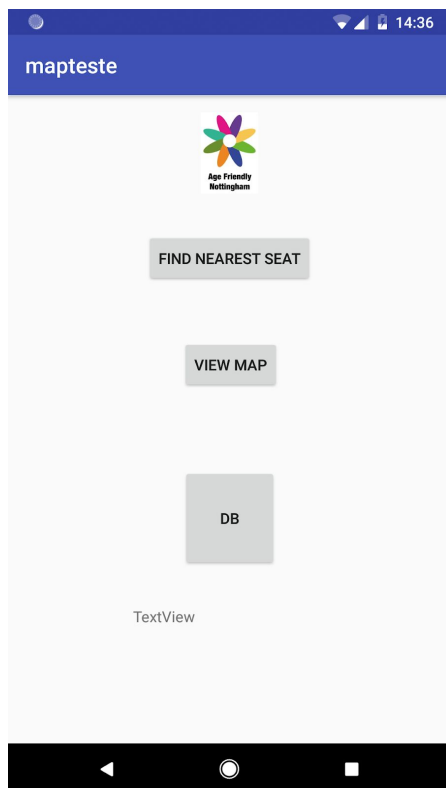
I conducted user test 2 when I had built a rough version of the app, although it still had a way to got it was a good opportunity to get feedback on what I had. Firstly I had got rid of the splash screen from before and just launch straight into the app because you come to this main menu before going into any of the activities it give me chance to pull from the database here. The buttons here are simply to launch the activities and are what they will look like or say at the end so I didn't think it was fair to ask people their opinions on this because I already know the buttons need to be bigger and tidy up everything.

While learning more about the technology's I would need to use I found some of my ideas from the prototype would not be viable or unnecessary. Firstly I have a firebase set up with all the names and Lat/Lon of each of the seats available so using the google maps API made a lot more sense that anything else.

So now when the user clicks the find nearest button it navigates on the map to the nearest seat and selects it so they know what the place is called. I found showing them on the map is a lot easy to understand and show the distance they are from it.

The users testing it agreed that having the map was much easier to navigate around and see all the seats available rather than be constrained to only seeing the closest seat and having to constantly open the app to see if another was close. People liked how big the map was but said the button was a bit small and needs rewording which is something I had planned on anyway.

One user noted that the current location marker should look different to the seat markers so you can tell the apart when
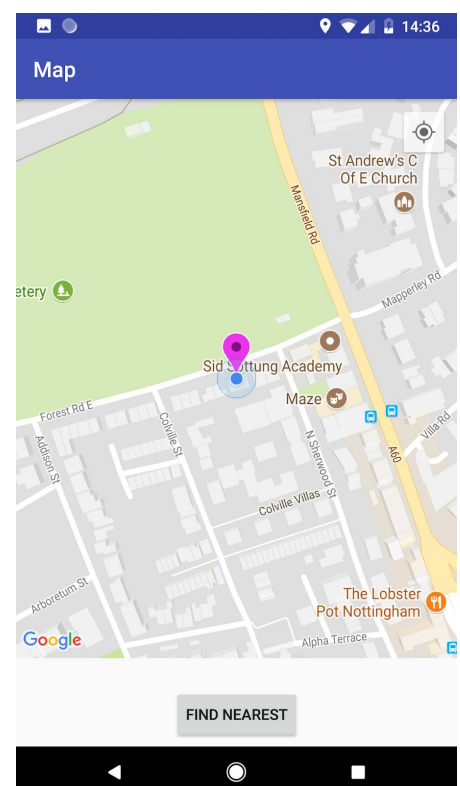
you zoom out so I quickly changed the color to a pink before testing on the others but in hindsight a drastically different colour should be used so make it easier to see.

I also asked the testers how the navigation felt because I was yet to add the back button and everyone seemed to think everything was find and it would be unnecessary.

I asked everyone what features they would like to see in a future version of the app and 2 of them said they would like a way to notified when a seat was nearby without being in the app, so they could walk around freely and not have to keep opening it to check, I have taken this comments on board and will look for a way to add this feature.

User testing 3

This set of user testing was carried on on a mix of peers and 2 members of the target audience who said they found the idea of the app interesting, but do not live in Nottingham so have not heard about the scheme. Since the last tests I have taken onboard some of the feedback and tried to improve the design to fit inline with the material design principals, however because a large part of it is the map there wasn't much I could do.

The start screen is pretty much the same just tidied up a bit and with a larger view map button. Peers said this was still fairly simple and maybe to include more options here however the target audience users(TA from now on) said it was very easy to read, the button was a good size to press however the font on it was a little small and could be bigger.
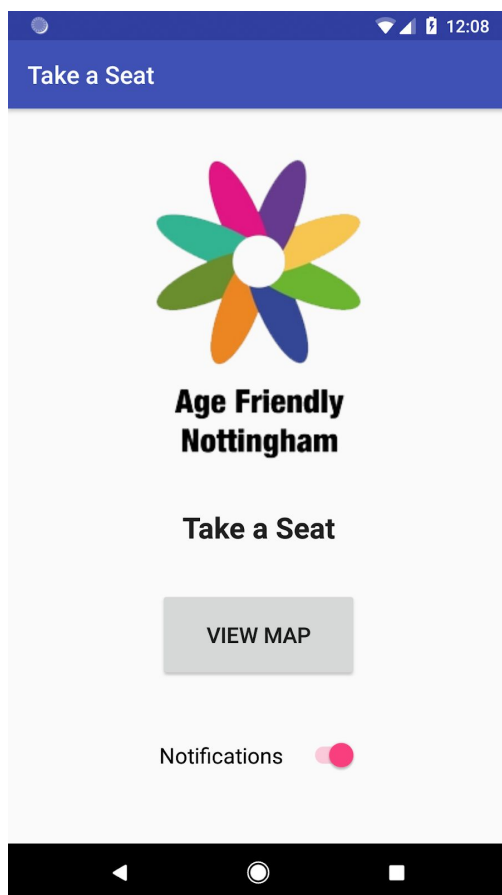
Some said the notification button was too small as well and maybe should have been something other than a switch because it could be quite fiddly to press.

The TA both asked what to button was for and I had to explain it will tell them when they are near a seat, in future I should make things clearer as to what they actually do.
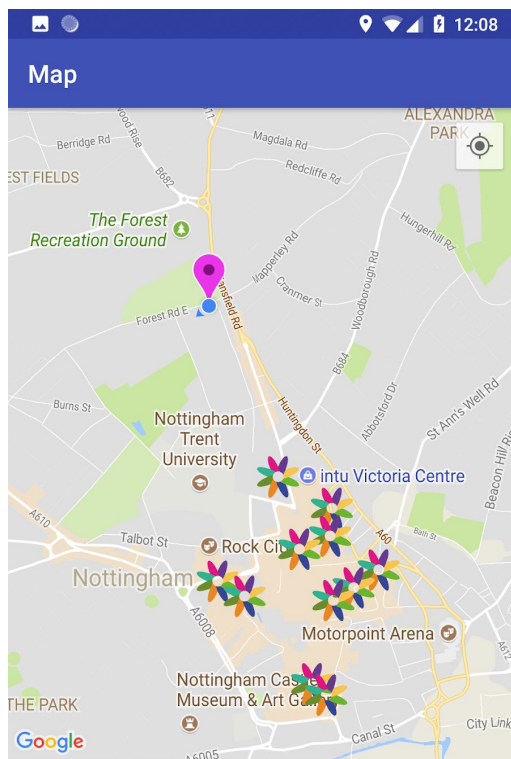
The TA said the map was useful but took some getting use to the control moving around but once I told them about the centre location in the top right they found it much easier. The said the markers were a bit confusing unless you zoom all the way in to see what them are actually placed on, and said the text when you click on them is too small which is something I had not accounted for.

The find a seat function was met with praise by everyone who said it was easy to understand and liked that the camera zoomed in on the place. The notifications were met with mixed opinion one of the TA said they would find it useful but the other said they would prefer to get the app out and manually look for a seat when the wanted one rather than keep getting updates.
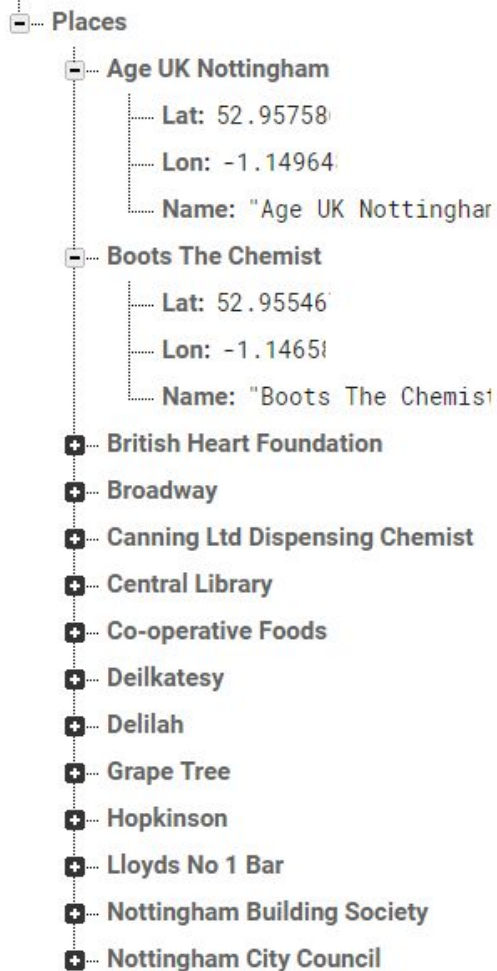
(The test button is there for demo)
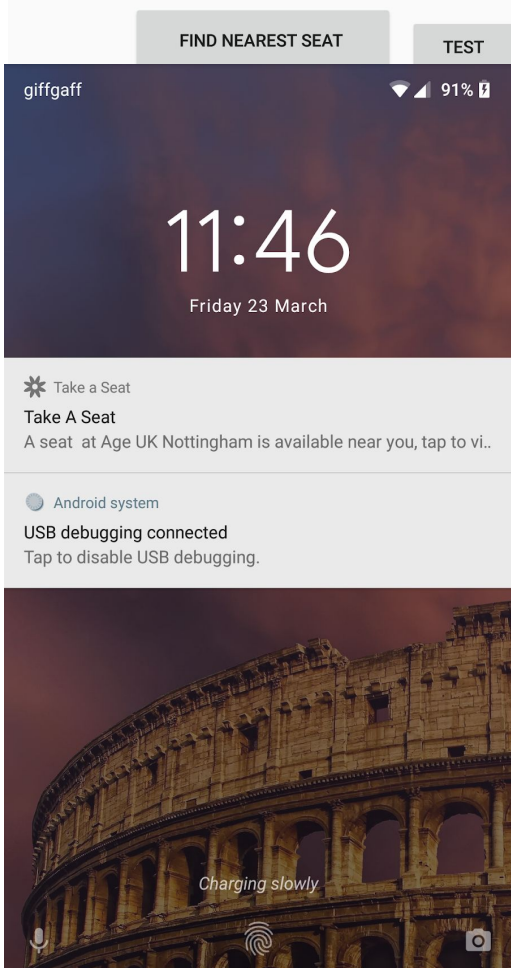
Nobody had any problems with the notifications style however one of the TA did ask if it was possible to make the text bigger and I told them this was a system preference so it would be bigger for them.

Coding diary

I am using firebase to store all the data for each of the location's seats. I started by writing some code which took all the places from the word document on the council website and put it through a site which output their Latitude and Longitude which is what you need to place a marker in google maps. I chose to use firebase because it is a realtime database which can be added to and display the results in the app immediately. If I had more time I would have added a feature to 'check in' to a seat which would make it occupied and remove it from the app so that other users would not start heading towards it if it was occupied.

takeaseat-56bfe
 ⊟ Places
   ⊟ Age UK Nottingham
       Lat: 52.95758
       Lon: -1.14964
       Name: "Age UK Nottinghar
   ⊟ Boots The Chemist
       Lat: 52.95546
       Lon: -1.14658
       Name: "Boots The Chemist
   ⊞ British Heart Foundation
   ⊞ Broadway
   ⊞ Canning Ltd Dispensing Chemist
   ⊞ Central Library
   ⊞ Co-operative Foods
   ⊞ Deilkatesy
   ⊞ Delilah
   ⊞ Grape Tree
   ⊞ Hopkinson
   ⊞ Lloyds No 1 Bar
   ⊞ Nottingham Building Society
   ⊞ Nottingham City Council

When I access firebase I loop through each of the children and create a Place object for them which is stored in an arraylist.

I am also using the google maps api which lets you utilize all the features of google maps. I then loop through the arraylist and create markers for each of them which are passed to my map displayed to the user who can click on one to see more details.

I display the user's current location at all times so they can see where they are on the map relative to any of the seats. When the nearest seat button is pressed I loop through the seats and minus their value from my current location value to find which of them is the lowest and there the closest.

If I had more time I would improve this method by grouping the places better so I wouldn't have to check over so many results, maybe by grouping seats by postcode and checking them that way.

When the user is walking around town the location is constantly updated so they can see themselves moving on the map. I am also comparing them to the location of the seats so that if they walk within 20M of a seat they will get a notification saying they are close to one, if they pass back out of the 20M it will be dismissed. Tapping on the notification from the lockscreen will bring the app to the front and centre the camera on the seat they are near. I had trouble with this as it kept trying to create a new instance on the map everytime which would then not have access to the array and crash the app.