CS31520 Assignment

PROTOTYPES
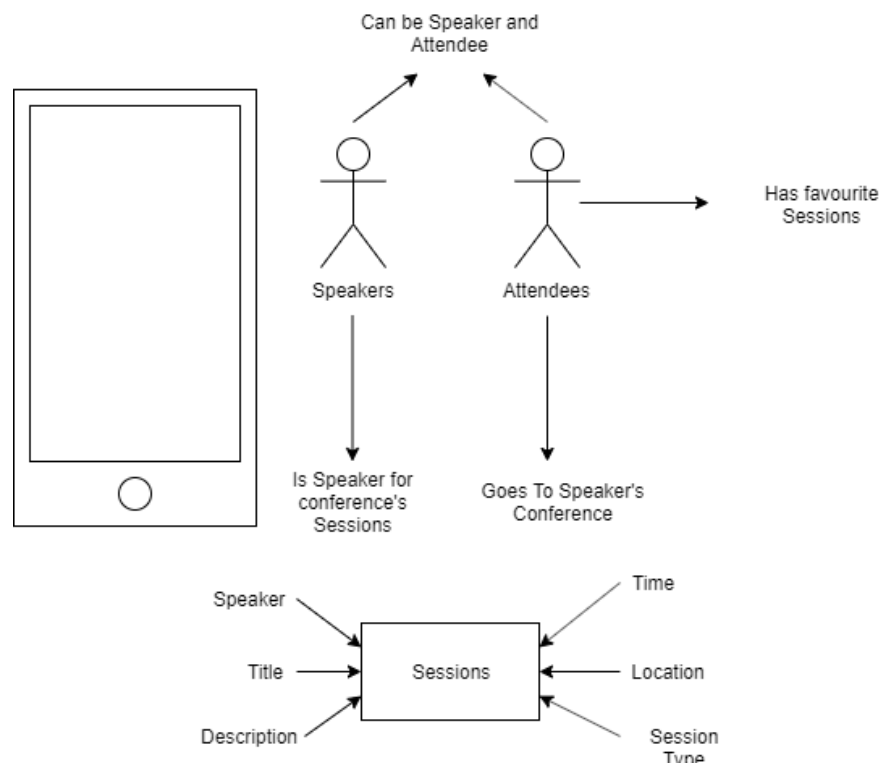
IESTYN GAGE

CONTENTS

DESIGNING UI

RICH PICTURE

INVESTIGATION

Before prototyping my own ideas, I'll investigate other iOS conference apps as this will teach me how users expect the app to work. It's important for the app to work as expected, as breaking the user's mental model will damage the user experience. I'll investigate three apps which are:

- iOSDevUK 2019 [1]
- Craft Brewers Conference [2]
- WWDC [3]

The method I'll use to evaluate the apps is to highlight the UI features which are good. Then features which are bad and relate how each feature breaks one of Nielsen-Molich Heuristics set. [4] I will then list out possible features that the user may be expecting as well as features I think the user will find especially useful.

IOSDEVUK 2019

Like
Feature
Way sessions are displayed in the Programme tab
How each profile is displayed

How it shows the current timetabled speaker

Dislike	
Feature	**Heuristic**
Too Much information on start-up	Aesthetic and minimalist design
Sessions are displayed in alphabetical order instead of timed order	Match between system and real world

Overall the app has good features which users will find useful however I strongly dislike the focus of forwards and backwards navigation without any lateral navigation.

CRAFT BREWER CONFERENCE

Like
Feature
Displays the seminar in time order
The customer map

Dislike	
Feature	**Heuristic**
Long Loading Times to get onto the site	Visibility of system status
Starts up open with the hamburger navigation 'open'	Consistency and standard
Too many options on the side menu	Aesthetic and minimalist design
The home button opens the side menu	Consistency and standard

WWDC

Like
Feature
The map feature in the venue displays where each different room is
You can filter sessions to hit certain criteria
You can view all conferences video recordings
Shows a map of exactly where the room is on Sessions tab
Uses Tab navigation system

Dislike	
Feature	**Heuristic**
Can't filter sessions by Time and day	Flexibility and efficiency of use

INVESTIGATION CONCLUSION

Overall most apps were good in one way or another. That being said it seemed like some features were more useful than others:

- The use of tabs navigation in the WWDC app
- Being able to view the location of the session on a map
- Being able to filter each day on iOSDevUK app

I would also like to be able to implement a method for users to access video recordings after each session however that would require creating a 'video'. Online storage may also be needed to store large file sizes, which may be out of the scope of the assignment. Not only that but some features were a hindrance to the app, during development I need to ensure that I do not use features in a similar fashion such as:

- Starting up the device with hamburger navigation open on Craft Brews Conference
- Too much information on start-up screen such as iOSDevUK 2019

PROTOTYPE

PROTOTYPE 1

For prototype one I wanted to see what would happen if I created a UI with a "hamburger" type of navigation. I didn't like how the navigation system came out and reinforces my idea this type of navigation isn't needed for this application. I also believe having a list of locations was a bit unnecessary. I did however like the way details of session are displayed on the application.

PROTOTYPE 2

This prototype used a tab bar navigation system. I really like how this prototype termed out. However, I do believe the settings tab is un-necessary. Looking at the other aspects it's very similar to prototype 1 if I had to re-create this prototype I would change more things about the prototype so I can see more possibilities.

PROTOTYPE 3

In this prototype I wanted to see how minimising the applications viewable tabs would affect the application. To create the tables I used segment controls. Looking at the prototype is seems that there sparse amount of data on the application. It also seems that there isn't much interactivity with this sort of setup. I do enjoy the interactivity with the twitter page.

FINAL DESIGN

During the investigation and prototyping for the assignment, the possible functionality for the system changed. In this section I will outline every feature in application and how I'll achieve this. I'll do this by:

- Outlining the features user can interact with by creating a Use Case Diagram
- Create a Map to display where the location for each session is.
- Outline the code requirement in the Class Diagram

USE CASE DIAGRAM
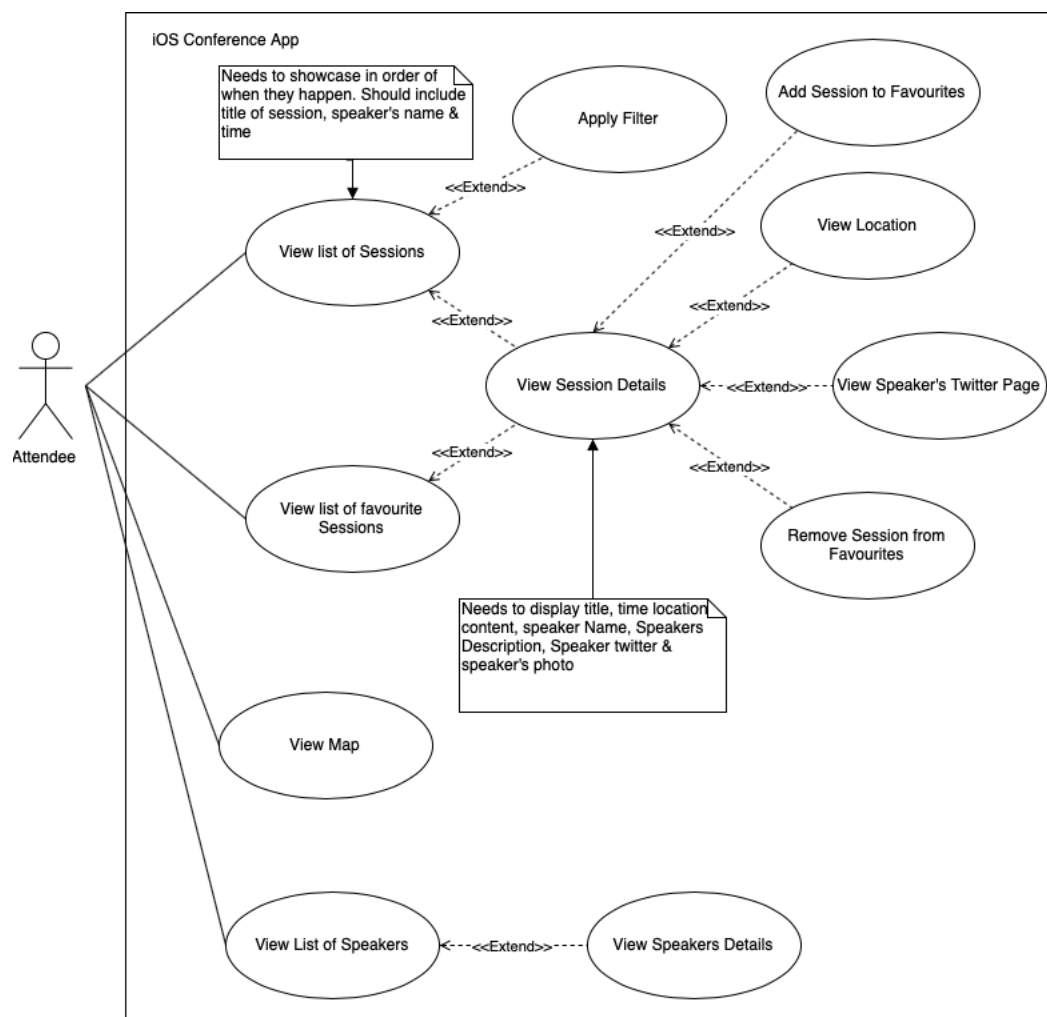
CONTROLLER NAVIGATION MAP
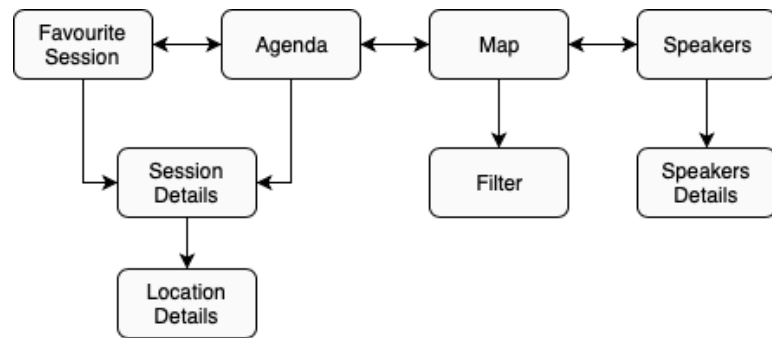
TESTING

TEST PLAN

For this project there are three types I can do:

- Automated Testing
- Automated User Interface Testing (however this doesn't work very well on Xcode)
- Manual Testing

Using these tools, I'll need to thoroughly test my app. Once I've finished my application I will execute my test plan. I will then produce a test table with my results. Due to the fact that the tool to create Automated User Interface Tests is buggy, I will substitute it with manual testing if I'm unable to produce the test.

TEST RESULT

DBAccess Class Tests		
Test Name	**Description**	**Pass or Fail**
testGetSpeaker()	Gets specific Speaker from SQL file using three different ID's, passes if it's equal to the expected result	Pass
testGetFirstSpeakers()	Gets an array of speakers from DBAccess, passes if some of objects at the start of the array are equal to expected objects	Pass
testGetLastSpeakers()	Gets an array of speakers from DBAccess, passes if some of objects at the end of the array are equal to expected objects	Pass
testGetSession()	Gets three different Session objects using a SessionID and tests returned the object to see if it's equal to what was expected	Pass
testGetFirstSessions()	Gets an array of Sessions from DBAccess, passes if some of objects at the start of the array are equal to expected objects	Pass
testGetLastSessions()	Gets an array of Sessions from DBAccess, passes if some of objects at the end of the array are equal to expected objects	Pass
testGetLocation()	Gets three different Locations objects using an LocationID and tests returned an object to see if it's equal to what was expected	Pass
testGetAllLocation()	Get three different Locations objects from array and tests returned object to see if it's equal to what was expected	Pass
testSaveLoadFavList()	Creates three different Sessions and saves them onto the device, then loads the data from the session into a new array. Passes if array objects values are equal.	Pass
testAddSession()	Adds three different sessions onto the device. Then loads the saved data onto an array. Passes If three different sessions are equal to array loaded from device.	Pass
testRemoveSession()	Adds 3 Sessions and then removes the third session added, then load all sessions from array and checks to see if array was removed	Pass

testIsFavouriteSession()	Creates two sessions and adds one. If one of the sessions is equal to favourite and the other session isn't them test passed.	Pass

databaseObjects Class Tests		
Test Name	**Description**	**Pass or Fail**
testLocationGetString()	Check to ensure getString for location object produces the expected string	Pass
testSessionGetString()	Check to ensure getString for Session object produces the expected string	Pass
testSpeakerGetString()	Check to ensure getString for Speaker object produces the expected string	Pass
testFilterGetSessionTypeAsInt()	Check to ensure GetSessionTypeAsAtInt for Filter's session Type variable produces the expected int	Pass
testFilterGetDayTypeAsInt()	Check to ensure GetDayTypeAsInt for Filter object produces the expected int based on Day variable	Pass
testFilterGetDayTypeDMY()	Check to ensure GetDayTypeDMY for Filter object produces the expected String based on Day variable	Pass
testFilterGetSessionTypeQuery()	Check to ensure GetSessionTypeQuery for Filter object produces the expected String based on SessionType variable	Pass
testFilterGetQuery()	Check to ensure GetSessionTypeQuery for Filter object produces the expected String based on SessionType and Day variable	Pass
testFilterGetString()	Check to ensure getString for Filter object produces the expected string	Pass

UI Tests		
Test Name	**Description**	**Pass or Fail**
testSpeakerTab()	Clicks on two Speakers in the speaker tab	Pass
testTabNavigation()	Clicks on all four tab bar navigation bars.	Pass
testAgendaTab()	Click on a Session in the Agenda tab	Pass
testLocation()	Clicks on a session and then on the location	Pass

Manual Tests		
Feature being Tested	**Description**	**Result**
UI constraints	I will run the application on several devices (iPhone XR,iPhone 8,iPhone 6 and iPad 2). I will check to ensure the constrain all fit on the device.	Works on all devices and information can be seen on all devices. However, the alignment is wrong for iPad 2 but all information can be seen. Luckily, the problem doesn't apply to any mobile device tested.

EVALUATION

If the application was released on the app store I think the reviews given would below to say the least. However, for my app created 'independently' I think it's great. In terms of the assignment the final product produce was also good. However, the prototype was sub-par. For the report I think what was produced was good, although this depends on expected size of the write-up.

During the designing stage, the investigation into other apps was done poorly and I wish I developed this section more. I choose not to as I perceived it what was done "good enough" and spending more time on section would produce something out of the scope of the assignment. I also believe the prototype section falls into a similar discussion where what was produced was poor quality, with spending more time on section produce something out of scope. If I could have spent more time on the section I would have done some user testing to see what users believed was the best design as well as produce more diverse prototypes.

The testing section was also another weak section of the assignment. The automated tests for code were done well. Though the weak area comes from the UI tests as there weren't many of them. If I was able to spend more time on the assignment this is area where great improvements code be made. I feel like the bad quality for UI comes from lack of knowledge on how to create UI tests as sometimes the test created with 'Record UI Test' will return with broken code.

In terms of code, I think I did a good job. I fulfilled all requirements (even the sneaky requirement of differentiation of workshops and talk with other session types). I also went above and beyond with adding features such as use of a map, twitter page link, colour cells, filter and 'ok' UI. Though this required the help of online sources [5] [6] [7]. If I could have spent more time on the code I would have added notification of when favourite lecture/workshops started.

The assignment given was great in developing my knowledge of XCode and swift language. I became better at understanding how to debug the error received during the development. The best thing I learnt was how to use the MapKit framework for the Swift language. Although I do wish I learnt more on how to make the UI more aesthetically pleasing.

Evaluating my effort and performance on this assignment I believe I should get a first. Especially with code not only hitting requirements but going 'above and beyond'. I also believe the quality of the design and product is good given the expectation for the assignment. Whilst the Quality of testing and report were "mediocre" I still believe the total will get me grade of first.

REFERENCES

[1] App Store. (2019). *iOSDevUK 2019*. [online] Available at: https://apps.apple.com/gb/app/iosdevuk-2019/id680109176 [Accessed 27 Nov. 2019].

 [2] App Store. (2019). *Craft Brewers Conference 2019*. [online] Available at: https://apps.apple.com/gb/app/craft-brewers-conference-2019/id1455677061 [Accessed 27 Nov. 2019].

[3] App Store. (2019). *Apple Developer*. [online] Available at: https://apps.apple.com/us/app/apple-developer/id640199958 [Accessed 27 Nov. 2019].

[4] Nielsen Norman Group. (2019). *10 Heuristics for User Interface Design: Article by Jakob Nielsen*. [online] Available at: https://www.nngroup.com/articles/ten-usability-heuristics/ [Accessed 26 Dec. 2019].

[5] Harrison, K. (2019). *openURL Deprecated in iOS10*. [online] Use Your Loaf. Available at: https://useyourloaf.com/blog/openurl-deprecated-in-ios10/ [Accessed 31 Nov. 2019].

[6] swift, H., Kuta, D., Spee, T. and Rasool, G. (2019). *How to set image in circle in swift*. [online] Stack Overflow. Available at: https://stackoverflow.com/questions/28074679/how-to-set-image-in-circle-in-swift [Accessed 2 Dec. 2019].

[7] Developer.apple.com. (2019). *Swift | Apple Developer Documentation*. [online] Available at: https://developer.apple.com/documentation/swift [Accessed 1 Dec. 2019].