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Mobile Development with Android
CS31620

VOCABULARY APP

REPORT

UI DESIGN:

When creating the prototype or my actual application I wasn’t sure what do I want to achieve, especially that my art skills are on the same level as my turning my hand around 360 degrees skill. Anyway, I tried to follow material design patter I learned from lectures or practicals and to be honest, my biggest inspiration was FAA application we made on our practicals. In most layouts I use simply ConstraintLayouts as my application doesn’t require – at the moment – anything beyond that. This is a simple application. The main colours I got from material.io’s palette so it follows the guidelines. Also the launcher icon or some image view headers that appear in the app are in the same colours to keep the brand identity. I have tried to make the app the most intuitive I could at the moment. I’m pretty happy from my Walkthrough that starts up only on the very first run of the app and explain a little bit on how to move around the app – yet it looks poor, I know. I have elements such as Bottom menu, Drawer menu or Toolbar that help the user to navigate through the app and which the user knows really good from any other app. Home fragment has nested scroll view – to be honest I didn’t know what to put in the home fragment so I just put there some text explaining the app a little. In Study fragment you can find a simple design, with 6 buttons that do certain things – like changing the main language or takes to play a game that helps to improve vocabulary. In option Words we can see a bit more going on. There’s a same toolbar as before, however this time it contains a bin icon, which allows user to delete all the words. Below – and I’m not happy about it as I would prefer have it in toolbar. Search view is below the toolbar. It works perfectly fine, it’s intuitive yet looks a bit weird – user can get used to it after some time I believe. Below is recyclerview, where we can see the card views of words. There’s also floating action button, almost the same as in FAA. If user presses the button, the fragment changes to AddWordFragment where user can easily add a new word. If user press any of the card view with object it takes him to UpdateFragment where he can update the word or completely delete it by clicking the bin icon in toolbar – this is how the user deletes one word. Drawer opens a menu where we can go to configuration and change the languages and delete all the words currently stored in databse. As I said, it’s a simple design, yet I belive it’s intuitive, it’s not complicated at all.

SOFTWARE:

To manage the data I have created the ROOM database, it works perfectly fine. I haven’t noticed any issues – yet it’s not using any product flavours and is set in the app package with all fragments etc. To be honest, I focused on less important tasks and then when I realized it’s not the way it should look I was too stressed and had not enough time while I needed to do other tasks, so I left it that way. If we run the app, we have SplashScreen, imitating that the app is starting. If we run the app for the first time, we encounter a walkthrough that explains what features the app contains. It works on the ViewPager, so I had to implement also a ViewPagerAdapter. I use only one activity. I belived that is a good approach, but now I think maybe the activity can be a bit overloaded. To use the recycler view I had to create a recycler for that. The recycler takes the value from shared preferences and based on that it changes the text view in card view as I didn’t know the other way to do it, because of course strings.xml cannot be dynamically changed. It also overrides getFilter() method to works with the search view that search a word based on the characters that the object words contains. Shared preferences are used also in some other fragments to get the languages provided by user in configuration. Based on the shared prefs the games for study works differently. In study fragment we can choose the main language, it changes the shared preferences. If we open any of the ‘game’ it checks the shared preferences first and based on that runs the certain methods. In words fragment if we click on any card view it can takes us to update fragment where it uses the WordViewModel to update or delete the object, as in Word class I made the Word parcelable.

SELF REFLECTION:
I know there is more work to do. I haven’t done any automated testing, only the test table. The design is simple but in my opinion even too simple. Very few comments in the code, UML Diagram could be better too. I’m happy with the prototype as I achieved almost the same design in the actual application. I learned from this assignment a lot about android and kotlin, as well as material design and databases. I learned a lesson that my organization of work was poor at the beginning and later it was too late to make the proper changes and deliver the app on time. I know now that I should write the documentation alongside with progressing with the app. Apart of that I’m happy that I managed to get some extra functions of the app such as search view, four different games to study, changeable text views based on languages provided. I could do the games better though, as the games tend to display same words after answering but at least it’s not that demanding when it comes to queries in database. I believe the application is intuitive, but I could make it look better in some aspects. I’m happy that I managed to deliver a working application and learned a lot about android development but I know – and I’m happy because of that – there’s a lot more to learn and achieve in this field. I should focus on the basic methods first and then develop my application instead of trying to make perfect application since the first made fragment and then run out of time with other, more important tasks. For technical achievement I believe I managed to do all the requirements, the usability and robutness seems to be good, but I could focus more on coroutines too. Again, I failed completely on testing and a bit on documentation. To be honest, I really don’t know what mark I deserve. Of course I hope to get a good mark, however I wouldn’t be surprise to get a poor one. I would be happy with 60% or the mark. Thank you.

TEST TABLE

Test No	Test Purpose	Test Data	Expected Outcome	Actual Outcome
1	Check if SplashScreen works on App startup	SplashScreen	SplashScreen is appearing for 3 seconds	SplashScreen is appearing for 3 seconds
2	Check if walkthrough works on App first startup	ViewPagerFragment	Walkthrough is working on first App startup	Walkthrough is working on first App startup
3	Check if user languages configuration is being saved and appears in other fragment	ConfigurationFragment	Configuration is being saved and appears in desired fragments	Configuration is being saved and appears in desired fragments
4	Check if drawer opens	Drawer	Drawer opens	Drawer opens
5	Check if drawer closes	Drawer	Drawer closes	Drawer closes

6	Check if user can change the configuration at runtime and all words are being deleted	Configuration, Database	User can change the configuration at runtime and all words are being deleted	User can change the configuration at runtime and all words are being deleted
7	Check if bottom navigation menu works	Bottom navigation menu	Bottom navigation menu works and takes user to different fragments	Bottom navigation menu works and takes user to different fragments
8	Check if changing main language in Study fragments works	Configuration settings	Main language is changed	Main language is changed
9	Check if Pick the correct word fragment indicates the right answer	PickTheCorrectWordFragment	Button with right answer changes colour to green	Button with right answer changes colour to green
10	Check if Pick the correct word fragment indicates the wrong answer	PickTheCorrectWordFragment	Button with wrong answer changes colour to red	Button with wrong answer changes colour to red
11	Check if input the word working and answer matches the word translation	InputTheCorrectWordFragment	Fragment works and accept word translation as right answer	Fragment works and accept word translation as right answer
12	Check if AnagramFragment changes the word strings	AnagramFragment	Fragment works and changes the word into anagram	Fragment works and changes the word into anagram
13	Check if Guess Word option in Study displaying description and accept word or its translation as the right answer	AnswerBasedOnDecriptionFragment	Fragment works and accepts the word or its translation as the right answer by changing the button colour to green and changing the score	Fragment works and accepts the word or its translation as the right answer by changing the button colour to green and changing the score
14	Check if user can delete all the words from WordsFragment by clicking the Bin icon	WordsFragment	Fragment works and user can delete all words by clicking the Bin icon	Fragment works and user can delete all words by clicking the Bin icon

15	Check if user can search for word based on it’s meaning, translation or description	Search view in WordsFragment	Search view works and displaying only the words objects that contains letters that user inputs	Search view works and displaying only the words objects that contains letters that user inputs
16	Check if floating add button takes user to AddWordFragment	Floating action button in WordsFragment	Floating action button takes user to desired fragment	Floating action button takes user to desired fragment
17	Check if word is added to database	AddWordFragment, word	Word is added to DB	Word is added to DB
18	Check if app opens an update fragment if user clicks on any card view of word in WordsFragment	WordsFragment, word, UpdateFragment	UpdateFragment opens and user can update the word or completely delete it	UpdateFragment opens and user can update the word or completely delete it

figma prototype:

images included in .zip but you can run the prototype there:

https://www.figma.com/file/Dfm4vq18ZfQZ1BI1AIHIQX/Vocabulary-App

UML diagram:

included in .zip as .SVG file