CE881: Assignment 1 - App Report

UOF QUIZZER

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1. Introduction

Nowadays, practically everyone uses mobile applications. Android is an exciting platform for app development and has many facilities, such as, powerful processors, Hi-Res touch-screen, Internet (3-5G, Wi-Fi), Bluetooth, telephony, SMS, GPS, Access to multi-media play and capture, motion sensors and many more. Android is an open platform and has a large market share worldwide. For this assignment, there were several ideas in mind, for instance, a weather app, healthcare app, social media and quiz app. The app chosen to be developed is a quiz app. The quiz app is designed for University of Essex students with an aim to help them become more familiar with the university and the facilities that this university provides. It is a helpful app that will make learning fun. This app is aimed to provide information regarding jobs, important locations, student union services, student wellbeing and support, student services and more facilities on campus that existing students as well as new students may not be aware of. The main problem that this app will address is unawareness of what's happening on campus and on all the facilities that the university provides. The solution to the problem is to create an app which will allow a fun way of learning new things about the university. The main features of this app is to log in, register, user profile, choose the categories, answer the questions get your score, connect to other users, see highest scores and challenge them. The app will show which answers were correct and which were incorrect to let the students learn from their mistakes. There are many ways of making money through mobile apps because the mobile market is huge. The best way of monetizing the app is by offering it for free, promoting your app, ads and much more [6].

2. Background

Every month, about 50,000 new apps are added to the app stores [2]. It is expensive to build an app and that is why validating an app idea is a very important step. The first step to validating the idea is to identify and analyze the competitors. There are various types of quiz apps available on the android app stores. A renowned quiz app on the app store is 'Who wants to be a Millionaire?' based on the popular television show. This game is for those who enjoy trivia quizzes. There are categories available like music, cinema, sports, science, math and geography. You can even unlock and collect famous experts who can be your lifeline. Ask Shakespeare about English or Caesar to cover history. Some of the features are to unlock cities and travel for new millionaire experiences, use the 50:50, ask the audience/expert, unlock a team of experts to help win every challenge, scale to the top of the daily leaderboard and win against family and friends and play offline mode. Another very popular quiz game available in the market is Quiz Up. This app lets you post about your interests on your favorite topics, make your own quizzes and connect to other users who share the same interests as you. This app, like 'Who wants to be a Millionaire' has many categories but what makes it different from other apps is the ability to communicate

with other users, challenging them in head to head battles and get social with them. This app lets you create your own quizzes [1].

One way to know if the app is a solid idea and by looking at the earning and rank. To make this easier there are numerous App Optimization Tools available which help compare app pricings, options and more. Mobile Action, Meatti, Sensor Tower are just few example of the tools [3] and different tools are useful to analyse different aspects of the app. For example, AppTweak and Meatti provide ASO report to analyses the product page (App listing) and based on the analysis, they provide suggestions on app name, pricing, compatibility, etc. There are A/B Testing tools where you can test two apps and compare it against one another to determine which gives a better download conversion rate [3]. It is said that free apps are responsible for most of the revenue [4].

3. Feature

The essential Features for the UOE Quiz App are as follows:

Log In

- The user must be able to enter his email and password to successfully log in. The purpose of the log in feature is to simplify interaction with other users easier.
- If the user has not registered prior to logging in, they must be directed to the register page.

Register

- The users must be able to register by providing their full name, course name, an email address and password.
- If they already have an account, a pop up must be given which emphasized that the account already exists.

User Profile

- Every user account will have a user profile with their details.
- Users can see other profiles and challenge them to see who can get higher score.

Upload Image

- Users will have the option to upload a picture to their profile. If they do not upload one, a default user icon will be displayed.

Categories

- Users will have many categories to choose from. For example, jobs on campus, student union, student wellbeing and support, facilities and more.

Questions

- Users must answer the questions.
- If the answer is correct, it will turn green. If it is incorrect, it will turn red. This will help them learn the correct answers.

Score

- At the end of the quiz, the score will be displayed clearly.

Challenge users

- Users can challenge each other by going onto their profile and selecting the 'challenge now' button.

Highest Scorer

- Users will be able to see the top 3 highest scorers for that specific category. Here they can choose to challenge a high scorer.

The desired features of the UOE Quiz app are as follows:

Timer

- In the hard level, a timer will be set to make it challenging for the users and to help them think quickly on their feet.

Levels

- Each category will have levels: easy, medium and hard.
- Easy: Users will answer basic general knowledge type questions about the university.
- Medium: Users will answer questions that will be slightly more complex.
- Hard: Users will answer questions that are complex and timer based.

Connect to other users

- Users will be able to contact other user, through chats perhaps. This is a feature which will be added if time permits.

Register with Google/Facebook

- Users can register with their Google/Facebook accounts.

4. Design & Structure

A user journey is a series of screens, information and buttons the user must experience or interact with in order to achieve their goals and obtain benefit from the system. Using that, a wireframe prototype was created of the main screens and the interaction points. As the user navigates through the app, the activity instance transitions through several states. Once the activity is launched, the onCreate() method is invoked and the app starts running. The system is creating, stopping, resuming an activity or destroying the process in which the activity resides. Implementation of these callbacks are important and help make the app much more robust. It helps ensure that the app avoids clashing when the activity is interrupted or switched to another app, consuming valuable system resources when the user is not using it, losing the user progress when they leave the app and return later and clashing the user's progress when the screen rotates.

The first activity, the homepage, consists of two buttons for logging in and registering. Intents will be used to switch pages in the app. An activity can be started or given something new to do by passing an Intent to StartActivity(). For instance, to switch from home page to log in or register page and also more pages of the app. This app requires use of a lot of data. The user information, profiles, quiz questions and images will all be saved in the database. The database will be implemented using firebase. Firebase allows a secure access directly from client-side code. It is easy to use and the performance is quicker. The main advantage of using firebase is that, if the user goes offline, data is synced across client in real time and remains available.

5. Content

Content can be overlooked at the start of a project but it is an important part of app development. This app is about the University of Essex and will get most of its content from the University of Essex website and the student handbook. For example, questions can be generated using the website or handbook for accuracy. The aim is to help students learn more about the university so the content must be relevant and correct. Web content can be made available to users in two ways: in a traditional web browser and in an Android application, by including a WebView in the layout. This is a good option for displaying trusted first-party content. Firebase will be the database and the content provider for this particular project. All data will be saved and loaded from firebase. Images will be saved as BLOB, questions and answers and user

information will be saved as text strings values on firebase which allow up to 1,048,487 bytes and so on.

6. Plan

For this project, agile software development approach will be taken to implement the app. This is because the agile method allows for change at any point of the development process and is very flexible. If the development process encounters problems then seeking an alternative approach will be feasible using agile process. However, a plan of the project will help keep track of progress regardless of the flexibility. Using the scrum method, a product backlog was created. Table 1, summarizes the tasks and sprints involved. The total number of days given to develop the app is 29 days. Therefore, it is broken down into 4 sprints.

Product Backlog Item	Prioritization	Estimate (time)	Sprint
Log In	High	2 days	1
Register	High	2 days	1
User Profile	High	1 days	1
Uploading Image	Low	4 hours	2
Categories	Medium	1 days	2
Questions	High	2 days	2
Score	Medium	1 day	3
Challenge Users	Low	3 days	3
Highest Score	Low	2 days	3
Timer	Medium	1 day	4
Levels	Medium	1 day	4
Register with Google/Facebook	Low	2 days	4

Table 1: Product Backlog

All software code and files will be version controlled using Git. Git allows access and modification of code. The master branch will be protected release branch and deployed in production. Link to Git: https://cseegit.essex.ac.uk/fitash/ce881-assignment.git

7. Conclusion

In conclusion, this report demonstrates a non-trivial app conception, design and business models by describing the prototype of the app and the design choices made.

8. Reference

[1] https://play.google.com/store/search?q=quiz&c=apps&gl=GB

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[5]   Firebase, "Firebase Realtime Database", 2020. [Online]. Available: https://firebase.google.com/docs/database. [Accessed: 18- Feb- 2020].

[6] https://www.valuecoders.com/blog/outsourcing-and-off-shoring/types-of-business-models-for-mobile-application-development/