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SFU Resources App

**Abstract:** Currently, it is difficult for students to find events (that are of interest to them) in a single location. This mobile application helps academic advisors plan events, and for students to access these events in a centralized location. This app should reduce the difficulty for students to find events that are relevant to them and for advisors to add and manage events, with the database being updated in real time to ensure up-to-date information.

# INTRODUCTION[[1]](#footnote-1)

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FU is one of the biggest universities in Canada with more than 35,000 students and more than 100 undergrad programs [1]. It is becoming very hard for a first-year student to adapt these sudden changes as 98% of the first-year students transfers from a well-known compact environment (High Schools) to a completely unknown new environment (University). In university, there is no one to guide or help a student and the only resource they can seek help from are the academic, general and career advisors. As there are only limited number of advisors available as compared to the number of students in each faculty. For instance, if I want to visit a career or general advisor, I need to book an appointment 3 weeks prior to the date of visit. Therefore, there is a lack of communication between the student and the advisors and as there is no one to tell them more about the:

● Resource available on campus to help a student to build up their resume

● Volunteer as well as paid job opportunities

● Skill building programs which can help a student to improve their communication, analytics, social, networking and many other skills.

# system’s functions and features

The application will have two major features. First, it will allow students to browse events by department and by major. Secondly, it will allow academic advisors sign in and add events. Academic advisors will have to log in before they can begin creating such events. This app will store and read all the event information in a Firebase database. The Firebase Realtime Database is described as:

“…a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data.” [2]

The Firebase Realtime Database allows us to ‘store and sync data with our NoSQL cloud database’ as well as synchronize the data across all clients in real-time, yet making it available when your app goes offline.

# Required Functionality

## C:\Users\press\AppData\Local\Microsoft\Windows\INetCache\Content.Word\CMPT276 model.jpgFunctional

* Advisors shall be able to log in.
* Advisors shall be able to add events.
* Students shall be able to find events by department and major.
* Events shall be saved in a database.
* Events shall be read from a database.

## Non-Functional

* UI shall be simple and easy-to-use.
* Database information shall be secure.
* Load times for saving events shall be short.
* Reading event information from the database shall be quick.

# Desired Functionality

## Functional

* Advisors should be able to edit previously added events.
* Advisors should be able to add event locations.
* Advisors should be able to add pictures to events.
* Events should be able to be sorted by: deadline, name.
* Events should be viewed in CardViews.
* Cards should be displayed inside a RecyclerView.

## Functional

* App should conform to Android material design guidelines.

# System Models (Basic system Overview)

# Fundamental System Assumptions

* System assumes all users (academic advisors) have their login credentials already in the system or are going to input them through the Sign-Up activity.
* Academic Advisors will input accurate information about all events, including requirements/pre-requisites to attend each event.
* Assumes app users are capable of running Android API level 16 or higher.

# Main issues in development

## Choosing the correct Database System to allow syncing of data between users and advisors

Some of the core concerns in this regard were the following:

* How to implement the database correctly so that the implementation meets requirements.
* How to accurately sync data between all devices with the app installed.
* How to keep the app running at an acceptable speed while data transfer is occurring.

The solution that we found to the aforementioned concerns is using the Firebase platform instead of an SQLite implementation. This ensures that the current version of the database is accurate and on all devices using the app, ensuring that events that are modified, deleted, or added are reflected instantly. Additionally, the Firebase platform makes processes such as creation of database, creation of tables, addition/filling of tables, and database lookup facile, due to its functions. On the other hand, the functionality to meet all the aforementioned activities would have to be implemented manually on a SQLite database.

## Learning Git

Some of the core concerns in this regard were the following:

* Using git commands properly.
* Understanding: merge, pull, branches, etc.

Developing a functional understanding of the aforementioned points was key to ensure effective and efficient collaboration in a group setting. This ensured that members could work on the codebase remotely and were able to pull the latest version of the code. It also ensured that a member was able to push code after adding new functionality or editing existing code, without breaking the build.

# Future plans for the application

The application will have two major features:

* allow students to browse events by department and by major.
* allow academic advisors to sign in and add events and edit events.

Academic advisors will have to login before they can begin creating such events. This app will store and read all the event information in a database.

# Conclusion

The application meets all the required and desired functionality that were determined in the first sprint cycle. It is able to maintain an up-to-date database and sync in real time, reflecting all modifications to it. Thusly, the final product is ready for beta testing with SFU students and advisors to evaluate the validity of the app.

# Glossary

* Mobile Application - A type of application software designed to run on a mobile device.
* Database - A structured set of data held in a computer, especially one that is accessible in various ways.
* UI (User Interface) - the means by which the user and a computer system interact, in particular the use of input devices and software.
* View - The basic building block for UI components in android. Responsible for drawing and event handling.
* FrameLayout - A View designed to block an area of the screen to display a single item.
* CardView - A FrameLayout with rounded corner background and shadow.
* Activity - A single, focused thing that the user can do. Almost all activities interact with the user, so the Activity class takes care of creating a window (UI).

Acknowledgment

We would like to thank Prof. Fariha Naz for all the guidance during the development cycle of the app.

References

1. Janna Whelan (1993-08-22). [*"Simon Fraser University"*](http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=U1ARTU0003218). The Canadian Encylopdia*. Retrieved 2011-02-20*.
2. <https://firebase.google.com/docs/database/>

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His interests lie primarily in the fields of Artificial Intelligence and Human Computer Interaction. He will be working as a researcher in the HCI lab at SFU for Summer 2017, conducting super important research on a contextual interactive memory-aid for web apps. In the past, Shashikumar has also worked in the Autonomous Agents lab at UofM, programming humanoid robots.

1. [↑](#footnote-ref-1)