

Sprint 2

CSCI-310 Software Engineering

Professor: **Nenad Medvidović**

TA: **Shushan Arakelyan**

Fall 2017

Dream Team (Team 4)

Aarav Malpani
Bowe Chen
Prateek Bhatia
Shatrujeet Naruka
Tushar Singhal

8739-8865-03
5327-0036-21
2013-5693-40
2782-3669-61
2897-7369-04

malpani@usc.edu
boweiche@usc.edu
prateekb@usc.edu
naruka@usc.edu
tsinghal@usc.edu

Preface	5
Introduction	5
Instructions	5
Sprint Plan	6
Daily Scrums	7
2017-11-10	7
Bowie	7
Tushar	7
Shatrujeet	7
Prateek	7
Aarav	7
2017-11-11	7
Bowie	7
Tushar	7
Shatrujeet	7
Prateek	7
Aarav	7
2017-11-12	8
Bowie	8
Tushar	8
Shatrujeet	8
Prateek	8
Aarav	8
2017-11-14	8
Bowie	8
Tushar	8
Shatrujeet	8
Prateek	8
Aarav	8
2017-11-16	8
Bowie	8
Tushar	8
Shatrujeet	9
Prateek	9
Aarav	9

2017-11-18	9
Bowie	9
Tushar	9
Shatrujeet	9
Prateek	9
Aarav	9
Sprint Review	10

1. Preface

This document outlines the second sprint session of Dream Team for the Android app *Focus!*. It specifies daily scrums that entail summaries of the work done by the group members during the first week. This document also concludes the work done with a final Sprint Review meeting that discusses the hits/misses of Sprint#2 and scope of improvement for the next sprint.

2. Introduction

Phones have constantly evolved and have today become an extension of people, notifying us about breaking news, social events, messages from friends, etc. Constant notifications are distracting and can make phone users unable to focus on the tasks at hand due to constant interference. *Focus!* seeks to alleviate this problem by blocking apps and notifications in a user-configured manner so that users can focus on their work and other activities.

Focus! is an Android application that allows users to block distracting applications and their notifications for a specified amount of time. The app allows users to define profiles to block certain applications and notifications at specified times and days.

3. Instructions

This project includes a Gradle file that specifies all dependencies required to build this project.

1. Import project into Android Studio by invoking File > Open...
2. Sync Gradle file with project by invoking Tools > Android > Sync Project with Gradle Files
3. The application is now ready to be built and run. Invoke Run > Run 'app' and select a target Android device or Android emulator to run the app.

4. Sprint Plan

- 4.1. User will be alerted for confirmation of their choice when he/she tries to delete :
 - 4.1.1. All profiles
 - 4.1.2. Multiple profiles
 - 4.1.3. Single profile on EditProfileActivity
 - 4.1.4. All schedules
 - 4.1.5. Multiple schedules
 - 4.1.6. Single schedule on EditScheduleActivity
- 4.2. User will be directed to the app that was previously blocked when he/she clicks on the notification that tells them about how many notifications they missed from a particular app.
- 4.3. Sorting the profiles according to how often they are used, so that more frequent ones are at the top.
- 4.4. Statistics

These statistics can include examples such as total hours focused, total hours per profile, total number of weeks used per schedule, total number of uninterrupted Focus!-ed intervals, the profile with maximum/minimum number of uninterrupted intervals, etc. (These are not all to be implemented, interesting statistics for the user will be chosen by the developers and implemented, the given ones are just examples)

 - 4.4.1. Backend for tabulating statistics
 - 4.4.2. Database to record statistics
 - 4.4.2.1. New tables
 - 4.4.2.2. New methods
 - 4.4.3. Displaying charts/graphs for some statistics
- 4.5. Automatically detect schedules that can be disabled on pre-defined public holidays.

5. Daily Scrums

5.1. 2017-11-10

The group met on this date and designed the sprint goal for Sprint#2. Key segregation of work was decided amongst all and documentation specifics were laid out.

Meeting time : 4:00pm - 5:00pm

Meeting location : THH lobby

5.1.1. Bowie

Discussed what kinds of statistics the app should track and agreed on function signatures for DatabaseConnector. Possible obstruction include DatabaseConnector not delivering task in time, but that is not a major issue.

5.1.2. Tushar

- Yesterday : N.A
- Today, I plan to add confirmation messages/checks through dialogues in more than 4 or 5 activities that concern deletion of profiles and schedules. I will also research into how to open different apps when clicked on a notification sent by our app.
- So far, I do not see any issues that may hamper the achievement of the sprint goal.

5.1.3. Shatrujeet

- Yesterday:N.A
- Today:I coordinated with Prateek regarding the new databases which need to be formed for successful statistics tracking and displaying graphs.As the GUI would be retrieving the results from the database.
- No blocks as of yet.

5.1.4. Prateek

- Yesterday: N/A
- Today: Decided on what statistics need to be tracked by the app. Discussed what function calls the server and client would need to make, decided on function signatures.
- Block: None

5.1.5. Aarav

- Today: We discussed the current sprint goals and divided the work. We discussed the stats which should be displayed. I cross checked the layout page made in the last sprint so that all the goals are aligned. There were several changes in this such as scraping the upload stats and download stats button and removing numbers to show graphs.
- So far, I do not think there will be any issues that will delay the sprint goal.

5.2. 2017-11-11

Meeting time : 3:00pm - 3:30pm

Meeting location : Century Apartments

5.2.1. Bowie

Made unit tests with DatabaseConnector and integration tests into BackgroundService in order to ensure no other function breaks during testing. BackgroundService suffered a weird problem where notifications are not captured properly on the physical device but works perfectly on the virtual device. While we were not able to identify the problem (it is likely to be a lagged out resource on the physical device), we spent lots of time trying to figure this out.

5.2.2. Tushar

- Yesterday: Completed the opening of specific dialogue instructions in all activities. Also tried to implement opening of apps on click of specific notification. Noted errors on notification click for other apps, but success on opening focus.
- Today: Today will try to look up for a solution where I will use package manager for opening other apps on notification click.
- Block: None, on track to complete

5.2.3. Shatrujeet

- Yesterday: Finalized the different tables needed for the statistics with Prateek.
- Today: I will learn GraphView Library in Android and try to figure out its implementations with Aarav. I will also figure out the type of graphs we need for this particular feature. The graphs are needed to show comparisons between various statistics.
- No blocks as of yet.

5.2.4. Prateek

- Yesterday: Discussion on statistics required to be tracked and database function calls to be made.
- Today: Planned out the changes in the database structure and additional tables needed to provide the statistics database to the client and server. Wrote function definitions and pushed it to GitHub for the server and client to build off of that. Created a table to store statistics.
- Block: None

5.2.5. Aarav

- Yesterday: Completed cross checking all the old layout with the current sprint goal and team discussion.
- Today: I plan to study the GraphView Library of android to display the statistics as according to the last sprint we were just planning to show numbers without graphs with Shatrujeet. In particular, I studied bar charts from the Library as this is one of the main graphs that is to be displayed.
- Blocks: There can be a block from Database Connector and Broadcast Services as we need the functions to get the statistics from the device which is to be computed by the backend.

5.3. 2017-11-12

Meeting time : 6:00pm-6:20pm

Meeting location : Lorenzo (Shatrujeet's Apartment)

5.3.1. Bowie

Now that DatabaseConnector is fully integrated into BackgroundService, I was able to shift to collaborate with Tushar and tally statistics on the BackgroundService end. No obstacles exist.

5.3.2. Tushar

- Yesterday : Finally got different apps to open on click. The problem was with pending intents and package manager was used to fix it. Took a while to note this as online solutions didn't work.
- Today: I will work with Bowie on calculating stats and will discuss further with Prateek on how he has implemented this in db for us to use.
- none

5.3.3. Shatrujeet

- Yesterday:Learnt GraphView Library in Android
- Today:I plan to work on the new feature which sorts the profiles according to the usage frequency. For this feature,I will coordinate with Prateek to create a database to store the frequency.I will add a button which when pressed sorts the profiles.
- Block:Conflict with database regarding the initialization of usage frequency

5.3.4. Prateek

- Yesterday: Finished creating the database structure to store and retrieve statistics.
- Today: Worked on implementing the functions that update and retrieve data in the statistics table. Worked with the client side (Aarav and Shatrujeet) to clarify the basis on which the profiles will be sorted in the latest sorted profiles feature.
- Block: Client and Database had conflicting opinions on what to choose as the basis for the sorting of profiles, but Aarav suggested that frequency of user instant activation is a good fit as it has the most user interaction and therefore should jump to the top of the list on sorting for user convenience. So conflict was solved

5.3.5. Aarav

- Yesterday: I studied the GraphView Library of android as planned and put out some sample graphs to show the team before going through with the backend coding.
- Today: I worked with the Database Connector because the database side was handling two features together, both related to the client (statistics and profiles sorting). In particular, I looked at backend functions required by the GUI to display the statistics to the user.
- Blocks: None

5.4. 2017-11-14

Meeting time : 12:30pm - 12:45pm

Meeting location : Lorenzo

5.4.1. Bowie

Yesterday I did integration of two components of the software. Today I handled the timing constraints for the third statistic and timing-related BackgroundService features. DatabaseConnector was incorrectly updating database_version and that was causing the app to crash after pulling the changes. Asked database side to resolve it and it was promptly solved.

5.4.2. Tushar

- Yesterday : Finished calculating the second stat which involves calculating app instances blocked. But db writing issue came due to database version, so fixed with prateek
- Today: Will be working with Bowie on 1st and 3rd stat as they are a little more complex than the 2nd one. I will also keep Prateek in loop after testing these.
- none

5.4.3. Shatrujeet

- Yesterday: Worked on Sorting the profiles according to the usage frequency.
- Today: I plan to code all the graphs for the different statistics and also connect it with database so that the statistics page updates in real time. I finally decided on using bar charts for the graphs.
- No blocks as of yet.

5.4.4. Prateek

- Yesterday: Finished implementing the database interface for updating and retrieving statistics. Discussed profile sorting implementation with Client
- Today: Test the written functions for modifying and retrieving statistics from the database. Decided on the implementation and changes to the database tables to store frequency of profile activation. Worked with Aarav and Shatrujeet to decide on function signatures for the functions to update the frequency counter and to restore it from the database.
- Block: Database had a bug that was crashing the app for server side. I was preoccupied with implementing features so I asked Aarav to help me find the bug. It took him some time to understand the code but he realized that the database was updating the database version when it was not supposed to. Fixed it immediately.

5.4.5. Aarav

- Yesterday: Finished working on some of the basic Database connector functions to display the stats to the user.
- Today: I will help my teammates in any way possible as my particular part is done for this sprint. In case nobody needs help, I plan to study the google drive api for the future sprint so that I am familiar with the API and can give enough time for the upcoming final after thanksgiving.
- Blocks: None

5.5. 2017-11-16

Meeting time : 12:45pm-1:30pm

Meeting location : Leavey library

5.5.1. Bowie

Today I read about public holidays and related information and how that can fit into our app as a feature. More progress has also been made to the statistics side of the software. As far as I understand, there are no obstructions to our goal.

5.5.2. Tushar

- Yesterday : 1st stat is not being consistent, as the notification count is not updating in the right amount. Bowie and I tried to narrow this issue after testing db and background service. It turns out problem is with how apps like whatsapp and gmail throw notifications.
- Today: Will work on 3rd stat and solve the issue which makes whatsapp and gmail through multiple notifications for a single actual notification from the user. This erratic behavior is due to these apps.
- none

5.5.3. Shatrujeet

- Yesterday: Programmed the graphs and connected them with database.
- Today: There was an error when displaying the status of instantly activated profiles, If you edit the profile, the status changes to 'OFF' even when the earlier version was 'ON'. This change only happened on the 'GUI' so I went through the entire code to find it and then figured out that it was an initialization issue.
- No blocks as of yet.

5.5.4. Prateek

- Yesterday: Worked with Aarav and Shatrujeet to decide on function signatures for profile sort by frequency feature. Changed the database tables and decided on the implementation.
- Today: Implemented the functions for storing and retrieving profile frequency. Since Aarav had some spare time, I asked him to make test cases to test my profile frequency functions. He found two bugs that were crashing the app so I figured out the problem and fixed it. After testing, I pushed to GitHub for client to work with it.
- Block: The test cases written by Aarav broke the database connector. The bug was coming because the statistics table was not initialized properly. Fixed it immediately.

5.5.5. Aarav

- Yesterday: I helped Shatrujeet with the tree graphs as the code wasn't working as expected and he couldn't find the fault.
- Today: I helped Prateek test the Profile frequency features. I wrote a few test cases and found two bugs in the Database Connector. Trying to find the bug took my time but prateek found it and fixed it immediately.
- There are no blocks at this point.

5.6. 2017-11-18

Meeting time : 5:00pm-5:40pm

Meeting location : Lorenzo

5.6.1. Bowie

Yesterday I researched about public holidays. Today I will integrate the public holiday detection and blocking feature into the existing code base and tested the features to ensure the correctness of my implementation. No obstructions exist.

5.6.2. Tushar

- Yesterday : 1st stat was fixed and tested to ensure correctness. Worked on 3rd stat with Bowie. The distraction free hours stat was time consuming because we had trouble with how to store the hours in an int for easier communication/passage of arguments between database, service and UI.
- Today: Will do integration testing for all stats and also assist bowie in public holiday feature as that involved threads. This part needs both of us to handle threads with care as we have 2 threads always running on a service which is continuously running. We want to avoid race conditions.
- All the tasks will be completed.

5.6.3. Shatrujeet

- Yesterday:Removed the error in instant activation GUI.
- Today:I encountered an error in the graphs as the data was not updating when changes were made on the device.I figured that I was not updating the data onRestart() and onResume() which led to the problem.I created a function for updating the graphs and called it on the given state changes.
- No blocks as of yet

5.6.4. Prateek

- Yesterday: Finished profile frequency database interface and tested it. Pushed it to GitHub for client to work with it
- Today: Wrote extra test cases to ensure none of the additional functionality was breaking. While server and client were working on finishing the additional features and testing it, I was researching on uploading database .db file to cloud. However, I was unable to locate the database file in the project. So I asked Aarav to help me find it. We worked on it for a few hours but were unable to locate the file that stored all the database tables. This might be a block for the next sprint but not for the current sprint
- Block: The statistics database interface was giving a weird response. It passed the test cases and statistics were updating but on running the app, the statistics table was not updating at all.

5.6.5. Aarav

- Yesterday: I was trying to locate the database file with Prateek on the device as we will need it to upload it on the drive in the next sprint.
- Today: I connected the app with the Google Developer Console and get the required security certificates and keys required in the next sprint. I also changed the manifest and permissions required by the app for the same.
- Block: We couldn't find the database file on the device so this might cause a block in the next sprint but it is not critical at this point.

6. Sprint Review

Meeting start time and end time : 6:00pm to 7:15pm

Meeting location : Lorenzo, (Shatrujeet's Apartment)

A brief overview of work completed in the sprint backlog, disregarding the extra work:

- Statistics for application use
- Automatic profile disabling on public holidays
- Notifications from Focus! now go to the specific app, instead of going into Focus itself.
- Profiles can now be sorted by frequency used.
- Other miscellaneous features

No work was left incomplete. For a second sprint, the performance was beyond all our expectations as pair programming and the scrum framework really helped clear our head and focus on what we should do next while plan ahead for Sprint#3.

We had some differences in opinions with regards to introducing functionalities to this application. The customer clearly wanted several huge features as social media sharing to be introduced to this app, but given the timeframe and the bugs to fix, we were not confident that we are able to deliver a satisfactory experience to our customer. As we have negotiated and suggested alternative features to our customer with some being approved, we have decided to take a different approach to the tasks at hand and take this idea into the third sprint. We still managed to satisfy many of the suggested features such as statistics, automatic profile disabling on public holidays and sorting profiles to name a few.