

Sprint 3

CSCI-310 Software Engineering

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1. Preface

This document outlines the third and last 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 sprint. This document also concludes the work done with a final Sprint Review meeting that discusses the hits/misses of Sprint#3.

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. Backup/Restore feature [new functionality!]

4.1.1. Backup

4.1.1.1. Backend for generating backup file

Backend will need to do file-based I/O and read from database to ensure all data is written correctly.

4.1.1.2. Reading Data on UI end from database

4.1.2. Restore

4.1.2.1. Backend for reading backup file into database

Backend will need to do file-based parsing and make appropriate function calls.

4.1.2.2. Reading Data on UI end from database

4.2. Potential performance improvements for Activity switches, particularly:

There seem to be some lags between each activity change. Further investigation of this lag will be required to improve on software performance.

ProfilesActivity -> EditProfileActivity

ProfilesActivity -> CreateProfileActivity

SchedulesActivity -> AddScheduleActivity

SchedulesActivity -> EditScheduleActivity

4.3. Ability for user to choose between blocking notifications for a app or the app itself or both.

4.4. Add a search option for the user to allow faster lookup of apps when selecting which apps to block. Currently the user has to scroll through the entire list.

4.5. When the user tries to open a blocked app, instead of just giving the user a notification, we will display an activity that tells how many times the user has tried to open a particular blocked app.

5. Daily Scrums

5.1. 2017-11-21

The group met on this date and designed the sprint goal for Sprint#3. 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

After the initial meeting, we decided on multiple new features that we aim to complete after this sprint. I decided to work on allowing users to choose between blocking apps OR notifications, OR both. For this feature to happen, I must first ask the Database to make necessary changes to the database connector.

5.1.2. Tushar

- A couple of new functionalities have been ideated and sent to the sprint backlog. We plan on creating search functionality in profiles activities. So far, no obstructions exist that may prevent our progress.

5.1.3. Shatrujeet

- Today: In this sprint, we plan to work on adding new functionality to the app so that the user can have a much better experience. We divided the tasks and I got assigned GUI. I am gonna discuss with Aarav and divide the work accordingly.
- No blocks as of yet.

5.1.4. Prateek

- Yesterday: N/A
- Today: We discussed the features for sprint 3. I need to work with Server and Client to make necessary changes to the database to facilitate the new feature of Choose to block apps or notifications or both.
- Block: None

5.1.5. Aarav

- Today after the meeting, I decided to work on the Backup/Restore feature after discussing with Shatrujeet. I plan to set up the google developers console API today by finding the app SHH Key and registering focus for through my google account.
- No blocks as of now

5.2. 2017-11-23

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

Meeting location : Century Apartments

5.2.1. Bowie

Yesterday I discussed function signatures with the Database author, today I made strides to achieving the feature by authoring pseudocode and writing updates to `BackgroundService.tick()` method to facilitate this new feature. Other than the missing method signatures, no additional problems persist.

5.2.2. Tushar

- Yesterday we ideated and updated the sprint backlog. Today I made more progress into the search functionality. I initially had trouble with the current database filtering data, turns out there are several initialization bugs that are preventing this feature to work.

5.2.3. Shatrujeet

- Yesterday: Discussed with Aarav regarding new functionality to be added in GUI.
- Today: I have decided to add the new feature to the app of An option to block the apps and/or to block notifications. The user can select both options which will resemble the functionality we earlier had. I also worked on speeding up the profile access by modifying the tree graphs as the sorting algorithm was making the app slow.
- No blocks as of yet.

5.2.4. Prateek

- Yesterday: Discussed the new features with the team and divided work share.
- Today: Discussed with the Server and Client on database function signatures to add the functionality for user to choose between blocking apps or notifications for each profile. Planned out the changes to the database tables, decided on the functions that the Server and Client will need in database connector to implement this feature, planned out additional private functions I will need to create.
- Block: None

5.2.5. Aarav

- Yesterday: I discussed the GUI work with Shatrujeet and decided to implement the Backup/Restore function to the app using the Google Drive API.
- Today: I plan to make changes to the gradle files and set up the signing in part to get access of the user's Google Drive.
- No blocks as of now

5.3. 2017-11-24

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

Meeting location : Lorenzo (Shatrujeet's Apartment)

5.3.1. Bowie

Yesterday I wrote pseudocode for the new feature, today I sat down to pair program on the new DatabaseConnector methods with Prateek for this new feature. Some erratic bugs rose from the current code base after we added new methods so we spent much time debugging.

5.3.2. Tushar

- Yesterday I noticed bugs in the CreateProfileActivity list with search after much time spent, so today I fixed all the bugs that were found in one go. This bug was minute and hard to find on GUI checkbox checking which prevented search to work on CreateProfileActivity. It actually turned out to be in Adapters. No other obstructions exist.

5.3.3. Shatrujeet

- Yesterday:Decided upon the features which needed to be implemented specifically in GUI and worked on tree graphs to speed up the profile access.
- Today:I consulted with Prateek who is handling database to adapt my new changes so that they can be stored in the database. Used function signatures to program on my end, decided on functions that will be needed in the database to update or retrieve data related to this feature.
- No blocks as of yet.

5.3.4. Prateek

- Yesterday: Decided the feature I would work on and communicated with the Client and Server to discuss the additions and changes to be made in database connector interface.
- Today: Implemented the database connector interface functions required by the Client and Server. Made necessary additions to the database tables structure.
- Block: Regression Tested to realize that the new code was breaking the previous code for the Server and failing some test cases. Spent quite some time debugging with Bowie but fixed it by the end of the day.

5.3.5. Aarav

- Yesterday: Modified the gradle files and added the google sign-in to the app to get drive access.
- Today: I plan to get the database file and upload it to the drive. This file should be automatically named and uploaded with a particular signature so that only files created by our App can be opened while restoring.
- Could not find the database file. This can cause a huge backlog that may lead to stashing this feature all together.

5.4. 2017-11-25

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

Meeting location : Lorenzo

5.4.1. Bowie

Yesterday I fixed erratic database behavior, today I continued my stride and integrated the new methods into the existing code base. No obstructions exist after successful integration.

5.4.2. Tushar

- Yesterday I fixed adapter and GUI bugs that were preventing me from completing my work. Today I will test search functionality comprehensively and start implementing new feature on backgroundservice side. No other problems exist.

5.4.3. Shatrujeet

- Yesterday: I consulted with Prateek to accommodate the changes in the database.
- Today: I programmed both the options in the create new Profile so that the user can select their preference when they create a new profile. To accommodate these new features, I had to modify the GUI a lot and shift all the elements around. I also had to connect it with the database to store the preferences.
- No blocks as of yet

5.4.4. Prateek

- Yesterday: I finished implementing the functions and changes required in the database after discussions with the Server and Client side for the new functionality of choosing to block apps or notifications.
- Today: I tested the new functionality and passed all tests. Aarav requested me to help him with his Block from last time. I helped Aarav find the database file by using Android Device Monitor. This took a while to find because of different permissions on different Android APIs but file was found and his block was cleared.
- Block: None

5.4.5. Aarav

- Yesterday: I was trying to find the database file to upload to the drive. I wasn't successful and decided to take a break from the computer and try again today.
- Today: I plan to find the Database file with Prateek. We plan to use the Android app manager to see the file system and pinpoint the location of our app when it runs on the device.
- No blocks as of now. The file was found and the previous block was cleared.

5.5. 2017-11-27

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

Meeting location : Leavey library

5.5.1. Bowie

Yesterday I completed the database connector methods with Prateek and started writing new code for BackgroundService, today I integrated my pseudocode into BackgroundService and made test cases for this new feature. No blocks.

5.5.2. Tushar

- We decided to create an activity that shows helpful information with regards to why this app is blocked, including, but not limited to, the number of times user tried to open the currently blocked application. Nothing substantial is preventing our work from completion.

5.5.3. Shatrujeet

- Yesterday: Added the two new options when the user creates a new profile.

- Today:I implemented both the options in the Edit Profile so that the user can change their preference when they edit an existing profile.To accommodate these new features,I had to modify the GUI a lot and shift all the elements around.I also had to connect it with the database to store the preferences and load the preferences when the Edit Profile Activity opens up.
- No blocks as of yet

5.5.4. Prateek

- Yesterday: Helped Aarav find database file to clear his block
- Today: I am moving on to the next feature where the user will be shown additional information on opening an app currently blocked by focus, specifically the number of times user tried to open the blocked application since it got blocked. I discussed with the Tushar on what interface it would need to implement this, and planned out the changes to the database structure and private functions I would need to accomplish storage and retrieval of this additional information.
- Block: None

5.5.5. Aarav

- Yesterday: Found the database file on the device with Prateek.
- Today: I plan to upload the file to the Drive so that it can be retrieved later. I also decide to come up with a good method to ensure that different snapshots of the app can be stored without duplicating the name which are clearly identifiable by the user as well.
- No blocks

5.6. 2017-11-28

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

Meeting location : Lorenzo

5.6.1. Bowie

Yesterday I converted my pseudocode into real code. Today I realized there is weird behavior in the existing code base that is screwing up the `tick()` function. After much debugging, a bug was located for an edge case that was not tested in any tests. It was fixed and nothing else broke.

5.6.2. Tushar

- Yesterday I looked into the new functionalities, today I made more progress into what the new activity should look like and how to present the data in a aesthetically pleasing manner. I also asked prateek to make a new table to note the number of times a blocked app is opened and decided on the functions needed for this. No obstructions exist.

5.6.3. Shatrujeet

- Yesterday:I implemented the two new options in the Edit Profile Activity.
- Today:I worked on an error that Tushar ran into while implementing the search feature in the Profiles.It was related to the selection of checkboxes of different apps as they were not retaining their state when search was used.I had to go through my

entire code and found the error. I was supposed to compare package names at an instance where I was comparing app names.

- No blocks as of yet.

5.6.4. Prateek

- Yesterday: Discussed with Server the interface modifications and additions to be made to implement the next feature of showing the number of times user tried to open a blocked app.
- Today: Tushar and I decided the function signatures that would be needed in the database connector interface to implement the feature. I made necessary changes to the database and added required database tables. Implemented the functions required by the Server and accompanying private functions.

- Block: None

5.6.5. Aarav

- Yesterday: I uploaded the SQLite file from the device to the drive for later use.
- Today: I will work on the restore feature which will utilise the uploaded file and make changes to the database depending on the file.
- Blocks: The way I was downloading the file ended up giving SQLite Corruption errors while trying to restore an old database. This could block the whole feature!

5.7. 2017-11-29

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

Meeting location : Lorenzo

5.7.1. Bowie

Yesterday I found a bug and fixed it, today I did project-wide integration tests and worked to complete this documentation.

5.7.2. Tushar

- Yesterday I sketched out how the activity should look like, today I created and integrated said component into our existing code base and conducted extensive integration tests to ensure nothing breaks from all the changes we have made. I also ensured that this feature works with other backgroundservice additions Bowie made. No bugs were found.

5.7.3. Shatrujeet

- Yesterday: I worked on the error in the Search feature.
- Today: I am finished with my share of work for this project and plan to study for the 310 final today as it happens to be tomorrow.
- The app is finished.

5.7.4. Prateek

- Yesterday: Implemented the desired database changes and additions to support the new feature. Discussed the Server needs.
- Today: Completed the database functions. Wrote test cases to test the new functionality. After the database connector passed all the test cases (Regression), I informed the Tushar and we merged the code. Tested the new feature manually.

- Block: None

5.7.5. Aarav

- Yesterday: I tried to get the file to download from the Google Drive API and use that to restore a snapshot of the app.
- Today: I plan to finish the backlog from yesterday and finish the whole Google API part so that this feature is finished for the submission.
- There are no blocks at this moment and the app Drive feature works!

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:

- Ability to search through the list of app using a keyword
- Ability to only block notifications via a certain profile
- Ability to only block apps via a certain profile
- The app now shows a screen with useful information when a blocked app is opened
- The app now backups the database data onto Google Drive

No work was left incomplete. For the third 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.

After Thanksgiving break, we all are refreshed and worked continuously towards the completion of this application. We fixed more bugs, mostly in the database interface, and developed some convenience features that may help the user navigate the app more easily. This sprint we completed the long-due Google Drive backup feature that we had hoped to implement since the first sprint. We hope that this feature can help us mobilize user data and not have it confined to only the local device.