CS4518 **2020 A-Term**

Project 3: A More Feature-Rich Basketball Application

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1 Design Rationale

For the design of my application, I followed the example in The Big Nerd Range Guide closely. However, I did make a point to think critically about design designs and the "why" of the textbook example. Figure 1 shows the sequence diagram for Part 1 of this assignment (working with intent).

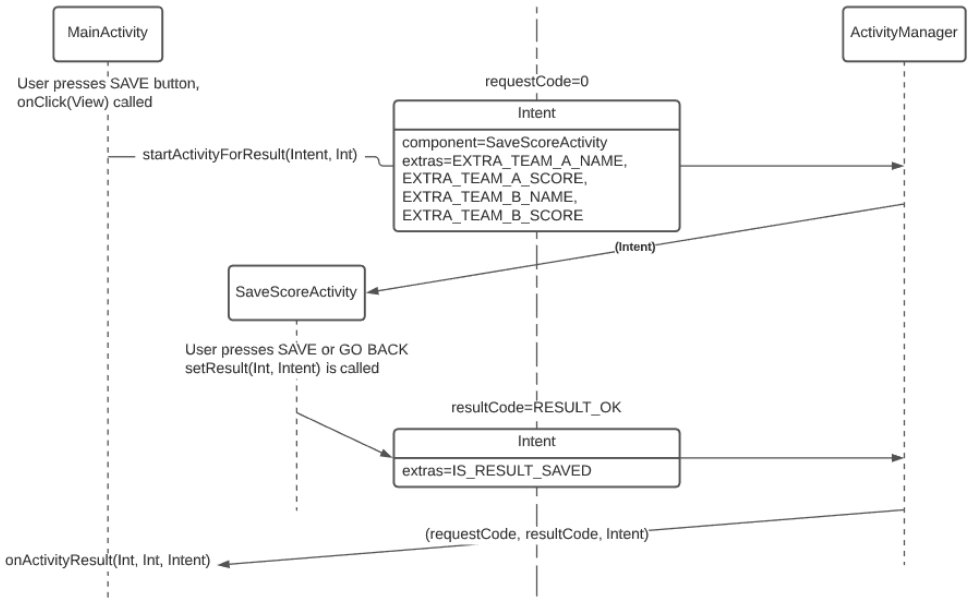
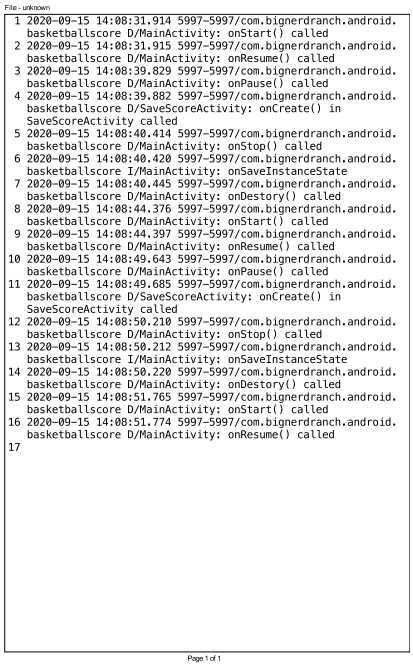


Figure 1: Sequence diagram for Part 1.

As shown above, when the user presses the Save button in the MainActivity an Intent with four extras are passed to the ActivityManager, who starts SaveScoreActivity. SaveScoreActivity has two buttons: a Back button and a Save button, both which finish the activity and display toasts in MainActivity indicating which button was clicked. This data is passed as an extra from SaveScoreActivity. The UI of the SaveScoreActivity, as well as the filtered log messages, is shown below in Figure 2.

For Part 2, I refactored the MainActivity to host a fragment using the dynamic method. The UI is pictured below in Figure 3.

For Part 3, I added a fragment that displayed 100 games of randomly generated data, meant to represent saved game histories. By using the RecyclerViewer along with a ViewModel and Adapter, I was able to design individual the child views, connect the children items to the RecyclerViewer, and test the RecyclerViewerFragment. The UI of the RecyclerViewer is shown below in Figure 3.



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 1 2020-09-15 14:08:31.914 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onStart() called
 2 2020-09-15 14:08:31.915 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onResume() called
 3 2020-09-15 14:08:39.829 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onPause() called
 4 2020-09-15 14:08:39.882 5997-5997/com.bignerdranch.android.
   basketballscore D/SaveScoreActivity: onCreate() in
   SaveScoreActivity called
 5 2020-09-15 14:08:40.414 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onStop() called
 6 2020-09-15 14:08:40.420 5997-5997/com.bignerdranch.android.
   basketballscore I/MainActivity: onSaveInstanceState
 7 2020-09-15 14:08:40.445 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onDestory() called
 8 2020-09-15 14:08:44.376 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onStart() called
 9 2020-09-15 14:08:44.397 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onResume() called
10 2020-09-15 14:08:49.643 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onPause() called
11 2020-09-15 14:08:49.685 5997-5997/com.bignerdranch.android.
   basketballscore D/SaveScoreActivity: onCreate() in
   SaveScoreActivity called
12 2020-09-15 14:08:50.210 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onStop() called
13 2020-09-15 14:08:50.212 5997-5997/com.bignerdranch.android.
   basketballscore I/MainActivity: onSaveInstanceState
14 2020-09-15 14:08:50.220 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onDestory() called
15 2020-09-15 14:08:51.765 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onStart() called
16 2020-09-15 14:08:51.774 5997-5997/com.bignerdranch.android.
   basketballscore D/MainActivity: onResume() called
17
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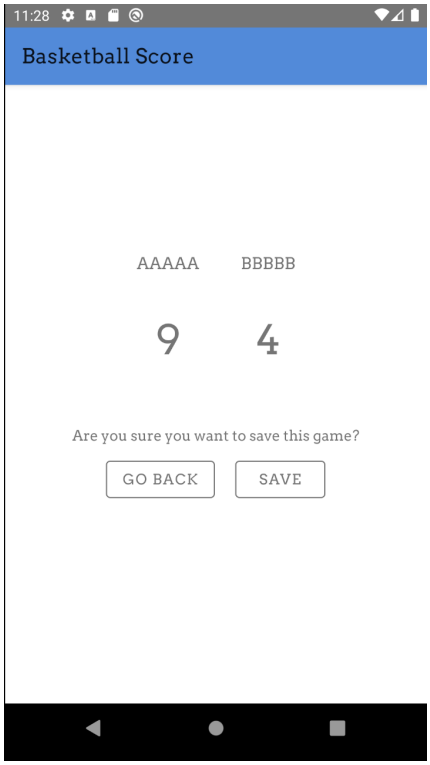


(a) Filtered log messages from Logcat.

(b) Second activity SaveScoreActivity.

Figure 2: UI and Logs for Part 1.

2 Reflection

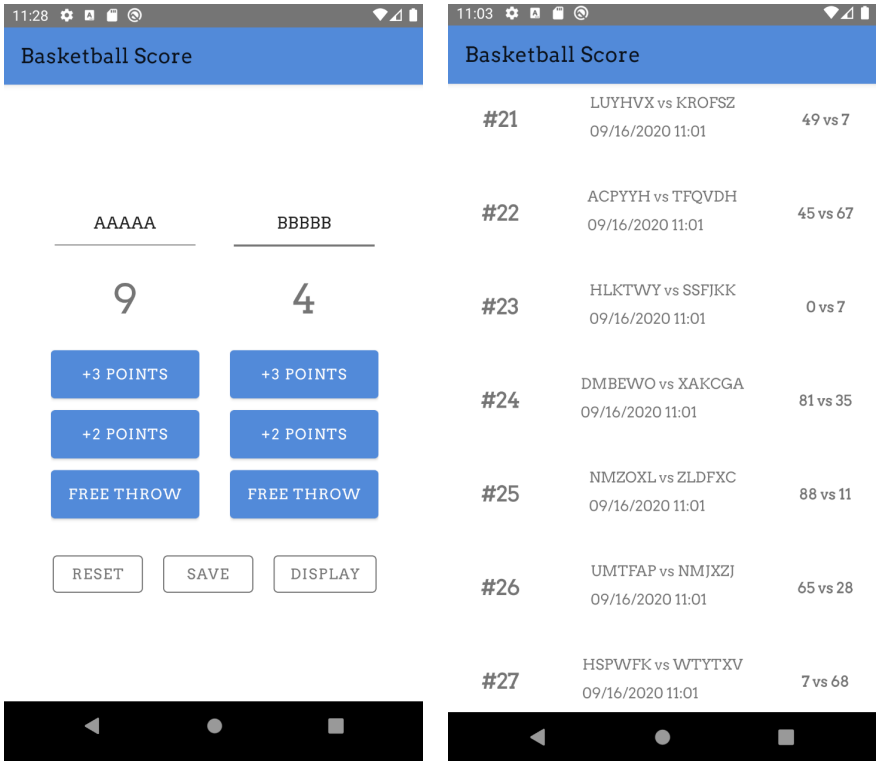
2.1 Learning Summary

In this assignment, I learned about Intents, Fragments, and RecyclerViews. Although these concepts were covered in course materials, this was an opportunity to implement a real world example. Not only did I learn about each individual topic, I learned how to wire them all together, so that they communicated, inflated, transitioned, and executed seamlessly. Looking back, the sequence diagram made in Part 1 was an enormous help for myself to check my understanding of the design and control sequences of the application before diving in. Additionally, I struggled with understanding the RecyclerViewer with its adapter, views, and inner classes when reading in the textbook, but was able to improve my understanding through this project.

2.2 Notes for Graders

Parts 1, 2, and 3 can be found in separate directories in the zip file. As this project used Git version control, the app not residing in a feature/Partx folder is the master branch, aka the culmination of all three parts, aka identical to Part 3.

In Part 3, instead of commenting out the pre-existing fragment in MainActivity to test my RecyclerView-



(a) Fragment-based MainActivity. (b) RecyclerViewer-based Fragment.

Figure 3: UI for Parts 1 and 2.

based fragment, I chose to start the RecyclerView fragment on the Display button press (found on the home screen).