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Part 1:

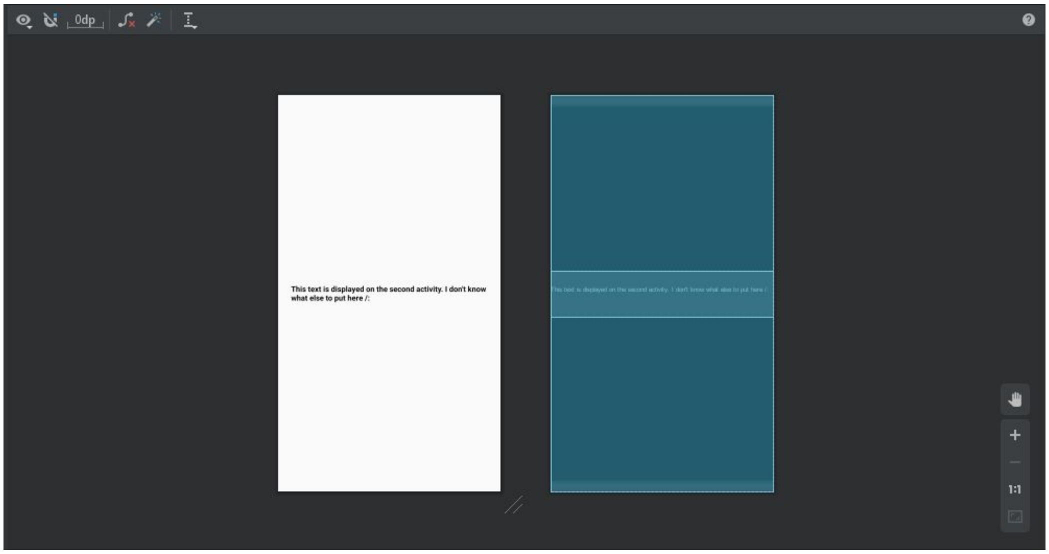
Design Rationale:

Because there were no real requirements for the second activity, I elected to just display a simple message indicating that the user has made it to the second page. In addition, although data isn't displayed, the main activity passes the current scores to the new activity, and the new activity sets those scores as results. All of this is displayed in the log files to prove that data is being passed and preserved.

Reflection:

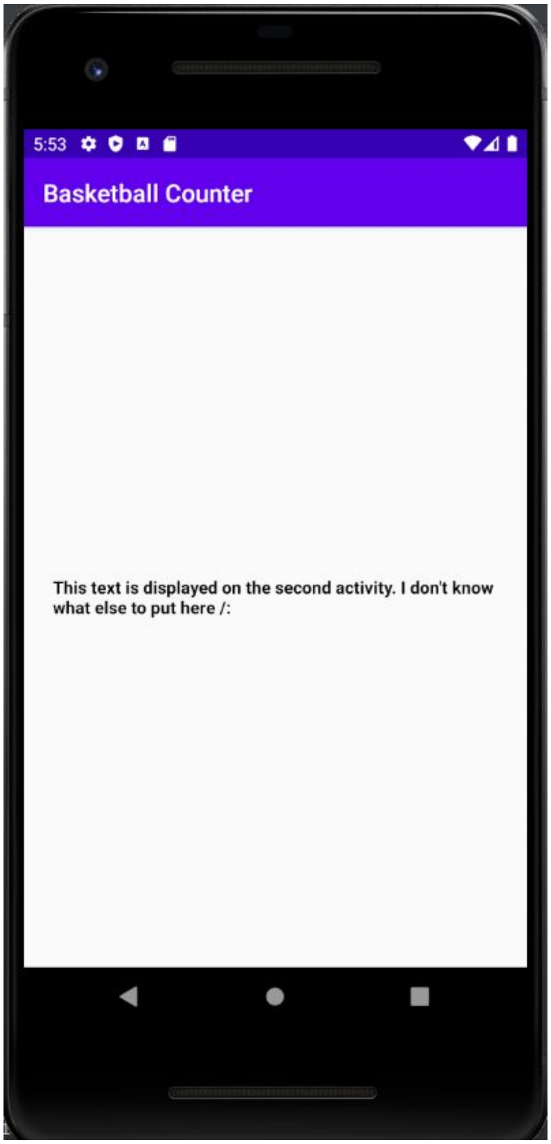
For this part of the assignment, I learned how to create and transition to a new activity. I also learned how to pass data between activities in a parent-child relationship.

Screenshots:



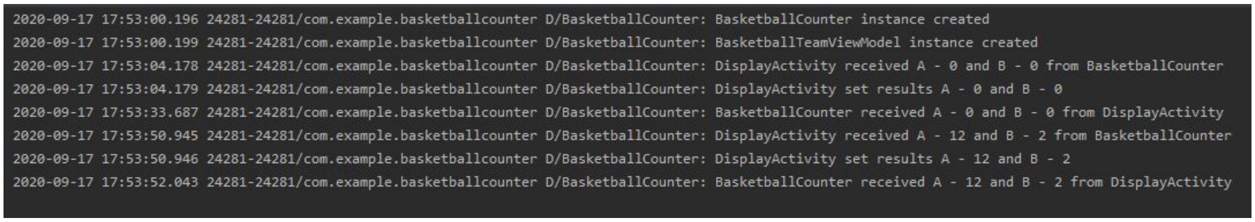
This text is displayed on the second activity. I don't know what else to put here /:

Figure 1-1: Second Activity Layout File



This text is displayed on the second activity. I don't know what else to put here /:

Figure 1-2: Second Activity In App



```
2020-09-17 17:53:00.196 24281-24281/com.example.basketballcounter D/BasketballCounter: BasketballCounter instance created
2020-09-17 17:53:00.199 24281-24281/com.example.basketballcounter D/BasketballCounter: BasketballTeamViewModel instance created
2020-09-17 17:53:04.178 24281-24281/com.example.basketballcounter D/BasketballCounter: DisplayActivity received A - 0 and B - 0 from BasketballCounter
2020-09-17 17:53:04.179 24281-24281/com.example.basketballcounter D/BasketballCounter: DisplayActivity set results A - 0 and B - 0
2020-09-17 17:53:33.687 24281-24281/com.example.basketballcounter D/BasketballCounter: BasketballCounter received A - 0 and B - 0 from DisplayActivity
2020-09-17 17:53:50.945 24281-24281/com.example.basketballcounter D/BasketballCounter: DisplayActivity received A - 12 and B - 2 from BasketballCounter
2020-09-17 17:53:50.946 24281-24281/com.example.basketballcounter D/BasketballCounter: DisplayActivity set results A - 12 and B - 2
2020-09-17 17:53:52.043 24281-24281/com.example.basketballcounter D/BasketballCounter: BasketballCounter received A - 12 and B - 2 from DisplayActivity
```

Figure 1-3: Data Transfer Between Main and Second Activities

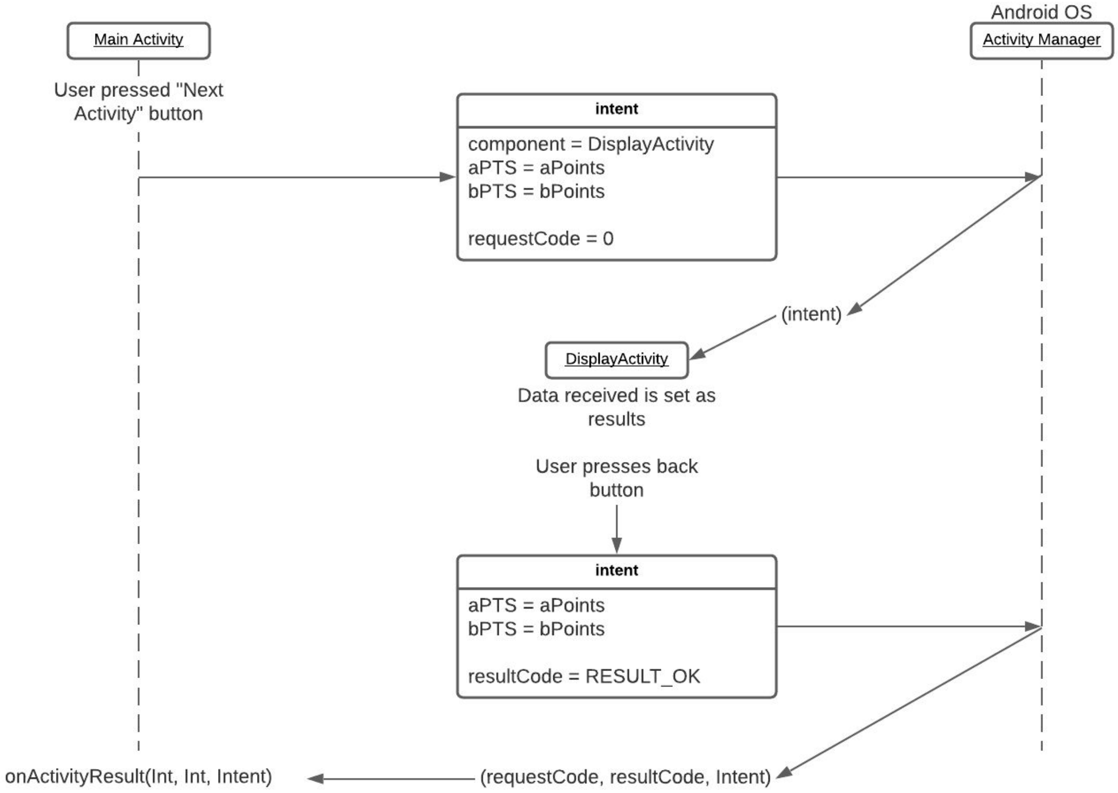


Figure 1-4: Sequence Diagram

Part 2:

Design Rationale:

In order to implement the fragments I copied the code for one team into a new layout file. This includes a vertical LinearLayout containing two TextViews, one for the team name and one for the points, and three buttons, for +3, +2, and Free Throw. This layout was straightforward as it was implemented in Programming Assignment 2. In the main activity layout file, inside of the horizontal LinearLayout that used to hold the two teams, I added two FrameLayouts. When the activity is started it creates two fragments, loading one into each of the FrameLayouts in the layout file, creating the same design as the original activity (before the fragments were added).

Reflection:

For this part of the assignment, I learned how to reuse layouts and template files to create and manage fragments. I also learned how to allow the activity to interact with the fragments on screen through the implementation of the reset button and how fragments have their own bundle that can be used to save data across their lifecycle.

Screenshots:

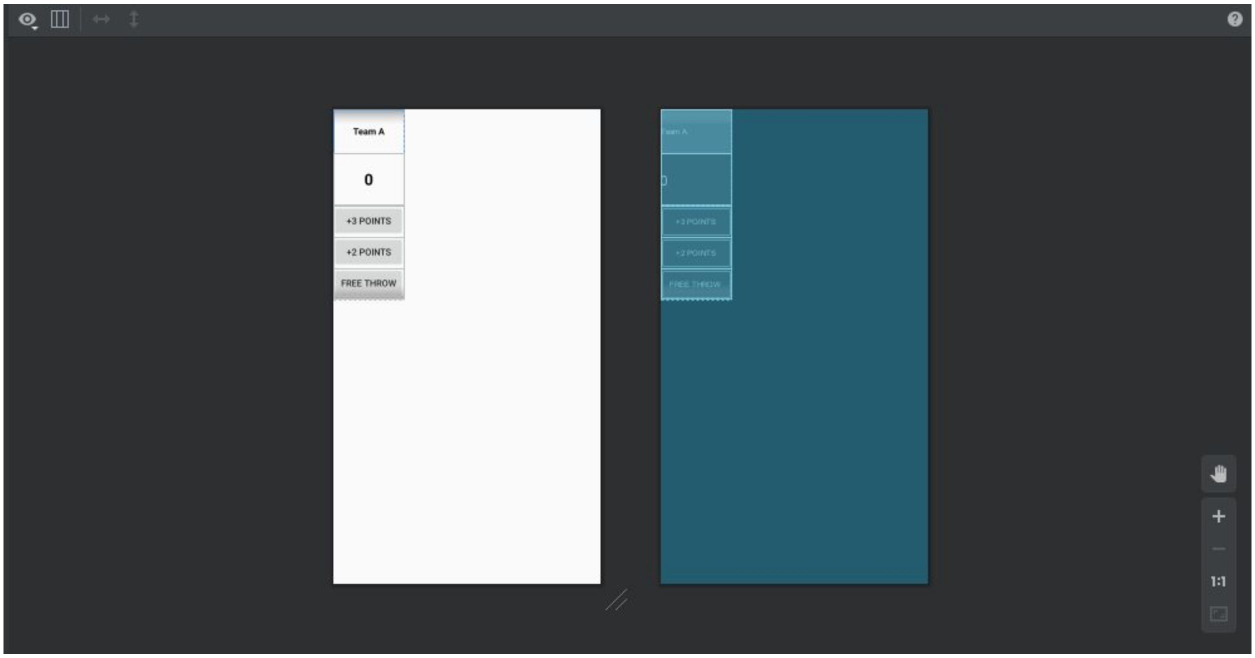


Figure 2-1: Fragment Layout

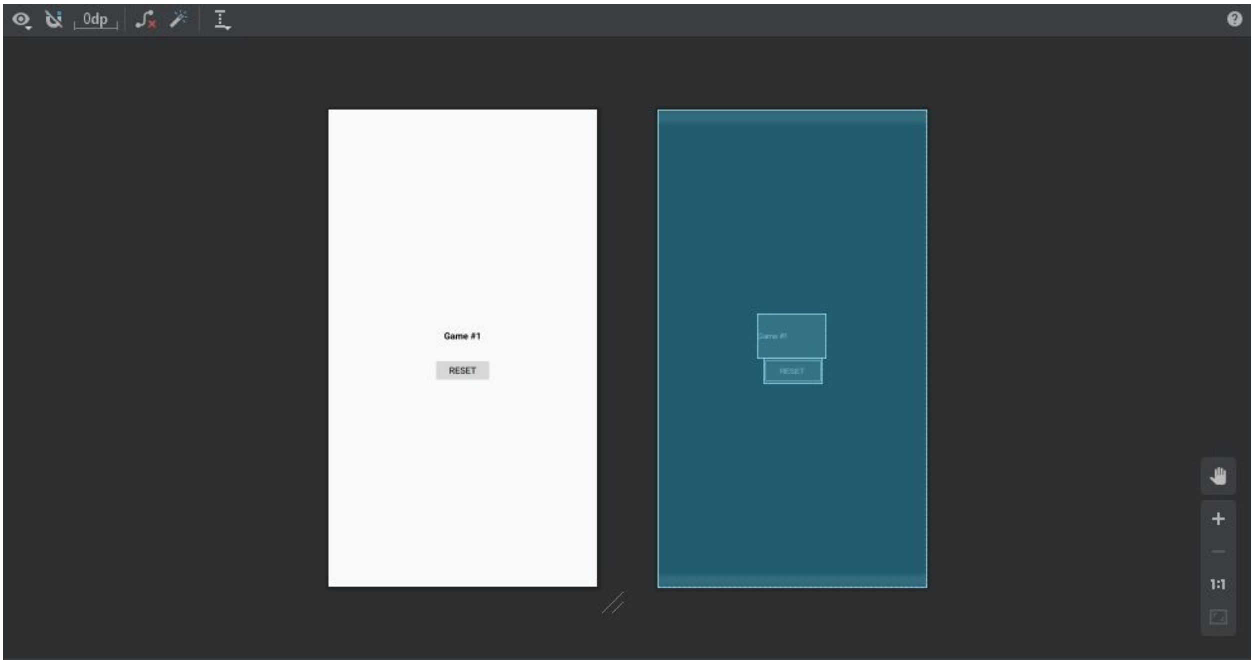


Figure 2-2: Main Activity Layout

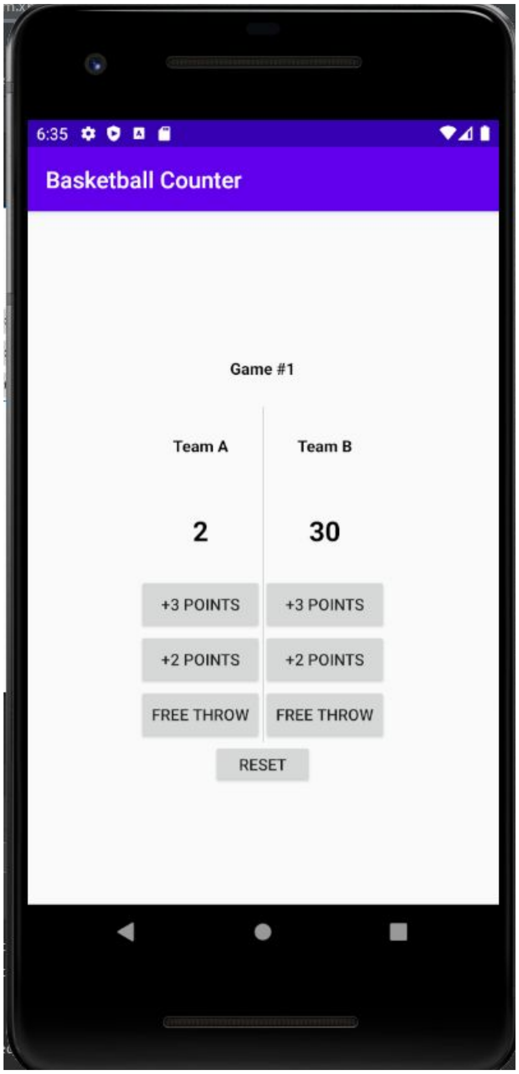
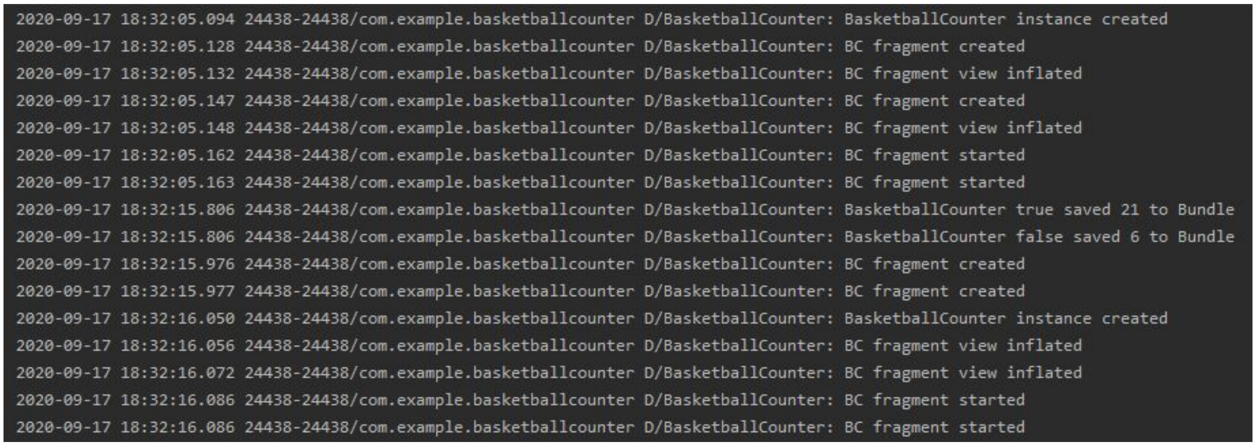


Figure 2-3: Activity Running with Fragments



```
2020-09-17 18:32:05.094 24438-24438/com.example.basketballcounter D/BasketballCounter: BasketballCounter instance created
2020-09-17 18:32:05.128 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment created
2020-09-17 18:32:05.132 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment view inflated
2020-09-17 18:32:05.147 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment created
2020-09-17 18:32:05.148 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment view inflated
2020-09-17 18:32:05.162 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment started
2020-09-17 18:32:05.163 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment started
2020-09-17 18:32:15.806 24438-24438/com.example.basketballcounter D/BasketballCounter: BasketballCounter true saved 21 to Bundle
2020-09-17 18:32:15.806 24438-24438/com.example.basketballcounter D/BasketballCounter: BasketballCounter false saved 6 to Bundle
2020-09-17 18:32:15.976 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment created
2020-09-17 18:32:15.977 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment created
2020-09-17 18:32:16.050 24438-24438/com.example.basketballcounter D/BasketballCounter: BasketballCounter instance created
2020-09-17 18:32:16.056 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment view inflated
2020-09-17 18:32:16.072 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment view inflated
2020-09-17 18:32:16.086 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment started
2020-09-17 18:32:16.086 24438-24438/com.example.basketballcounter D/BasketballCounter: BC fragment started
```

Figure 2-4: Fragment Logs

Part 3:

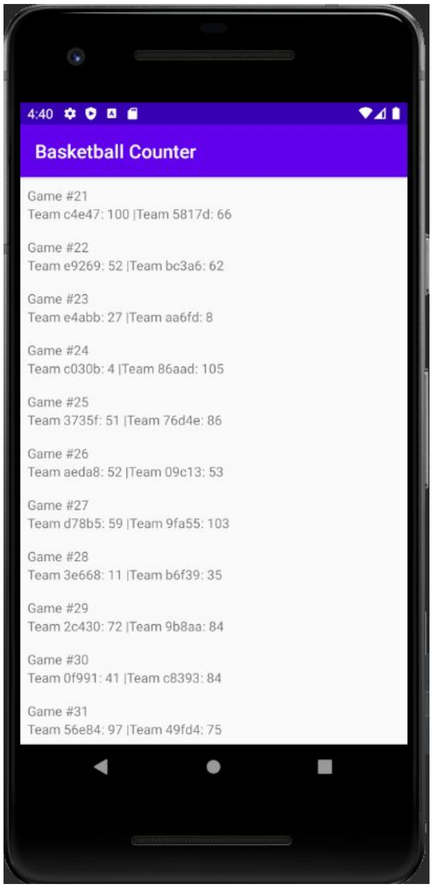
Design Rationale:

For the main activity, the layout file contains only a FrameLayout defining the area that the RecyclerView will be loaded into. The RecyclerView layout file contains only a RecyclerView element. The layout file for one game contains a series of LinearLayouts and TextViews. The layout is set up so that each game will only take up 2-3 lines worth of space. The top row indicates the game number while the bottom row contains the teams and their respective scores.

Reflection:

For this part of the assignment I learned how to harness fragments to load large data sets into a RecyclerView. This part included implementing an adapter, view holder, view models, recycler views, and fragments and bridging them together to create an activity that displayed 100 randomly-generated games in a scrollable menu.

Screenshots:



```
Game #21
Team c4e47: 100 |Team 5817d: 66

Game #22
Team e9269: 52 |Team bc3a6: 62

Game #23
Team e4abb: 27 |Team aa6fd: 8

Game #24
Team c030b: 4 |Team 86aad: 105

Game #25
Team 3735f: 51 |Team 76d4e: 86

Game #26
Team aeda8: 52 |Team 09c13: 53

Game #27
Team d78b5: 59 |Team 9fa55: 103

Game #28
Team 3e668: 11 |Team b6f39: 35

Game #29
Team 2c430: 72 |Team 9b8aa: 84

Game #30
Team 0f991: 41 |Team c8393: 84

Game #31
Team 56e84: 97 |Team 49fd4: 75
```

Figure 3-1: RecyclerView with 100 Randomly Generated Games