Mobile Application Development
Homework 2

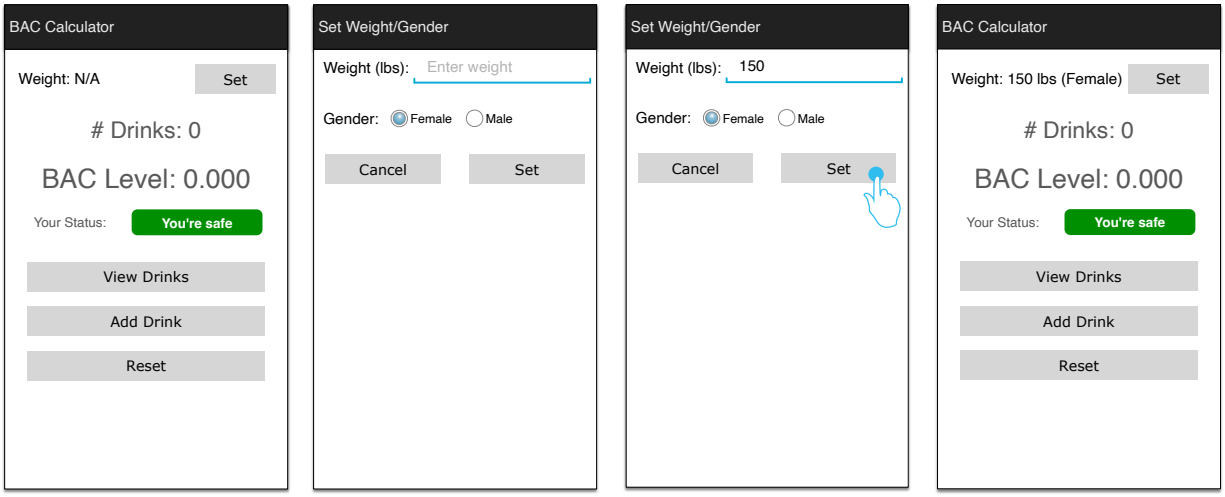
Basic Instructions:

1. In every file submitted you MUST place the following comments:
    a. Assignment #.
    b. File Name.
    c. Full name of the student.
2. Each group is required to submit the assignment on Canvas.
3. Submission details:
    a. Zip all the project folder to be submitted on canvas.
    b. The file name is very important and should follow the following format: **Group#_HW#.zip**
    c. You should submit the assignment through Canvas: Submit the zip file.
4. **Failure to follow the above instructions will result in point deductions.**

GL bro, this one is rough :)

Homework 02 (100 points)

In this assignment you will get familiar with managing multiple activities and passing data between them. You will build a multiple activity Blood Alcohol Content (BAC) Level Calculator application.



(a) Main Activity (b) Set Profile Activity (c) Set Profile Activity (d) Main Activity

Figure 1, Application Screen Shots

Part 1 (40 Points): Main Activity (BAC Calculator)

The Main Activity shows the user's weight, gender, the number of drinks, BAC level and your status as shown in Fig 1(a). The activity requirements are as follows:

1. Create a Drink class. An ArrayList of Drink objects should be stored in the Main Activity to maintain the list of user added drinks.
2. If the Weight and Gender are not set then see Fig 1(a):
   a. The weight should be displayed as N/A. The # Drinks, BAC Level and Your Status should match Fig 1(a).
   b. View Drinks and Add Drink buttons should be disabled.
3. Clicking the "Set" button should display the SetProfile Activity see Fig 1(b):
   a. The Set Profile Activity should be **started for result** as it should return the user's entered Profile object (weight and selected gender) to be stored and used in the Main Activity.
   b. Upon returning from the SetProfile Activity:
      i. The received weight and gender should be stored in the Main Activity, and should be displayed as shown in Fig 1(d).
      ii. Clear the drinks list, clear the BAC and UI as shown in Fig 1(d).
      iii. Enable the View Drinks and Add Drink buttons.
4. Clicking the "View Drinks" button should:
   a. If there are no drinks in the drinks list then display a toast indicating that the user has no drinks.
   b. If there are drinks in the drinks list, then the Main Activity should send the current list of drinks to the View Drinks Activity. The View Drinks Activity should be **started for result** as it should return back an updated list of drinks to be stored and used in the Main Activity.

need to check if the array actually sends to the activity

c. Upon returning from the View Drinks Activity:
   i. The received list of drinks of drinks should be stored in the Main Activity.
   ii. The # Drinks, BAC Level and Your Status should be updated based on the received list of drinks.
   iii. If the computed BAC is lower 0.25 then enable the “Add Drink" button else disable the “Add Drink" button.

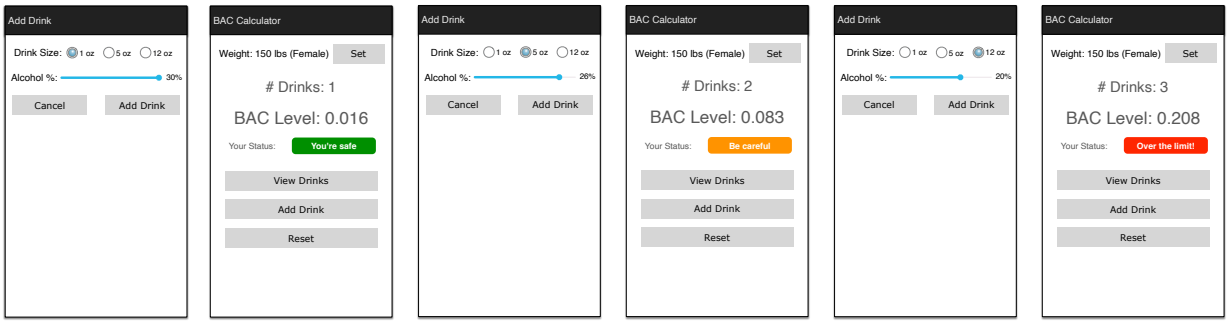
5. Clicking the “Add Drink” button should:
   a. The Add Drink Activity should be **started for result** as it should return back the created Drink object to be stored in the Main Activity’s list of drinks.
   b. Upon returning from the Add Drink Activity
      i. The received newly created Drink object should be added to the list of drinks stored in the Main Activity
      ii. The # Drinks, BAC Level and Your Status should be updated based on the the list of drinks.
      iii. If the computed BAC level reaches 0.25 or higher, the “Add Drink" button should be disabled and display a Toast that says “No more drinks for you.”
6. Clicking the “Reset” button should”
   a. Clear the user Profile (weight and gender).
   b. Clear all the added drinks history. (Hint: Clear the ArrayList of drinks).
   c. Reset the UI to the state shown in Fig 1(a)
   d. Disable the View Drinks and Add Drink buttons.
7. Calculate the new BAC value based on the BAC calculation equation listed below.
8. Update the “Your Status” to the correct text and color based on the following:
   a. 0 ≤ BAC ≤ 0.08 : Green “You’re safe.”
   b. 0.08 < BAC ≤ 0.2 : Orange “Be careful.”
   c. 0.2 < BAC : Red “Over the limit!”
   d. Whenever the BAC level reaches 0.25 or higher, the “Add Drink" button should be disabled and display a Toast that says “No more drinks for you.”

The function works, may need to add a function call after veiwdrinks retuns, im not sure

Part 2 (15 Points): Set Profile Activity (Setting Weight and Gender)

This activity enables the user to setup their weight and gender which is required for BAC calculation, see Figure 1(b). Requirements are listed below:

1. Create a Profile class that should be used to store the user’s weight and gender.
2. Use an EditText component for the user to enter their weight in pounds, limit the entries to only positive numbers and should display the hint message “Enter Weight.
3. Use a radio group to allow a user to select their gender.
4. Clicking the “Set” button:
   a. Check that the weight is entered and the gender is selected, if not display a Toast message. If all the entries are entered correctly, then create a Profile object and send it back as a result to the Main Activity, then finish the Set Profile Activity.
5. Clicking the “Cancel” button should finish the the Set Profile Activity, which should show the Main activity.



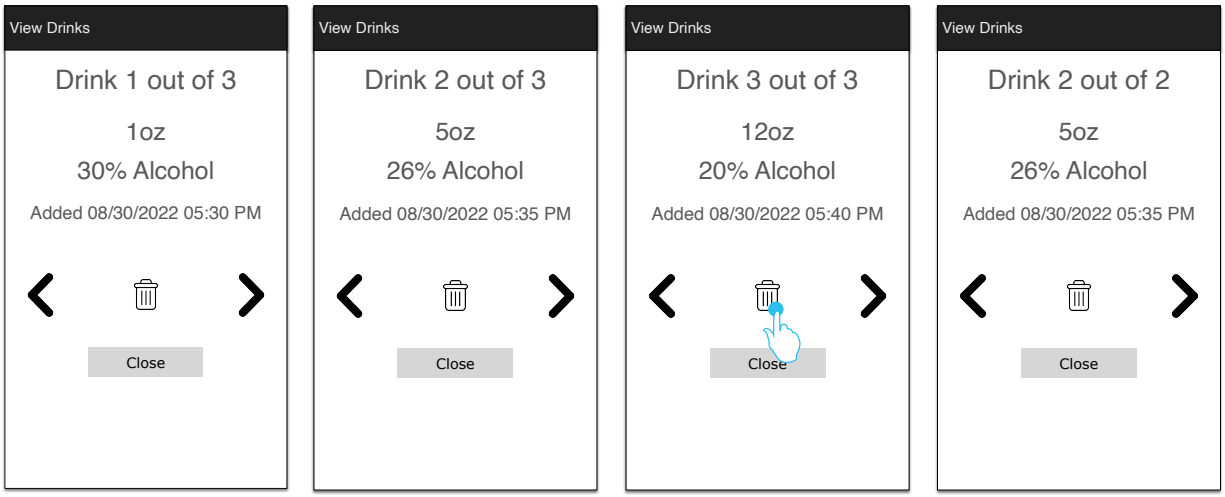
(a) Add Drink Activity (b) Main Activity (c) Add Drink Activity (d) Main Activity (e) Add Drink Activity (f) Main Activity

Figure 2, Application Screen Shots

Part 3 (15 Points): Add Drink Activity

The Add Drink Activity allows the user to add a new drink as shown in Fig 2(a). The requirements are as follows:

1. The Drink Size Radio Group allows the user to pick the drink size 1, 5 and 12oz.
2. A SeekBar is used to select Alcohol %. Set the maximum alcohol percentage to 30%.
    a. On the right of the SeekBar use a TextView to display the current progress of the SeekBar, which should update as the user moves the SeekBar.
3. Clicking the “Add Drink” button:
    a. Create a Drink object using the selected drink size and alcohol level. Send the created Drink object back as a result to the Main Activity, then finish the Add Drink Activity.
4. Clicking the “Cancel” button should finish the the Add Drink Activity, which should show the Main activity.
5. Figure 2, shows the process of adding a drink and how it updates the Main Activity after recomputing the BAC values.



(a) View Drinks Activity (b) View Drinks Activity (c) View Drinks Activity (d) View Drinks Activity

Figure 3, Application Screen Shots

Part 4 (30 Points): View Drinks Activity

This activity allows the user to view and delete the added drinks as shown in Fig 3. The requirements are as follows:

1. This activity should receive the list of drinks from the Main Activity.
2. At the top show the "Drink # out of N" as shown. In addition show the drink size and alcohol %, and the date the drink was added. Fig 3(a) shows the first drink added.
3. Clicking the "next" button should:
   a. Display the next drink from the list of drinks. If the currently displayed drink happens to be the last drink in the list then display the first drink (at index 0).
4. Clicking the "previous" button should:
   a. Display the previous drink from the list of drinks. If the currently displayed drink happens to be the first drink in the list then display the last drink (at index N-1).
5. Clicking the "trash can" image should:
   a. Delete the currently displayed drink from the list of drinks.
   b. Display the drink right before the deleted drink, this should follow similar logic to the "previous" button.
   c. If the updated list of drinks is empty, send the update list of drinks back as a result to the Main Activity, then finish the View Drinks Activity.
6. Clicking the "close" button should:
   a. Send the update list of drinks back as a result to the Main Activity, then finish the View Drinks Activity.

Calculating BAC:

- The Blood Alcohol Content (BAC) is calculated based on their user's weight, gender and alcohol consumption. We are not including time in this calculation.
- The simplified version of the "Widmark BAC Formula:" **% BAC = (A x 5.14 / (W x r))**

Variable	Description
A	Total liquid ounces of alcohol consumed. It is dependent of the volume and the alcohol concentration of the drinks consumed.
W	Weight of the person in pounds.
r	Constant that depends on the user's gender - 0.73 for Men - 0.66 for Women

Table 1: BAC variable description

Example Scenario:

Eve consumed 12oz Beer (5%), 5oz Wine Glass (12%), and 1.5oz Spirit (40%). She weighs 150 lbs. In order to calculate the variable A we need to perform the following:

r = 0.66 (Women)
W = 150 lbs
A = 12*5/100 + 5*12/100 + 1.5*40/100 = 1.8
BAC = 1.8 * 5.14 / (150 * 0.66) = 0.093