

# Lab Exercise for Event Listener

## Learning Outcome

At the end of this exercise the student should be able to: -

1. Link the UI component in XML and activity class.
2. Register event listener to UI component.
3. Override the suitable implementation for the event listener.

## Exercise 1: Count My Cup of Coffee

In this exercise, the student will execute a sample app and observe the mechanism of event listener.

### Description of Application

The application keeps track of the number of coffee cups consumed per day. It updates the number of cups when the user clicks the button. Figure 1 shows sample views for the app.

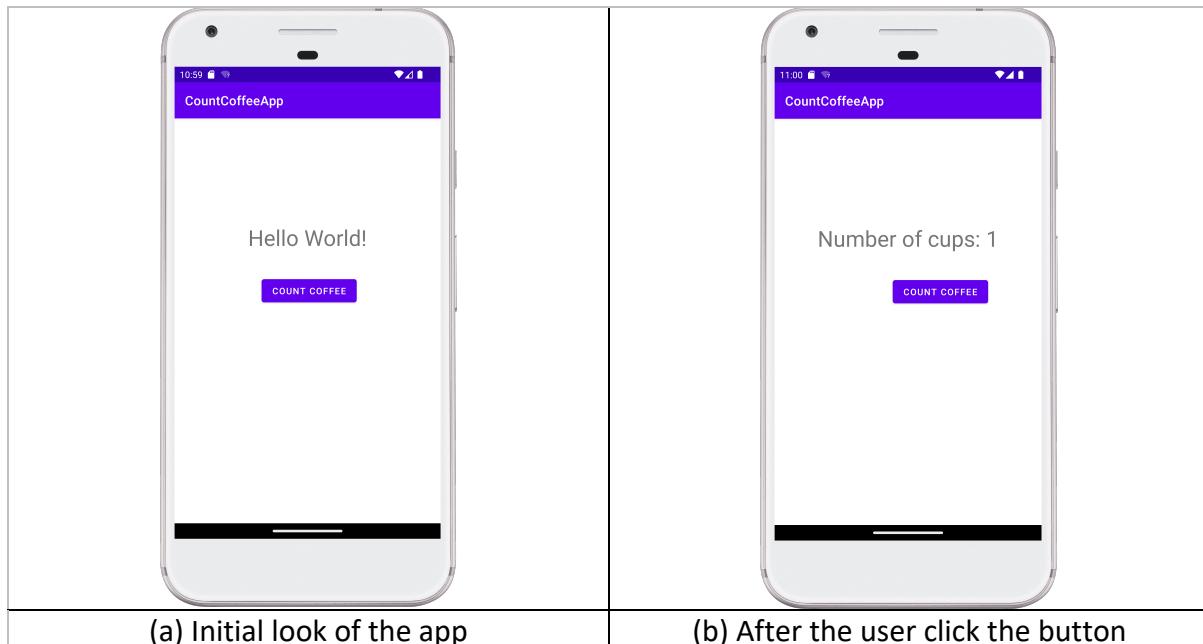


Figure 1: Sample views of CountCoffeeApp

## Instruction A

1. Download a project named CountCoffeeApp.zip.
2. Open the project in Android Studio.
3. Execute the app using the Emulator.
4. Click the button and observe the change on the activity.
5. Repeat step 4 for several times.

## Instruction B

1. Open activity\_main.xml in SplitView.
2. Identify the button declared in the XML file. Get the ID of the button.
3. Open MainActivity.java.
4. Find the line that links the button in XML with the button declared in this class.
5. Study other methods in the class.
6. Repeat steps 3 to 5 to comprehend the relation between the UI in XML and UI component declared in MainActivity.java

## Exercise 2: Greet the Hogwarts Student

In this exercise, the student will override the implementation of `onClick()` method.

### Description of Application

The application shall display a greeting message with the student's name when the user click button Greet. The example is shown in Figure 2.

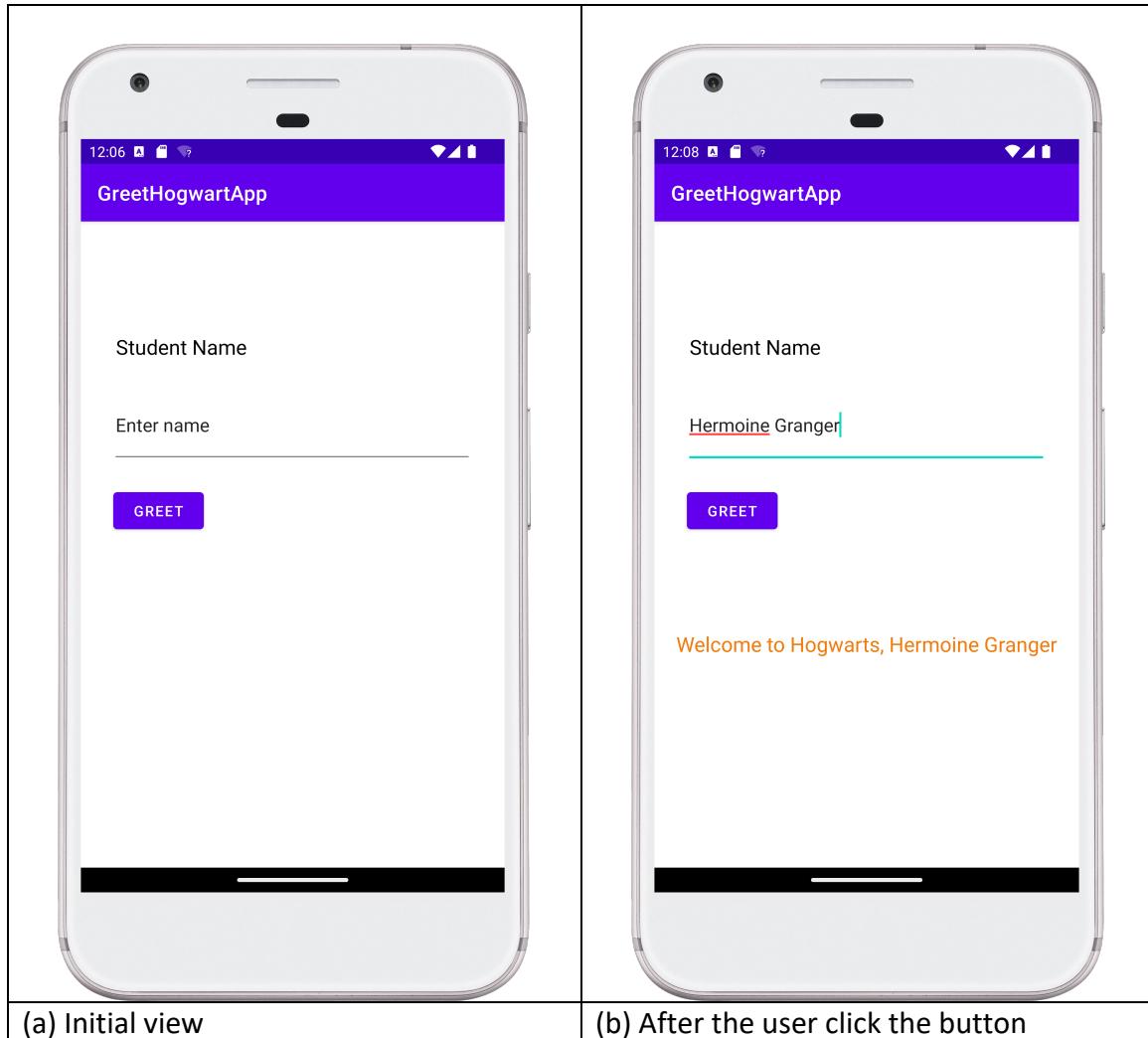


Figure 2: Sample views of GreetHogwartApp

## Instruction A

1. Download a project named GreetHogwartApp.zip.
2. Open the project in Android Studio.
3. Open activity\_main.xml in SplitView.
4. Identify the UI components that will accept the student's name and the button that will calculate display the greeting message.
5. Memorize the IDs of the components.

## Instruction B

1. Open MainActivity.java.
2. Study the source code.
3. Identify the UI component declared in this class.
4. Find the link of the UI components declared in this class and XML file.
5. Locate a method name onClick( ) in this class.
6. Complete the implementation of onClick( ). Use the comment to guide the implementation for the method.

## Exercise 3: Add Two Numbers

In this exercise the student will link the UI components and override the implementation of `onClick( )`.

### Description of Application

The activity should receive two integer numbers. The button shall calculate the sum of two numbers. The activity shall display the result of the summation after the calculation process has finished.

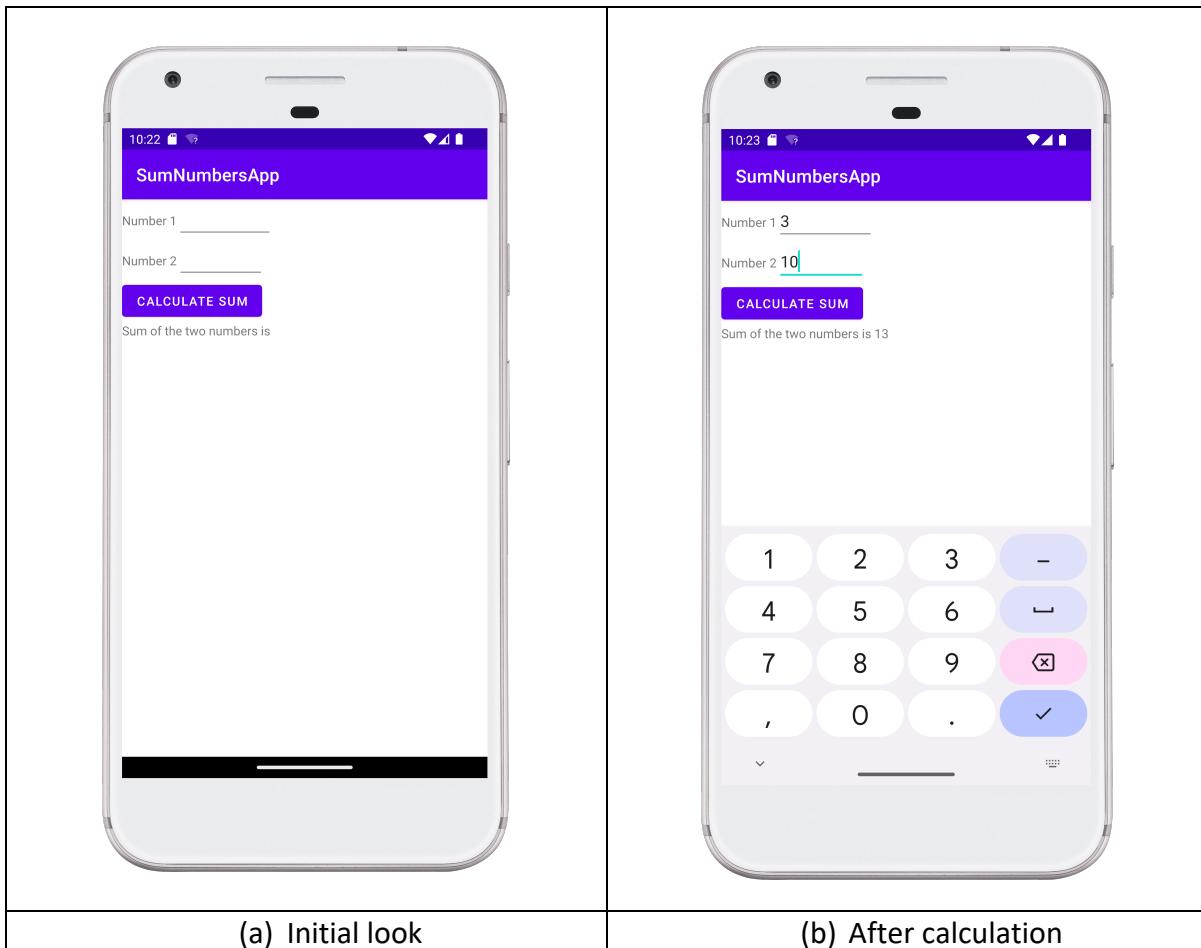


Figure 3: An activity to calculate to number

## Instruction A

1. Download a project file named.
2. Open the project in Android Studio.
3. Open activity\_main.xml in SplitView.
4. Identify the UI component to received two integer numbers, a button to calculate the sum of two numbers and a text to display the result from activity\_main.xml.
5. Open MainActivity.java.
6. Locate methods named onCreate( ) and onClick ( ).
7. Complete the implementation for these two methods. Use the comment as guide of implementation.
8. Save MainActivity.java.
9. Run the activity on Emulator.
10. Observe and record the result.

## Exercise 4: Calculate Discounted Price

Create an app to accept two inputs from user – a price and a discount rate. The app shall calculate the discounted price when the user clicks a button. The app shall display the discounted price on the screen.

## Exercise 5: Count Consonants and Vowels

Create an app to accept name from the user. The app shall count the number of consonants and vowel when the user clicks a button. The app shall display the number of consonants and vowels on the screen.

## Exercise 6: Count the Number of Words in a Sentence

Create an app to accept a sentence. The app shall count the number word in the sentence when the user clicks a button. The app shall display the number of words on the screen.

## Exercise 7: Comprehension of Event Listener

- a. What is the name of the method that link the UI component in the Java class and XML file?
- b. How should an activity listen to an event?
- c. Name the interface that will capture a button to be click.
- d. Name the method to be overridden in (b).
- e. State the method to register a button to an event listener.

Record all your answers in ulearn.