LAB 3: BUILDING YOUR FIRST APP USING MIT APP INVENTOR 2

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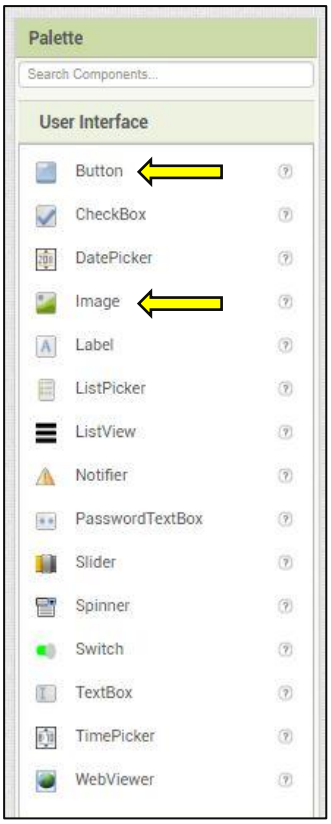
Objective:
In this lab we are going to go through the steps for building your first app using the MIT App Inventor. We will go in depth in designing the screen layout and coding the functionality of the components on the MIT App Inventor Designer.

1. User Interface



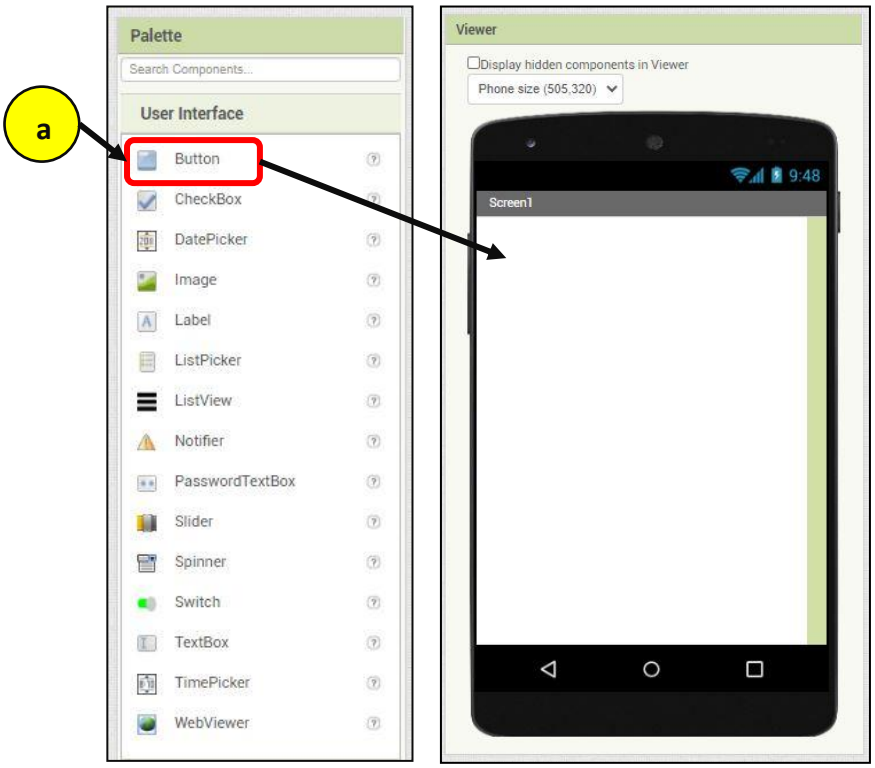
The first group of the component in the palette is the **User Interface**. In the User Interface you can see components that are usually visible on the screen an android phone. In this part of lab, we will utilize two components from the User Interface which are **Button**, and **Image**.

***Note: From this point onwards, this lab guide will continue from the previous lab guide which is Lab 2: Setting up Connection for MIT App Inventor 2. Please make sure that you have followed and completed Lab 1 and Lab 2 step by step guide before starting with this lab guide.**

You can choose the size of your display screen in the drop down list. There are 3 options which are Phone size, Tablet size and Monitor size.

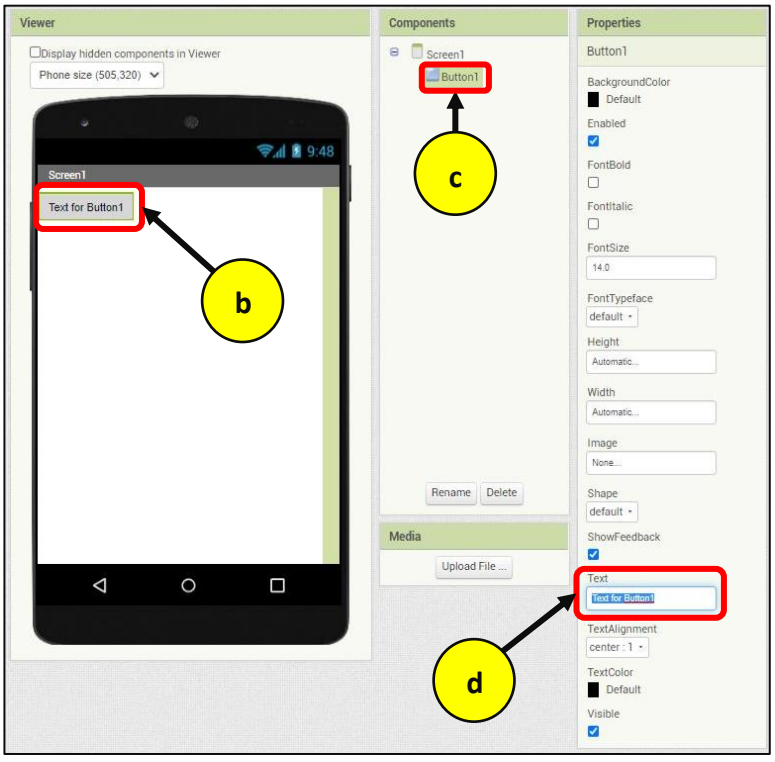
Once you have open your MIT App Inventor 2, follow the following steps.

a. ***Drag and drop*** the Button components on the Viewer at the screen of the android phone. Also, make sure that you have selected the screen to be a phone screen. Unless, you have a tablet with you then you can set the view to be in tablet mode.
b. Once you have dropped the button on the screen, we will need to ***change the text on the button*** from Text for Button 1 to Button. This can only be done at the Properties window on the right side of the window. As mention in Lab 1 guide, the properties window is responsible in changing the property of the components on the screen.

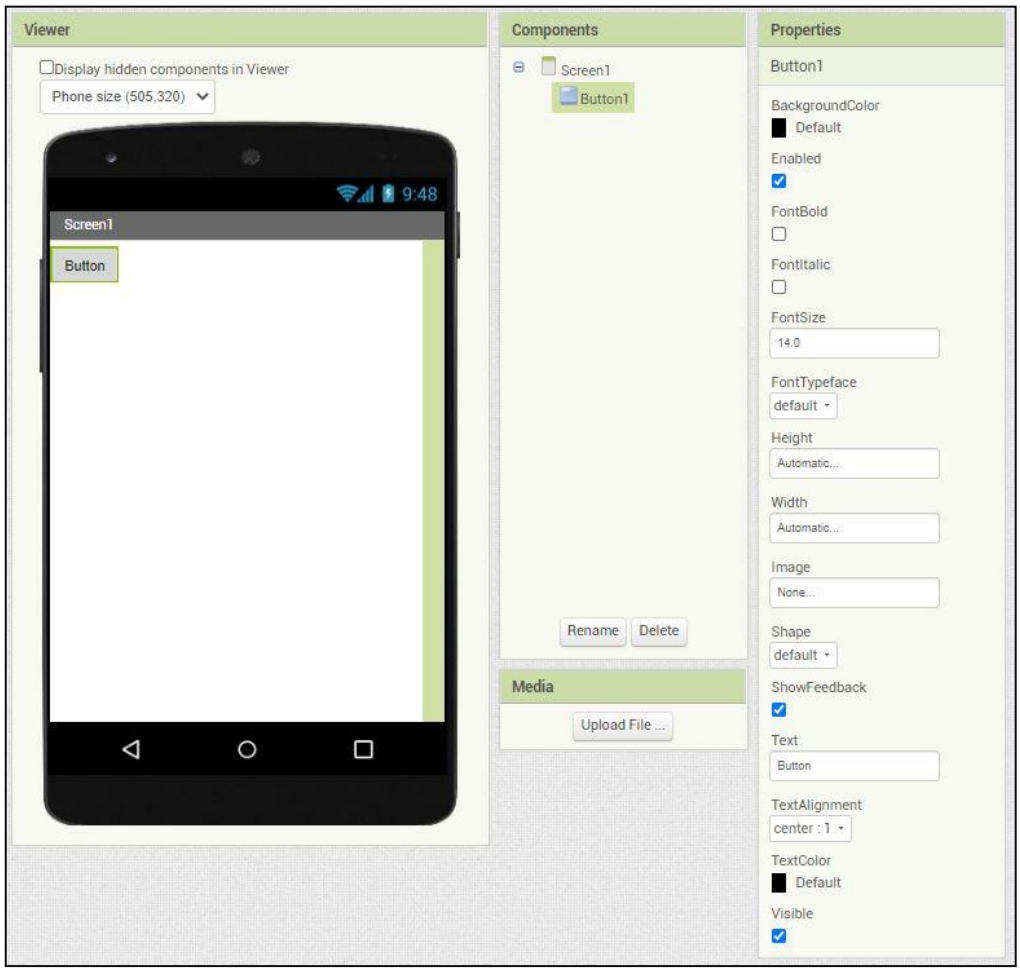


c. Take note that, once you have dragged the components on the screen, you can see a tree view list of the components available on the screen as shown in the figure below. Be sure to select the components that you wanted to change the property.

d. Change the text appearing on the Button by changing it at the Text Property. As mention previously, please change it from ***Text for Button 1*** to ***Button***

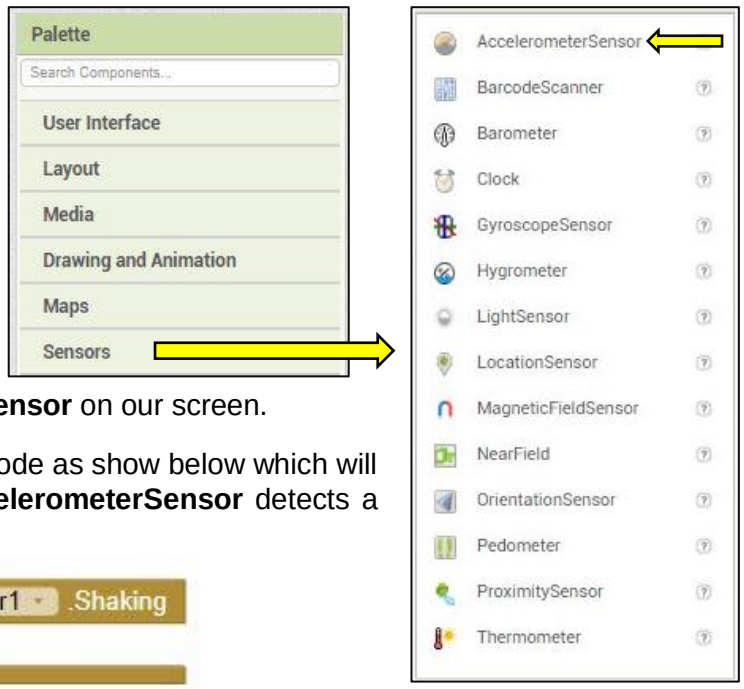


The end result should look like figure below.



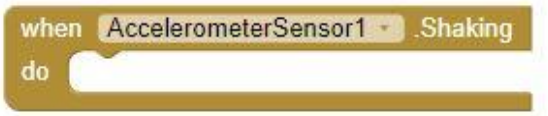
2. Sensors

Next, we will be adding a Sensor on our android app. The sensors component can be found on the palette as show in figure on the right. The sensor listed are sensors that are commonly found on an android phone.



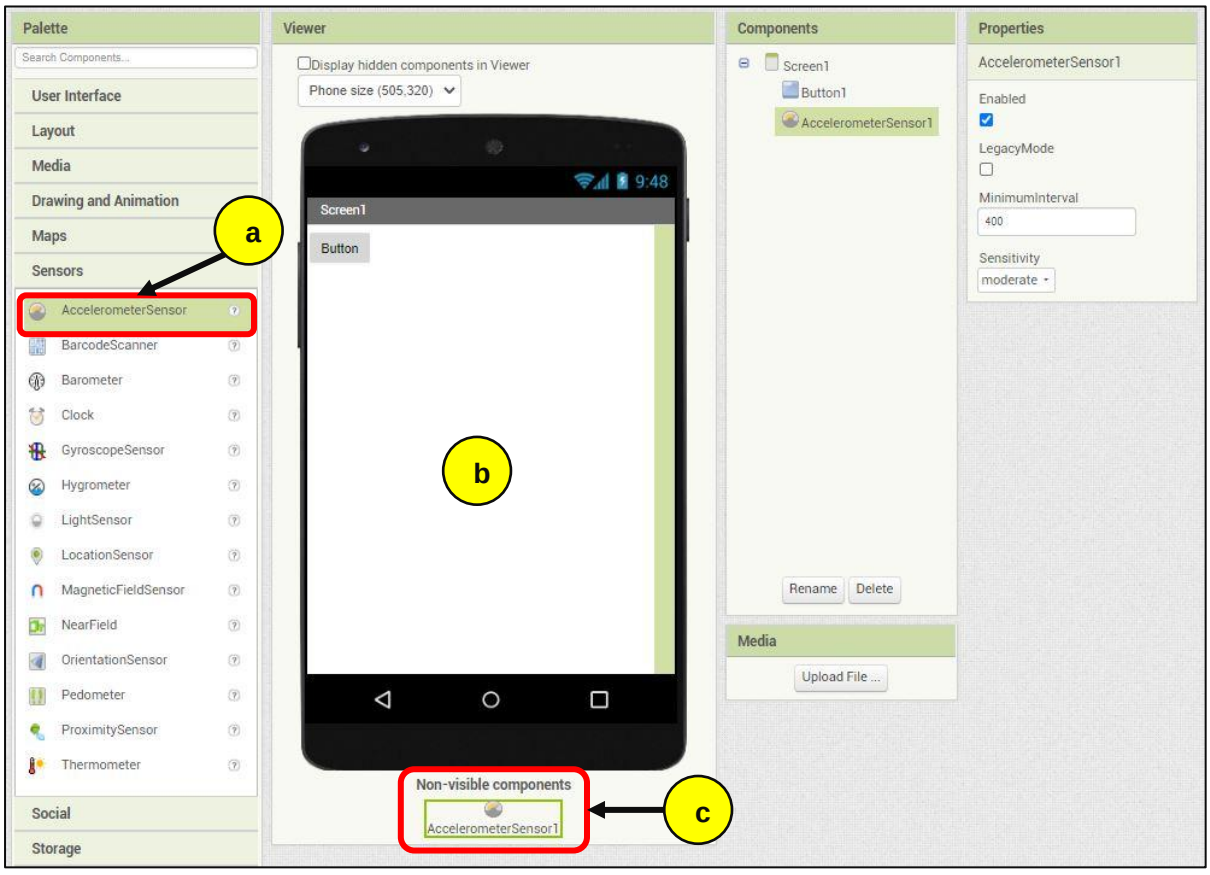
In this lab guide, we will be adding an **AccelerometerSensor** on our screen.

We will be implementing a code as show below which will do an event when the **AccelerometerSensor** detects a shaking motion.



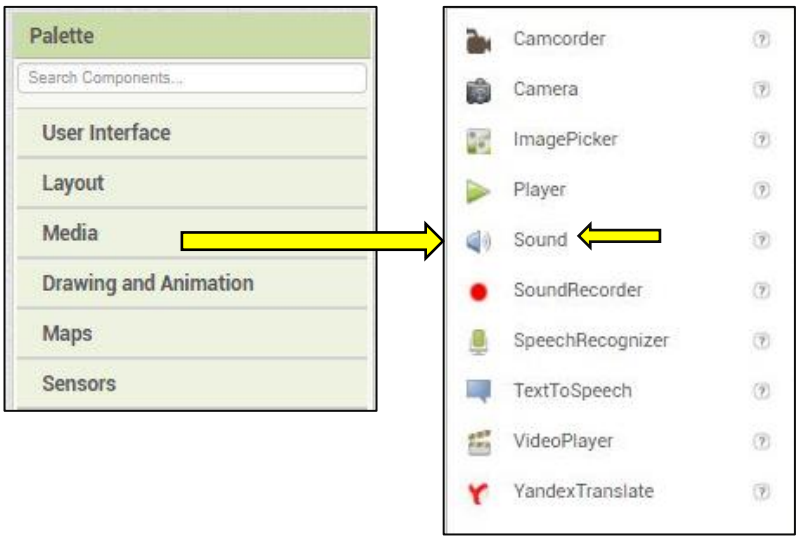
The steps for adding the **AccelerometerSensor** are as follows:

a. Select the **AccelerometerSensor** from the Sensors component list.
b. Drag it across the screen and drop it on the screen.
c. Take note that, the **AccelerometerSensor** is an invisible component on the android apps. It will only appear at the bottom part of the viewer.



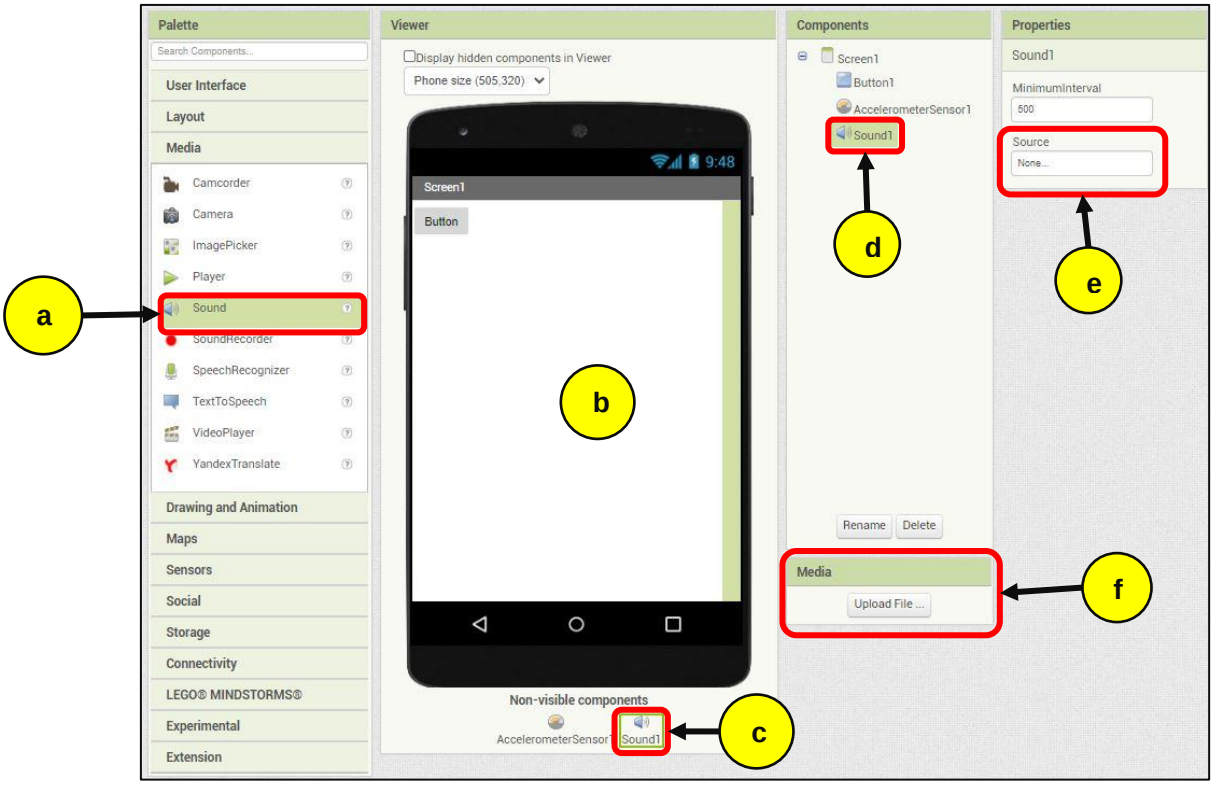
3. Media

Then, we will be adding a Sound on our app. The Sound component can be found on the Palette at the Media group component as shown in figure below.



The steps for adding the **Sound** on the MIT App Inventor 2 are as follows:

a. Select the **Sound** from the Media component list.
b. Drag it across the screen and drop it on the screen.
c. Take note that, the **Sound** is an invisible component on the android apps. It will only appear at the bottom part of the viewer
d. The select the Sound1 from the Component tree view list.
e. Notice that the Source at the Properties of the Sound1 is **None**.
f. To change this, we need to upload a sound file to the MIT App Inventor 2 server.



The following steps will show you ways to upload a media file onto the MIT App Inventor 2.

a. Go to the Media at the bottom right of the MIT App Inventor and click on the Upload File button.
b. Then, a prompt for Upload file will appear at the centre of the window. Click on Choose File button.
c. A window will pop-up. Choose the folder Exercise 1. Double-click to open. ***Note: For this lab guide you will be provided with a folder titled Lab 3 Resources.**
d. Choose the ***Boing-sound.mp3*** file and click **Open**
e. You will be returning back to the MIT App Inventor 2 window. Click OK.
f. Take note that, at the Media there is a file titled ***Boing-sound.mp3*** in the list.
g. Lastly, go to the Properties for Source and choose the file ***Boing-sound.mp3.***
h. Click OK to append the file to the Source.

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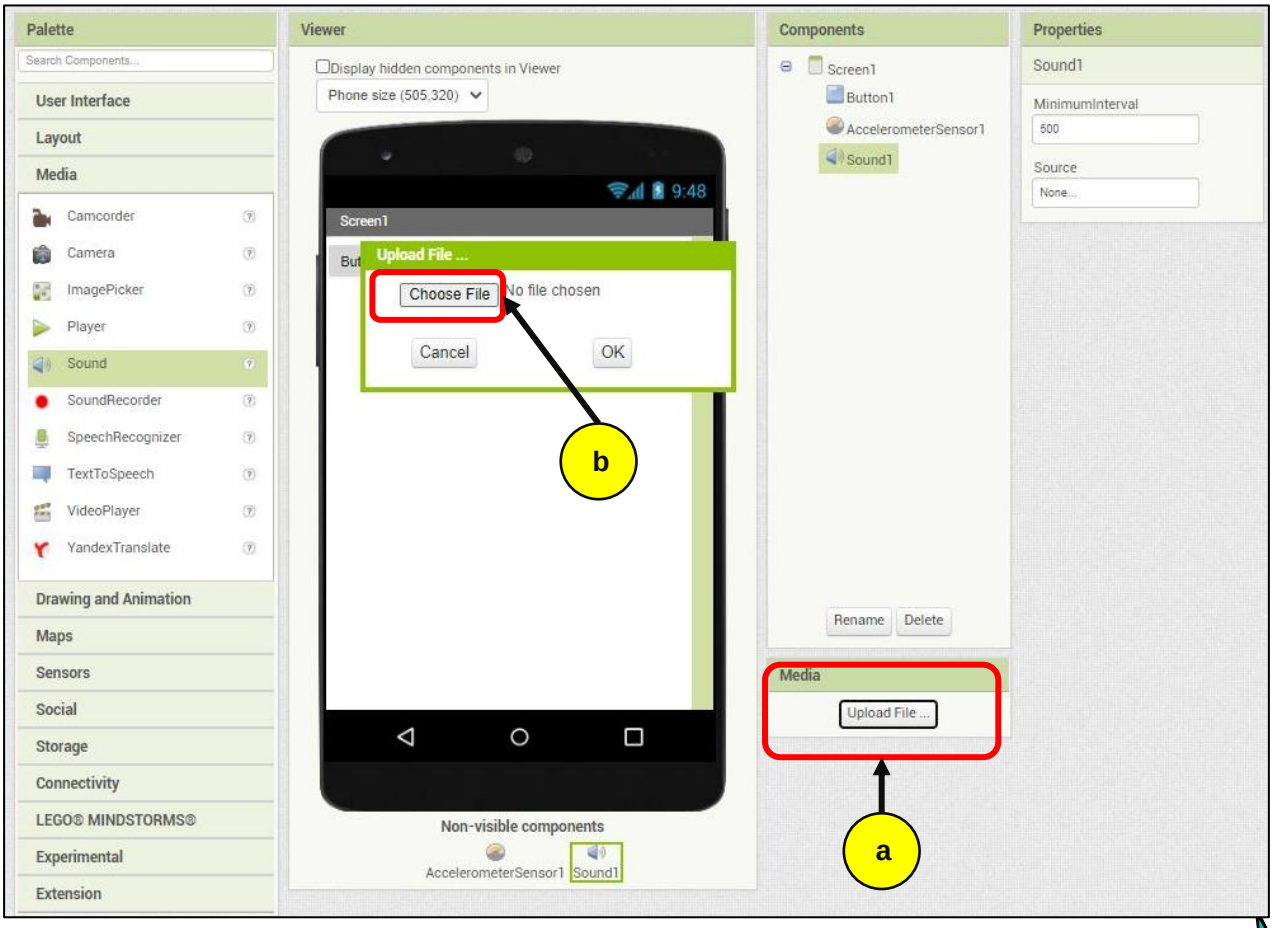
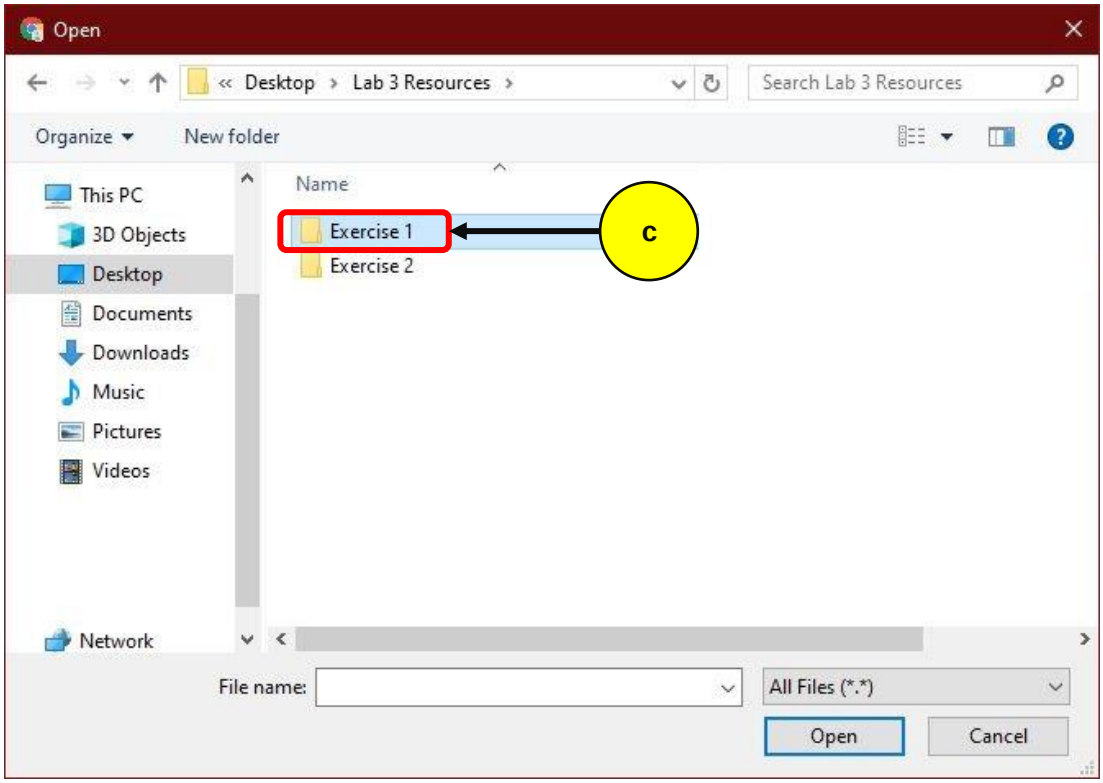
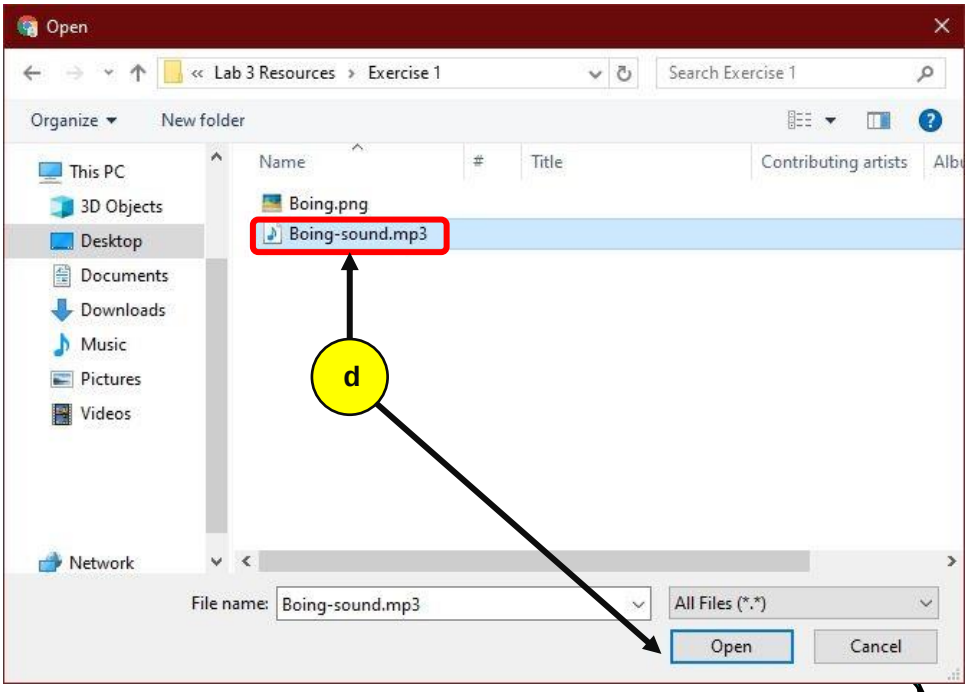
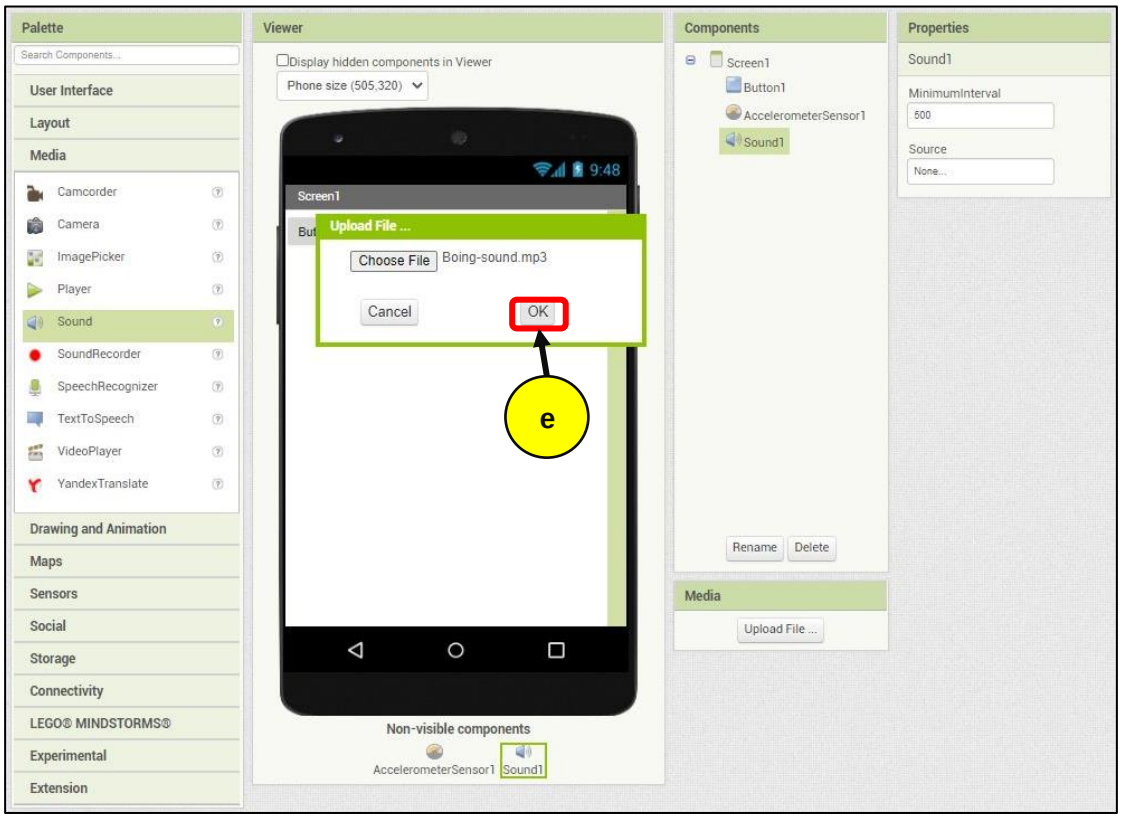
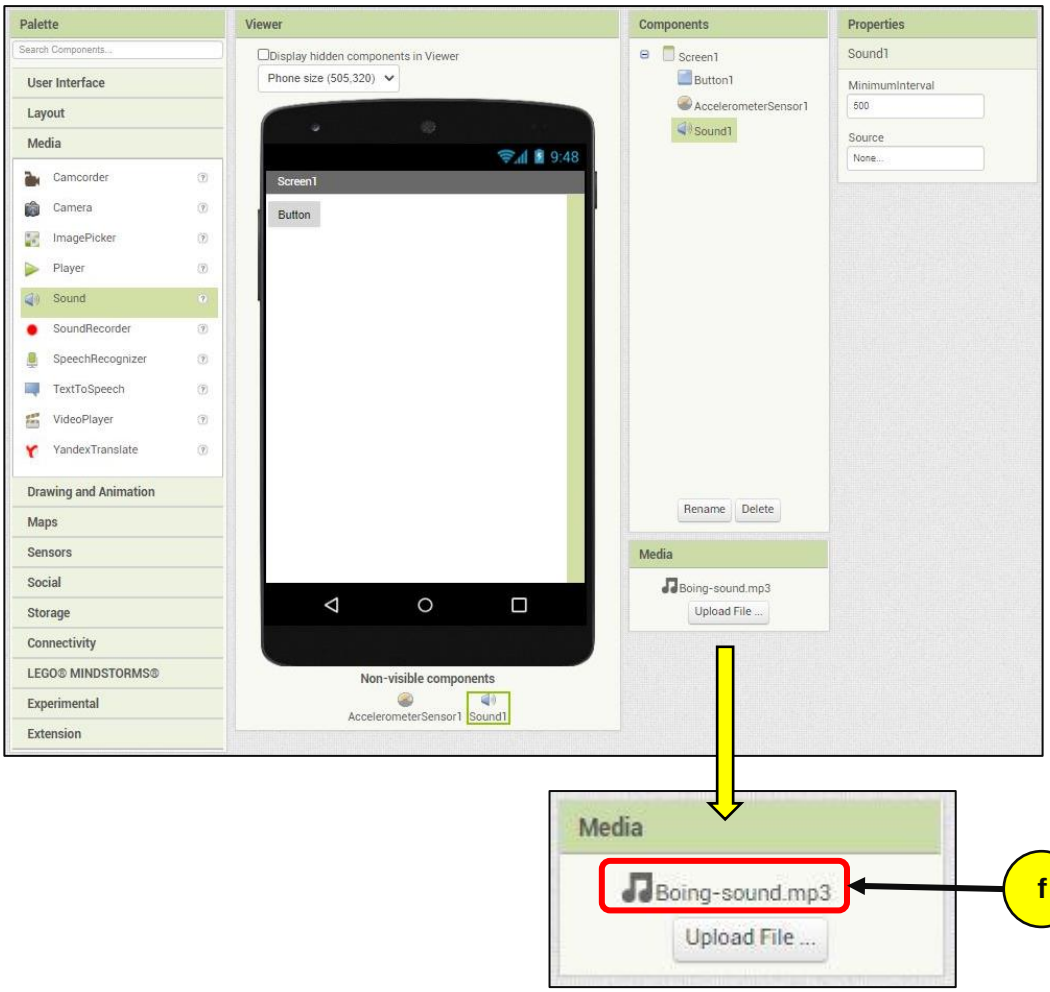
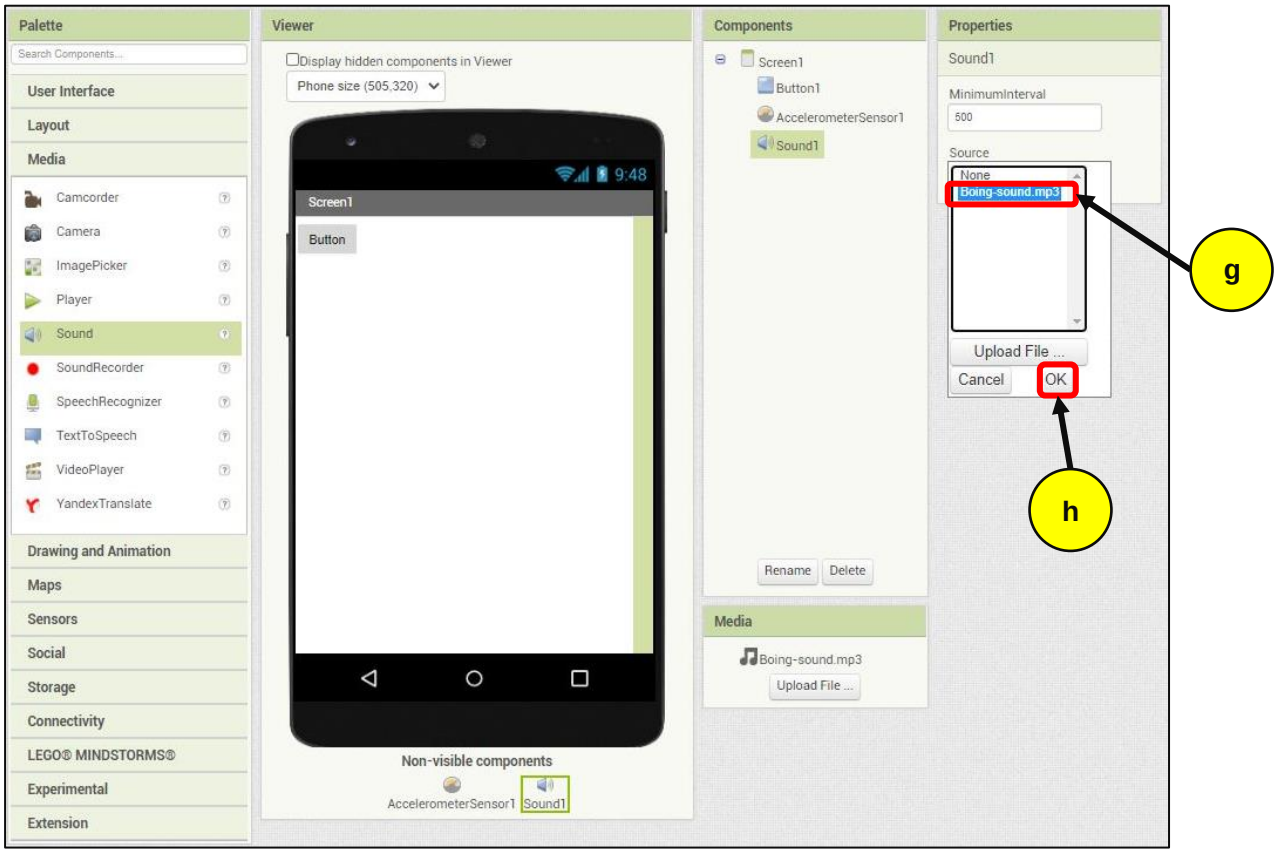





Open
Lab 3 Resources › Exercise 1
Search Exercise 1
Organize
New folder
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Network
Name
Title
Contributing artists
Boing.png
Boing-sound.mp3
d
File name: Boing-sound.mp3
All Files (*.*)
Open
Cancel


Palette
User Interface
Layout
Media
Camcorder
Camera
ImagePicker
Player
Sound
SoundRecorder
SpeechRecognizer
TextToSpeech
VideoPlayer
YandexTranslate
Drawing and Animation
Maps
Sensors
Social
Storage
Connectivity
LEGO® MINDSTORMS®
Experimental
Extension
Viewer
Display hidden components in Viewer
Phone size (505,320)
Screen1
Upload File ...
Choose File
Boing-sound.mp3
Cancel
OK
e
Non-visible components
AccelerometerSensor1
Sound1
Components
Screen1
Button1
AccelerometerSensor1
Sound1
Rename
Delete
Media
Upload File ...
Properties
Sound1
MinimumInterval
500
Source
None...

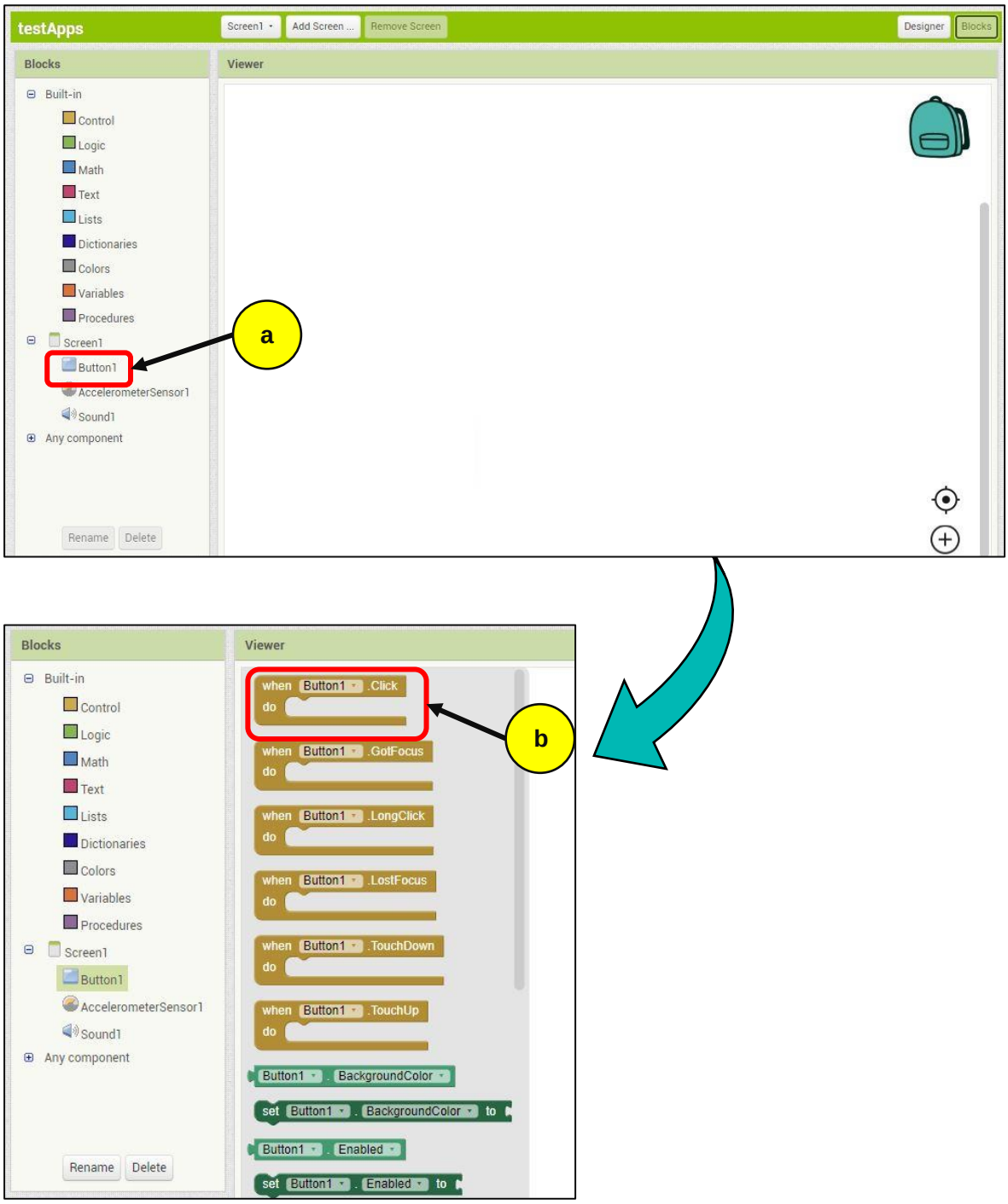

Palette
Viewer
Components
Properties
Media
Boing-sound.mp3
Upload File ...
f


Palette
Viewer
Components
Properties
Media
Boing-sound.mp3
Upload File ...
Cancel
OK
g
h

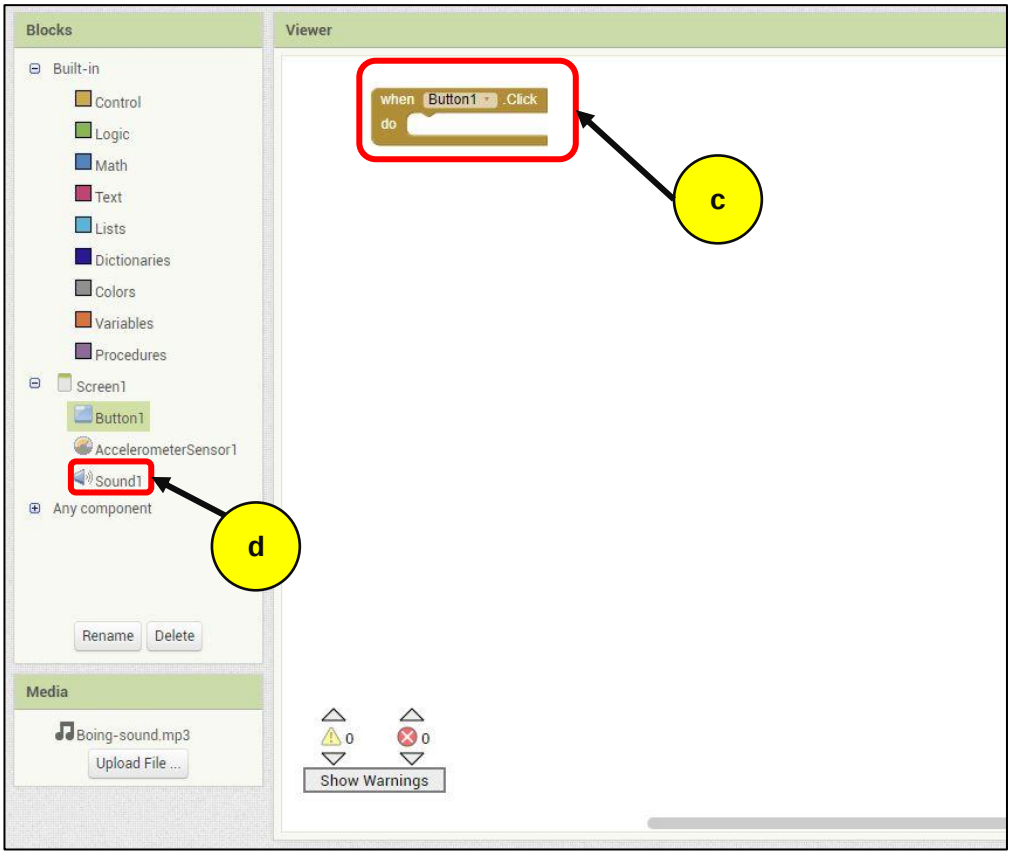
4. Implementing code in MIT App Inventor

After designing your android screen, we will then proceed with coding the android apps at the MIT App Inventor Blocks.
The following steps will show you ways to code by arranging the block at the MIT App Inventor 2 Blocks. Make sure that you have open the MIT App Inventor 2 Blocks.

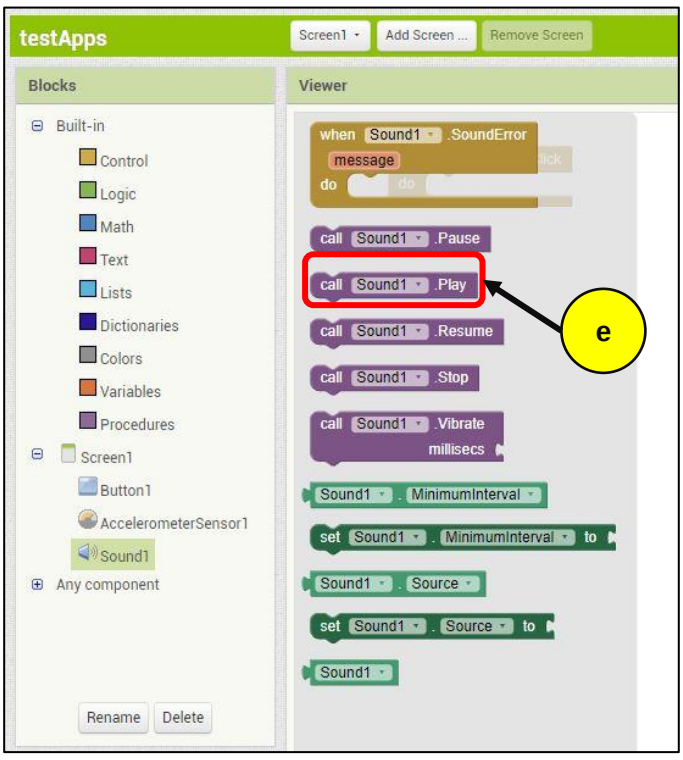
a. Firstly, select the ***Button1*** at the ***Component Blocks***.
b. Then, select code block for the activity ***when Button1.Click*** *(see figure below).*



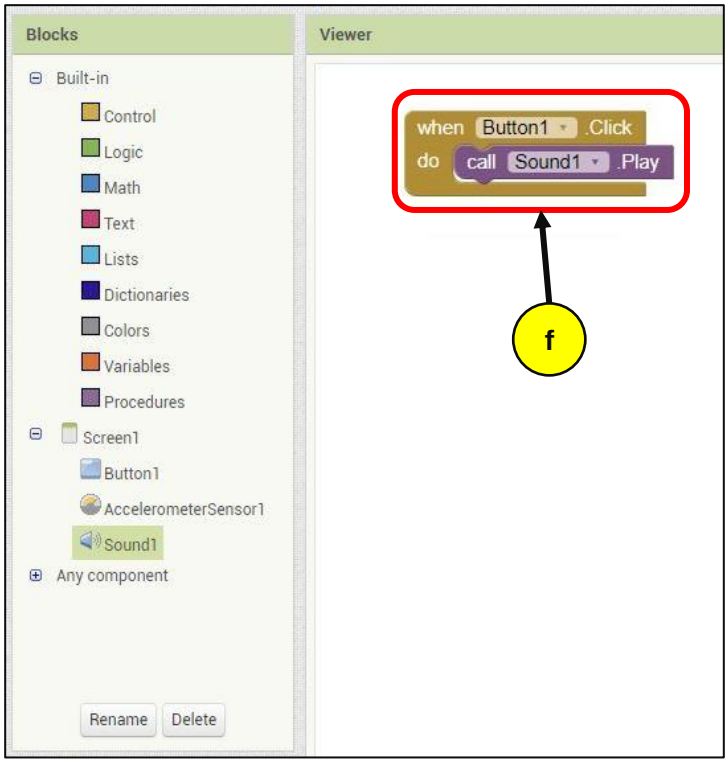
c. Drag and drop it on the **Viewer**.
d. After that, select ***Sound1*** at the ***Component Blocks***.



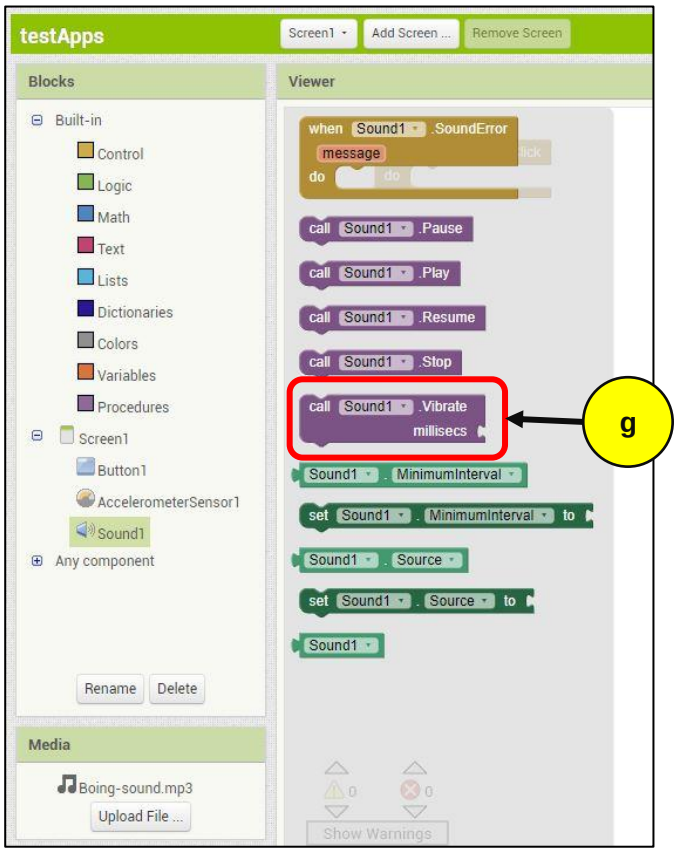
e. Select the block for ***call Sound1.Play*** *(see figure below).*



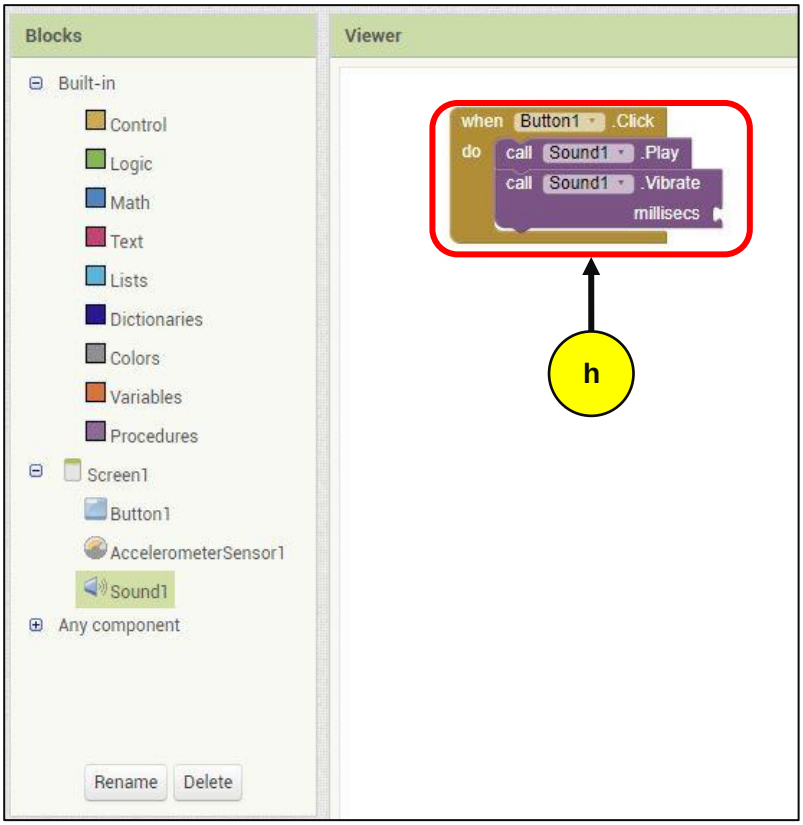
f. Drag and drop it on the **Viewer** and arrange it under the ***when Button1.Click*** block *(see figure below)*.



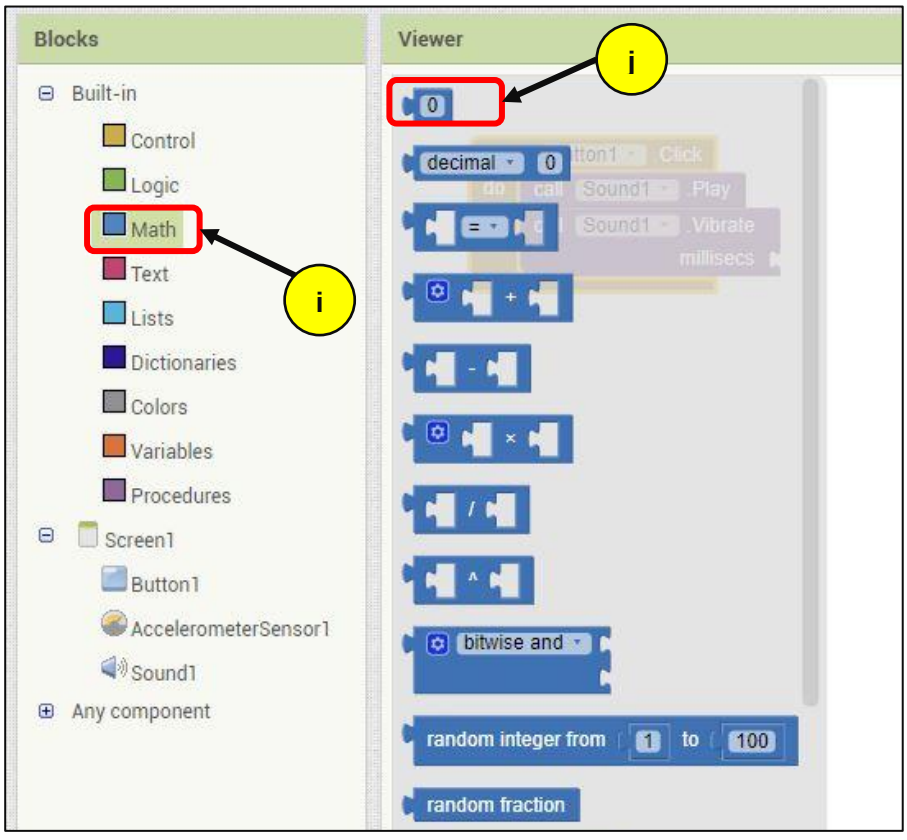
g. Then, at the same block (Sound1) select the block **call Sound1.Vibrate millisecs** *(see figure below).*



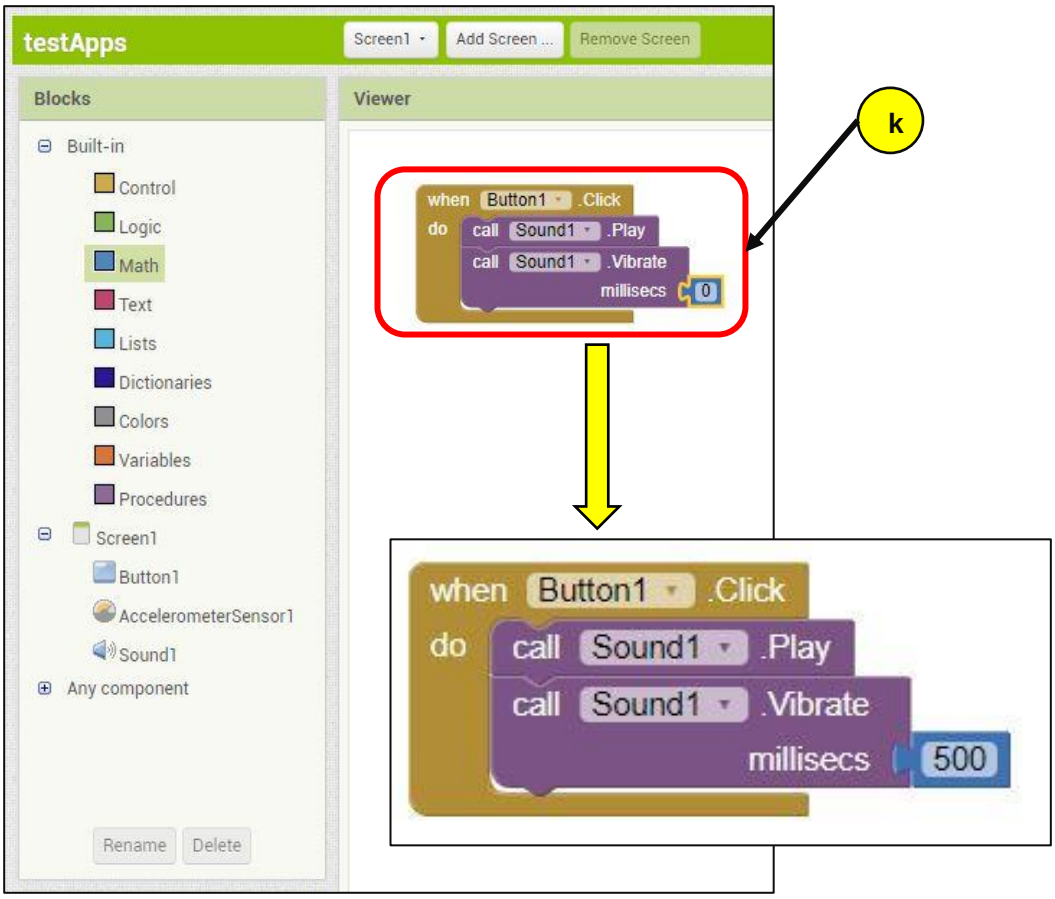
h. Arrange the block under the ***call Sound1.Play*** block *(see figure below).*



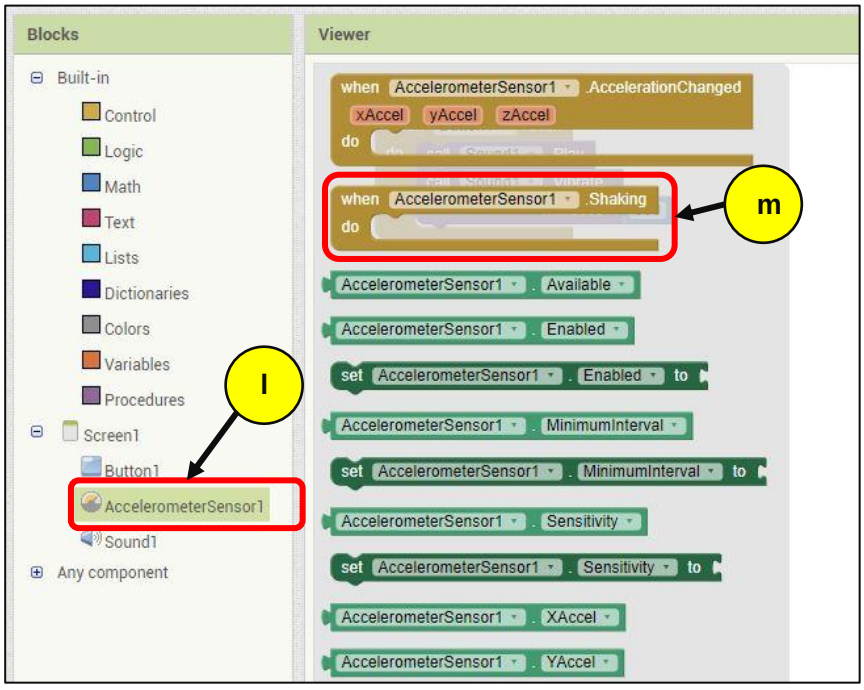
i. Then, choose the **Math** block at the **Built-in Blocks**.
j. Select the number block.



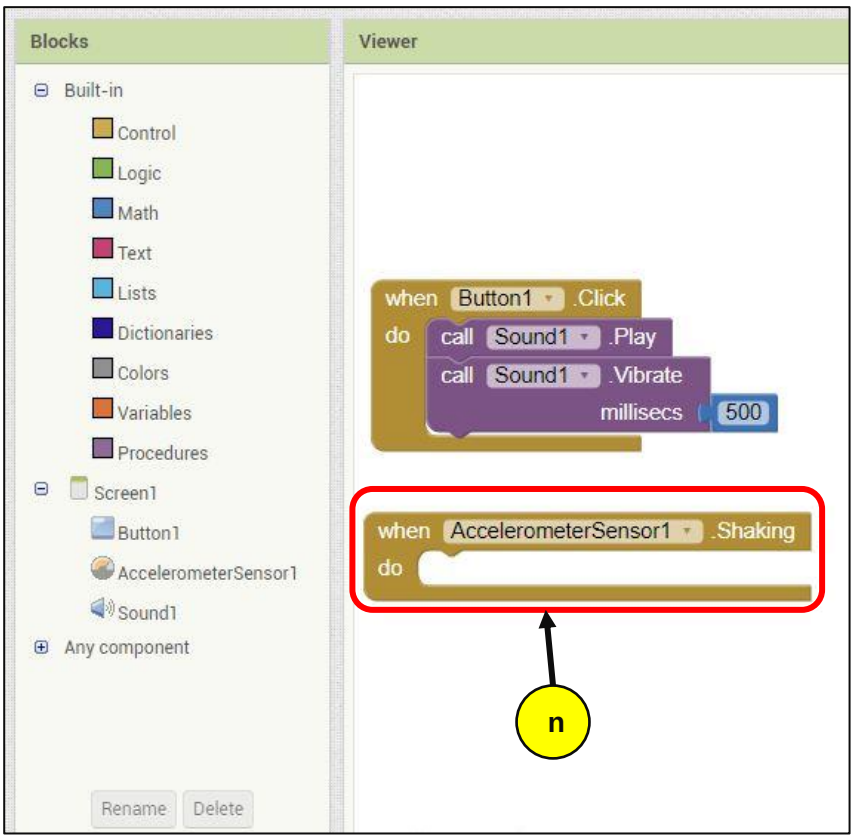
k. Append it at the call **Sound1.Vibrate millisecs** block and change the number to **500**.



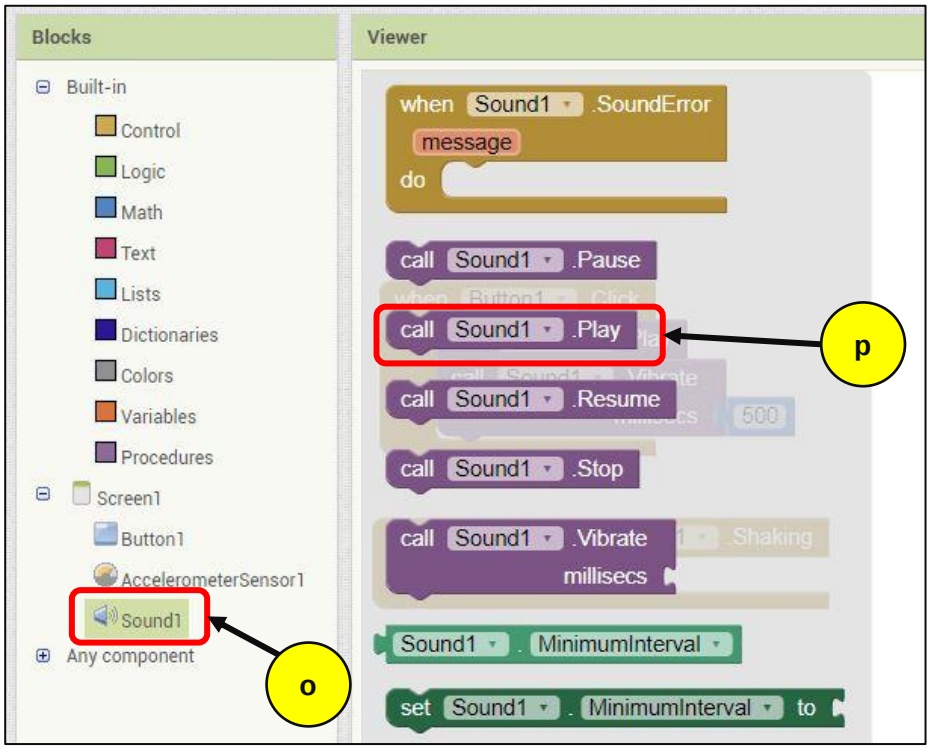
l. Select the ***AccelerometerSensor1*** at the ***Component Blocks***.
m. Then, choose the block ***when AccelerometerSensor1.Shaking***.



n. Drag and drop the block at the **Viewer**. You can place the block anywhere on the Viewer but it is best to place it under the Button1 block (*see figure below).*



o. As in previous step, select ***Sound1*** at the ***Component Blocks***.
p. Then, select the block for ***call Sound1.Play*** *(see figure below).*

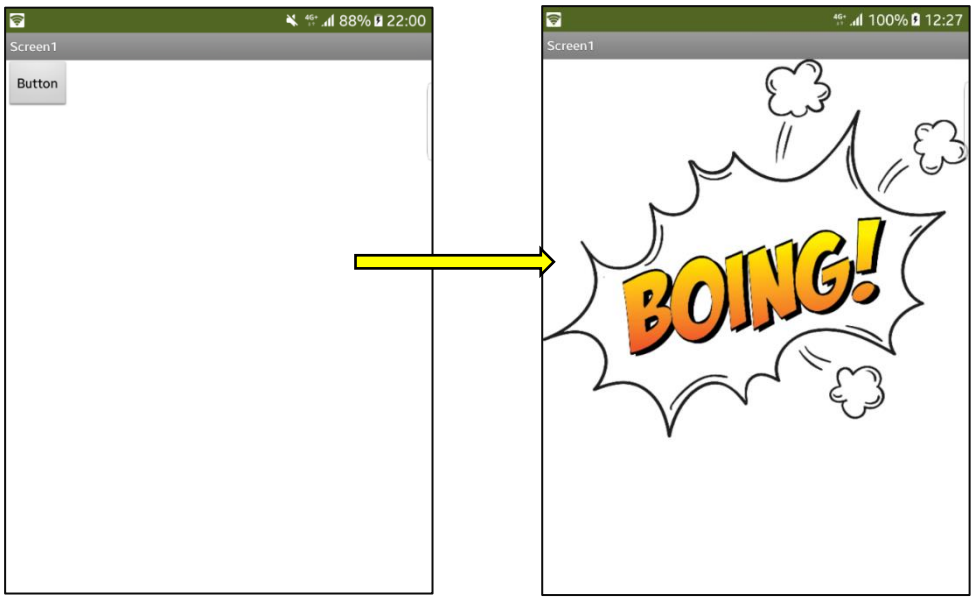


q. Arrange the block under the ***when AccelerometerSensor1.Shaking*** *(see figure below).*

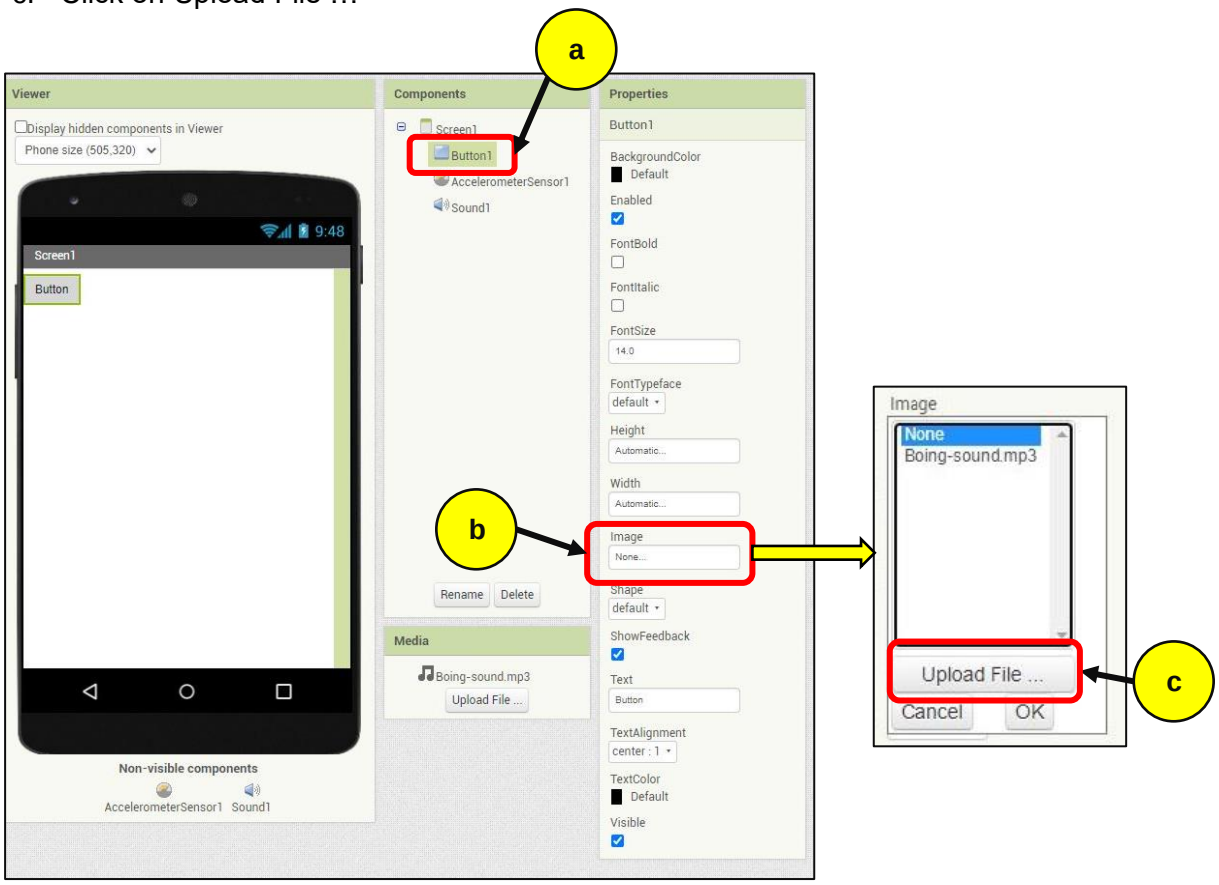
Lastly, connect your Android Phone via WiFi (AI Companion) or USB and test the app!

Test your app by connecting it via AI Companion or USB.
***Note: You can refer to Lab 2 guide on ways to connect your android phone to MIT App Inventor 2**

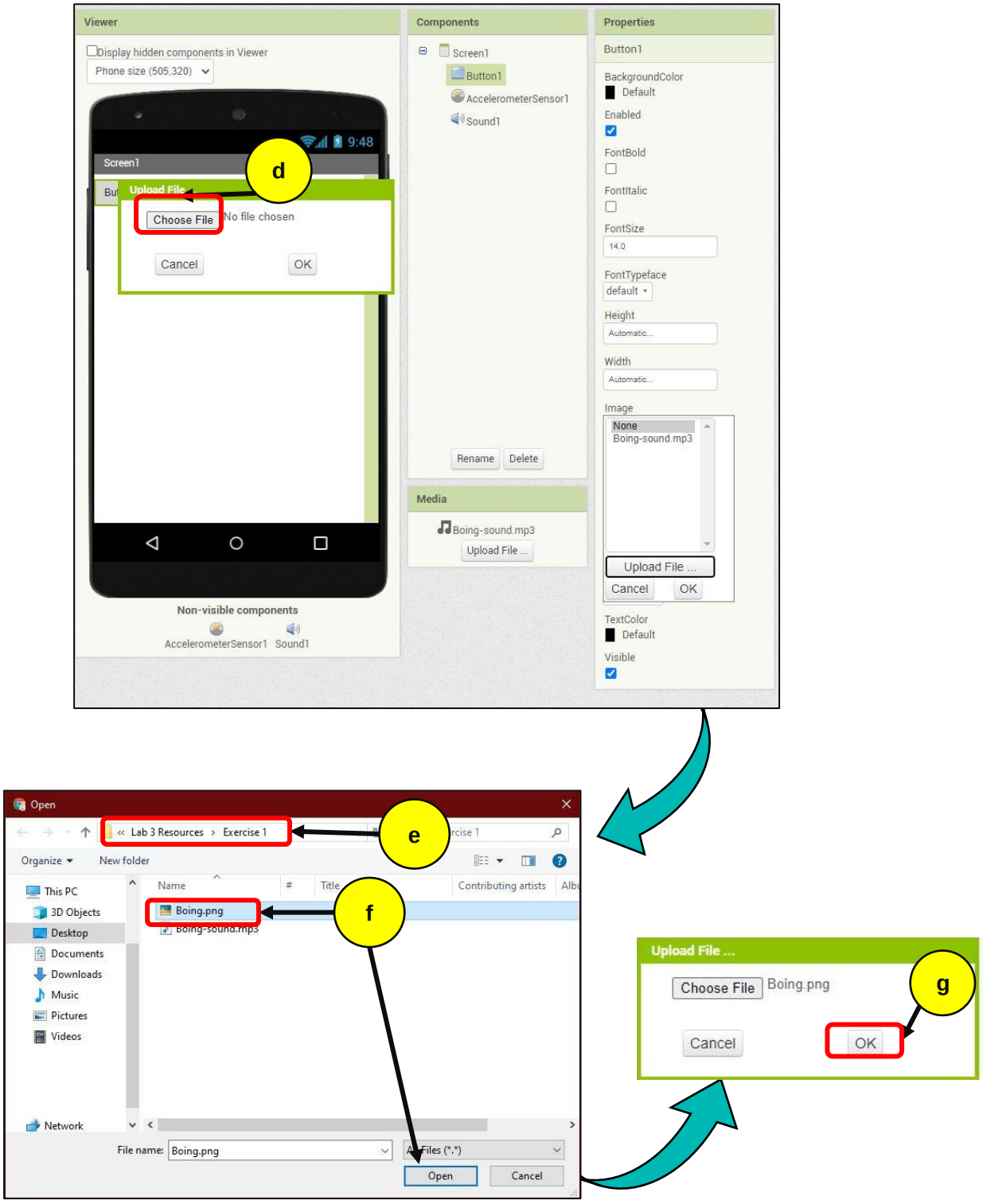
5. Adding Image to Button



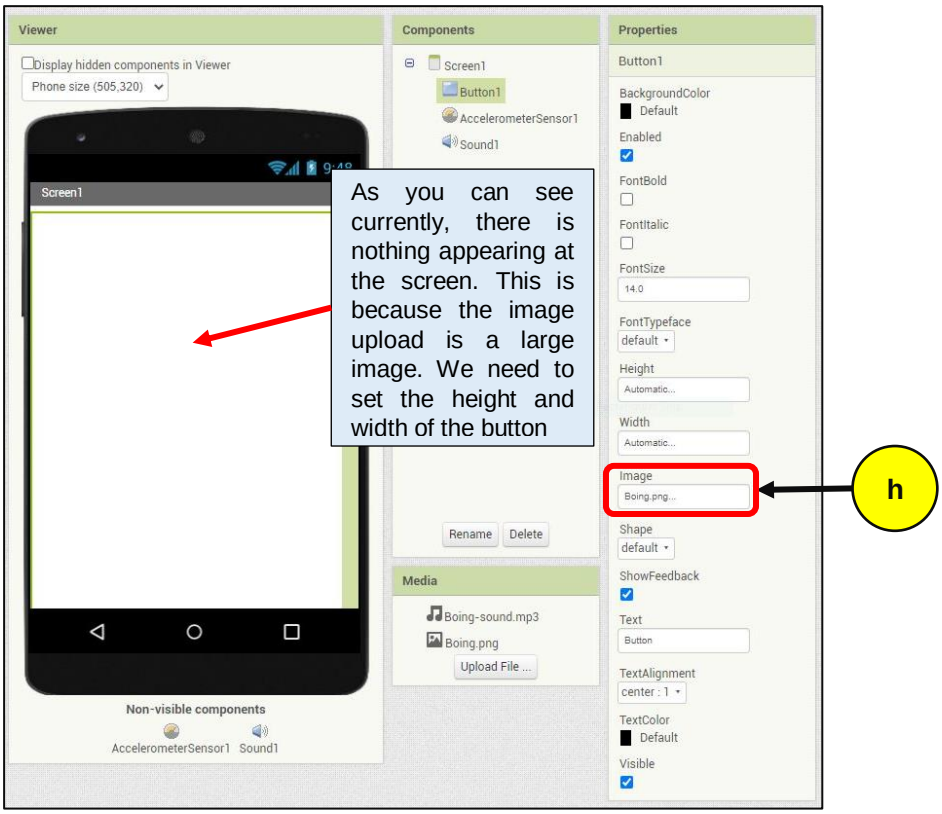
a. Make sure that you have selected Button1 at the Components.
b. Then, at the Properties, go to Image. As you can see that the Image is currently None …
c. Click on Upload File …



d. Then, a prompt for Upload file will appear at the centre of the window. Click on Choose File button.
e. A window will pop-up. The image will be in a subfolder named Exercise 1 in the Lab 3 Resources folder (the same folder we added the Sound1 source).
f. Choose the ***Boing.png*** file and click **Open.**
g. You will be returning back to the MIT App Inventor 2 window. Click **OK** to upload the file.

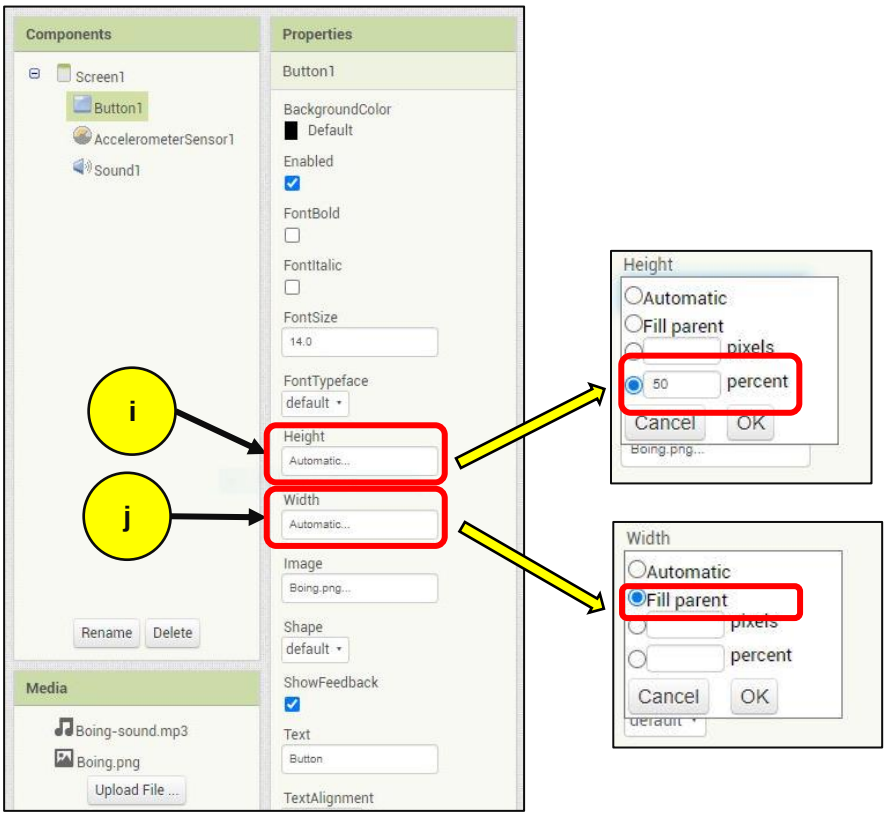


h. As you can see now, the Image is currently set to **Boing.png**

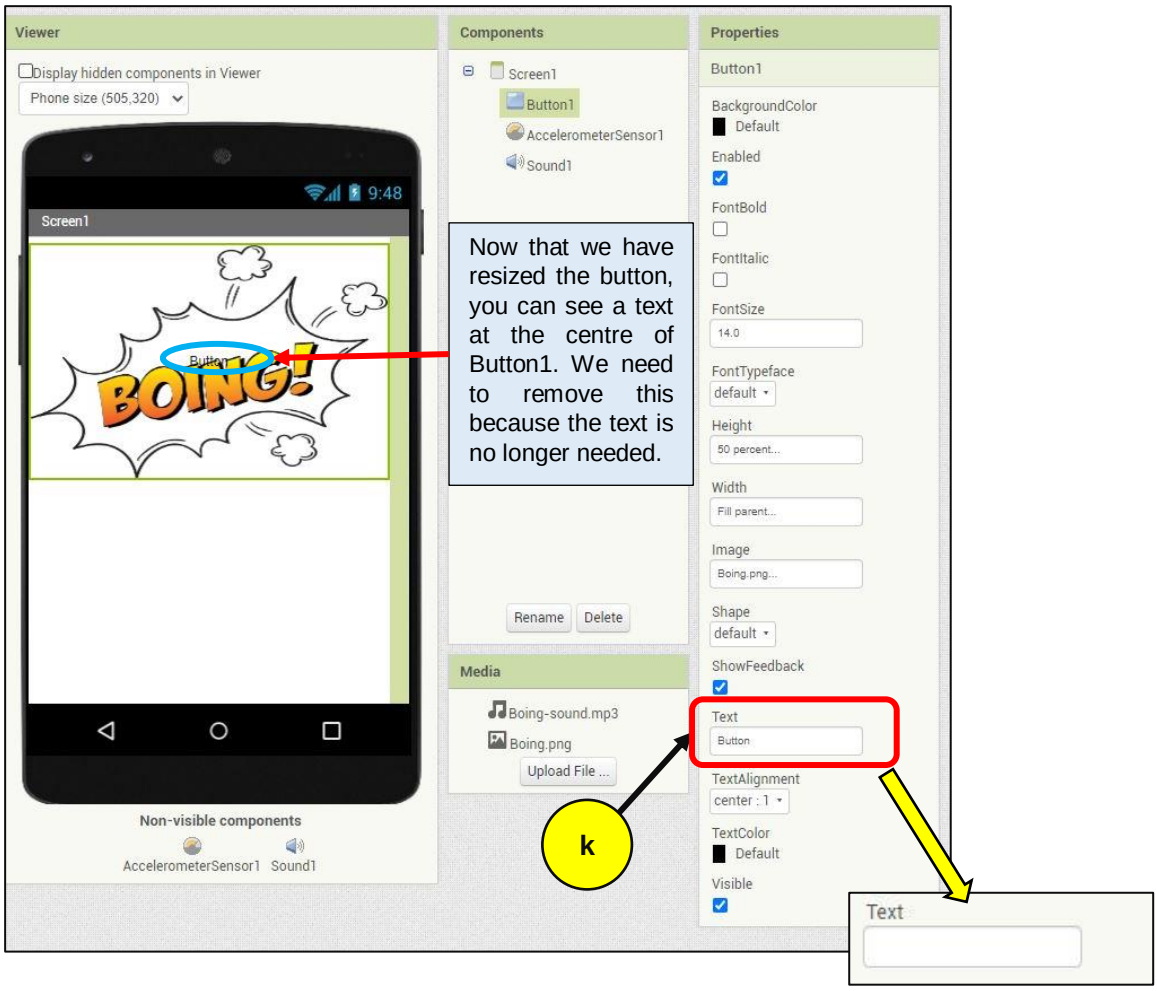


i. Now, we are going to change the Height of Button1. Currently, the height of Button1 is being set to Automatic. Change this to **50 percent.**

j. Next, we need to change the Width of Button1. Set it to **Fill parent**.



k. Then, we need to remove the text “Button” on Button1.



Since our phone are still connecting to the MIT App Inventor 2, we can simply Refresh the Interface of our AI Companion.

References:

1. http://appinventor.mit.edu/explore/sites/all/files/teachingappcreation/unit1/MagicTrickHandout.pdf
2. https://appinventor.mit.edu/explore/library
3. https://appinventor.mit.edu/explore/ai2/tutorials
4. https://www.programwithappinventor.org/
5. https://www.amazon.com/Learning-MIT-App-Inventor-Hands-On/dp/0133798631/