Mobile Application Development
Lab 1

Objectives

- To get yourself familiar with android platform
- Understanding MIT App Inventor 2
- Practice Activities

Android Platform

- Mobile Operating System
- Worlds No 1 and most used mobile operating system
- Developed by Android Inc, later purchased by google in 2005.

MIT AI2 Companion

- An app needed to run the application on device (Must be installed on device to test the app)

MIT App Inventor 2

App Inventor for Android is an open-source web application originally provided by Google, and now maintained by the Massachusetts Institute of Technology.

App Inventor lets you develop applications for Android phones using a web browser and either a connected phone or emulator. The App Inventor servers store your work and help you keep track of your projects.

- Powerful tool to make prototypes
- No prior programming knowledge needed
- Easy and go with the settings you like.
- You can make a simple application with the use of blocks.

App Inventor Designer

➔ It's a design area where all the controls are available to attach on the screen

App Inventor Blocks

➔ Blocks are special type of coding mechanism where instead of writing code, you use drag and drop pieces to make logics.

Components Area

➔ It shows the hierarchy of components attached on the screen.

Properties

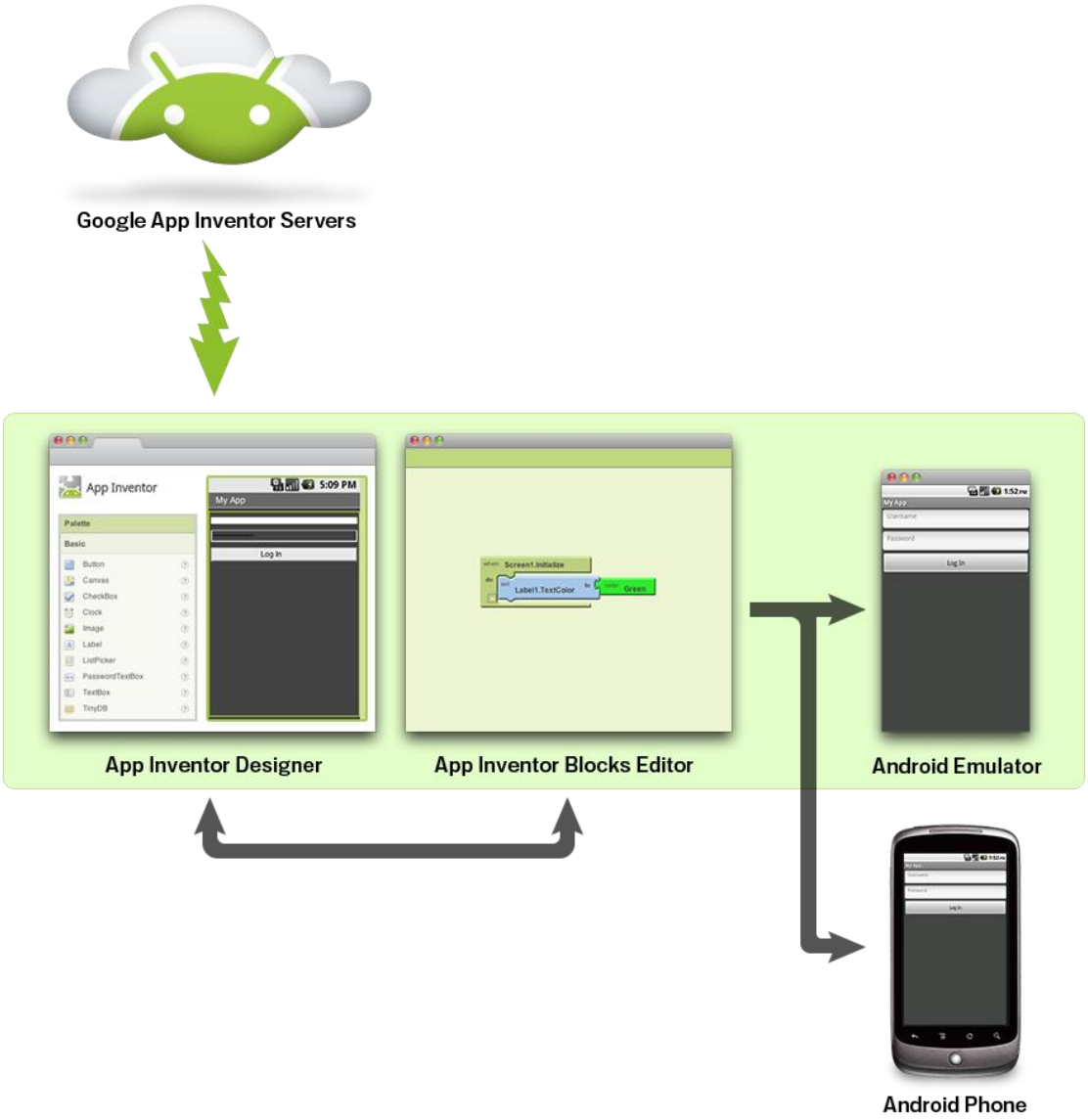
➔ It is used to change properties of components attached on the screen.

Sensors

- A sensor is a device that detects and responds to some type of input from the physical environment. The specific input could be light, heat, motion, moisture, pressure, accelerometer or any one of a great number of other environmental phenomena.

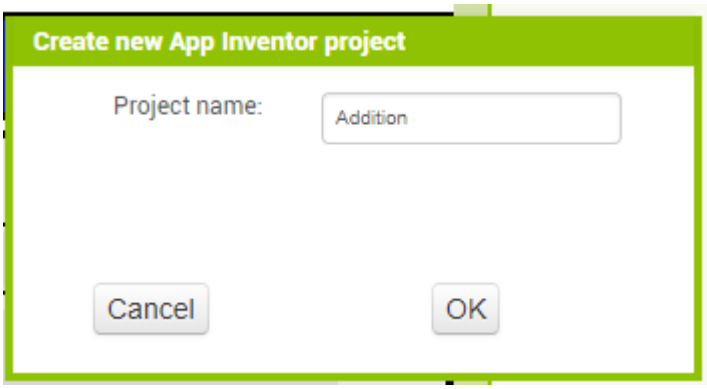
- Accelerometer sensor is a type of sensor which reacts on movement of device.

- Light Sensor is a type of sensor which reacts with the intensity of light.

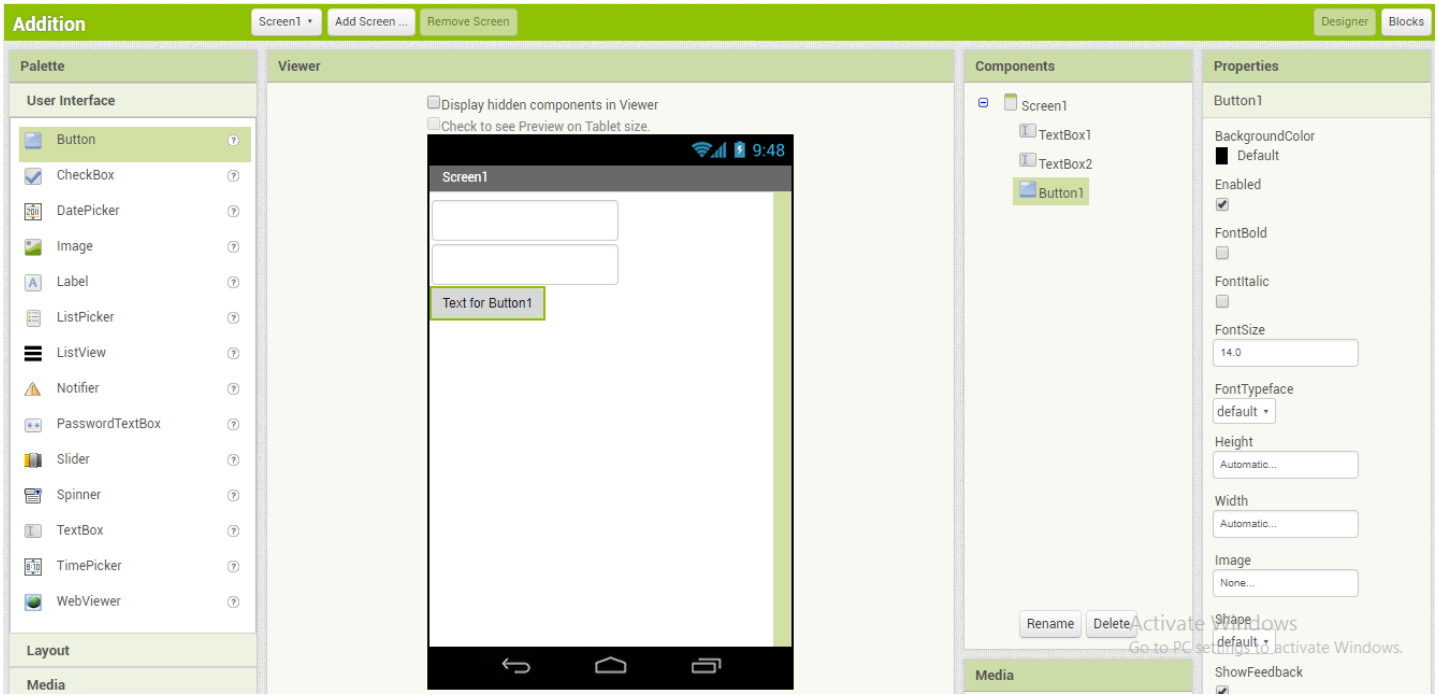


Activity 1

Create simple calculator like application where a user enters a number in two boxes and press addition button to add numbers using MIT's App Inventor.



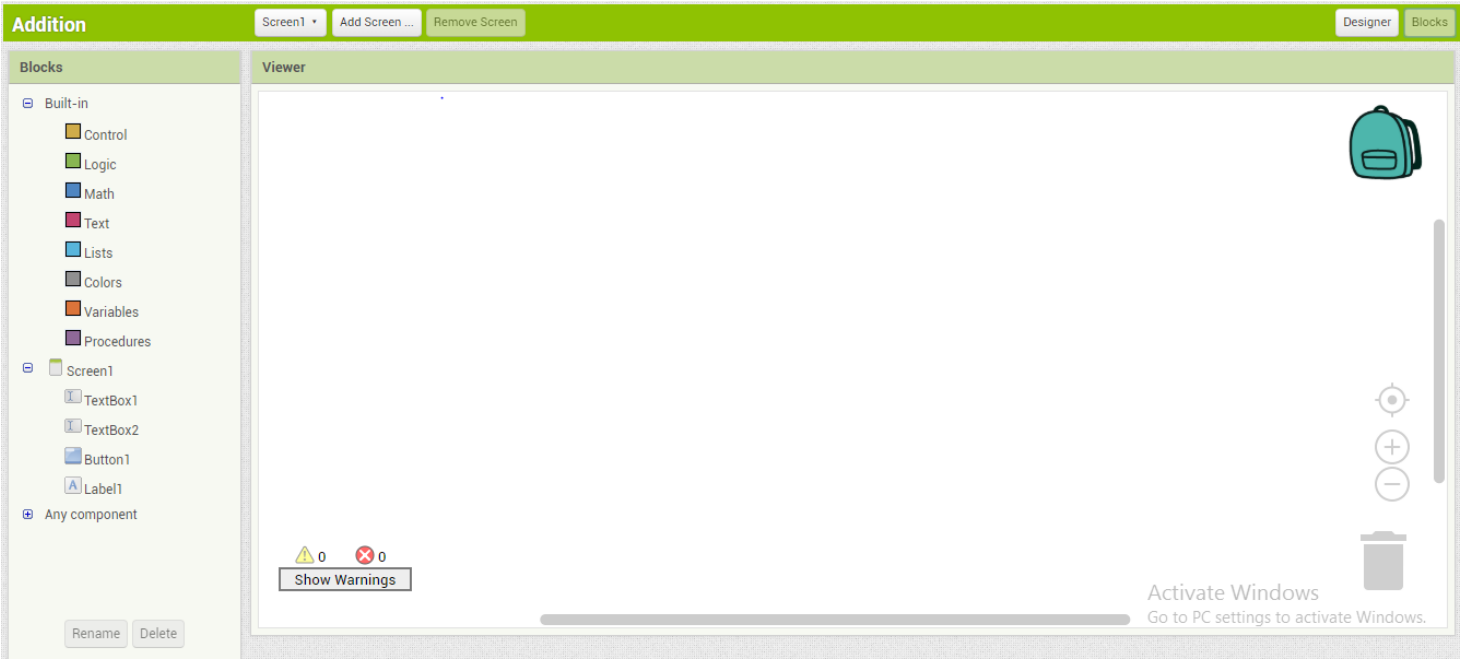
- Go to www. http://ai2.appinventor.mit.edu
- Login with your google account.
- Create new App Inventor Project
- After creating new project you will be moved on the main screen of the App Inventor along with a view of mobile, drop two text boxes in it and a button for addition.



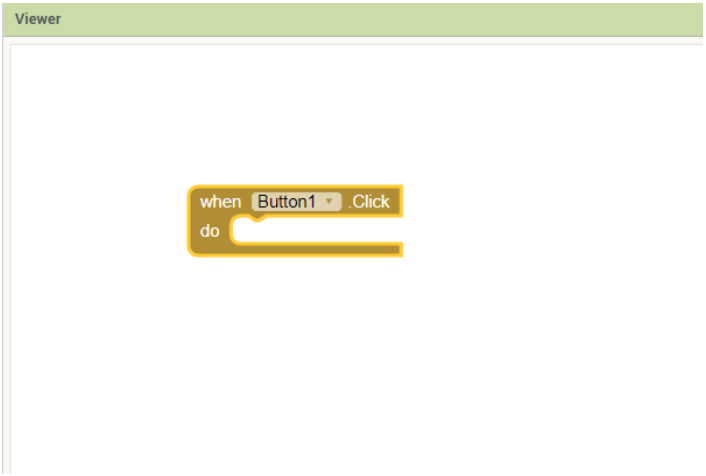
- Add one label to show the result.
- Change the properties of components (name, values or etc) as yo like.

Now the screen is completely ready, only the coding part is ready, as we already discussed for this tool we don't need any coding. To go to the blocks screen, click on block

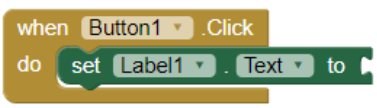
Now the screen will change to the Blocks Section



- You can toggle between Designer and Blocks sections
- The Blocks section have many colorful square shaped functions, each is further added with different block functions.
- All the components you added on screen are also shown in the blocks section, click on button1. A new functionality will pop up.
- Drag the click function on the viewer area of screen.



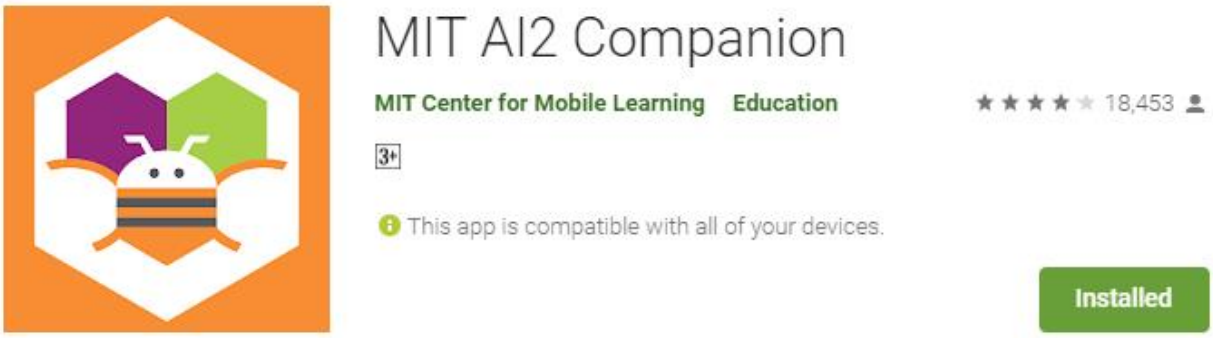
- Click on the label where the result should be showed, and get the set text block and drag it on the screen. Did you noticed that it can be fixed in the button block? Just drag it in the proper position and it will fix.

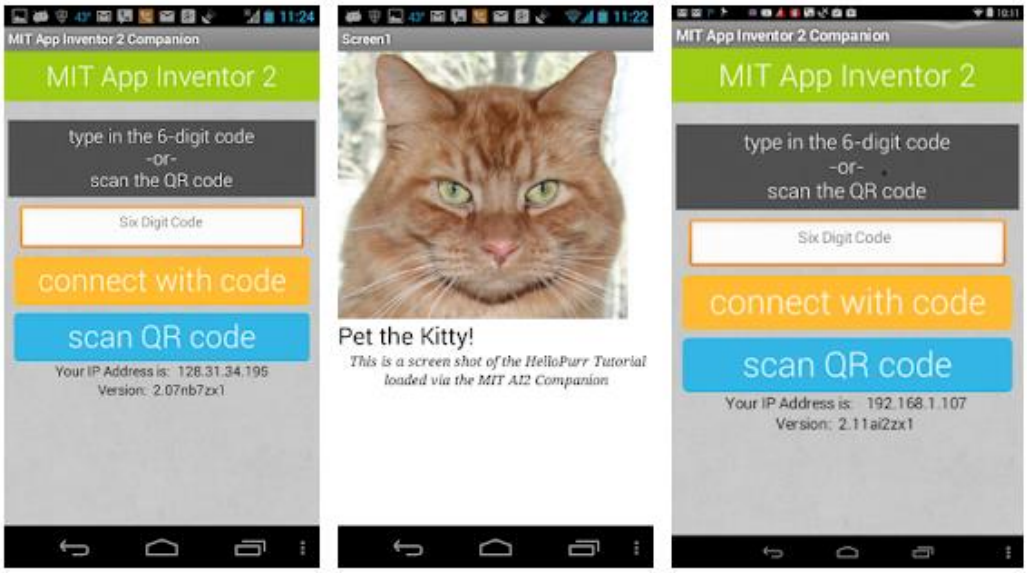


- Now click the Math Option in Blocks Area, and you will notice that many blocks relating to Math functionality are available there, drag the addition with two empty positions and drag it in the above button block.

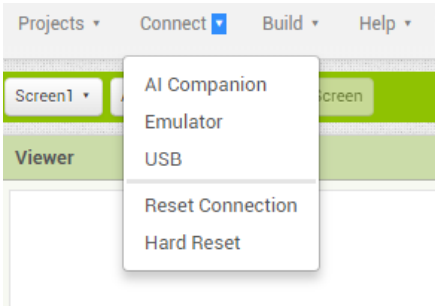
- Now we are all set and ready, we just need to get the value from text boxes. So to do that, click on the both textboxes and you will see many functionalities related to textbox will pop up. Select the Get Text Block from it and fix it in the above Block.

- Once this is done, now we are ready to compile the program and run it on device. To do that, we first have to download the **MIT AI Companion** App on our Device (Mobile).

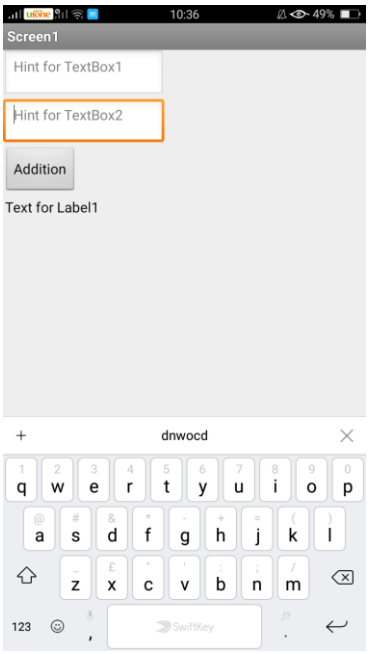




- Now click on the **Connect** menu on the top of screen and select **AI Companion** option.



- It will open a pop up with the QR code and and 6 digit code needed to scan through your mobile device. We have to open the device and run MIT AI Companion and need to scan this QR Code to run the app smoothly on your device.



Results: Attach screenshots of important key points on manual.

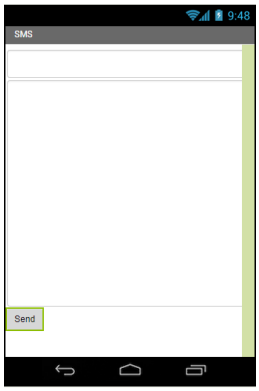
Activity 2:

Add multiple other buttons to do more operations like Subtraction, multiplication, division, power, mean or square …

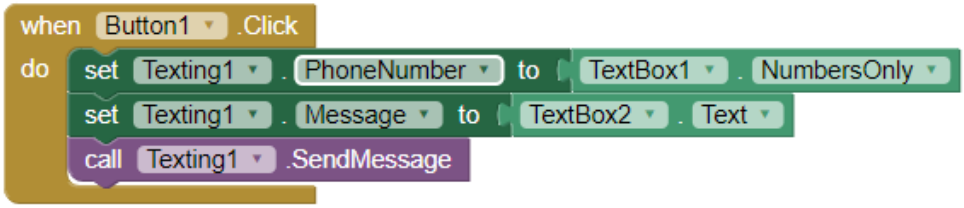
Results: Attach screenshots of important key points on manual.

Activity 3:

Let us work on sending SMS when a person clicks on send button.



- Create a layout with a text box for number, and a big text box of message and a send button.
- Go in control tool box (aka pallete) and drop the texting control on screen. It is an invisible control so it wouldn't be visible on screen but it will be added on bottom of screen.
- Now go on blocks screen and try to click on the texting function and play with it to send the message.



Activity 4:

Send the message on shaking of mobile, instead on clicking a button. You will have to add a sensor for that (Accelerometer Sensor).