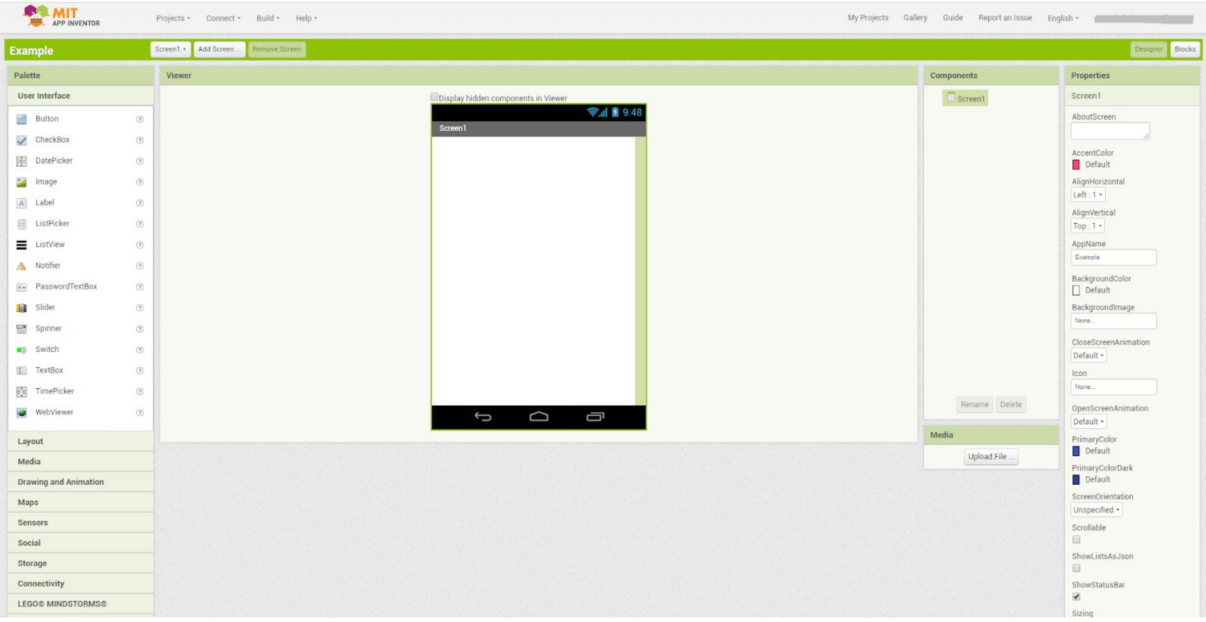
MIT App Inventor 2

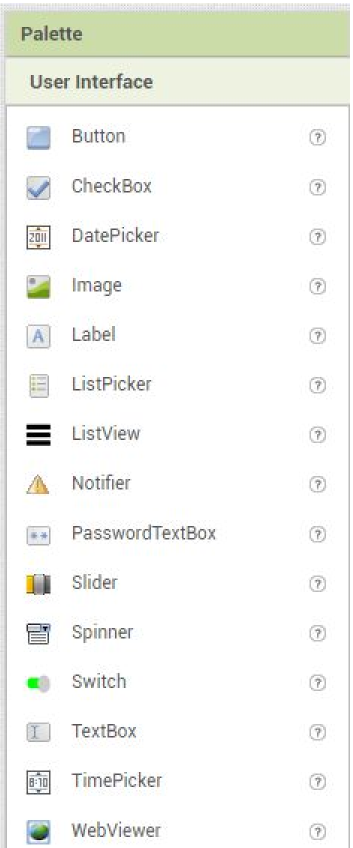
http://ai2.appinventor.mit.edu/

The MIT App Inventor allows anyone to make simple Android apps, without having to design and code them from scratch. One of the best uses for MAI is making an easy-to-use UI for controlling a Bluetooth device, using e.g. buttons and sliders. The UI is made by dragging elements from a list onto the simulated phone screen, and coding is done with blocks programming instead of normal text-based programming.

Creating the UI

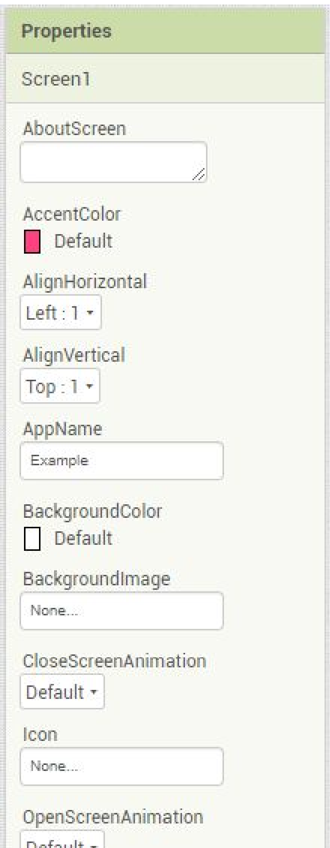
When you start a new project you will be greeted with the following view:





From the left menu (“Palette”) you can drag elements to the UI. Clicking on an element, either on the screen or in the “Components” list will then allow you to customize them in the “Properties” menu. Note that elements cannot be freely placed on the screen, so positioning them correctly requires using horizontal and vertical arrangements. Empty labels can also be used as margins.

You should rename your elements so it is easier to program them later.


Properties

Screen1

AboutScreen

AccentColor
Default

AlignHorizontal
Left : 1

AlignVertical
Top : 1

AppName
Example

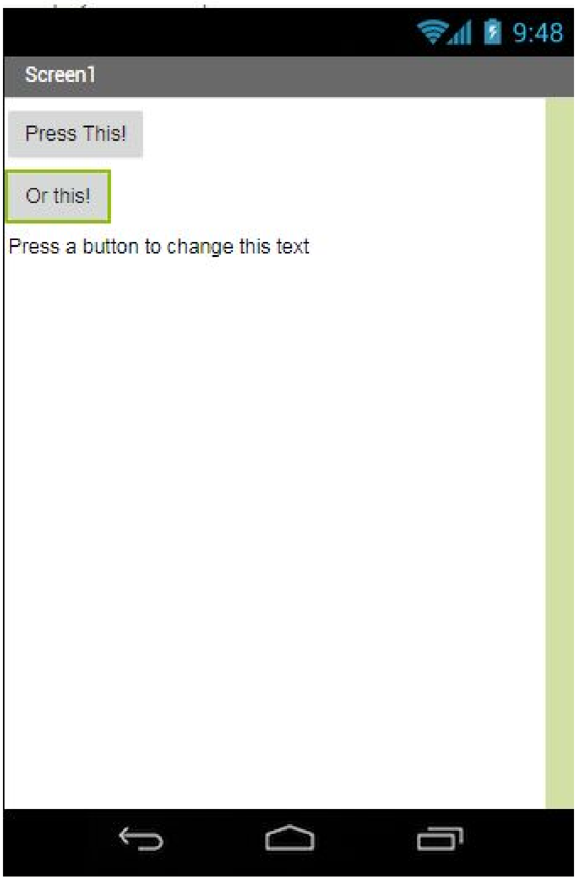
BackgroundColor
Default

BackgroundImage
None...

CloseScreenAnimation
Default

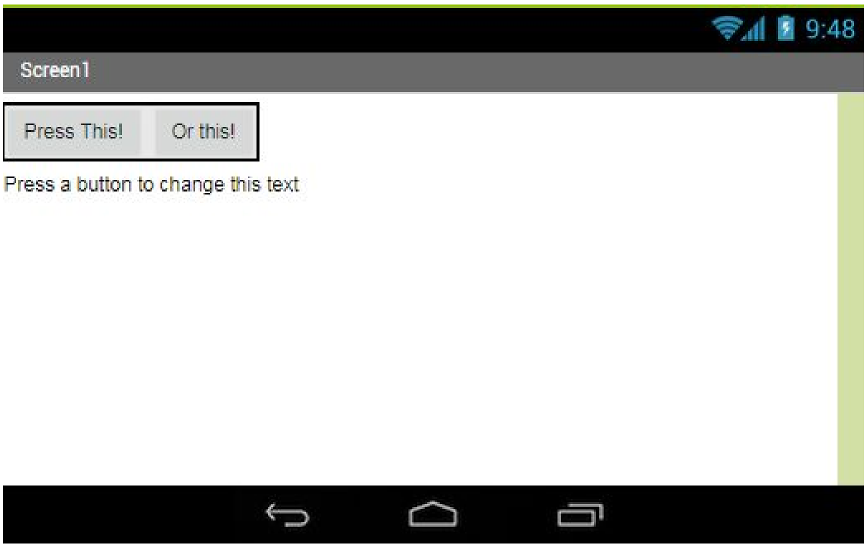
Icon
None...

OpenScreenAnimation
Default



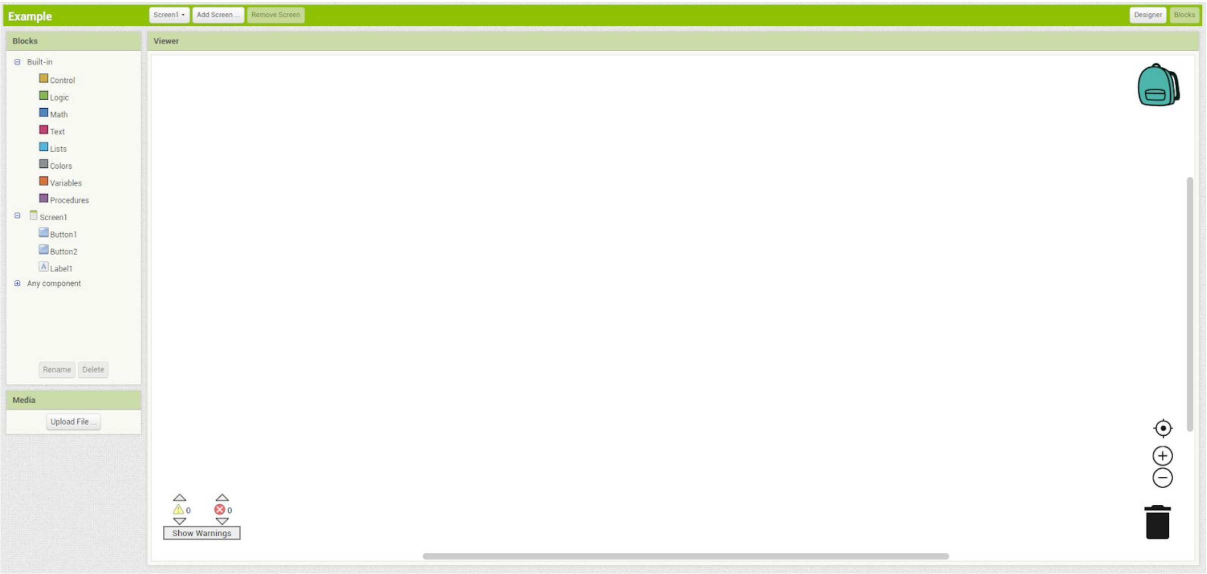
Let’s drag two buttons and a label to our UI. By default elements are arranged vertically, as seen in the picture to the left. If we wanted them placed after each other horizontally, a Horizontal arrangement element would be needed and then we could drag the elements into that arrangement, like in the second picture. You can also change the screen orientation to horizontal instead of vertical from the “properties” menu.

Some elements, like BluetoothClient, are invisible on the screen, but still need to be dragged into the app in order to get access to its function blocks in the coding part.

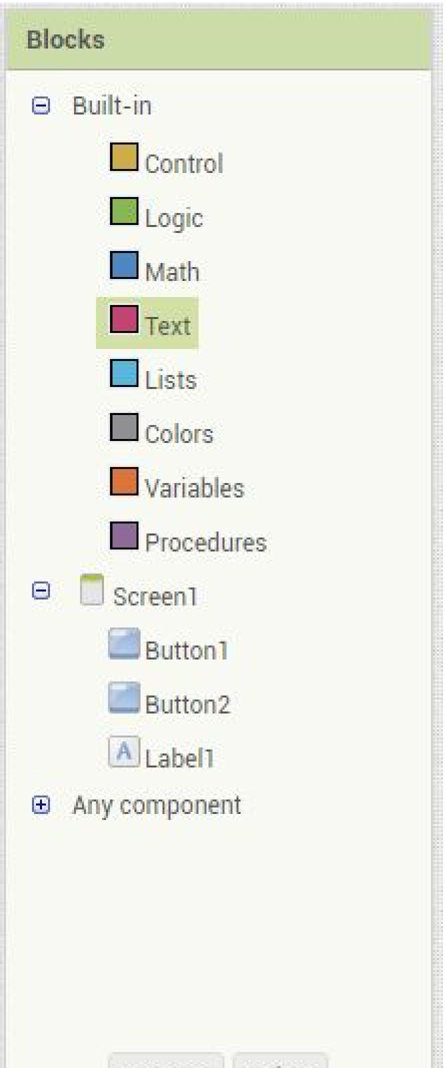


Coding with blocks

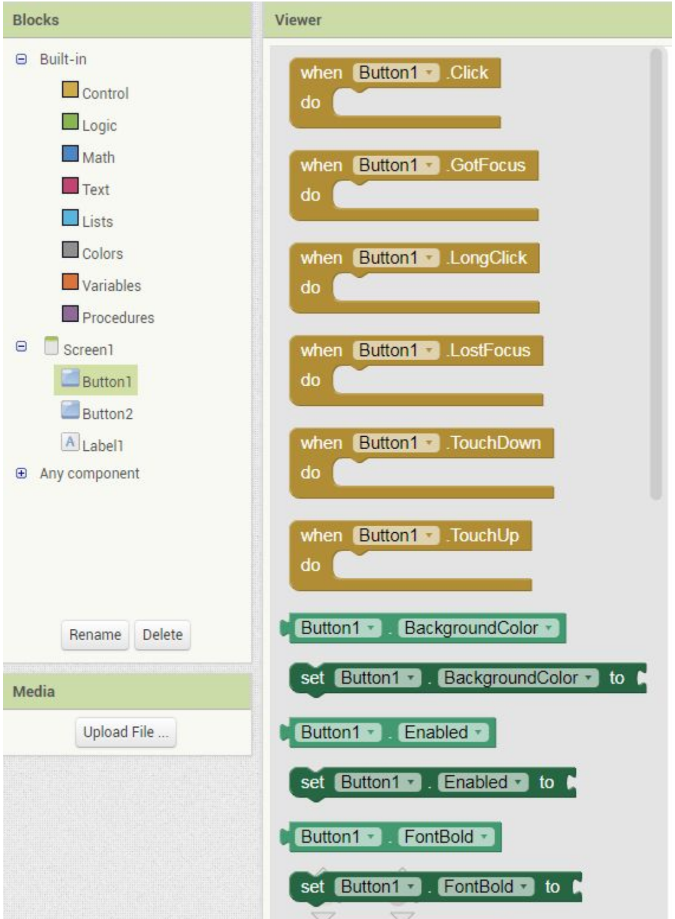
When changing the view to Blocks (in the upper right corner) we are greeted with the following view. In here we can easily program our application using blocks.



The elements you have added to your program in the Designer view show up in the menu to the left, along with standard programming operations, math operations, and variable control.

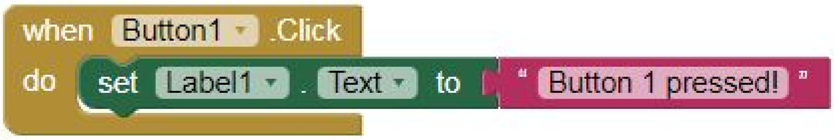


Clicking on an element will bring up a sub-menu with different functions for the element in question.

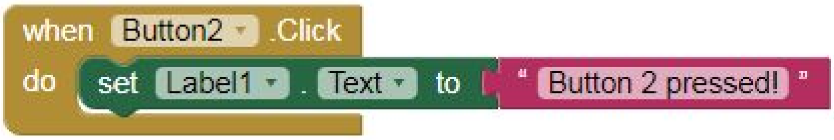


All that remains is to set up some blocks with simple logic, by connecting them like puzzle pieces. The flow of logic is pretty self-explanatory, but one drawback is that the blocks can get pretty big if more complicated logic is required. Unconnected blocks do not directly affect each other unless specifically made to do so.

The following two blocks add simple logic to our buttons. Pressing either will change the text below them to reflect which one has been pressed.



```
when Button1 .Click
do  set Label1 . Text to " Button 1 pressed! "
```



```
when Button2 .Click
do  set Label1 . Text to " Button 2 pressed! "
```

Installing the app on your phone

The simplest way to get the app onto your phone is to download the .apk file to your computer from the “Build” drop-down menu at the top of the screen. After this, transfer the file over to your phone. Once transferred you need to find it in your phone’s file manager and run it, which will open an install request that has to be accepted. Depending on your phone, you might also need to enable installing apps from unverified sources.

Here’s a video that shows how to make a simple Bluetooth app for controlling an Arduino. Note that this tutorial is for Bluetooth Classic modules. If you are using a BLE module, check out this guide instead.