江西理工大学 信息工程学院
JIANGXI UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF INFORMATION ENGINEERING

Mobile application development

移动应用开发

Lecture 024:

APP Inventor _Example

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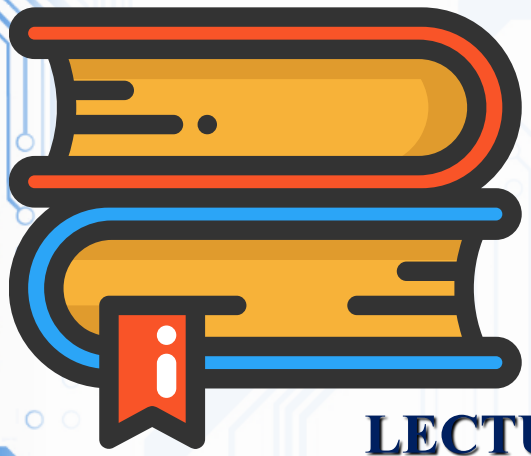

MOBILE APPLICATION DEVELOPMENT

LECTURE 024: APP Inventor _Example

Plotter, selection,…. example

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App Inventor

Agenda

- **Example01: Line Plotter: Coordinate Geometry**
- **Example02: Selection**
- **Example03: ListPicker(2).**
- **Example 04: Line graph**
- **Example 05: Extra example self study**

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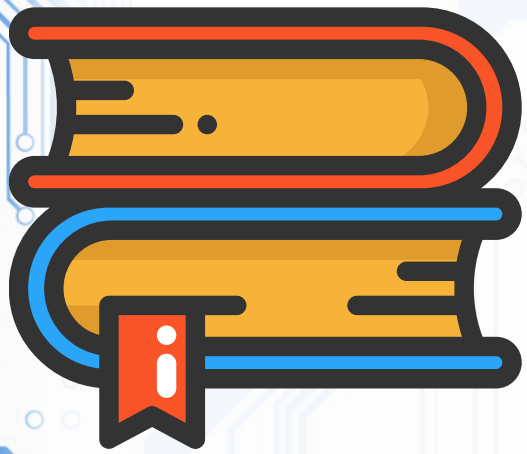

MOBILE APPLICATION DEVELOPMENT

Example01:

Line Plotter: Coordinate Geometry

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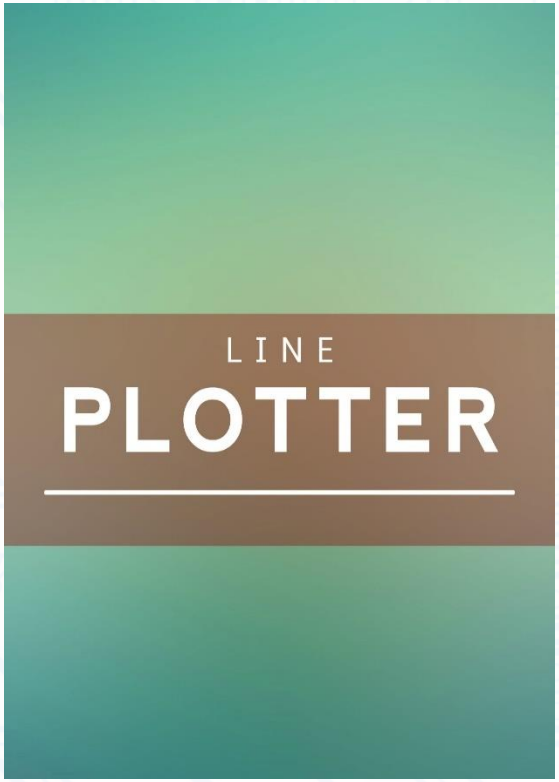
App Inventor

Example01: Line Plotter: Coordinate Geometry

Example Aim

- *Plot a line and even quadratic equation in this easy-to-use math educational app.*
- **Line Plotter** is a math educational app that plots a quadratic function on the screen. It is a useful app for students learning Coordinate geometry as it helps them to visualize the graph and better understand the concepts.
- This app also provides the facility to save the graphs for future reference. It provides options to change the scale and even the color of the graph.
- Clearly, the apps **educational benefit** comes from the ease and simplicity with which it plots the graph.



Note. *Creation of graphs by the computer using the algorithm used by this app is a fairly iterative process and requires numerous computations on the behalf of the computer.*

Example01: Line Plotter: Coordinate Geometry

This app exceeds the project's minimum technical requirements.

- The whole app has been divided into three additional screens.
- **Data Abstraction:**

Apps has 12 global variables, 3 lists and a database.

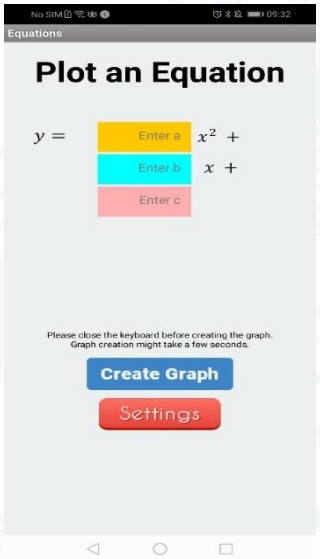
- **Procedural Abstraction:**

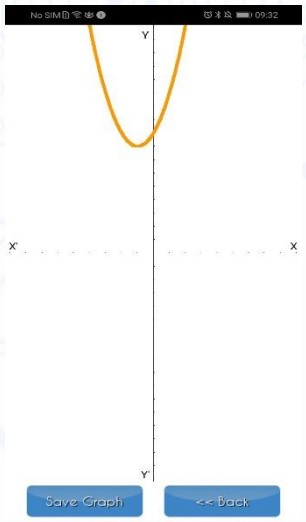
5 functions have been defined.

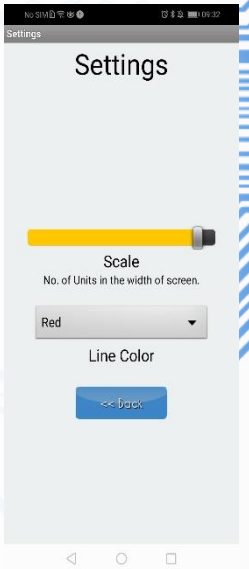
- **Algorithms and Control:**

App has 3 If-then conditionals and 2 loops.

- We need three Screeen part :
  - Equation:
  - Graph:
  - Settings:

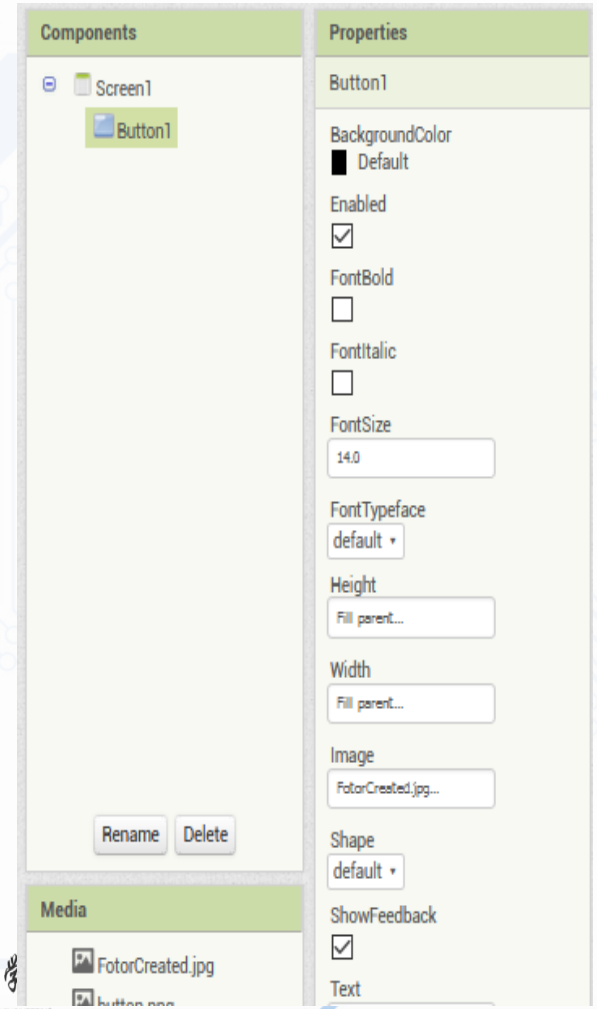


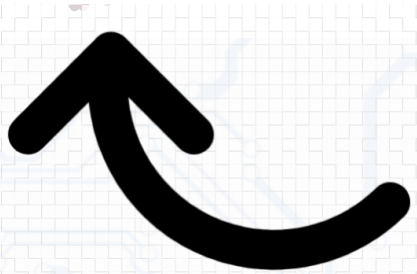




Screen 1: Design/ Block

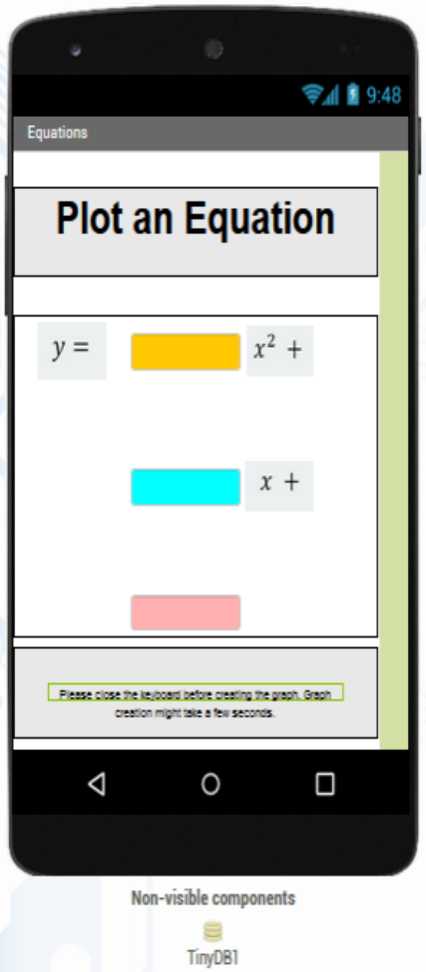
- Initial Page

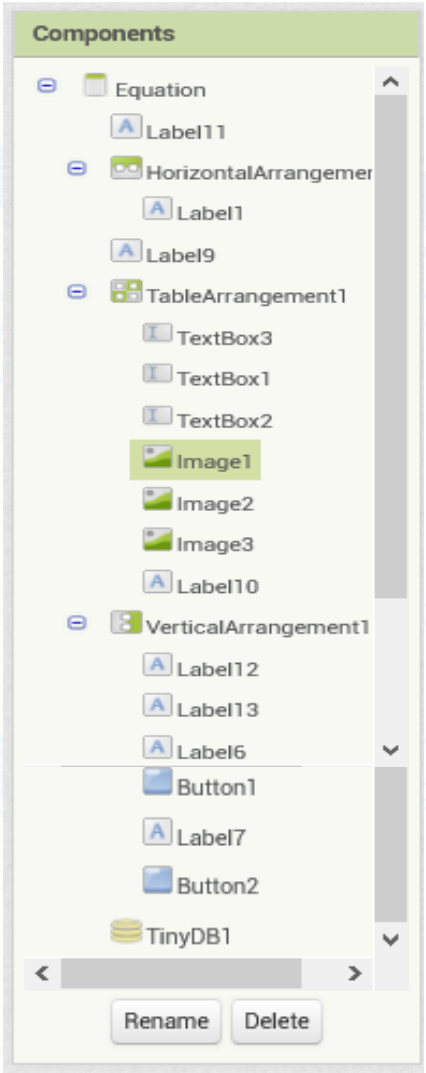


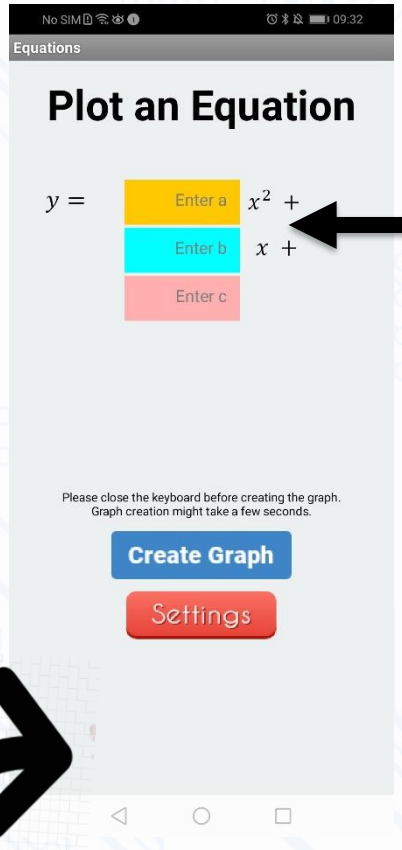


Block @ Screen1

Screen 2: Equation



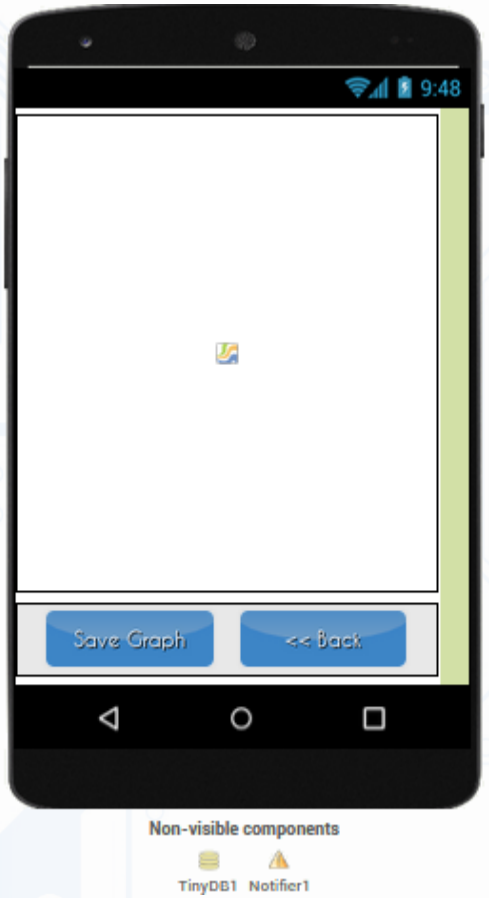


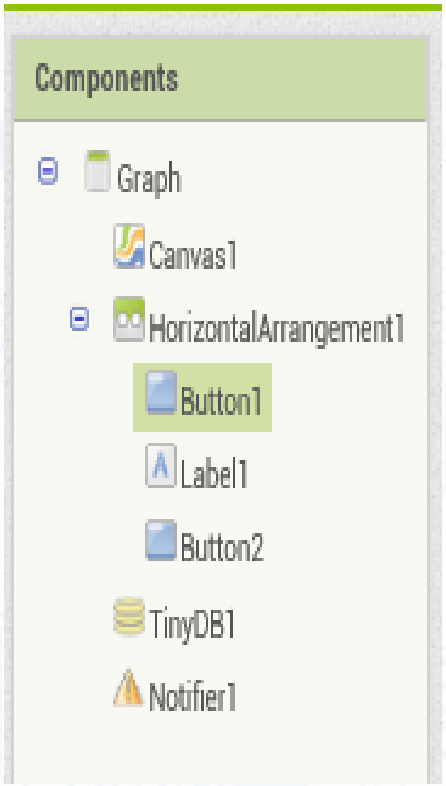


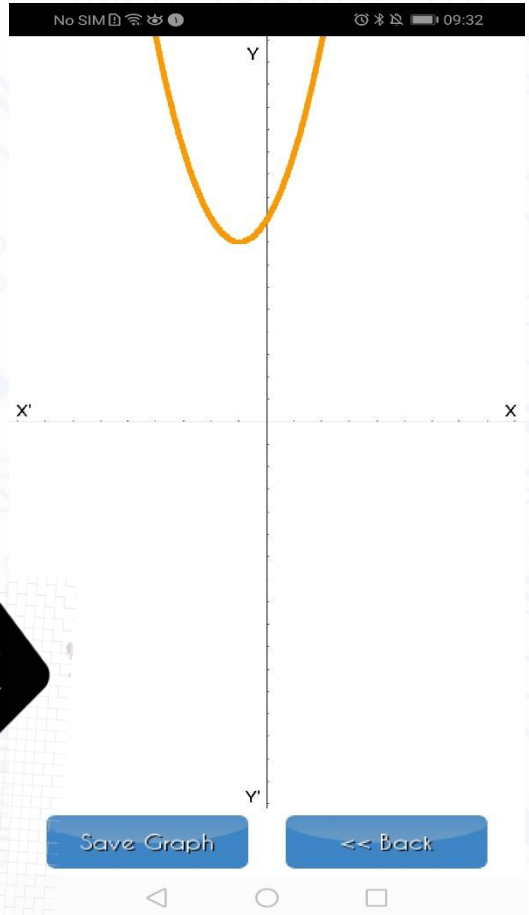
The Equation : y=A x^2 +Bx +C

Equation

Screen 3: Graph screen

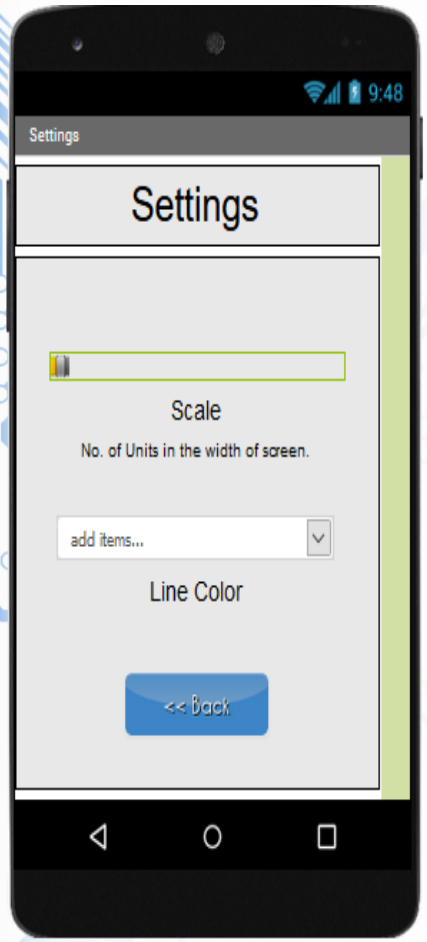






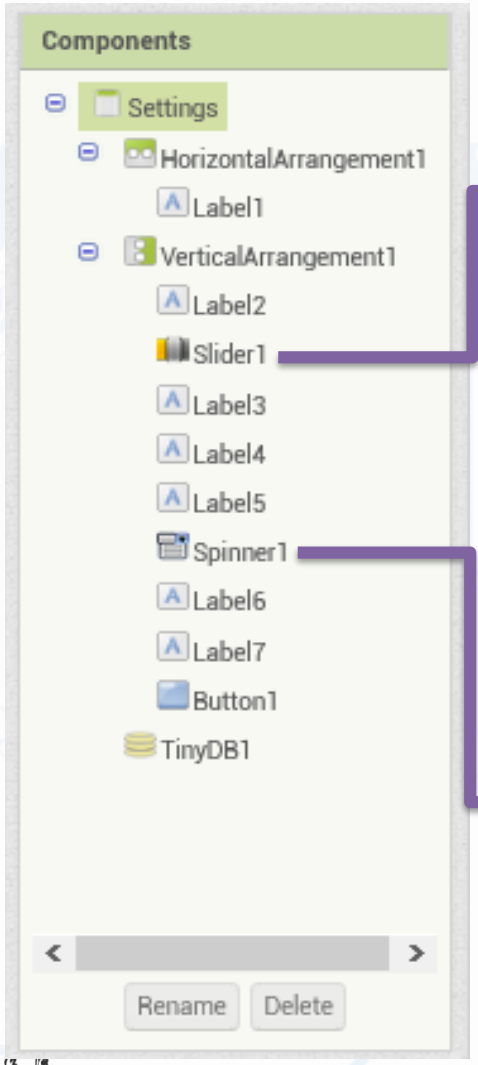
Graph

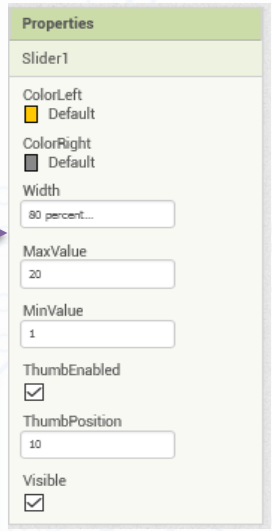
Screen 3:Settings Screen

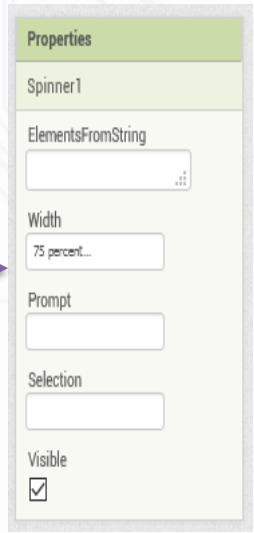


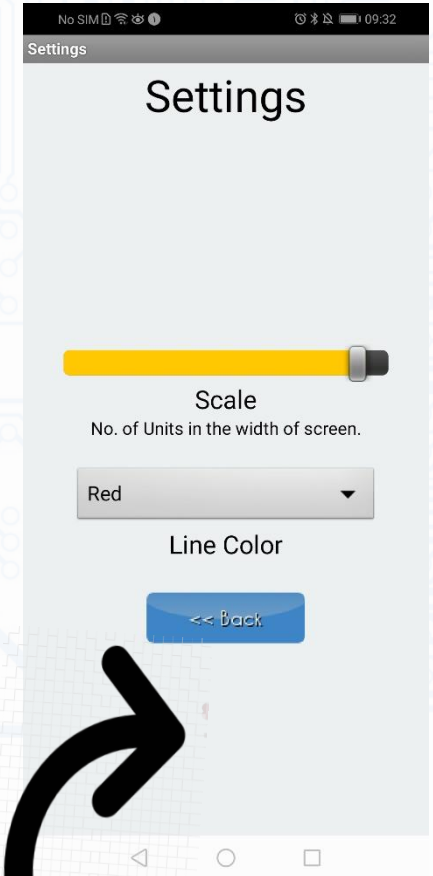
Non-visible components

TinyDB1









Settings

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Equation Screen (Block)

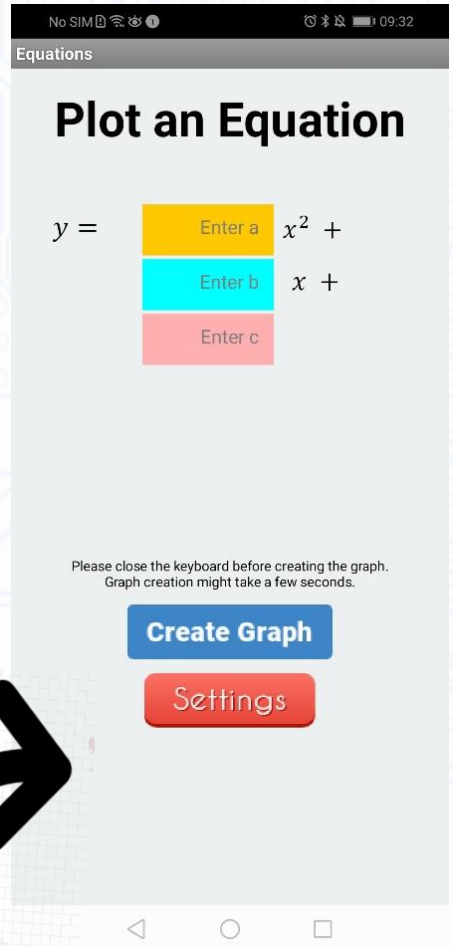
1)change the background

2)go to graph page

3)After getting the parameters check the value is number or no ?

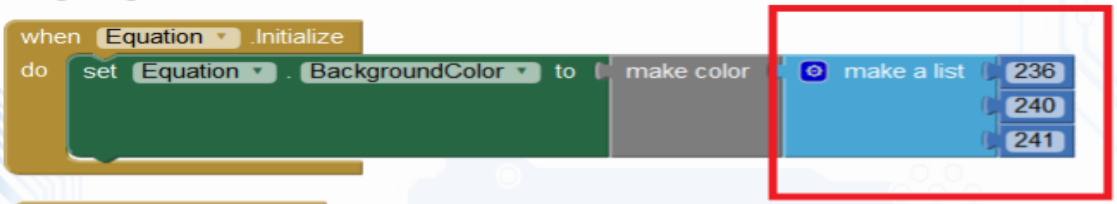
4)Send to Database

- The blocks consists of three part
  - List
  - If/Then conditional
  - Database



Equation

Equation Screen (Block)

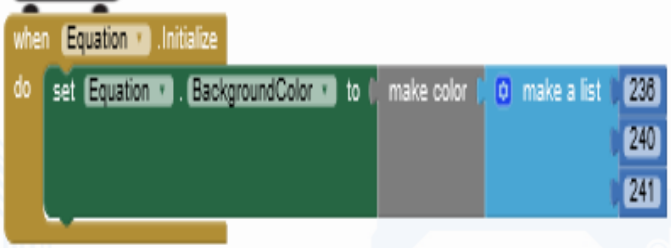


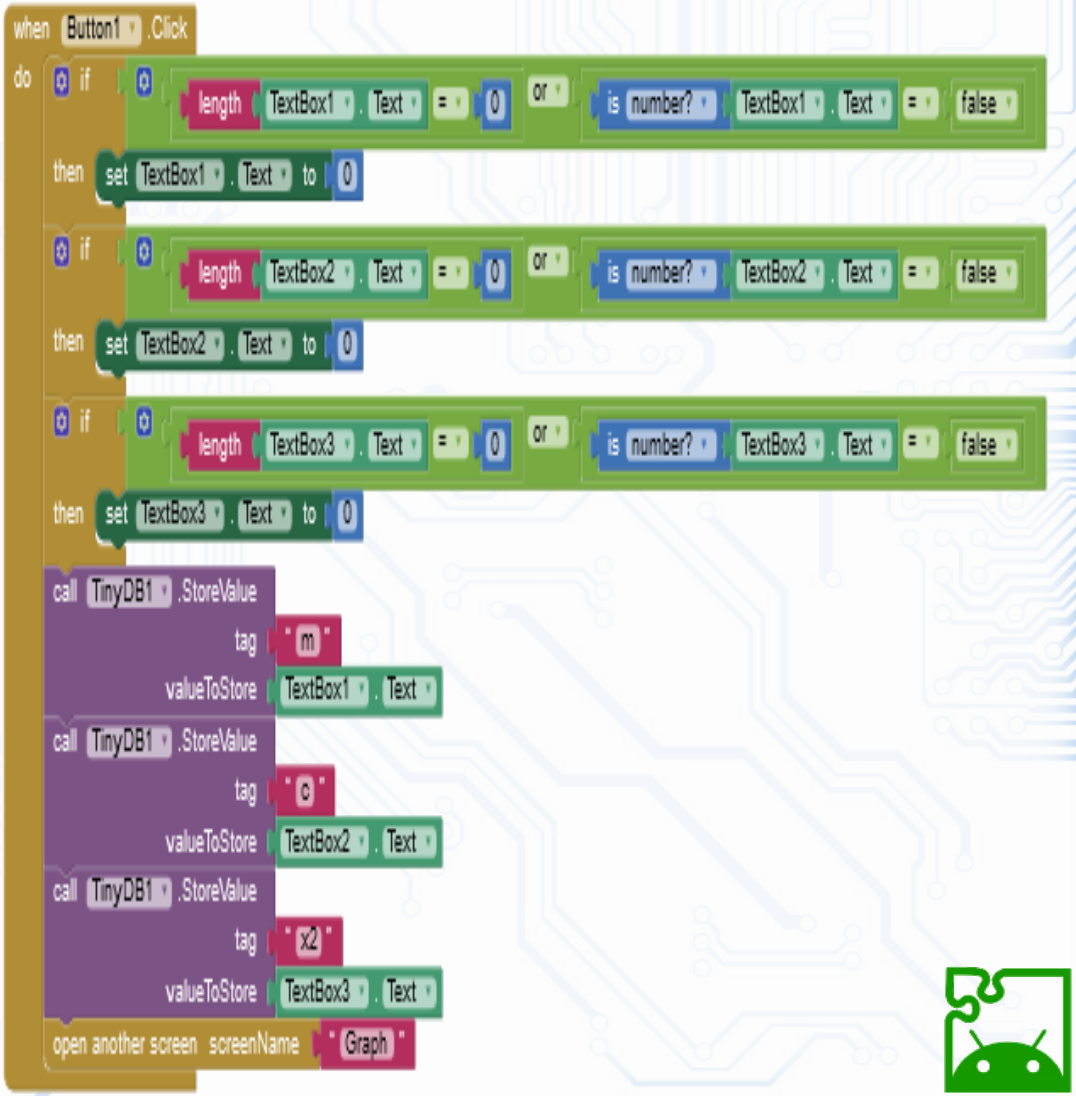
List

If/Then conditional

Databas
e

Equation Screen (Block)



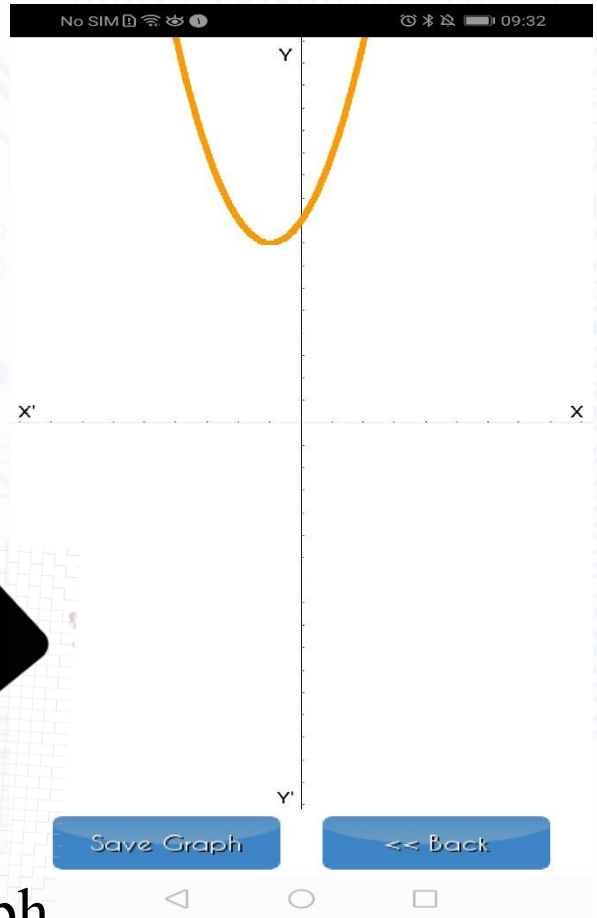


Graph Screen (Block)

1) Show the Graph,
2) save the Graph picture on mobile
3) Back

The blocks consists of three part

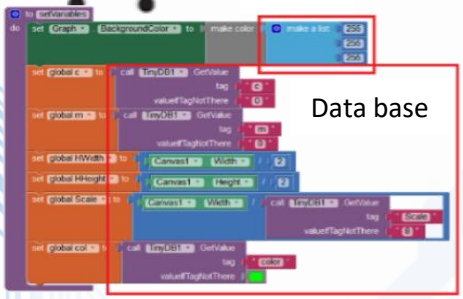
- List
- Variables
- Database
- LOOPS
- Functions
- Loop
- If/Then block
- Data base



Graph

Graph Screen (Block)

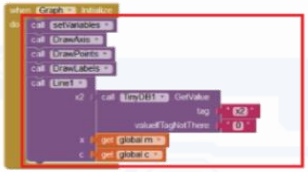
List



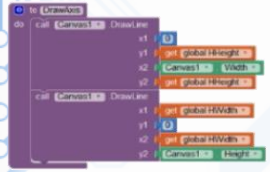
Data base

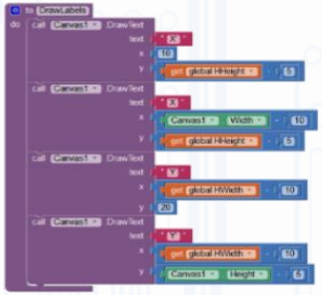
Variables

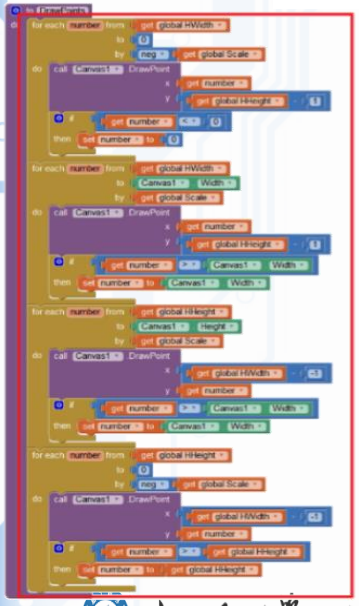
Functions

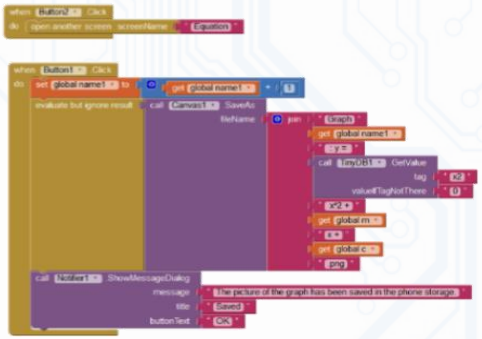


Loop





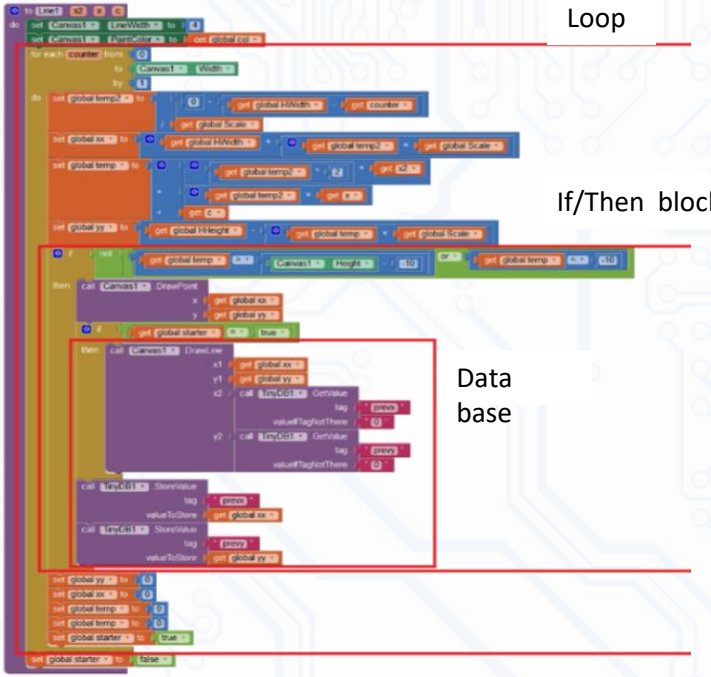




Loop

If/Then block

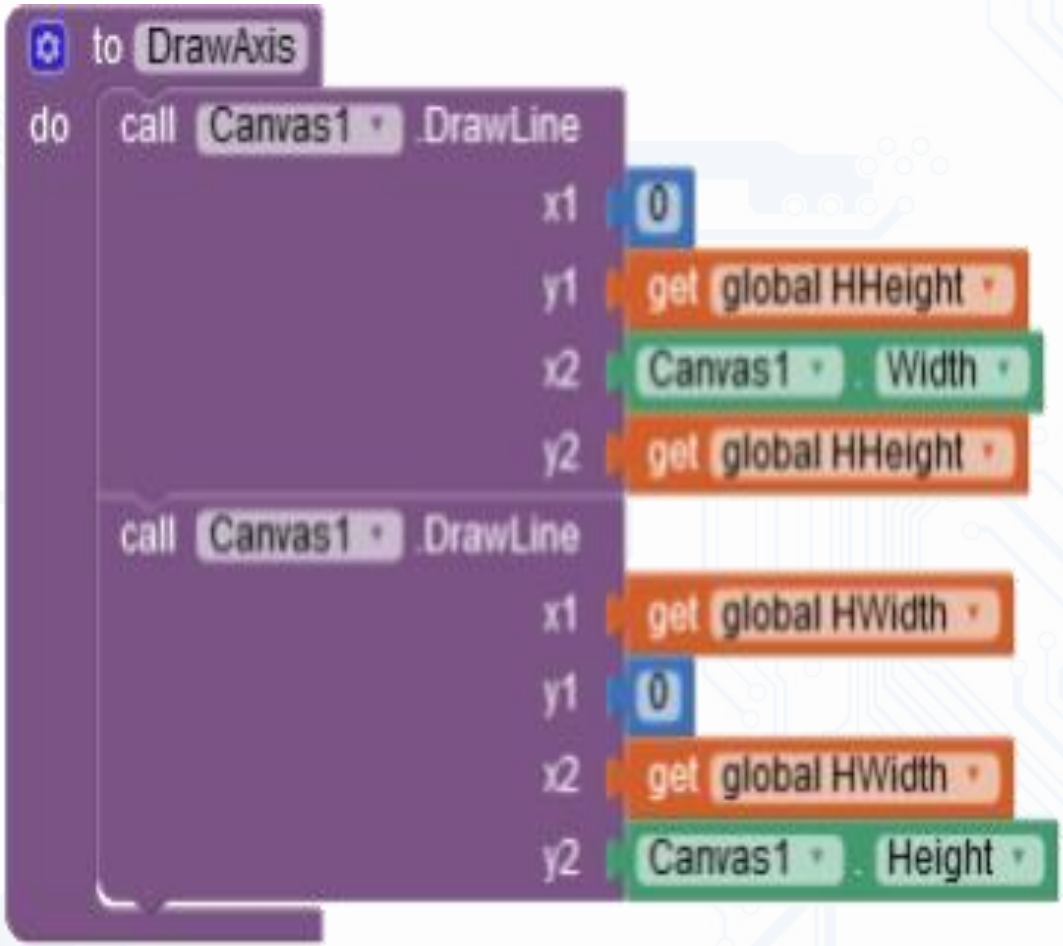
Data base



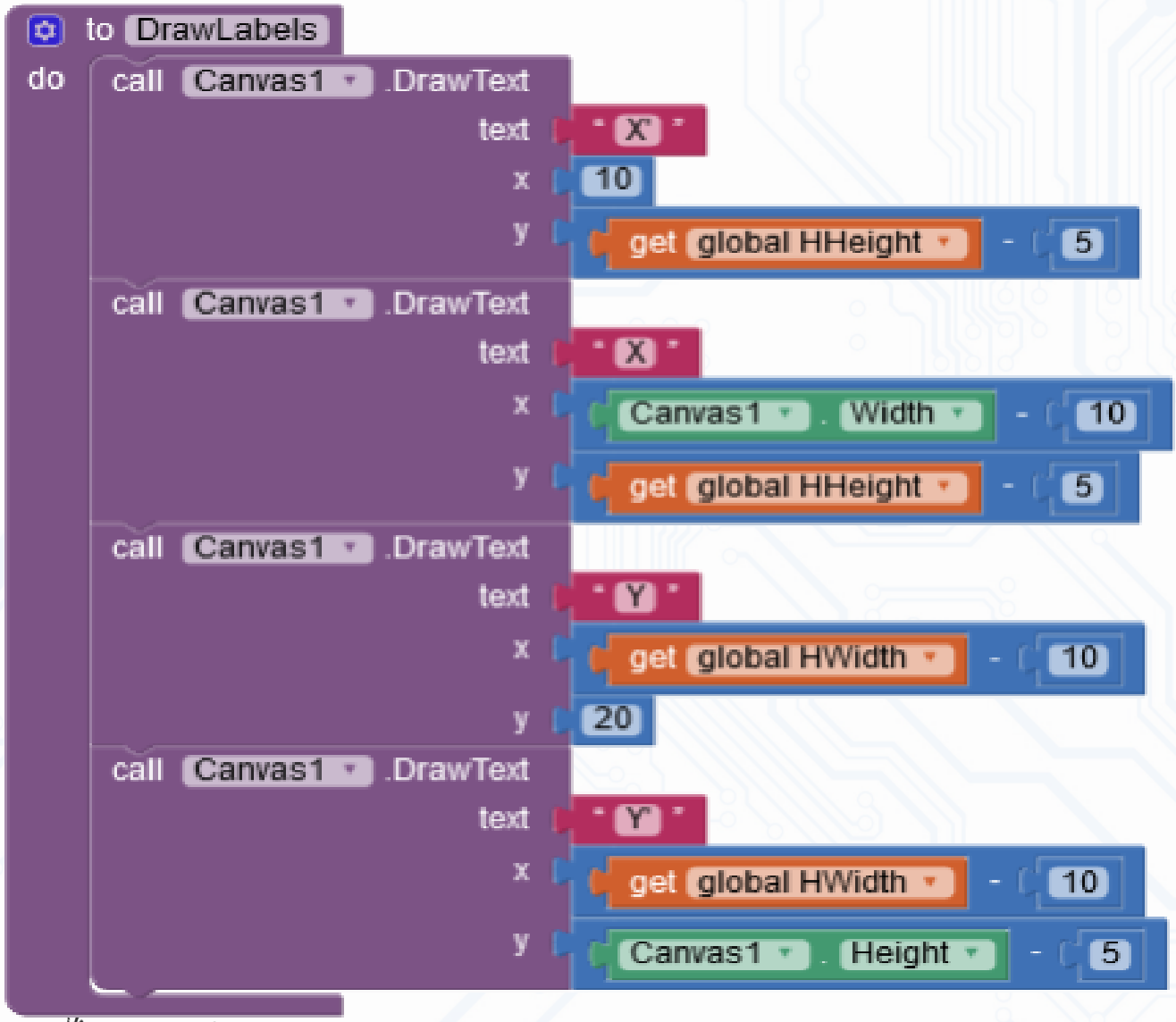
Graph Screen (Block) (Function)

- Used functions
  - **Graph page_DrawAxis**
  - **Graph page_ Drawlabels**
  - **SetVariables**
  - **DrawPoints**

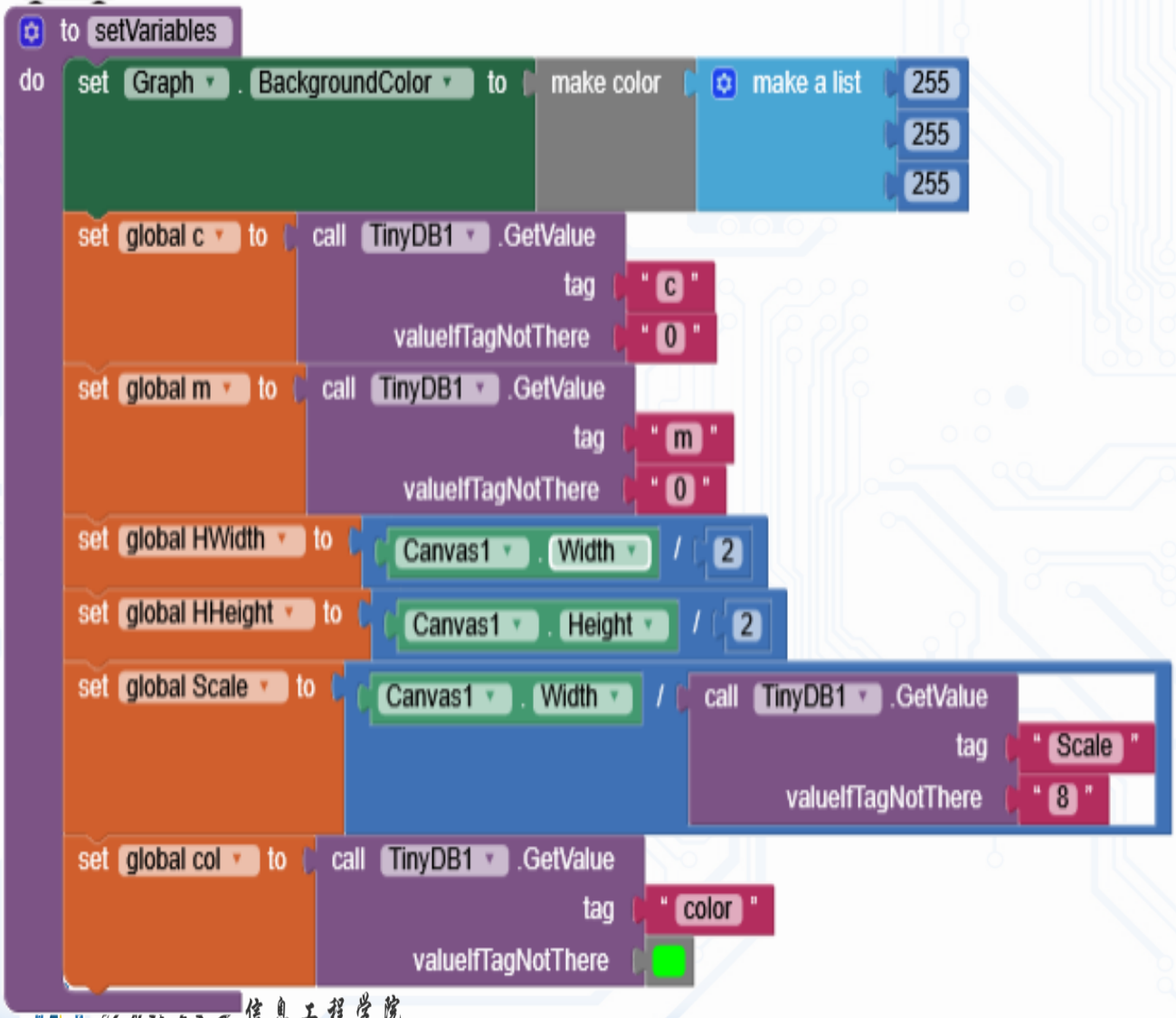
Graph page_DrawAxis (Function)



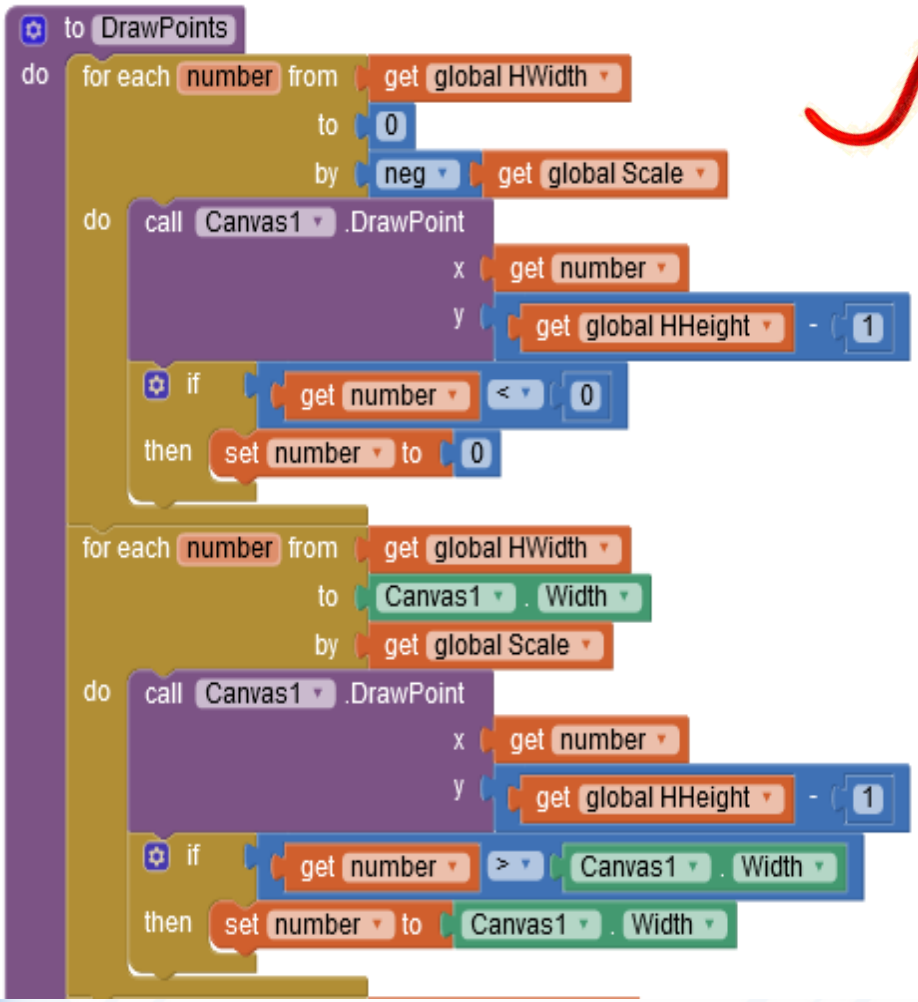
Graph page_ Drawlabels (Function)

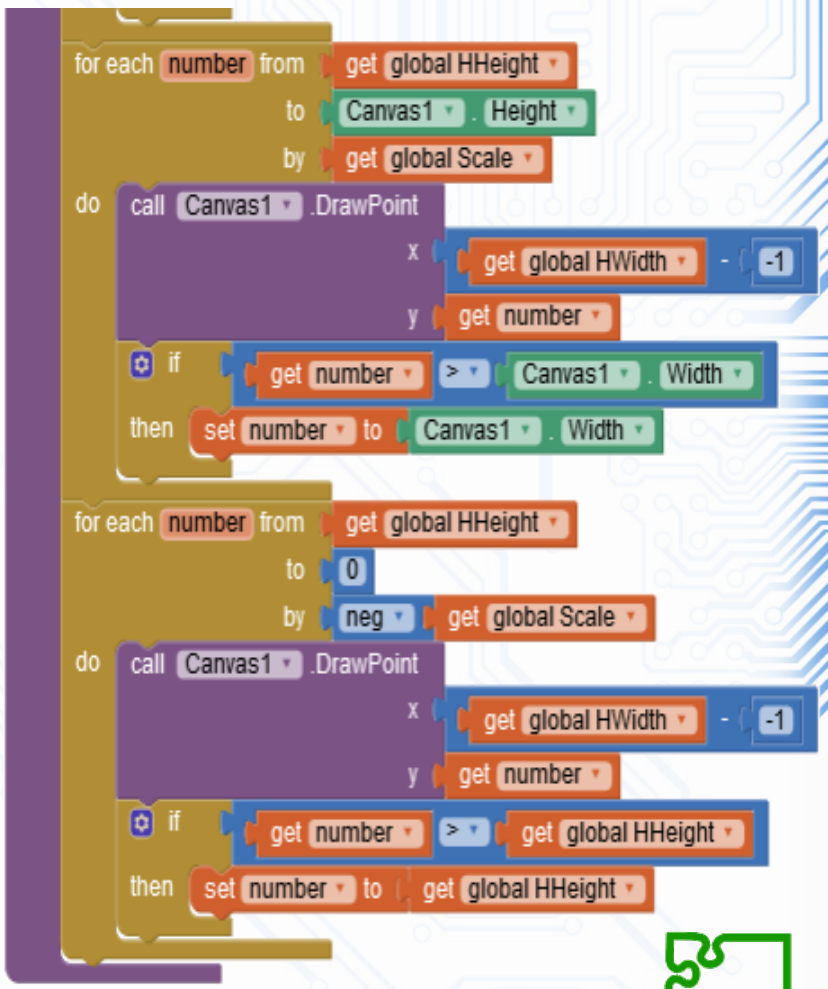


Graph page_ SetVariables(Function)

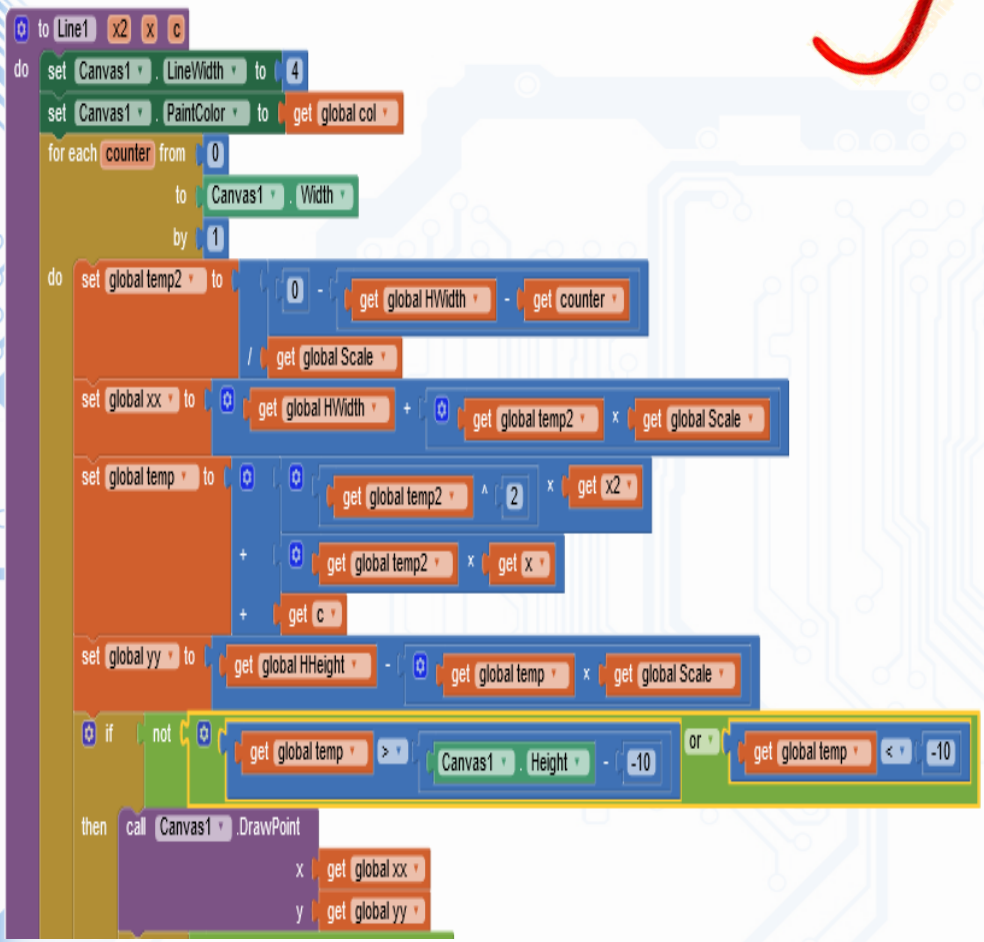


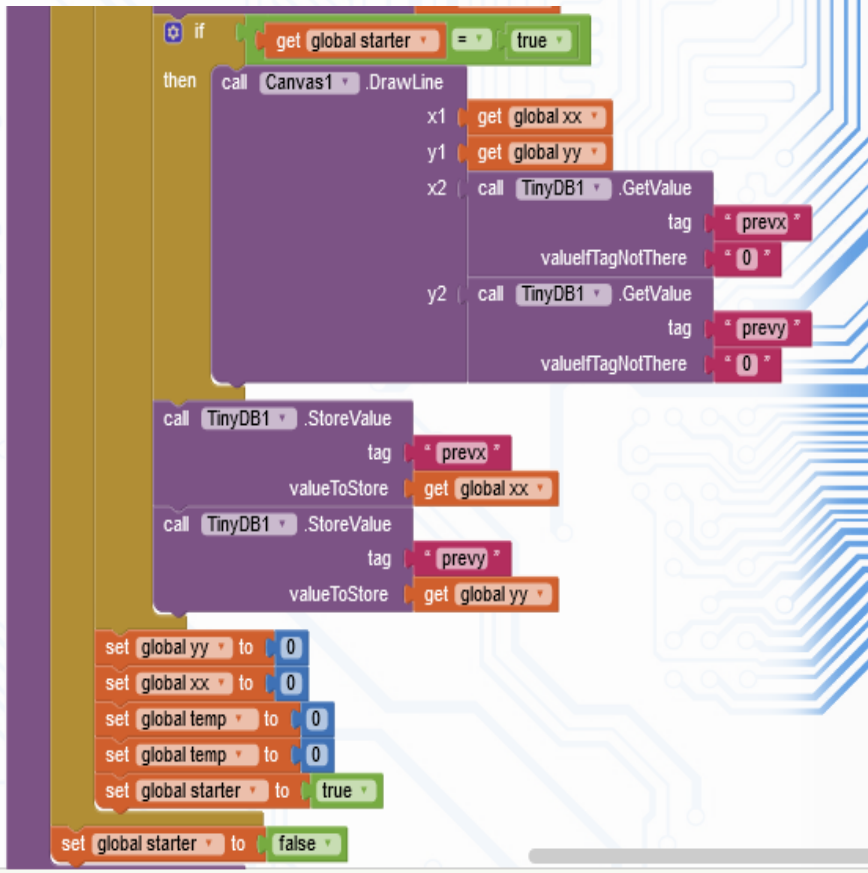
Graph page_ DrawPoints(Function)



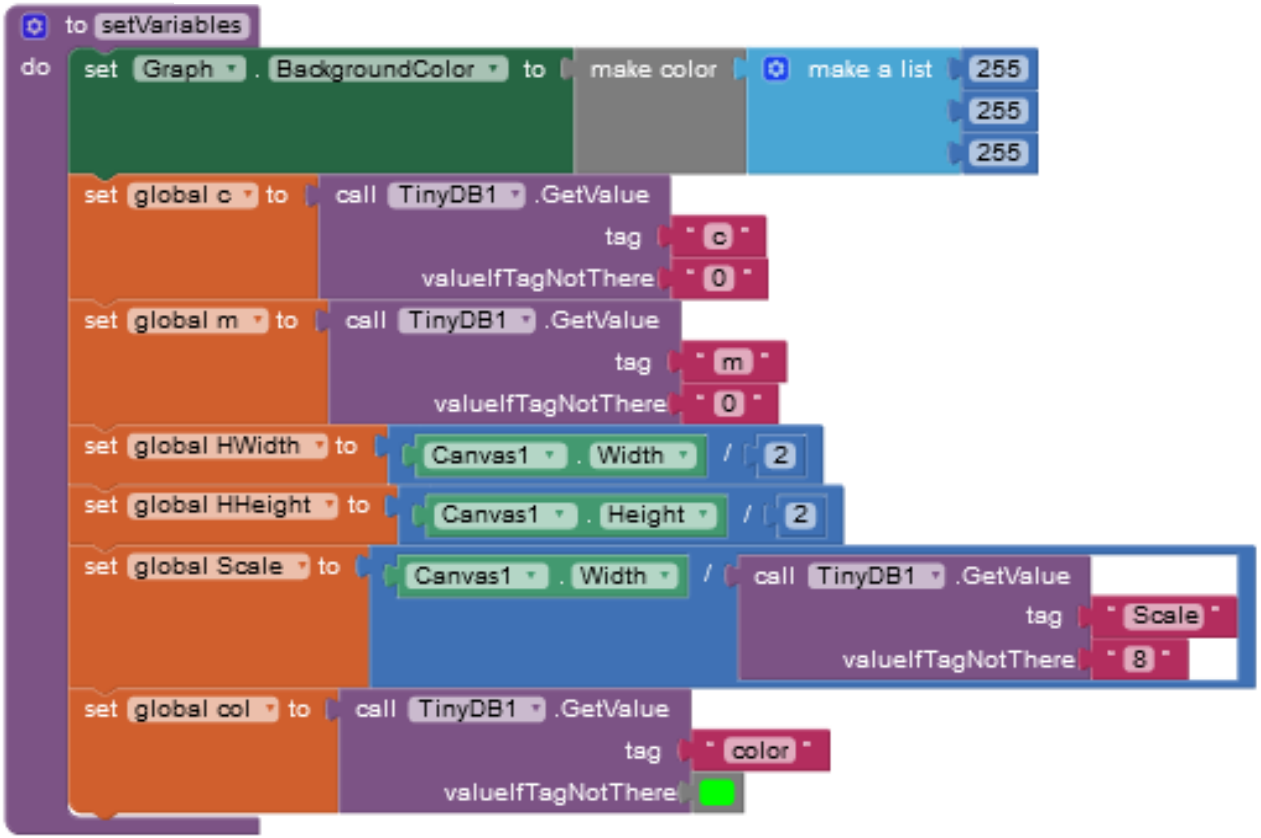


Graph page _Line1(Function)

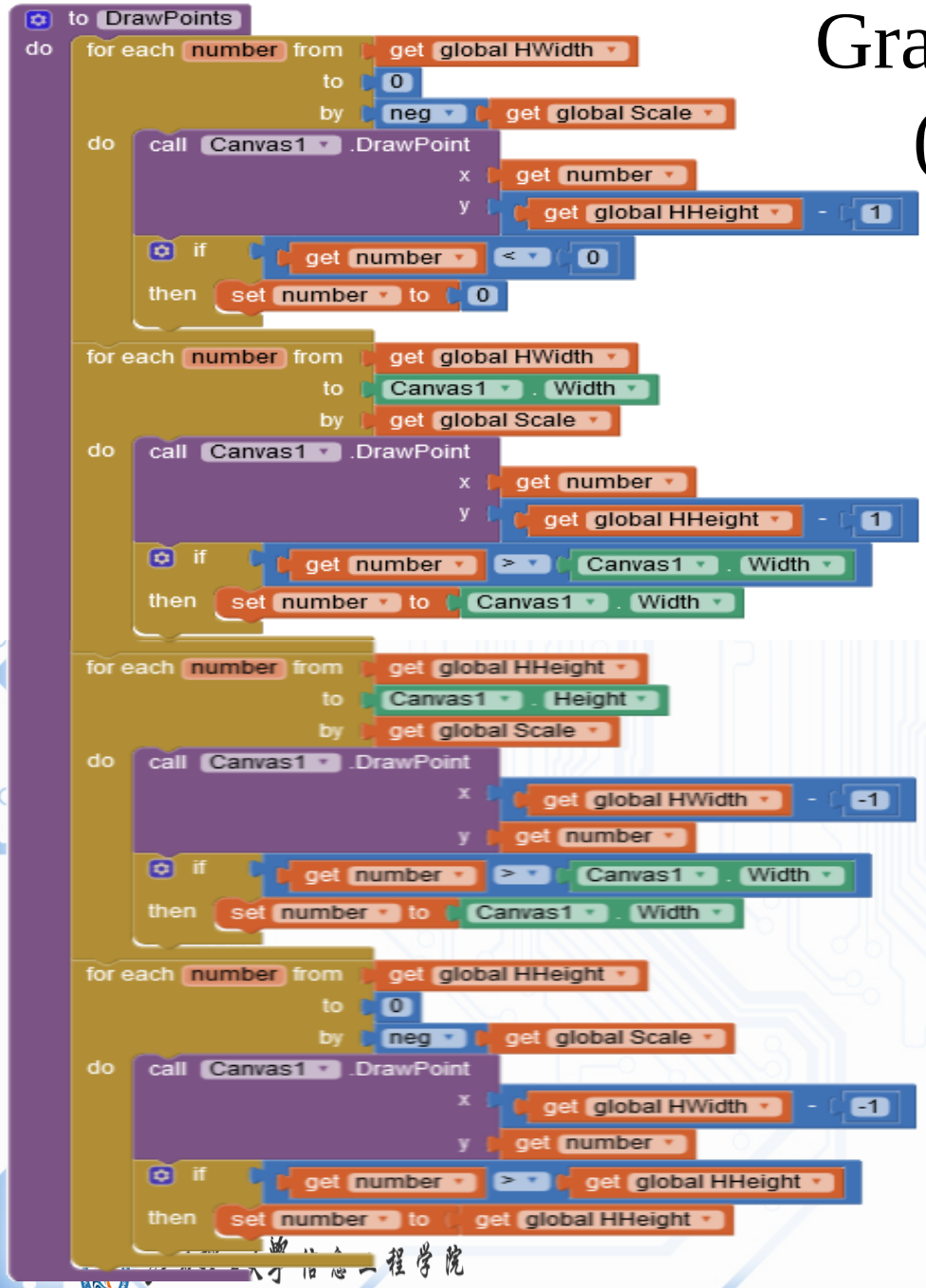


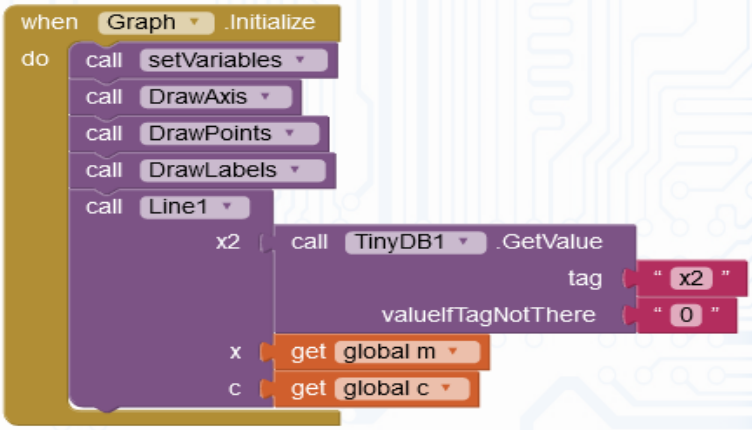


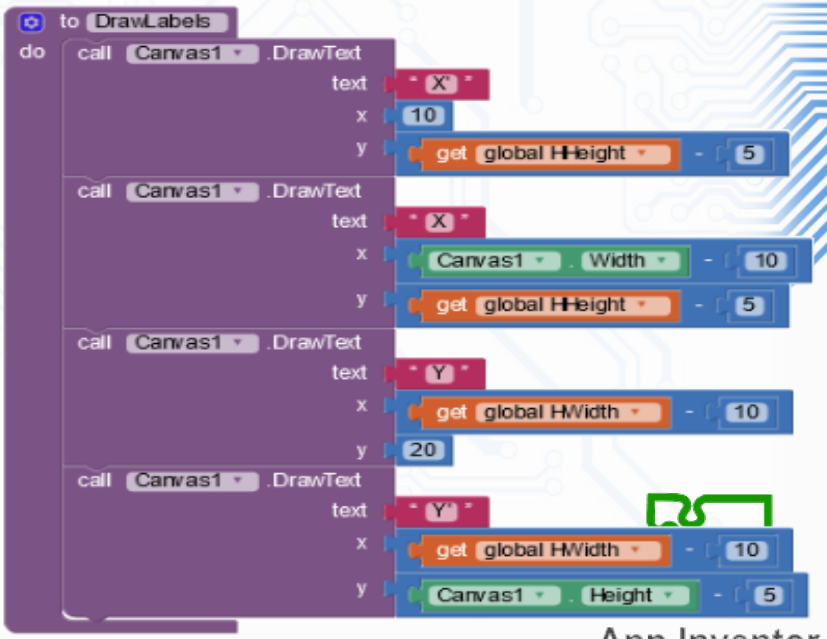
Graph Screen(Block)



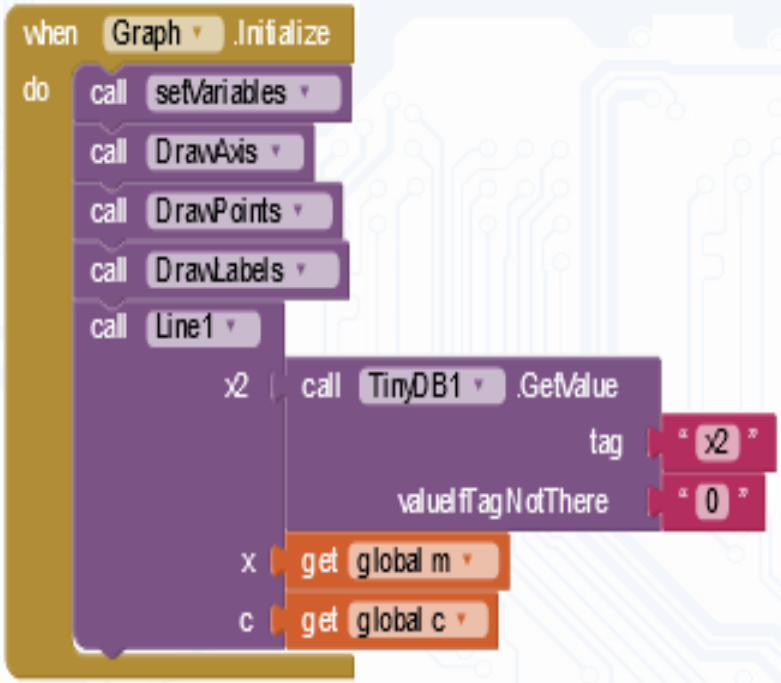
Graph Screen (Block)

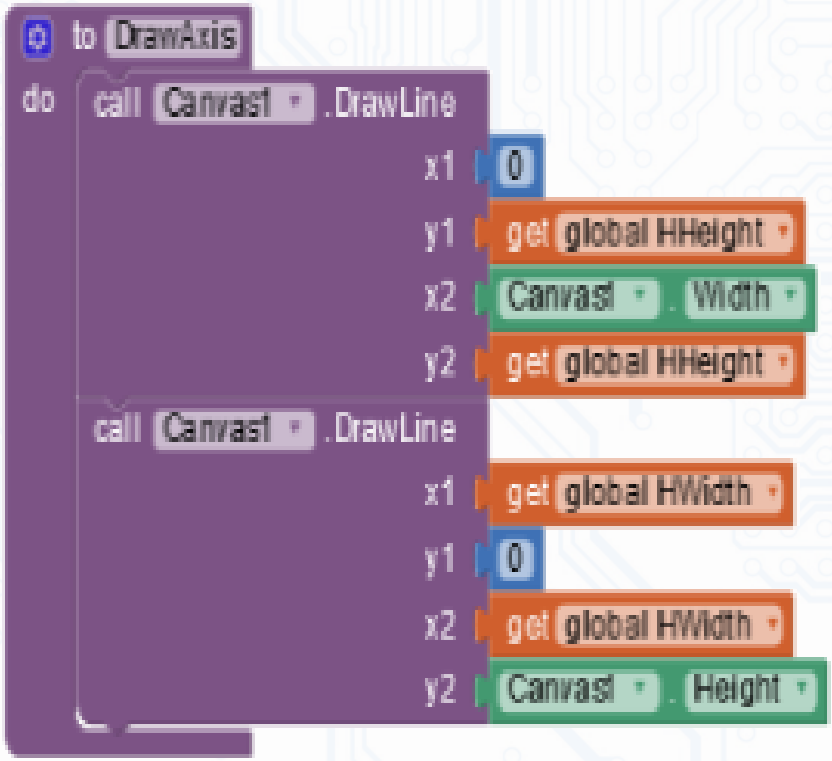




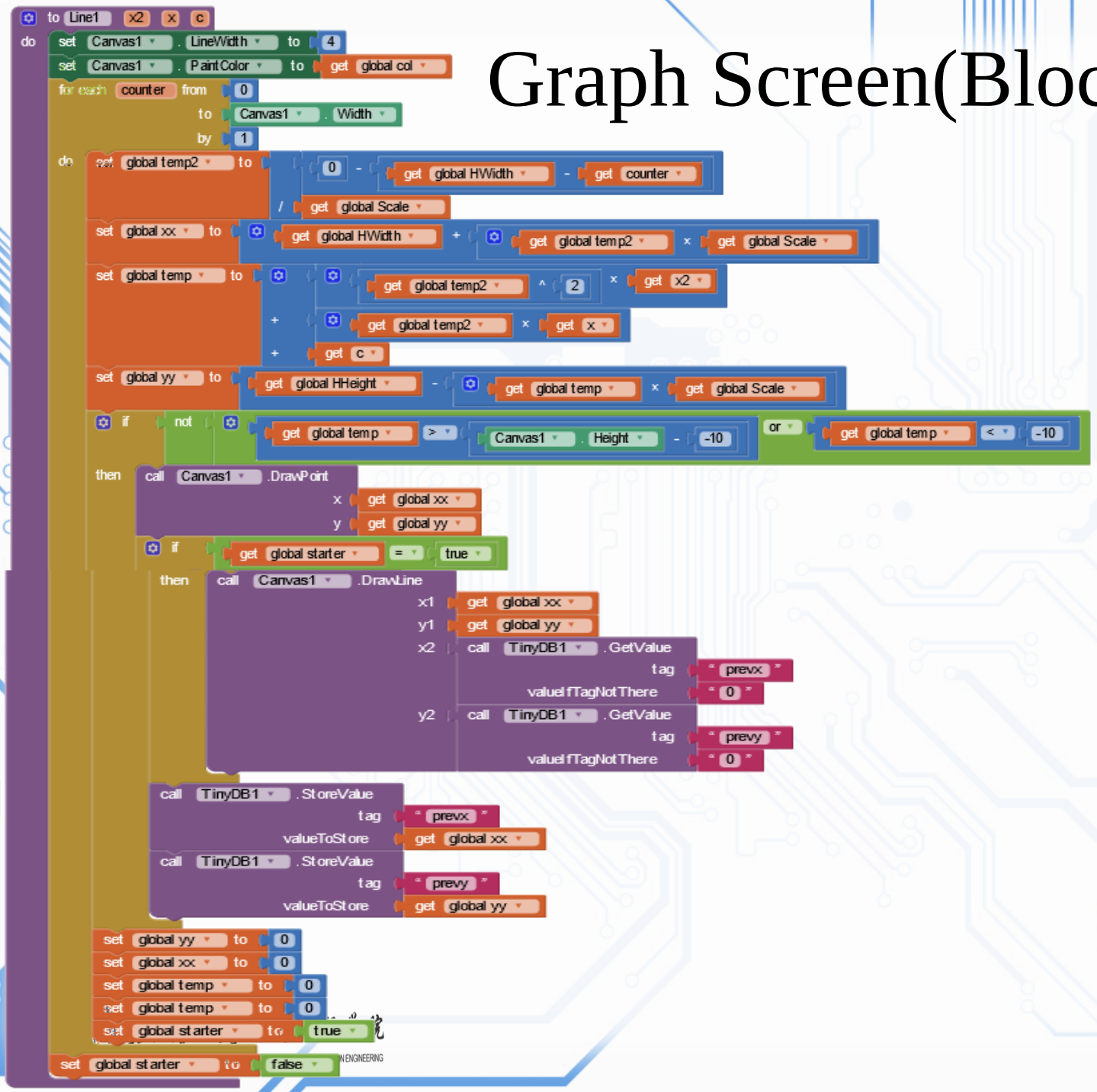


Graph Screen (Block)



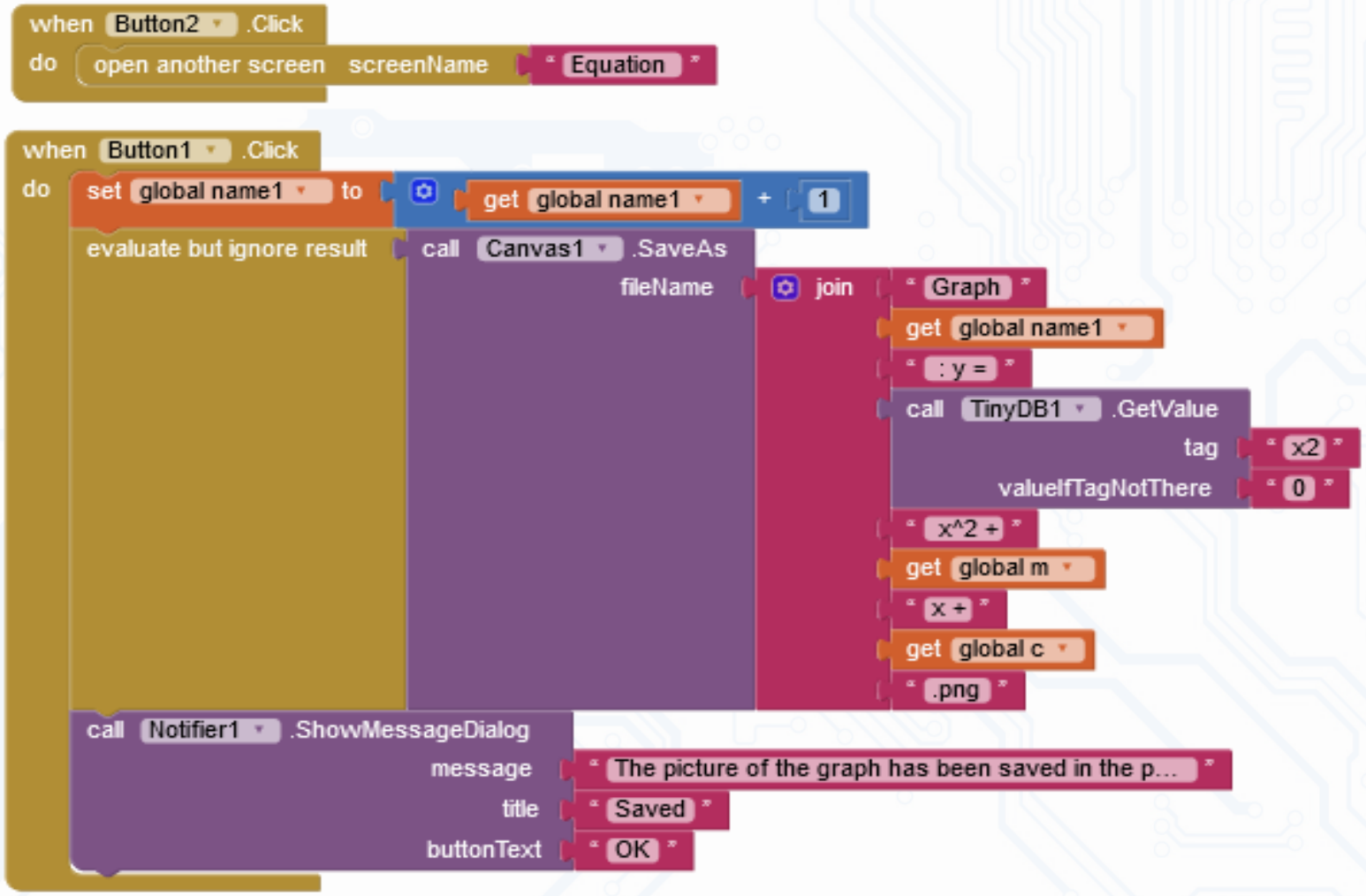


Graph Screen(Block)



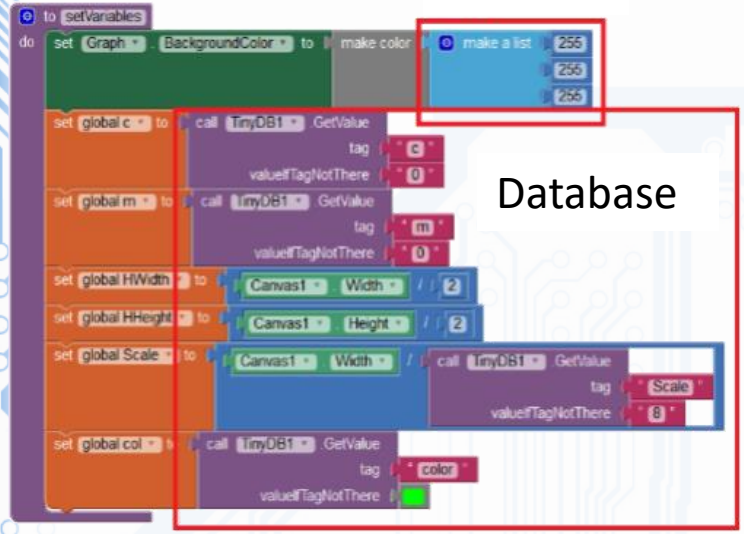
App Inventor

Graph Screen(Block)

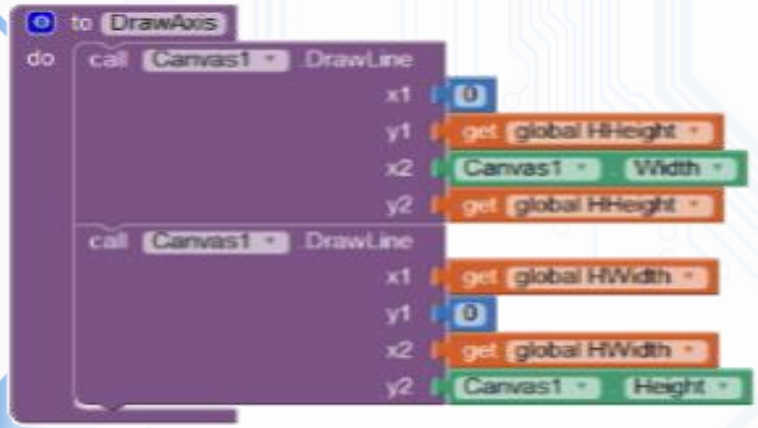


Setting Screen(Block)

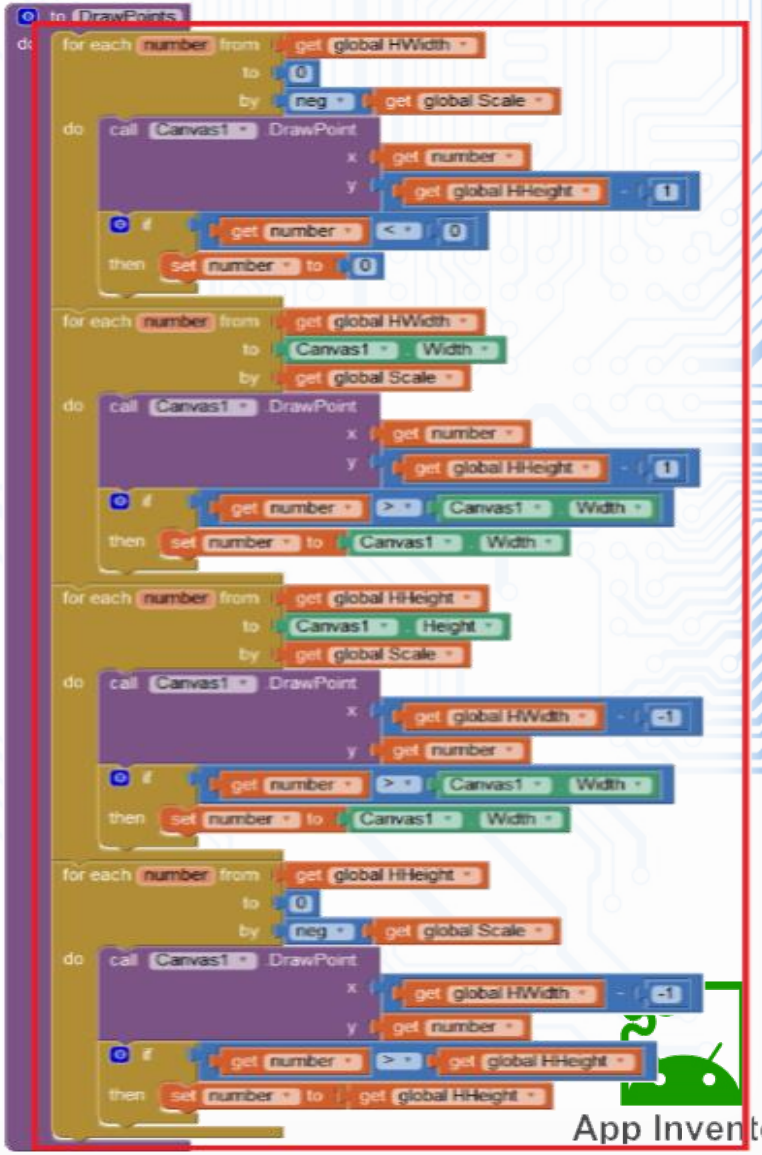
List



Database



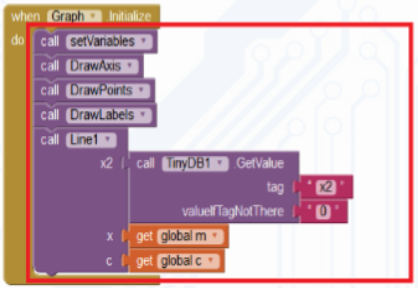
LOOPS



Graph Screen

Variables

Functions



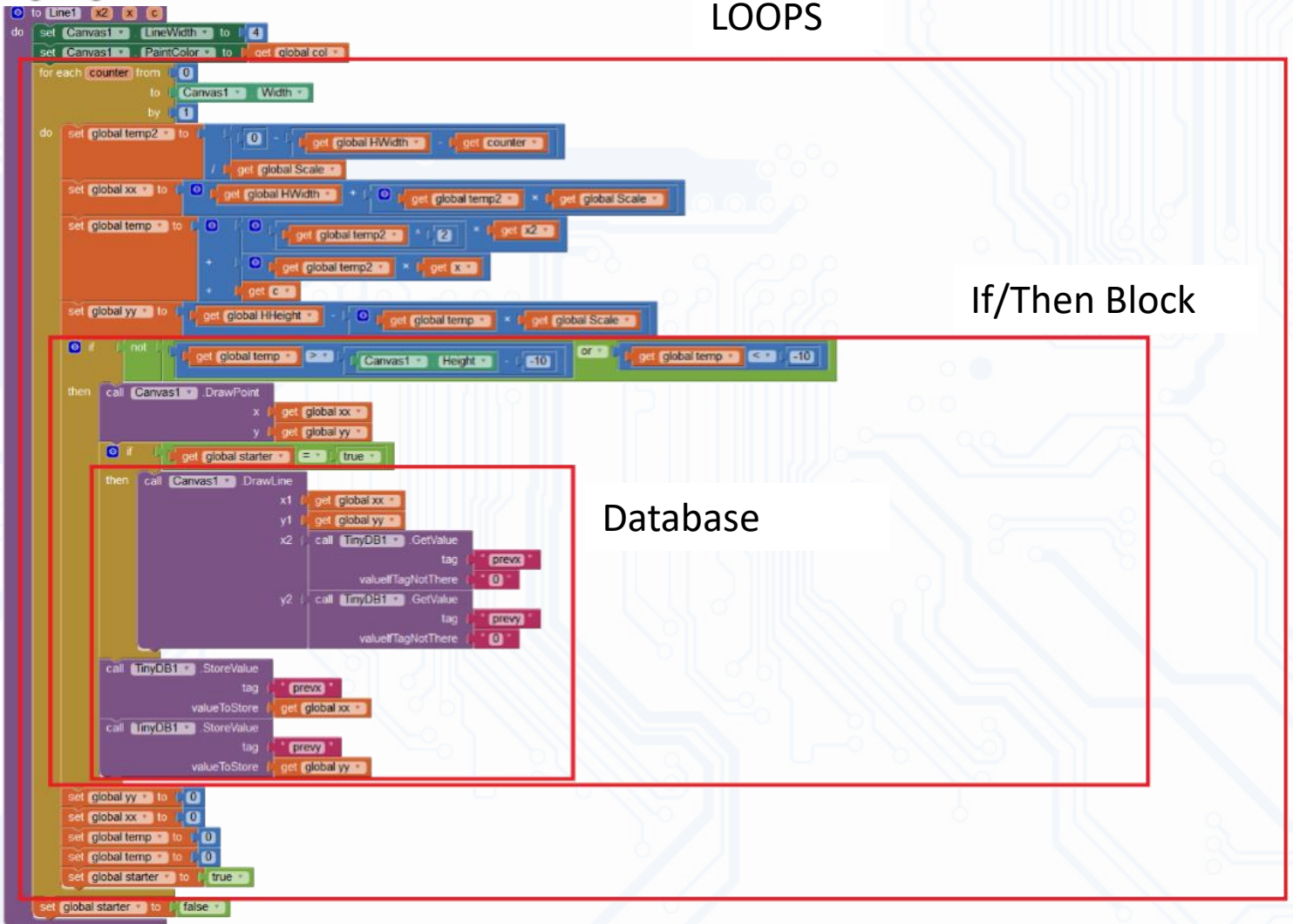
App Inventor

Graph Screen

LOOPS

If/Then Block

Database



Setting Screen(Block)

1) Setting about Color line and axis scale
2) Back button

The blocks consists of three part

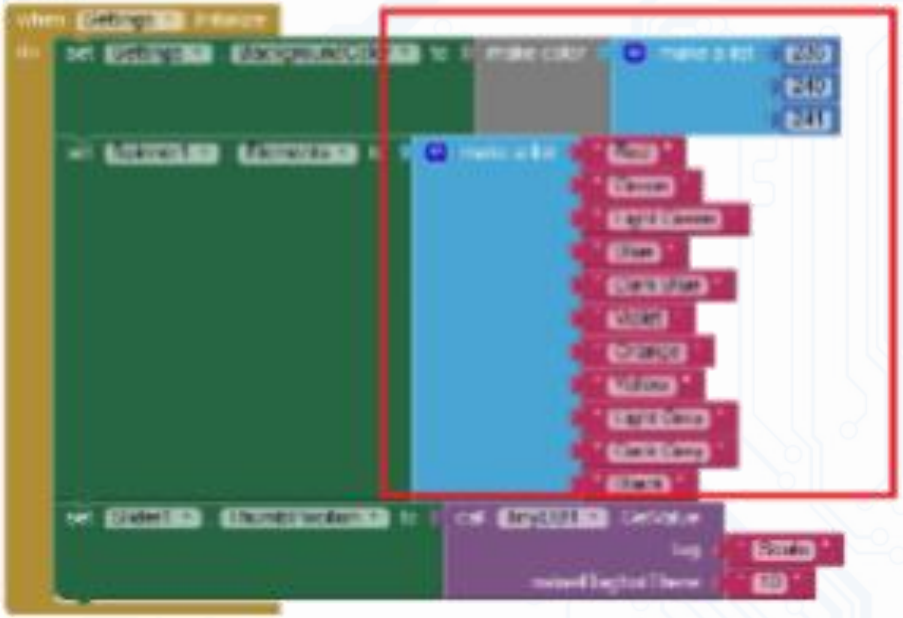
- Database
- Lists
- If/Then else

Setting

Setting Screen(Block)

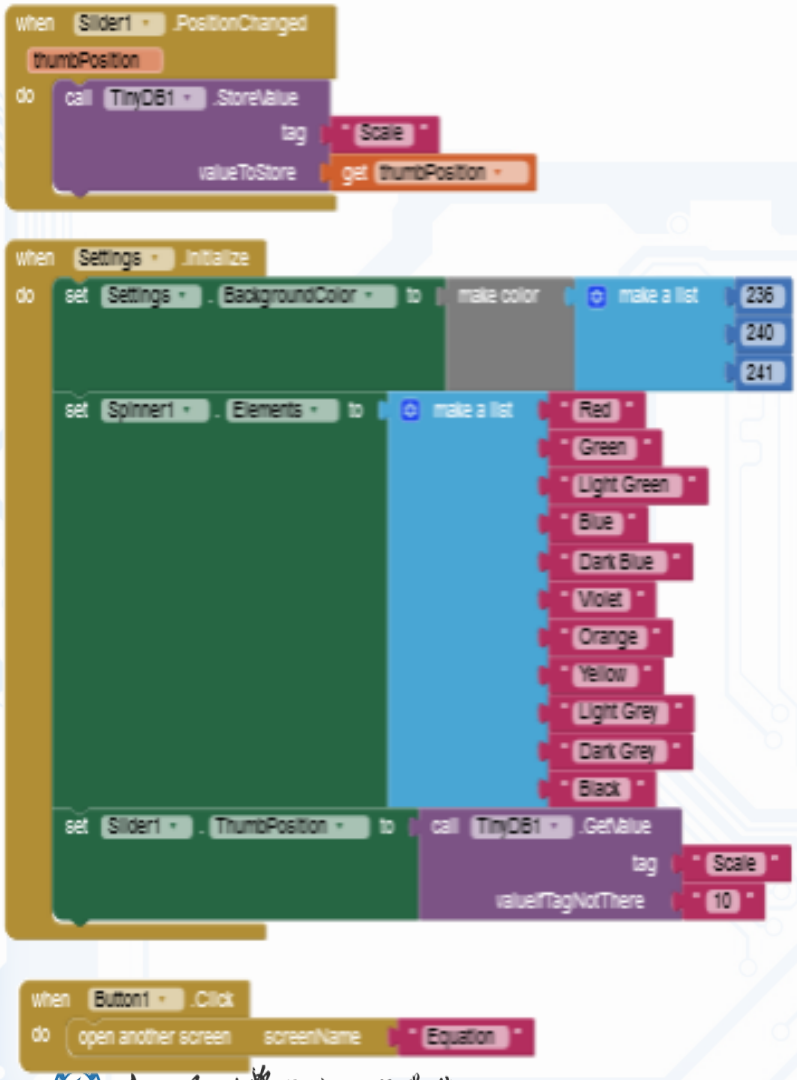
Database

Lists

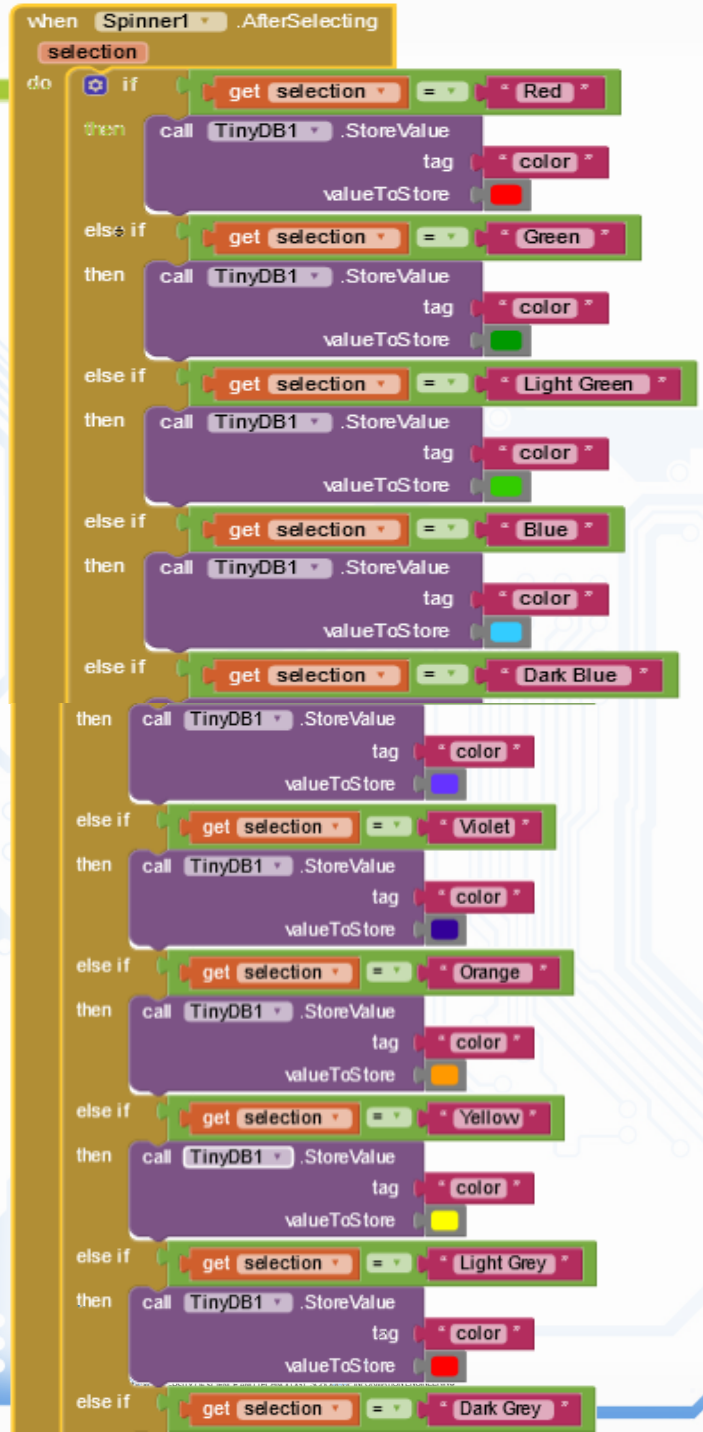


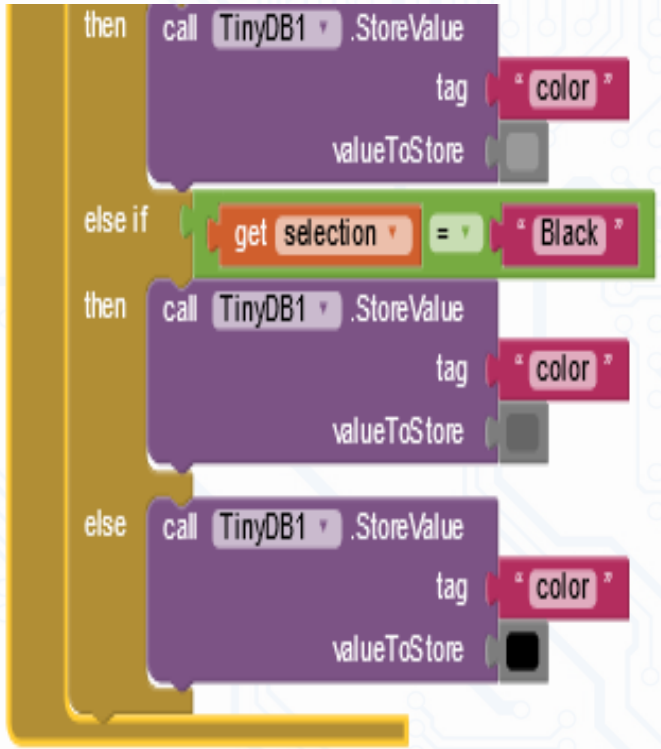
If/Then else

Setting Screen(Block)



Setting Screen(Block)





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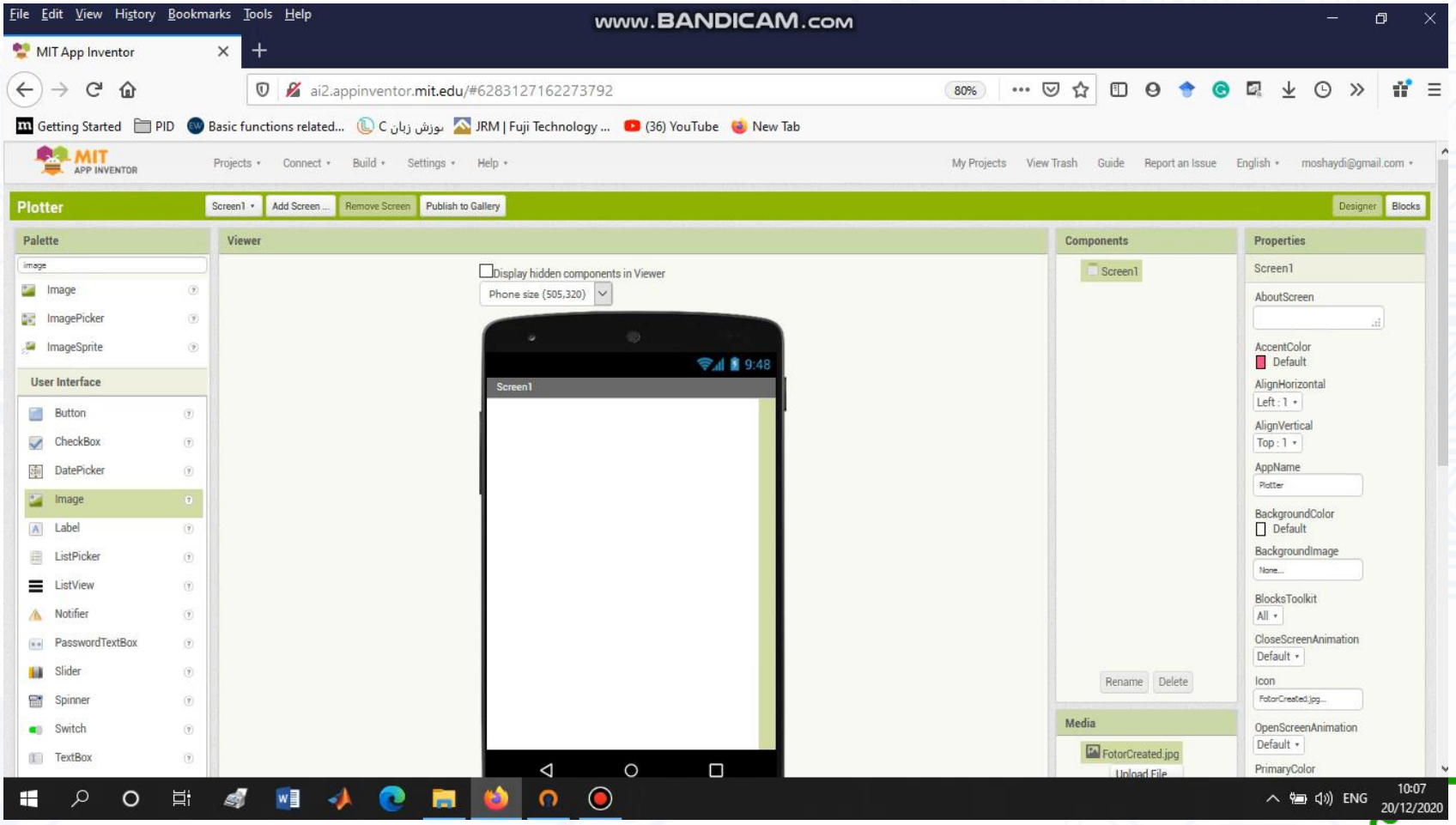
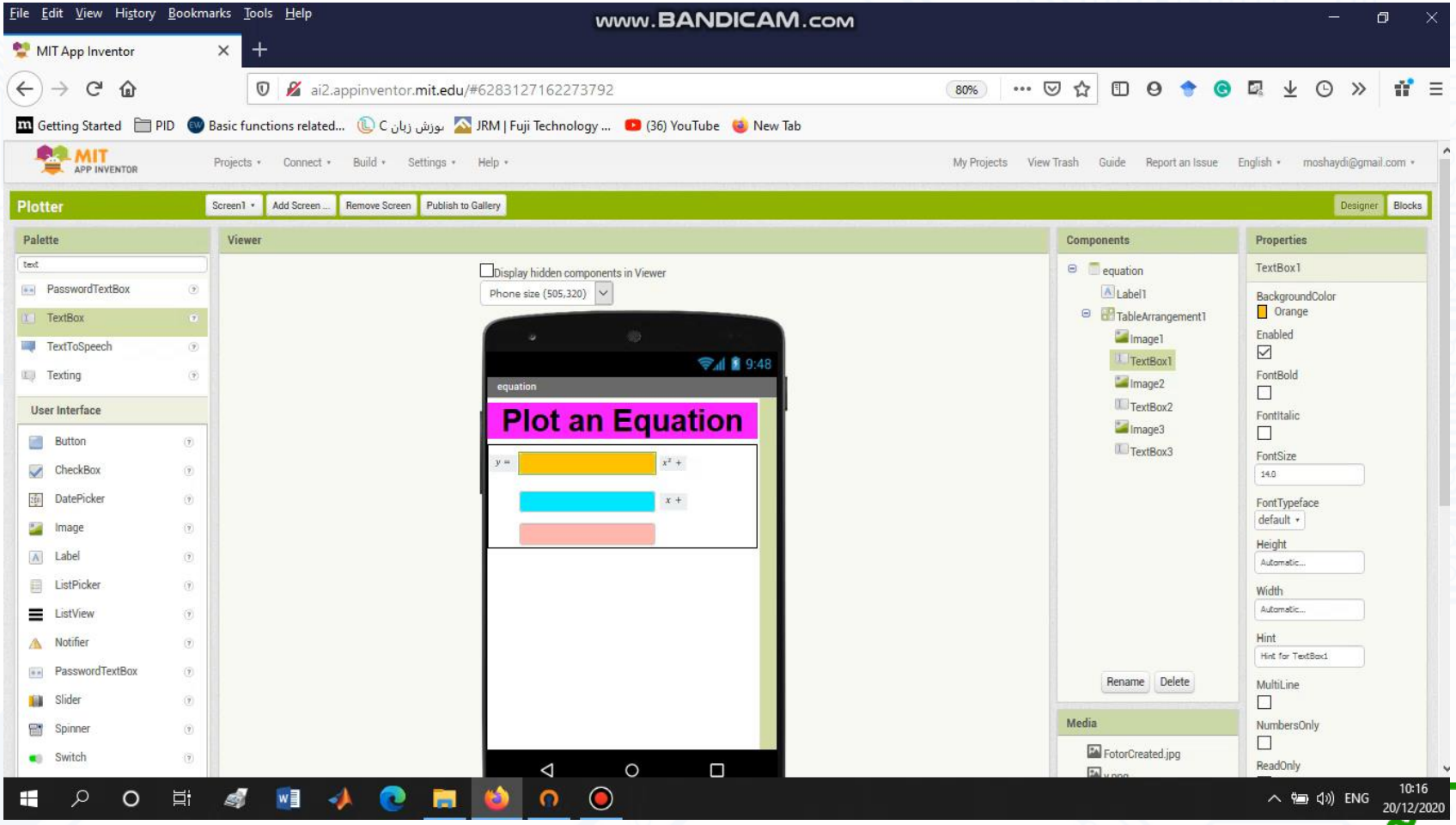
Example01: Line Plotter: Coordinate Geometry



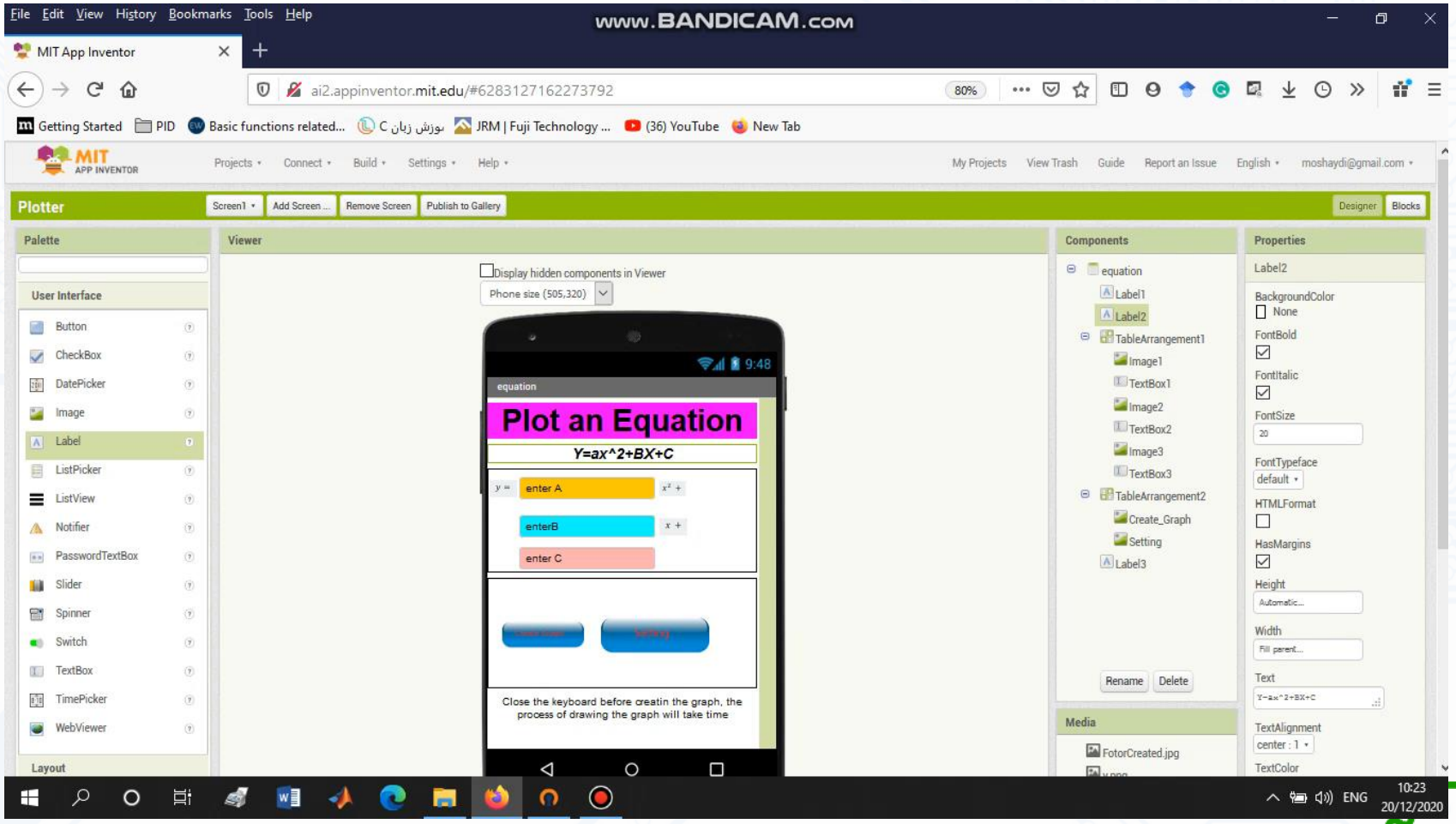
Process Clip

Example01: Line Plotter: Coordinate Geometry



Process Clip

Example01: Line Plotter: Coordinate Geometry



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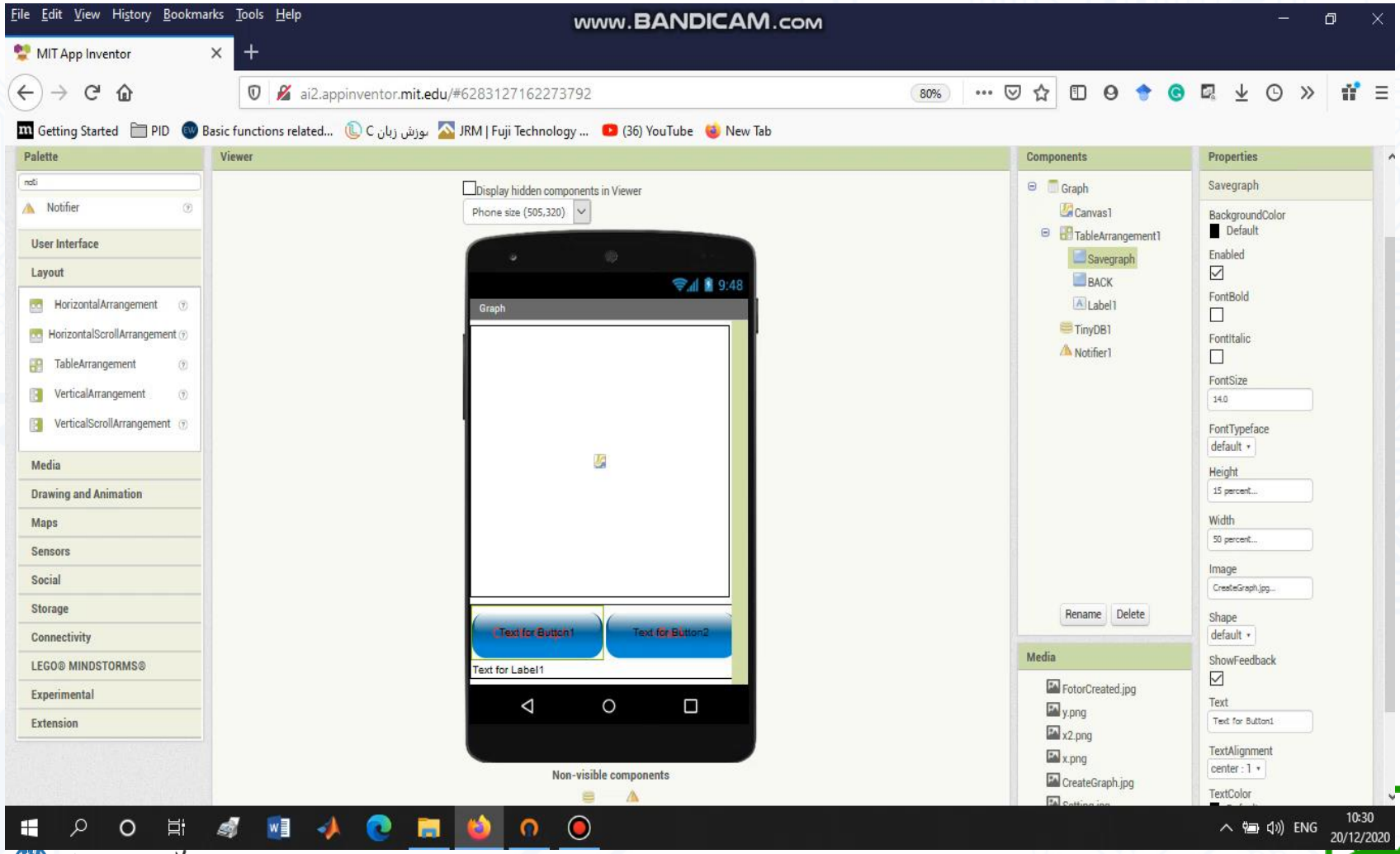
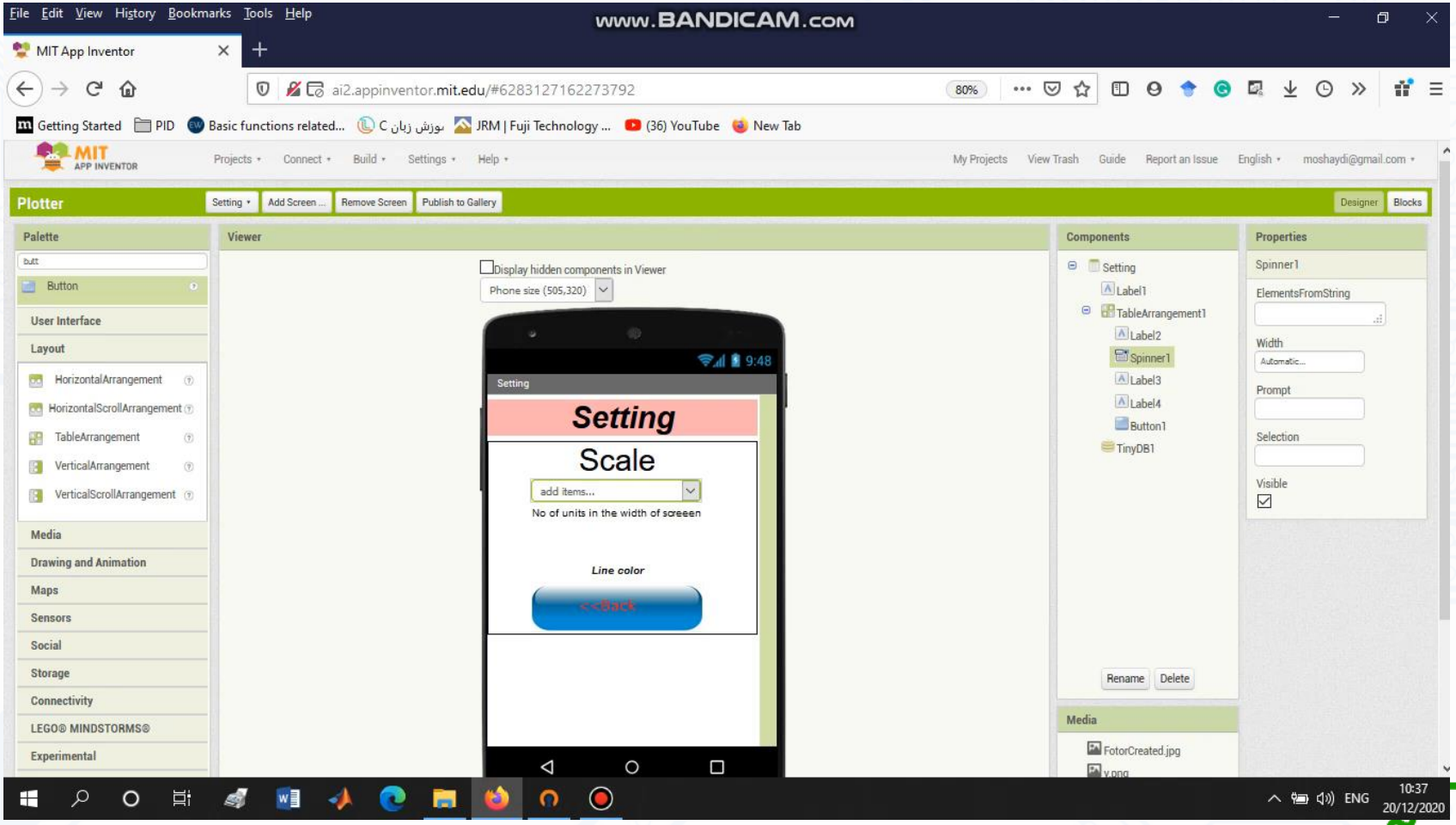
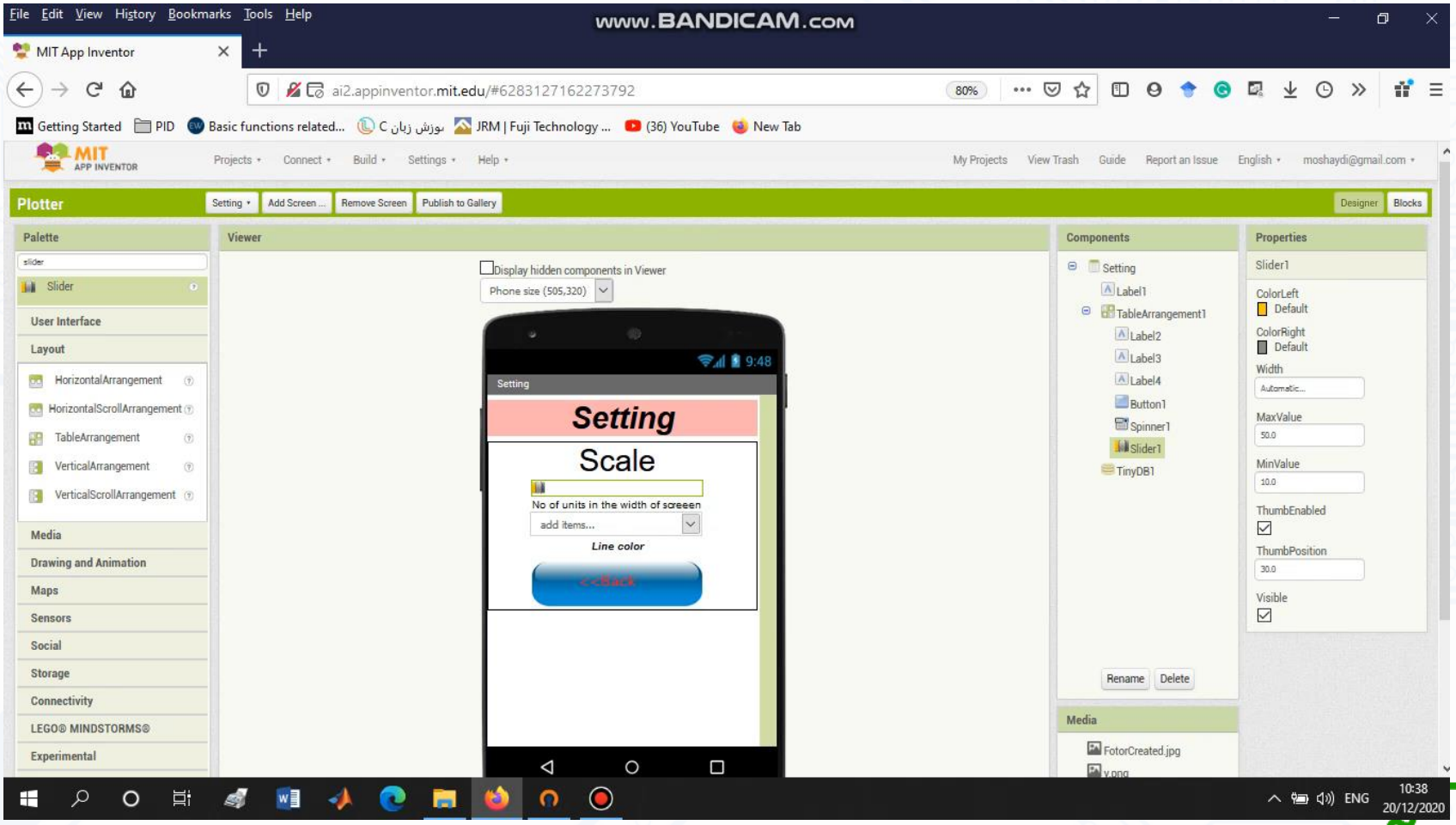
Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



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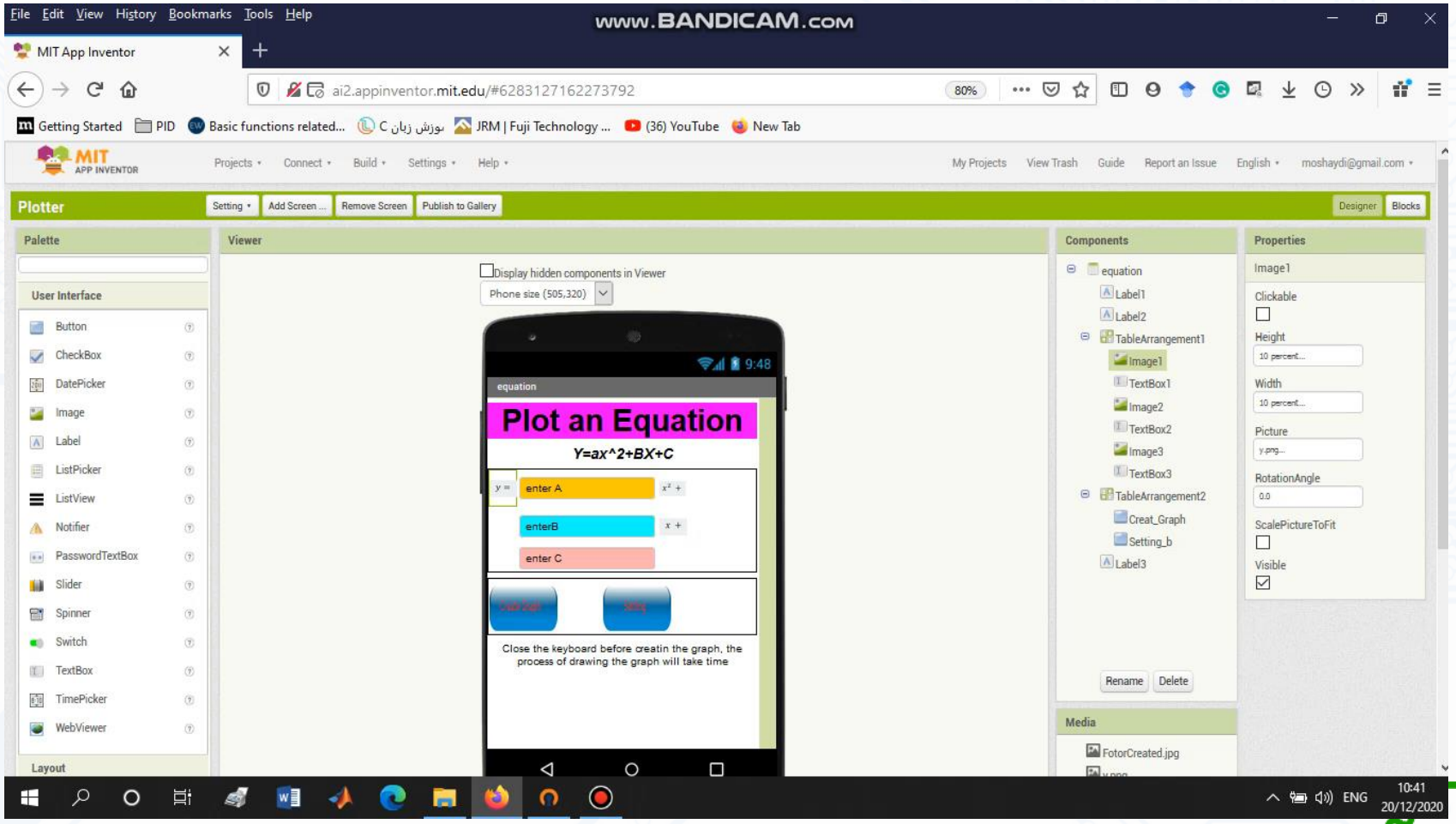
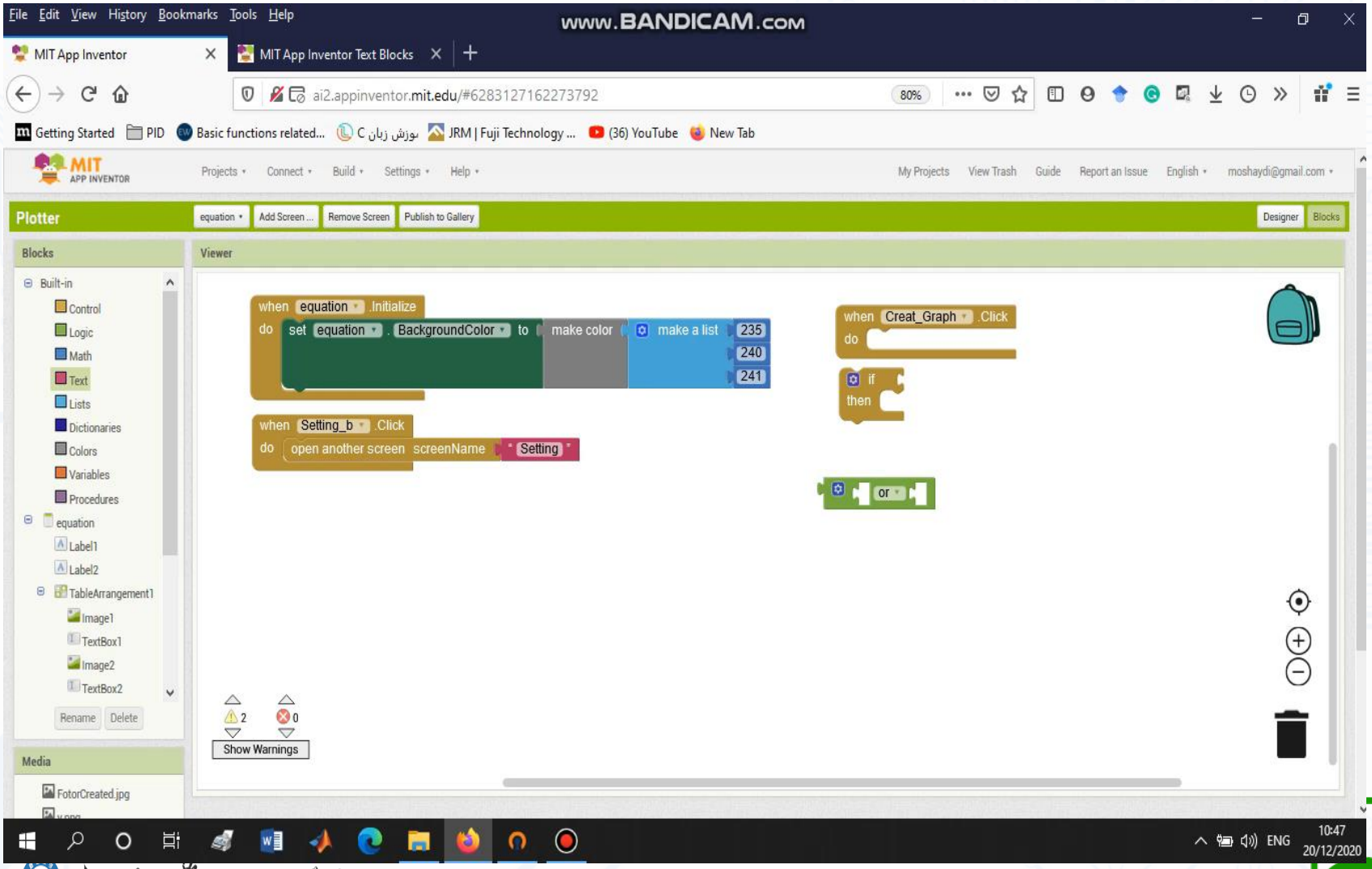
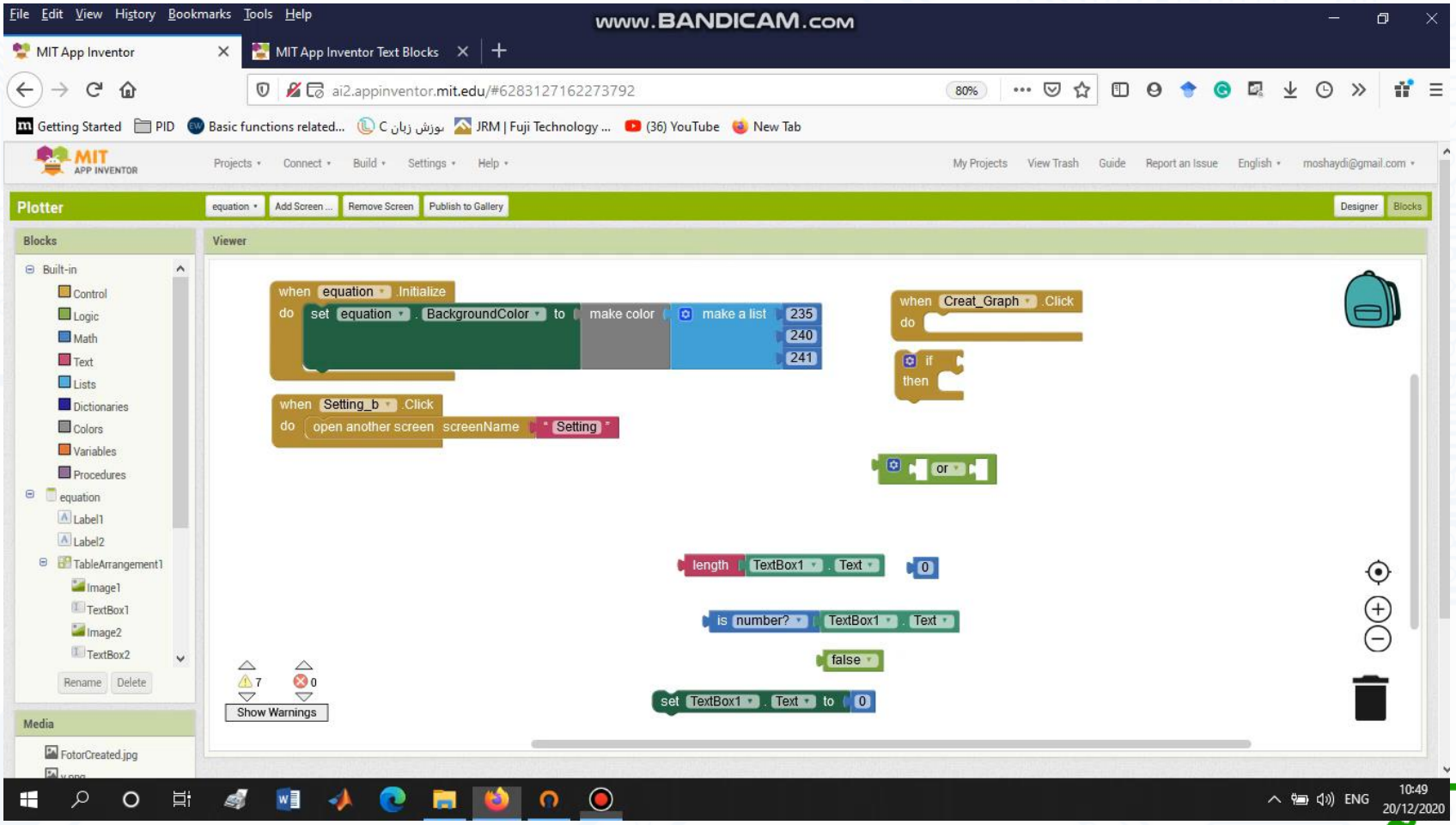
Example01: Line Plotter: Coordinate Geometry



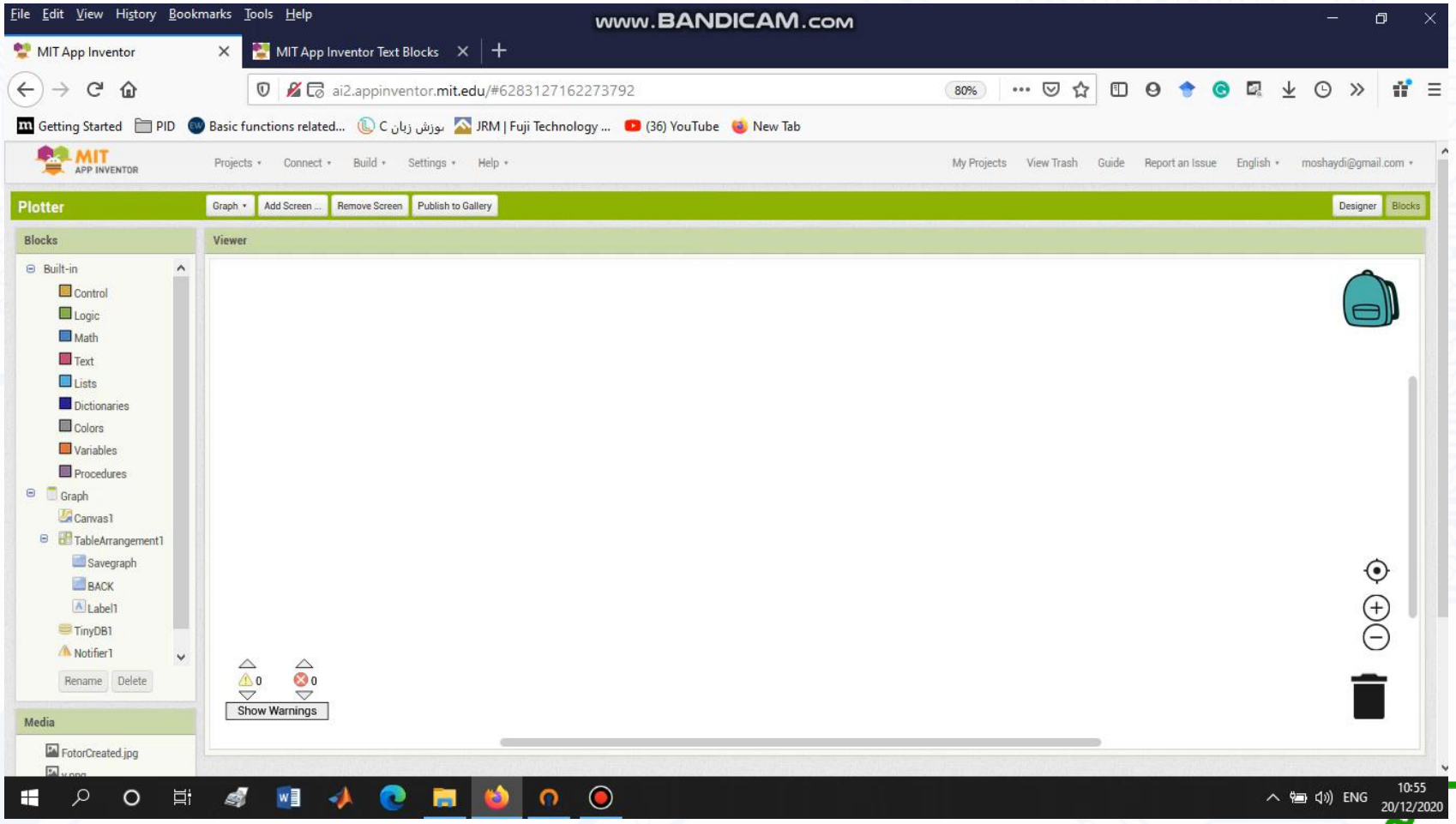
Example01: Line Plotter: Coordinate Geometry



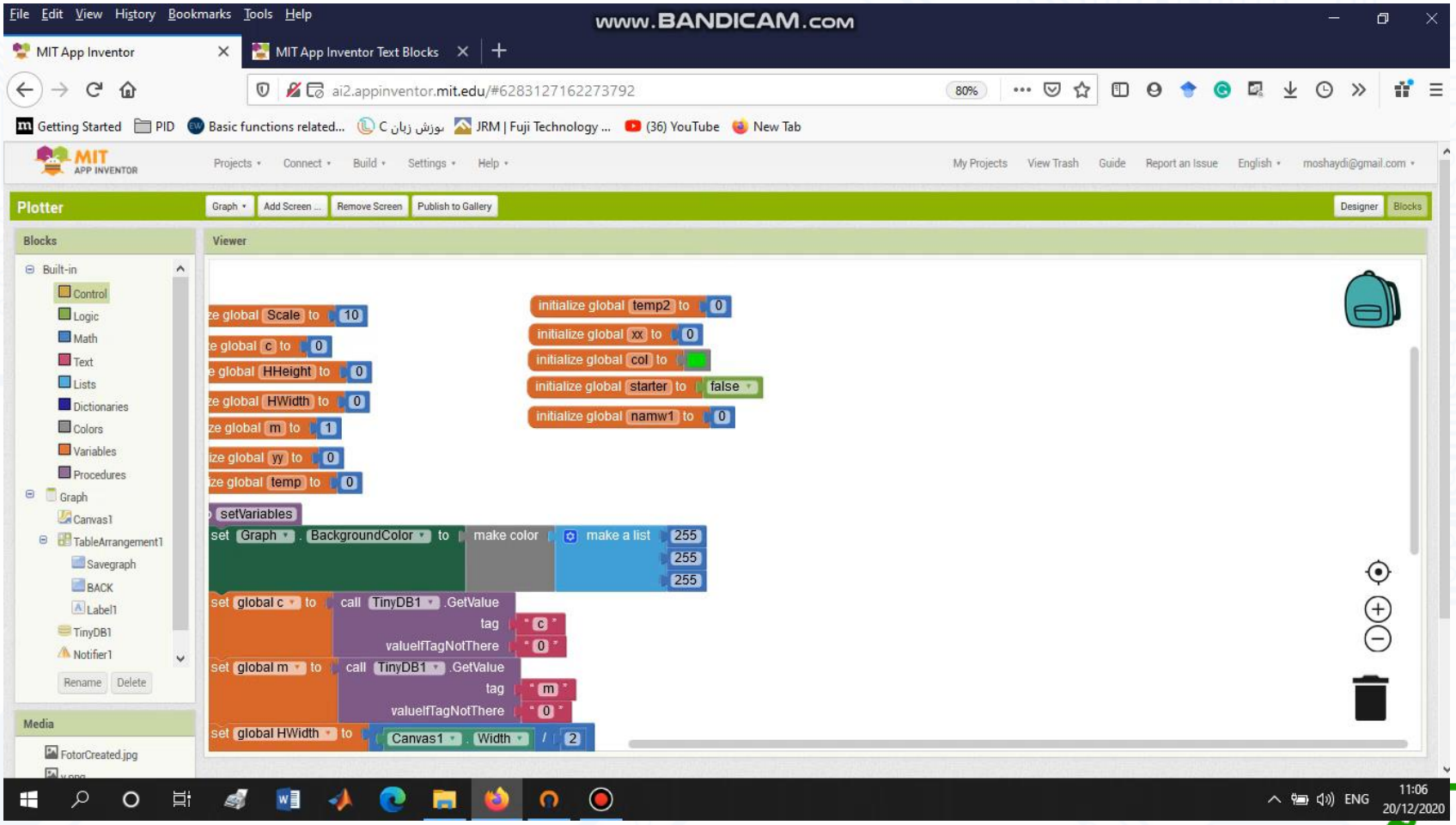
Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



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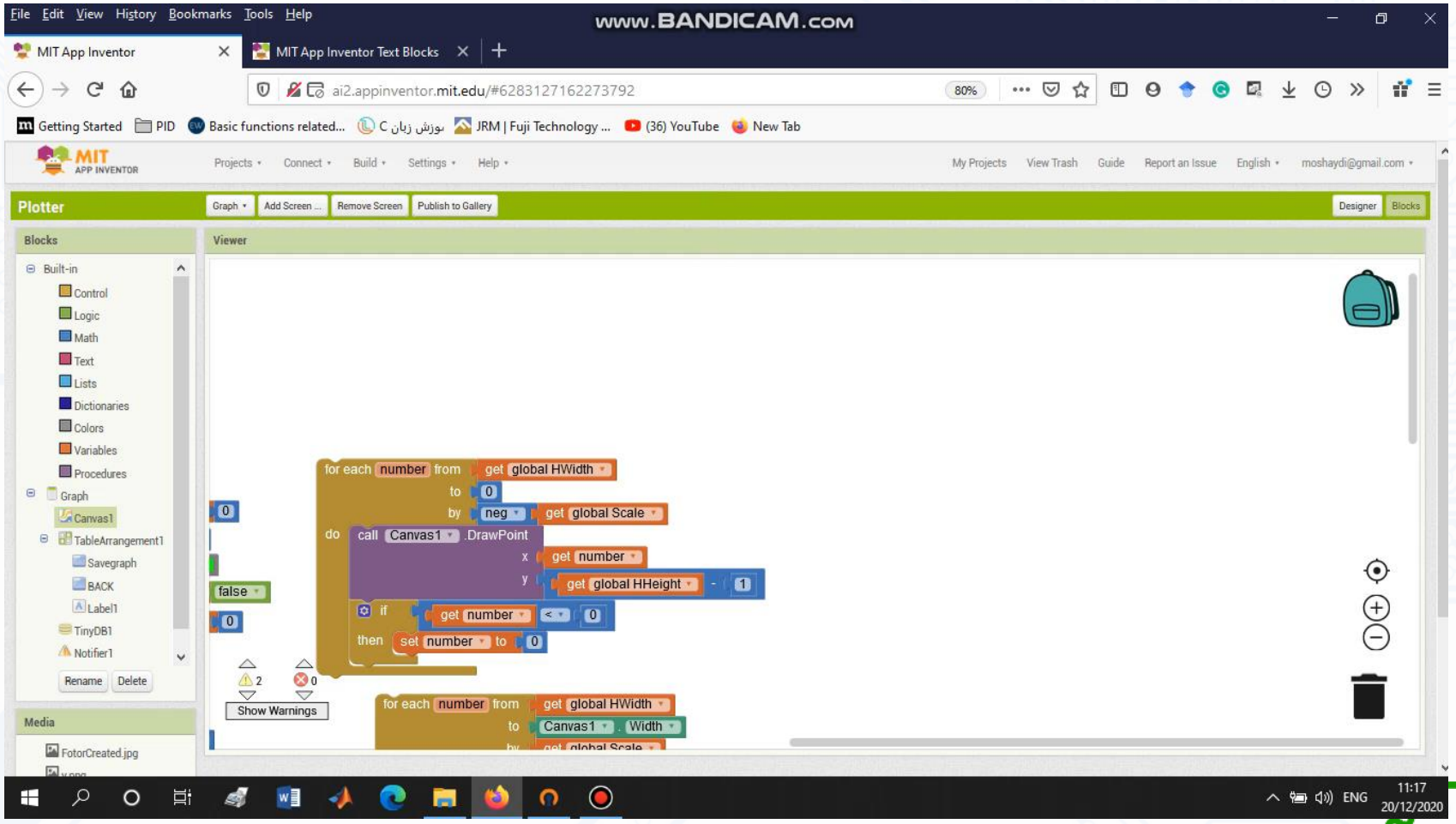
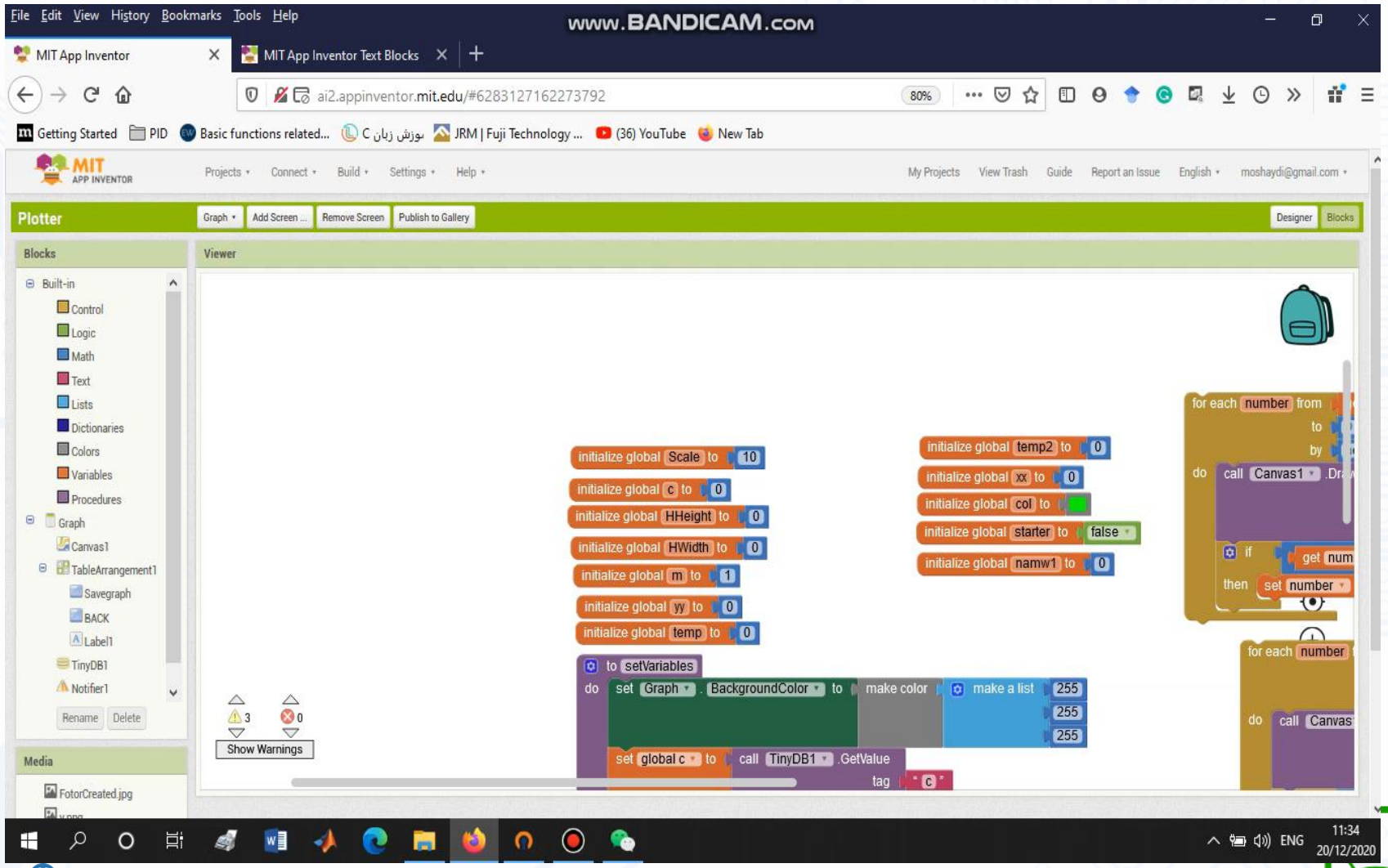
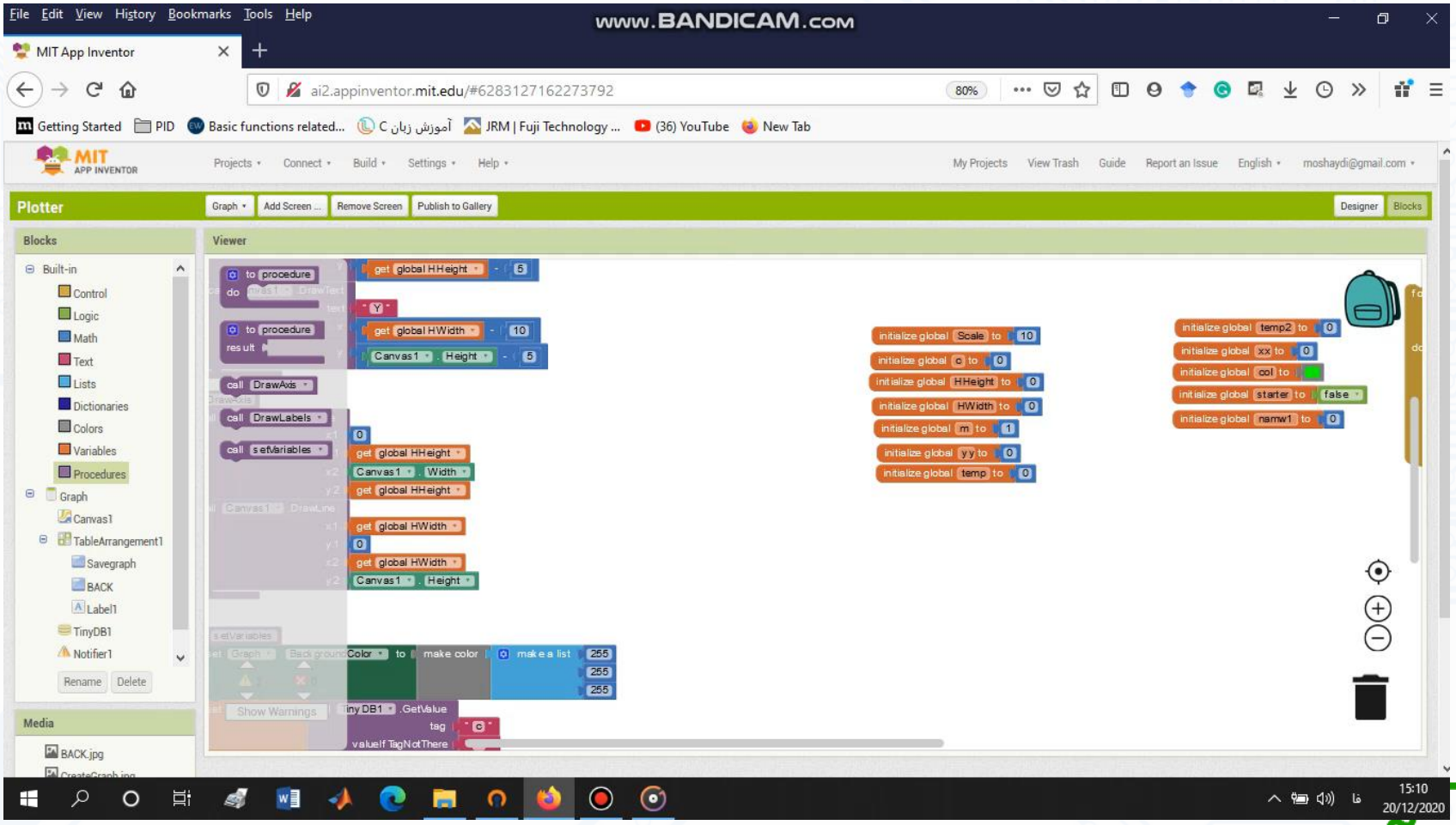
Example01: Line Plotter: Coordinate Geometry



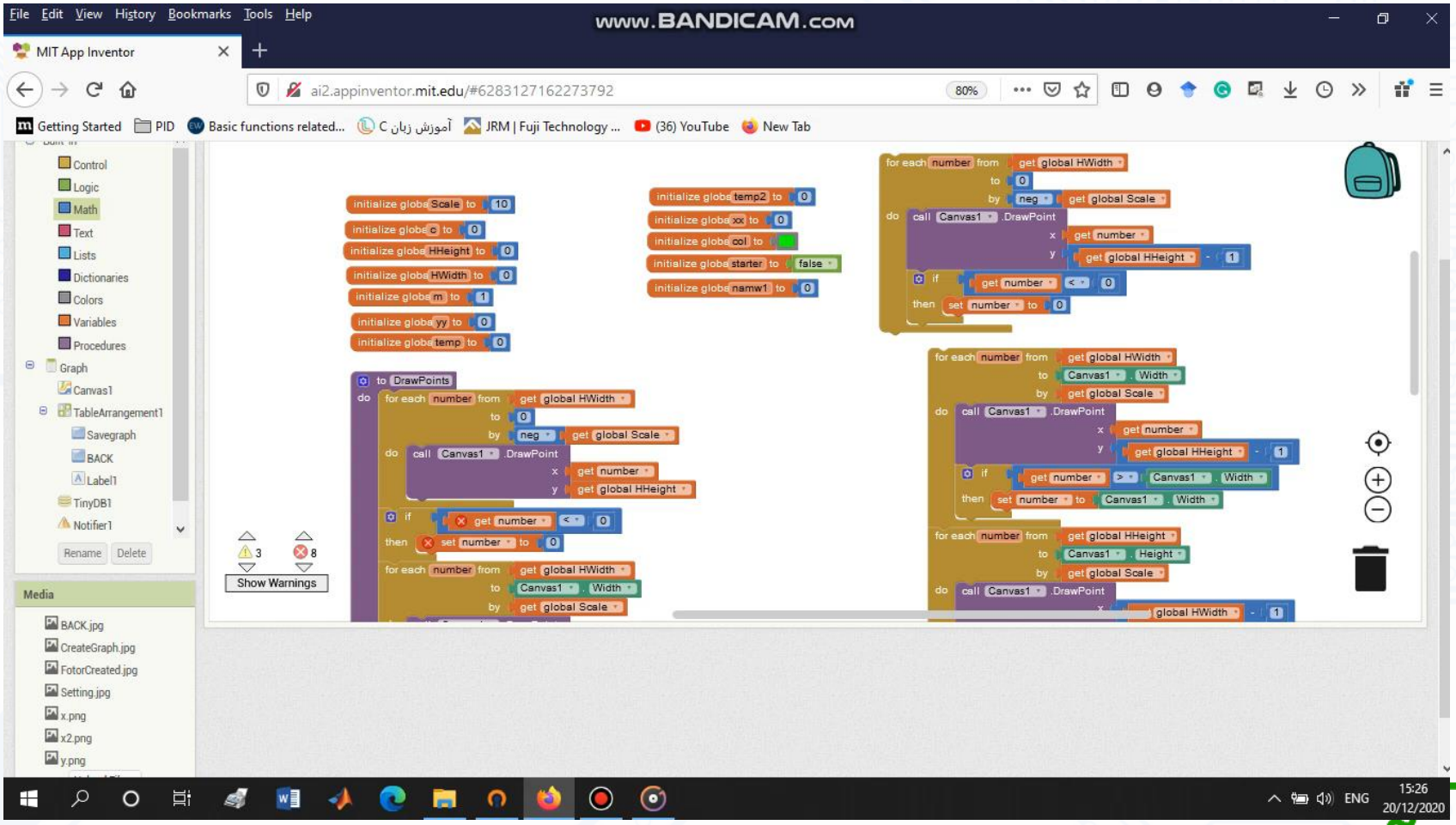
Example01: Line Plotter: Coordinate Geometry



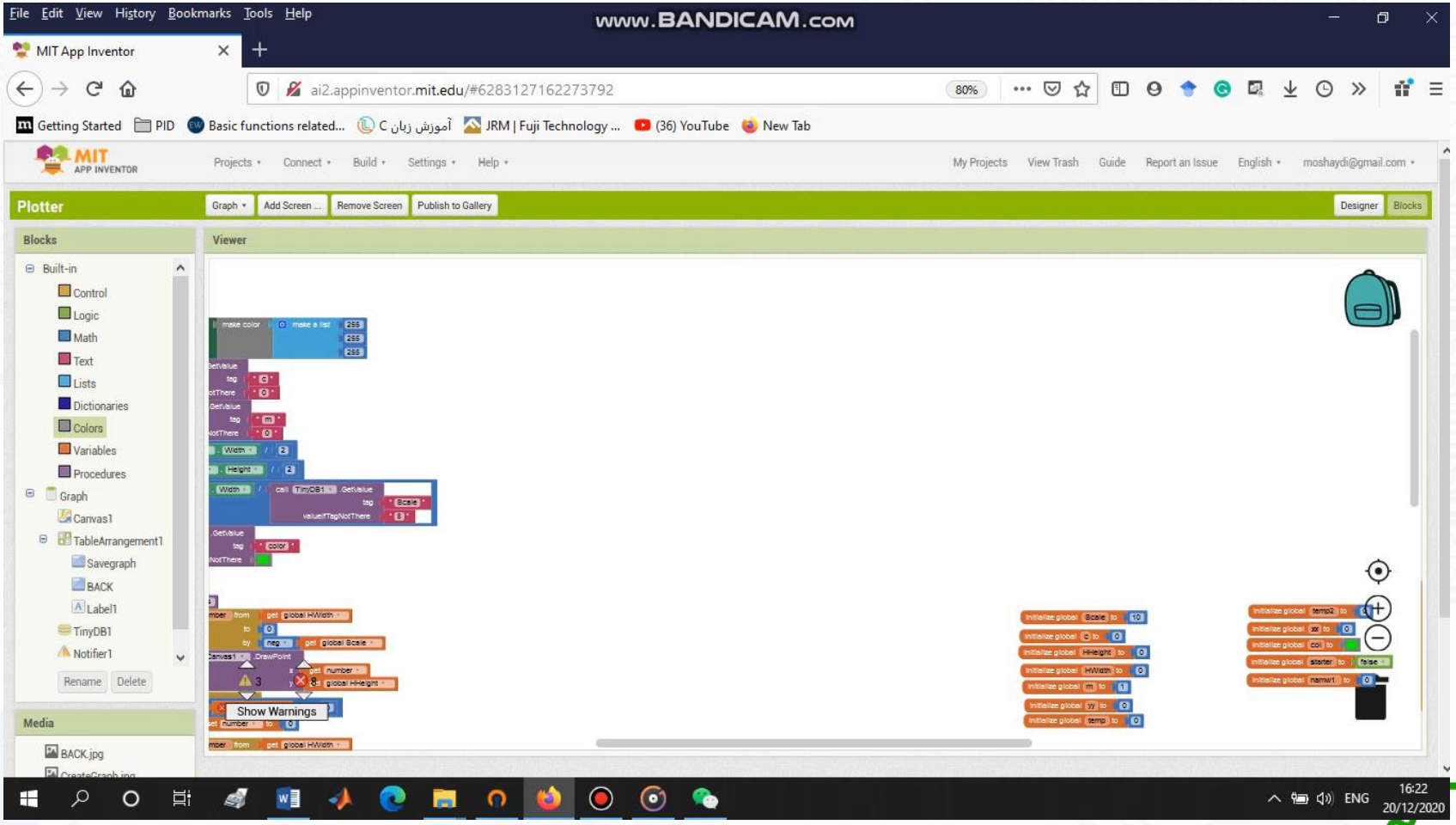
Example01: Line Plotter: Coordinate Geometry



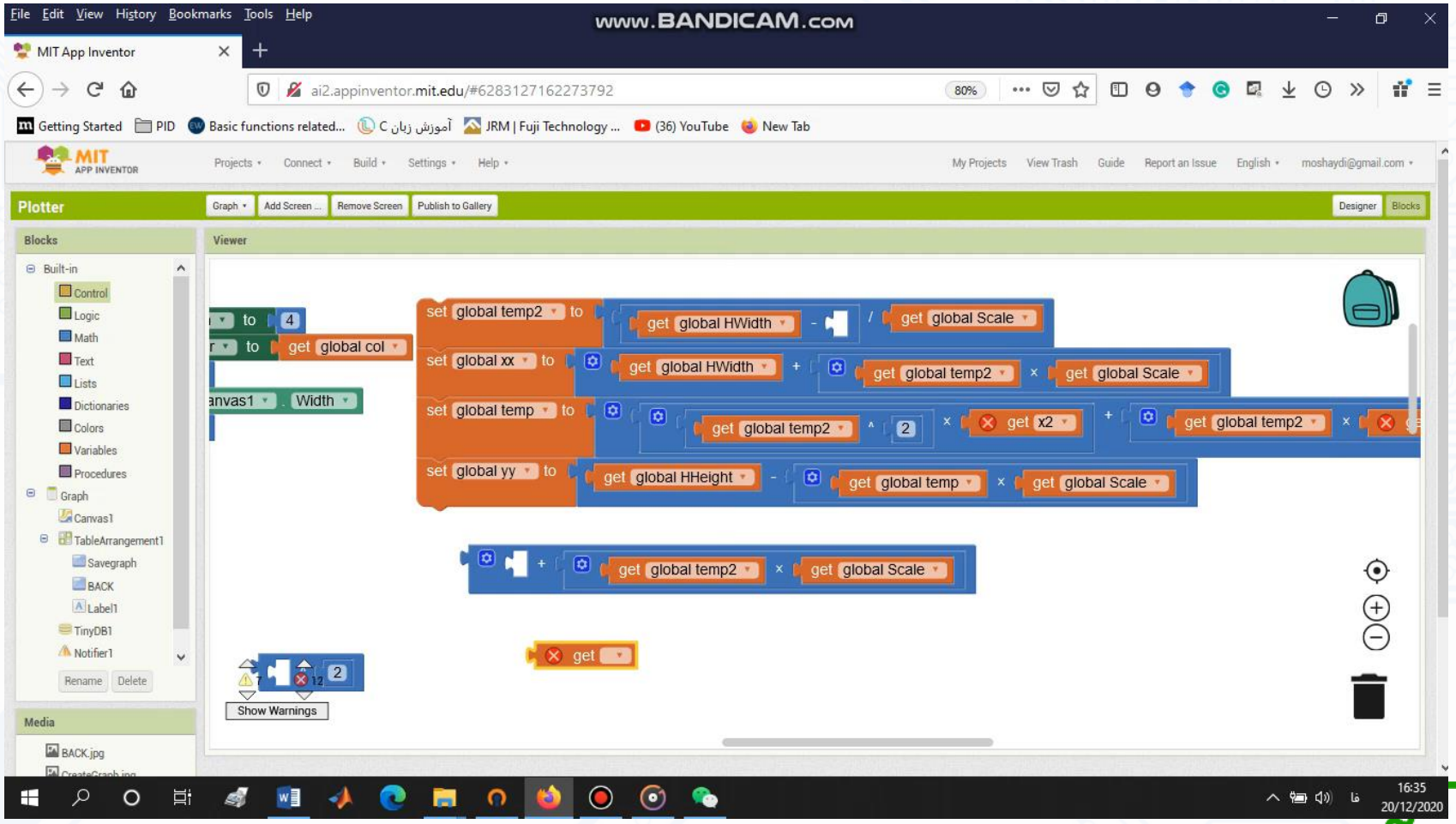
Example01: Line Plotter: Coordinate Geometry



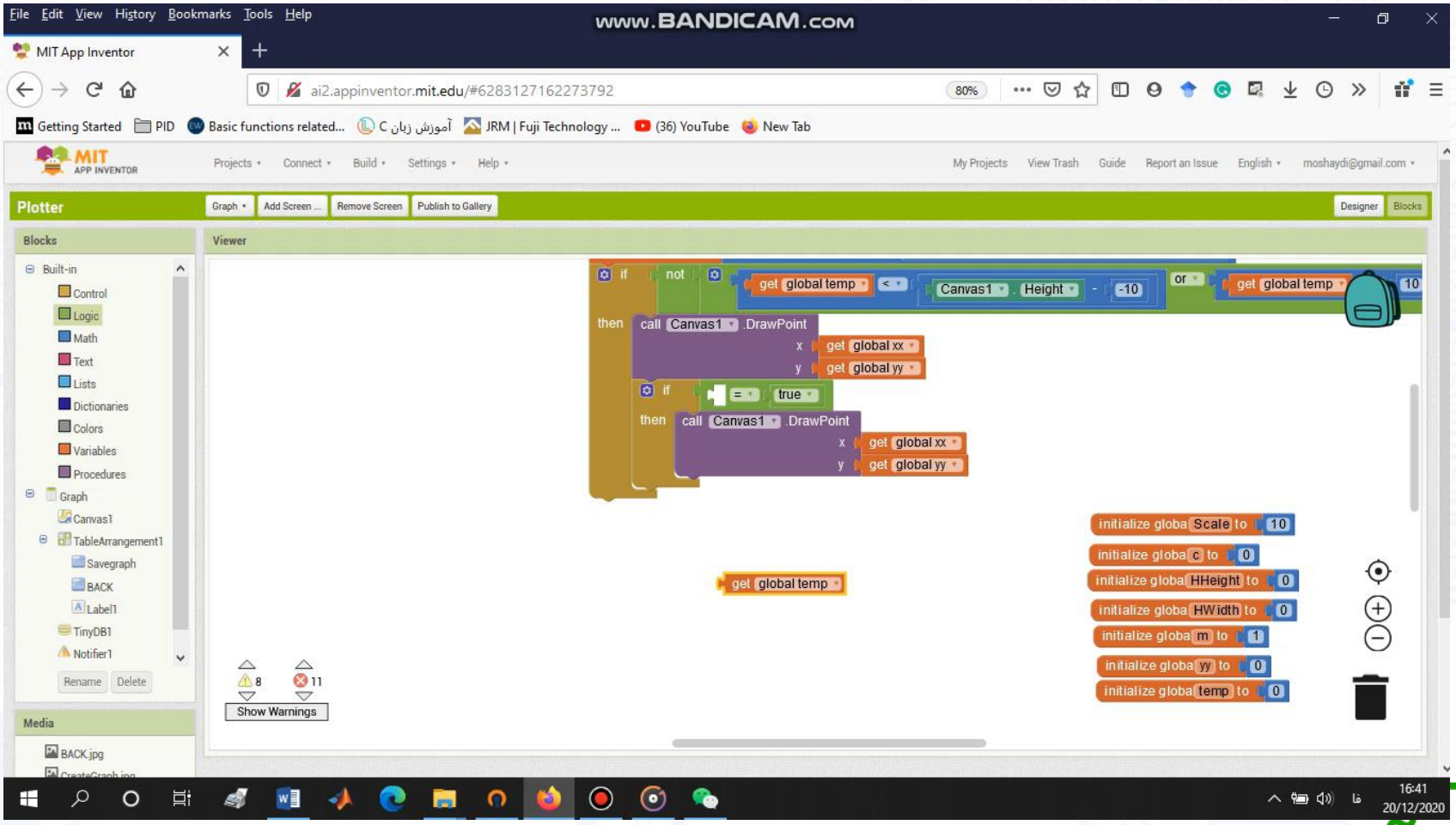
Example01: Line Plotter: Coordinate Geometry



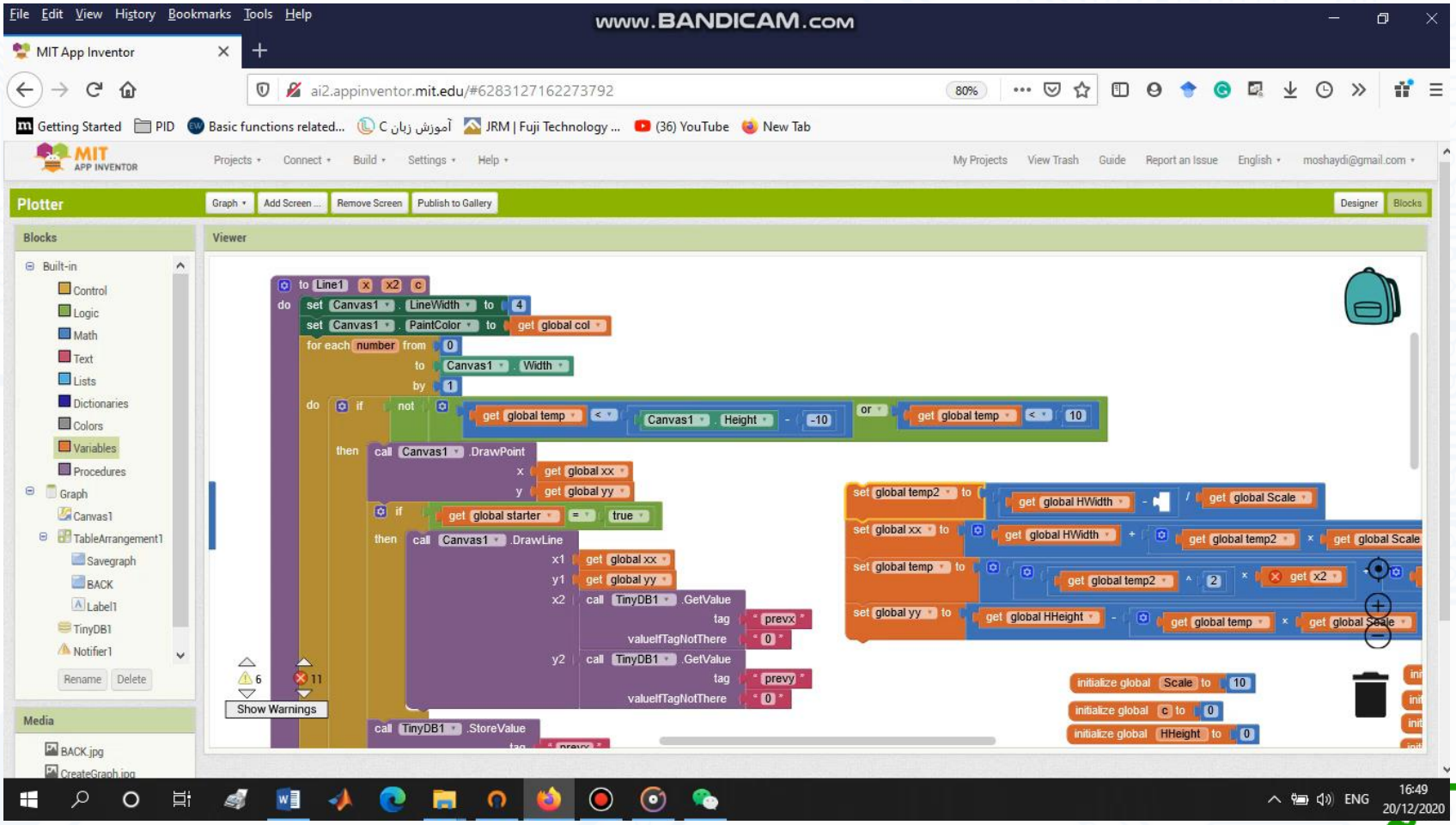
Example01: Line Plotter: Coordinate Geometry



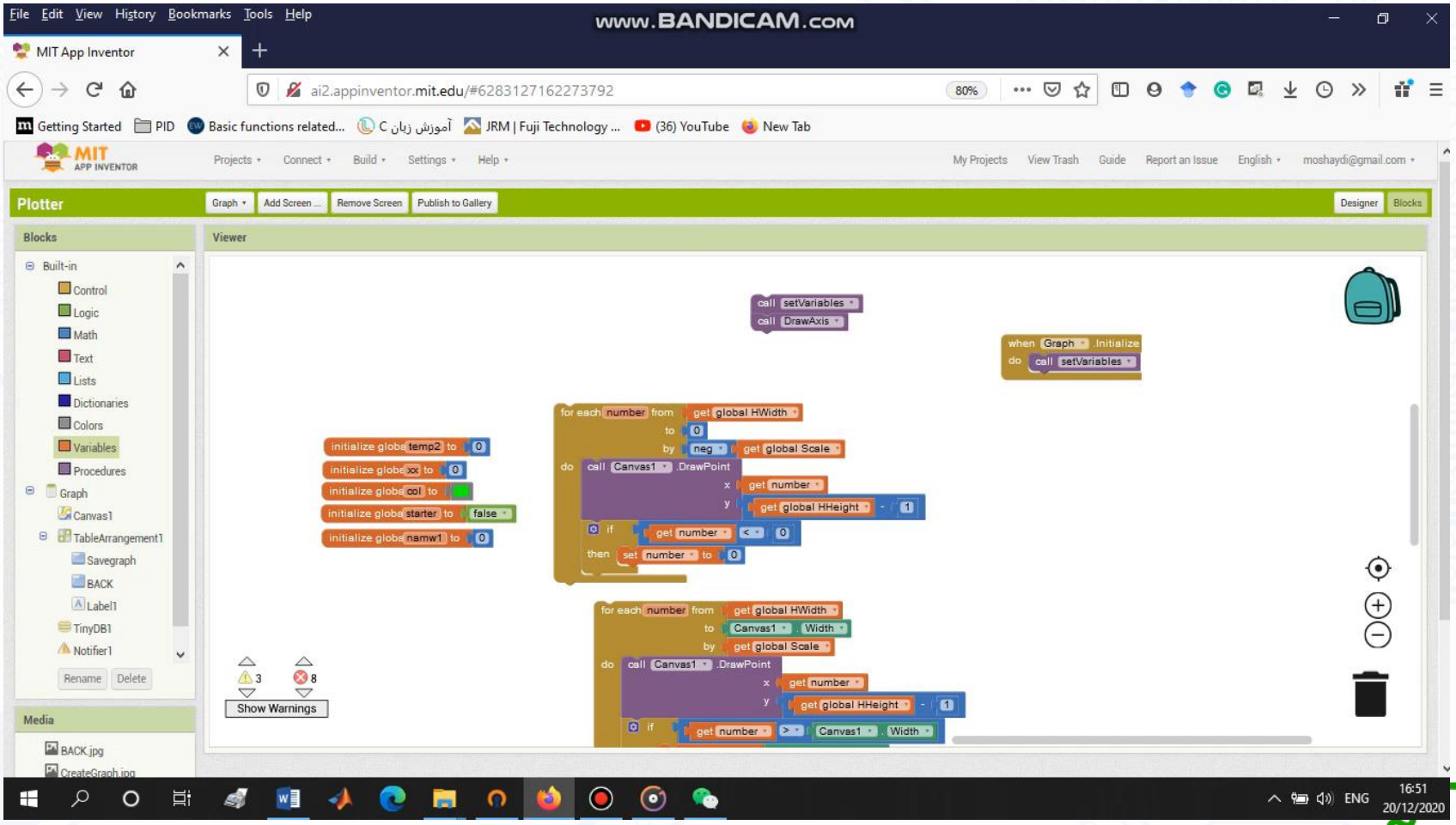
Example01: Line Plotter: Coordinate Geometry



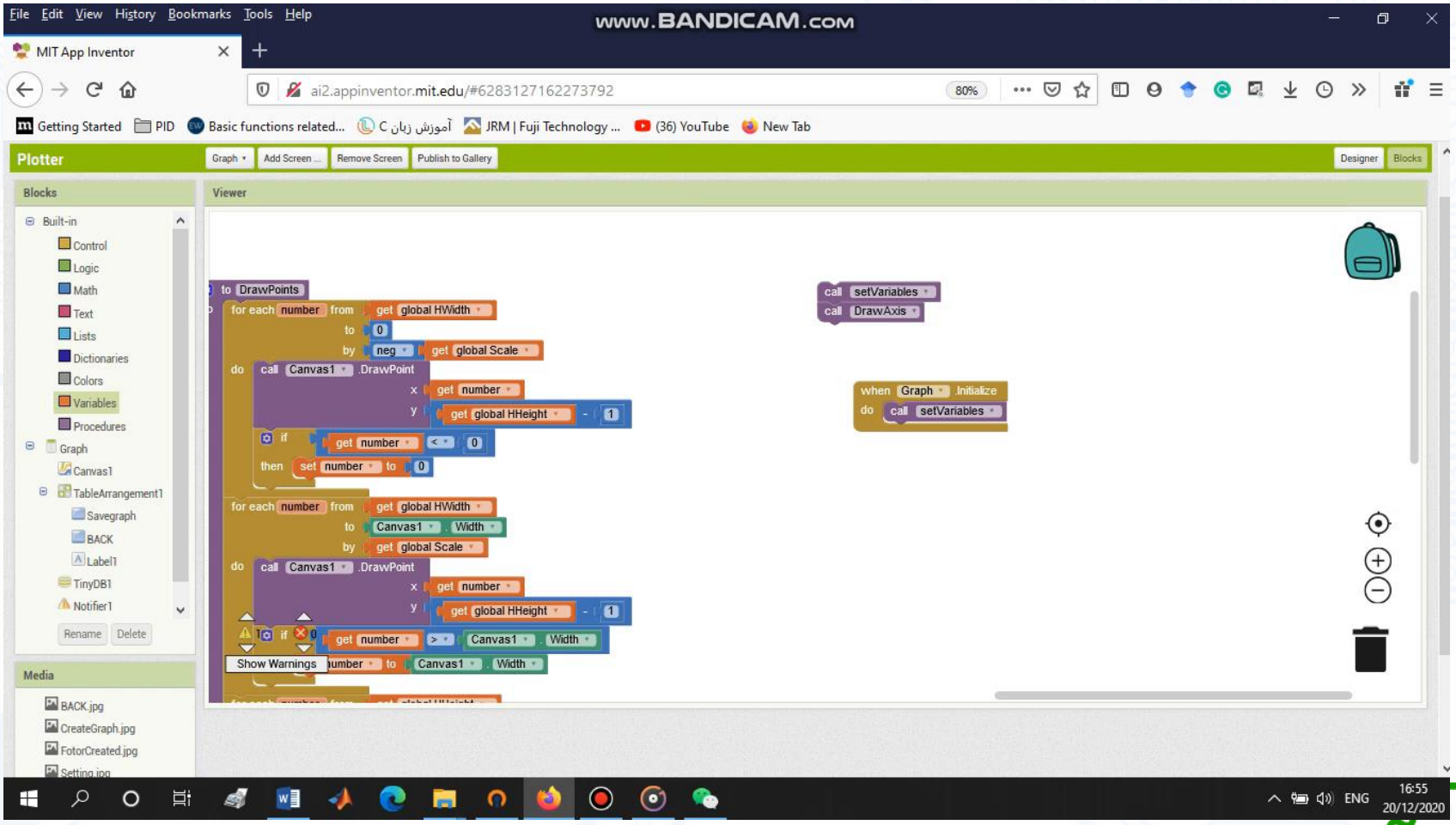
Example01: Line Plotter: Coordinate Geometry



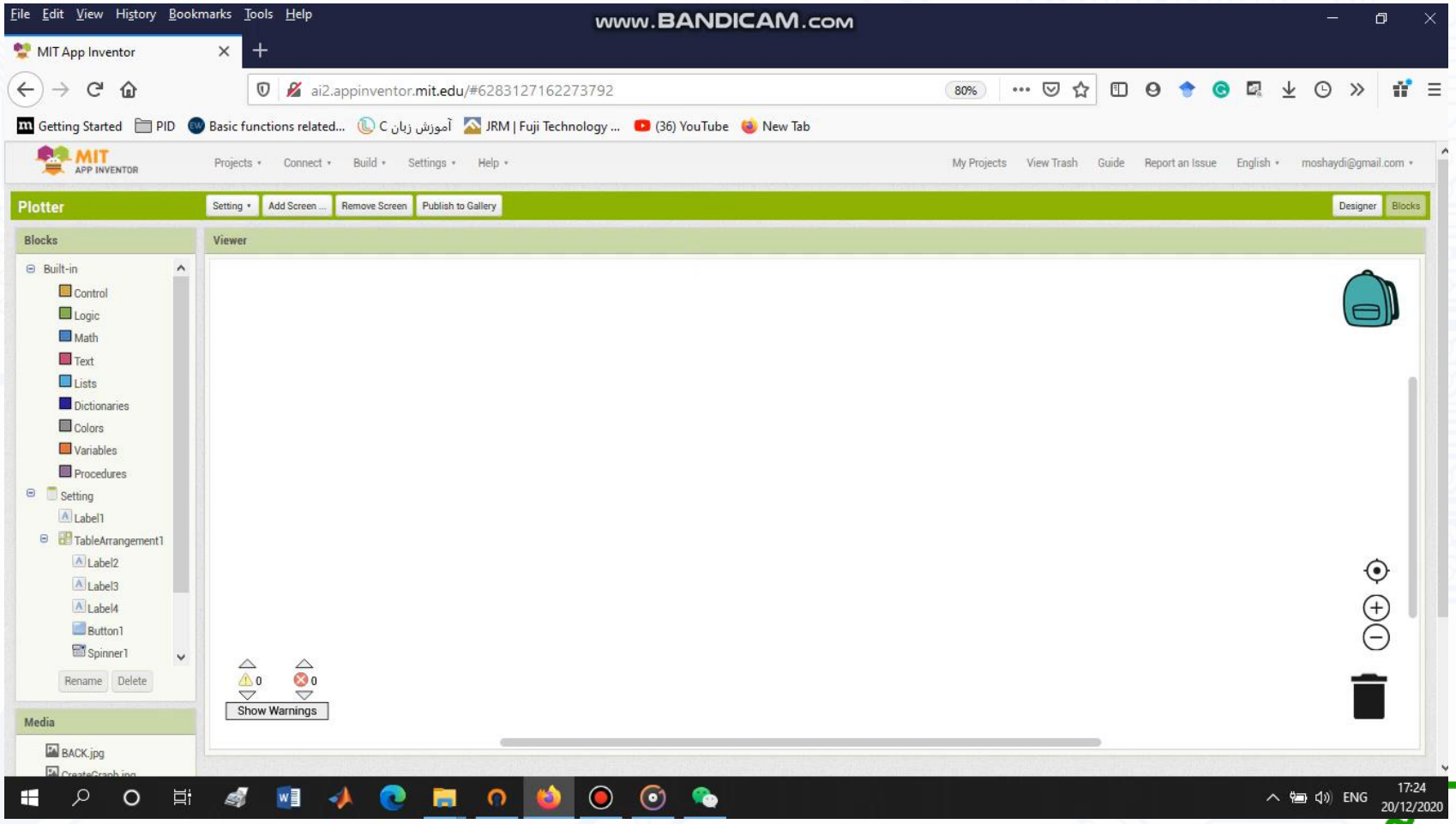
Example01: Line Plotter: Coordinate Geometry



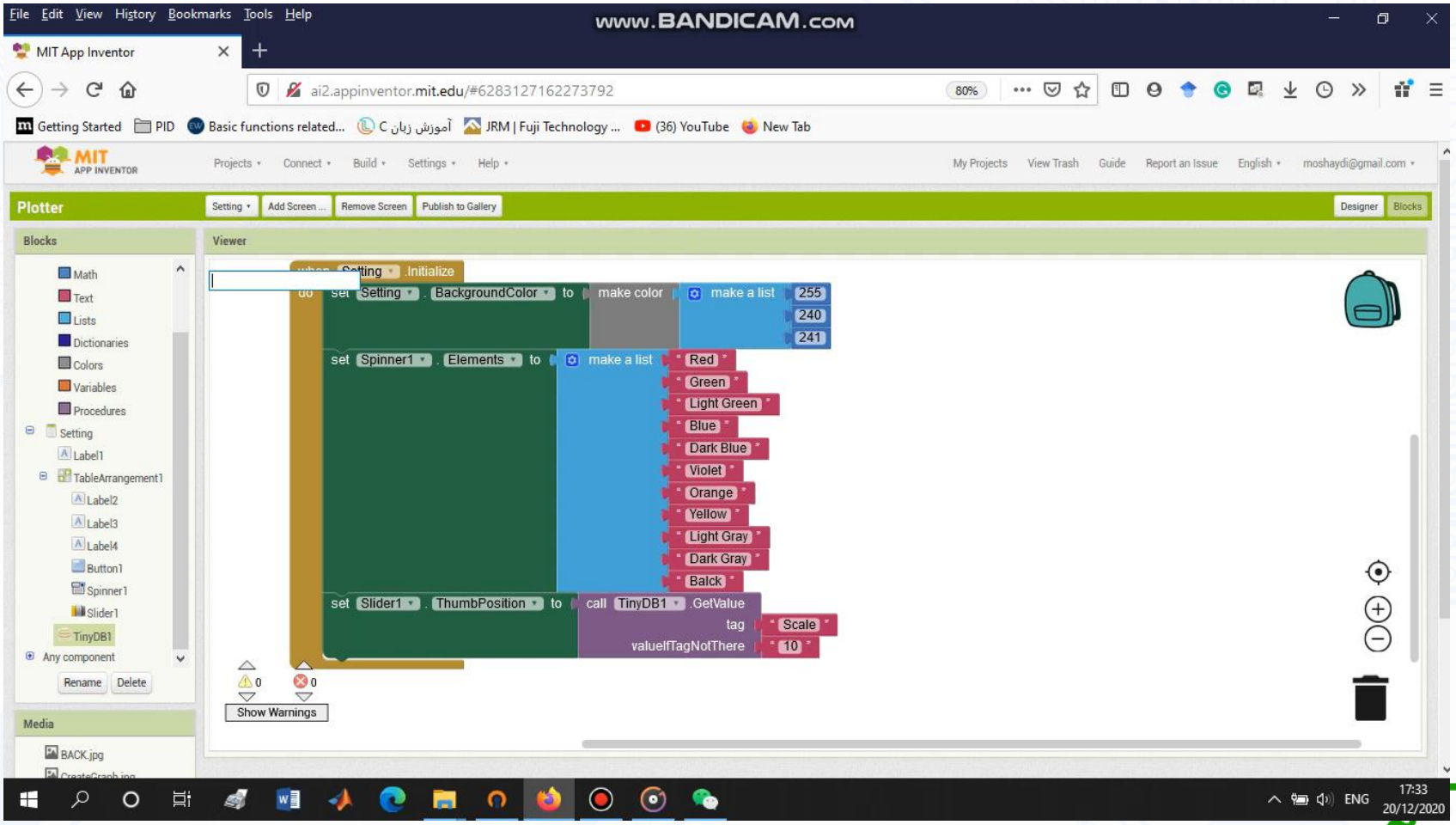
Example01: Line Plotter: Coordinate Geometry



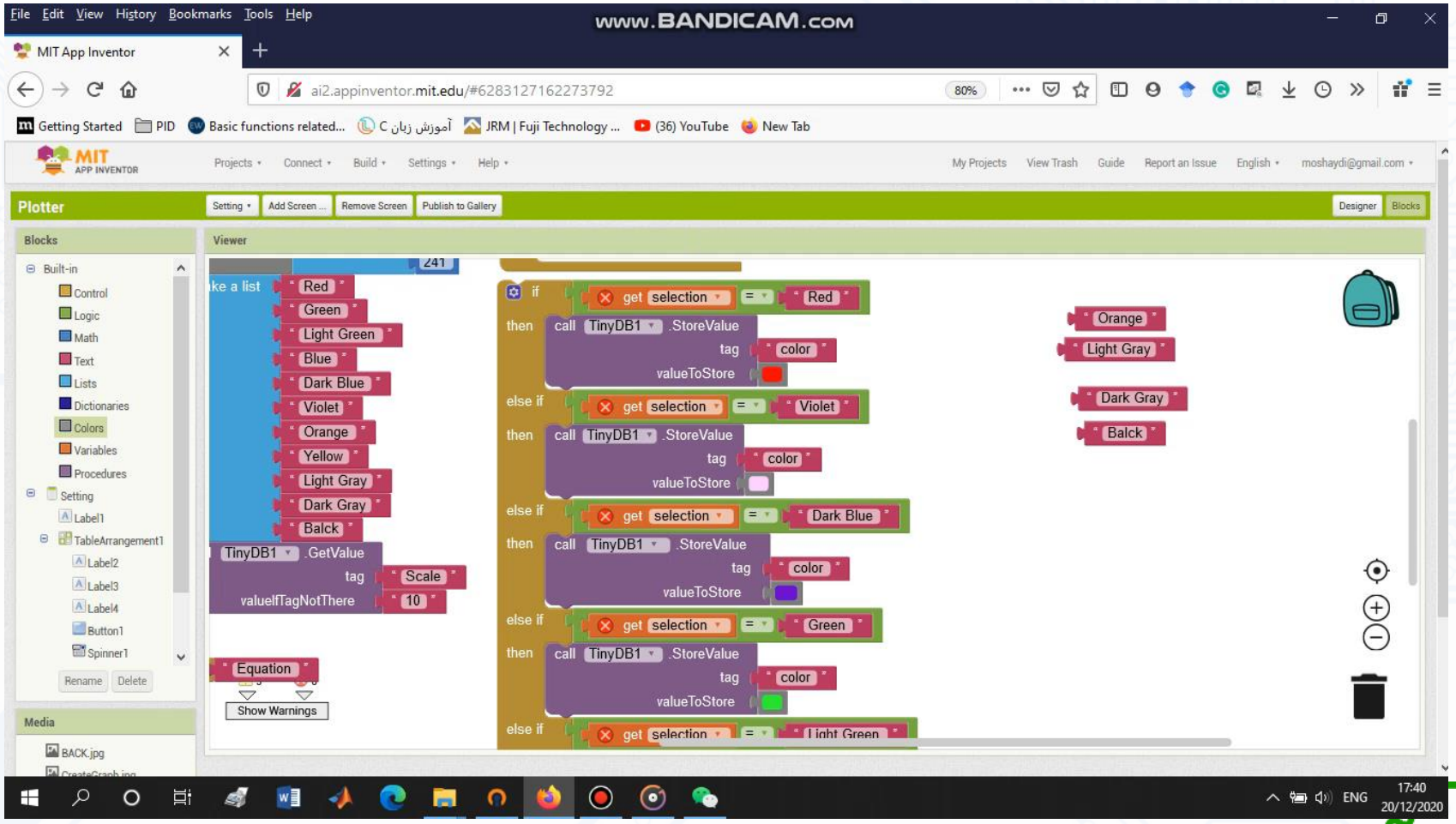
Example01: Line Plotter: Coordinate Geometry



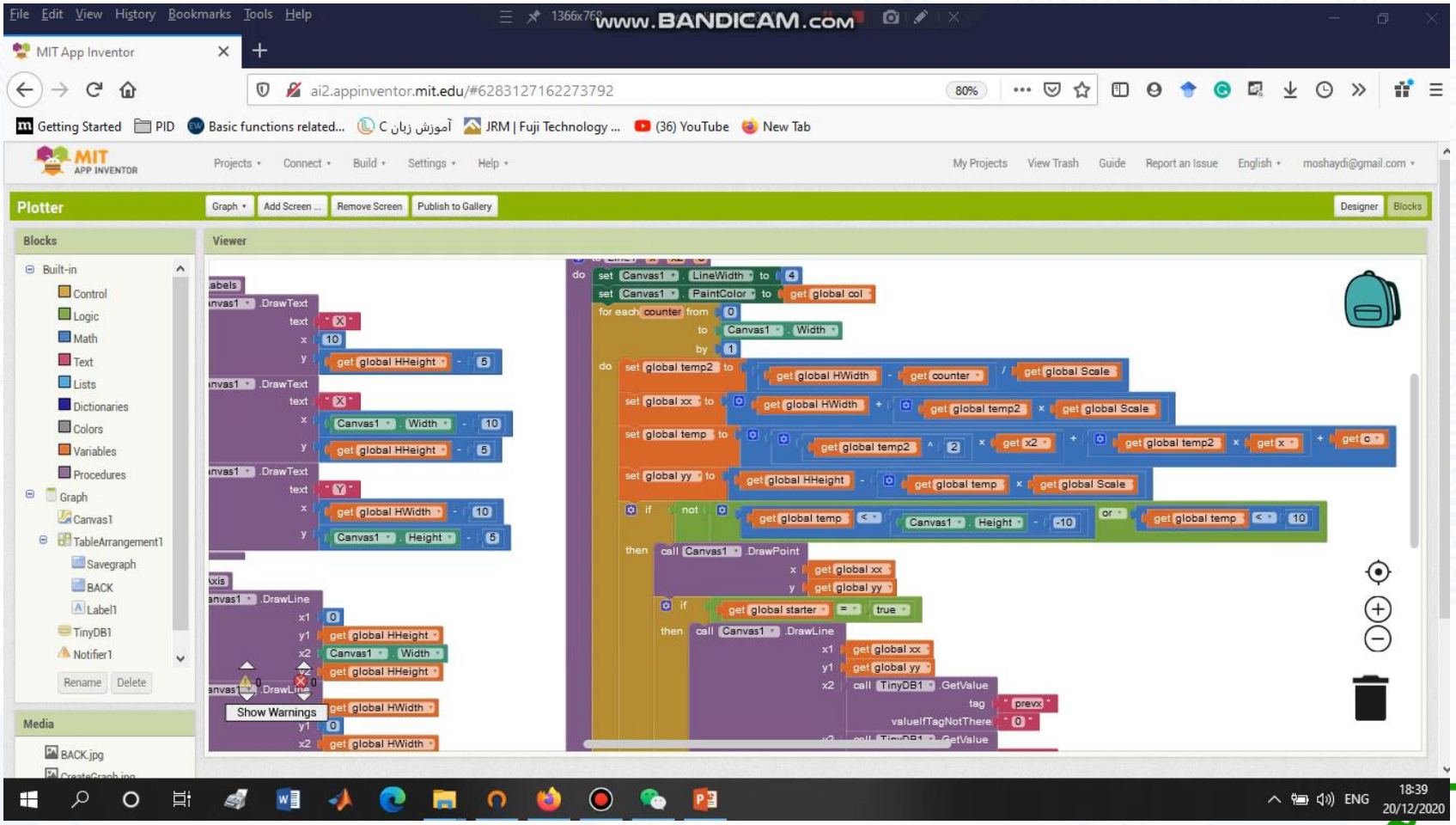
Example01: Line Plotter: Coordinate Geometry



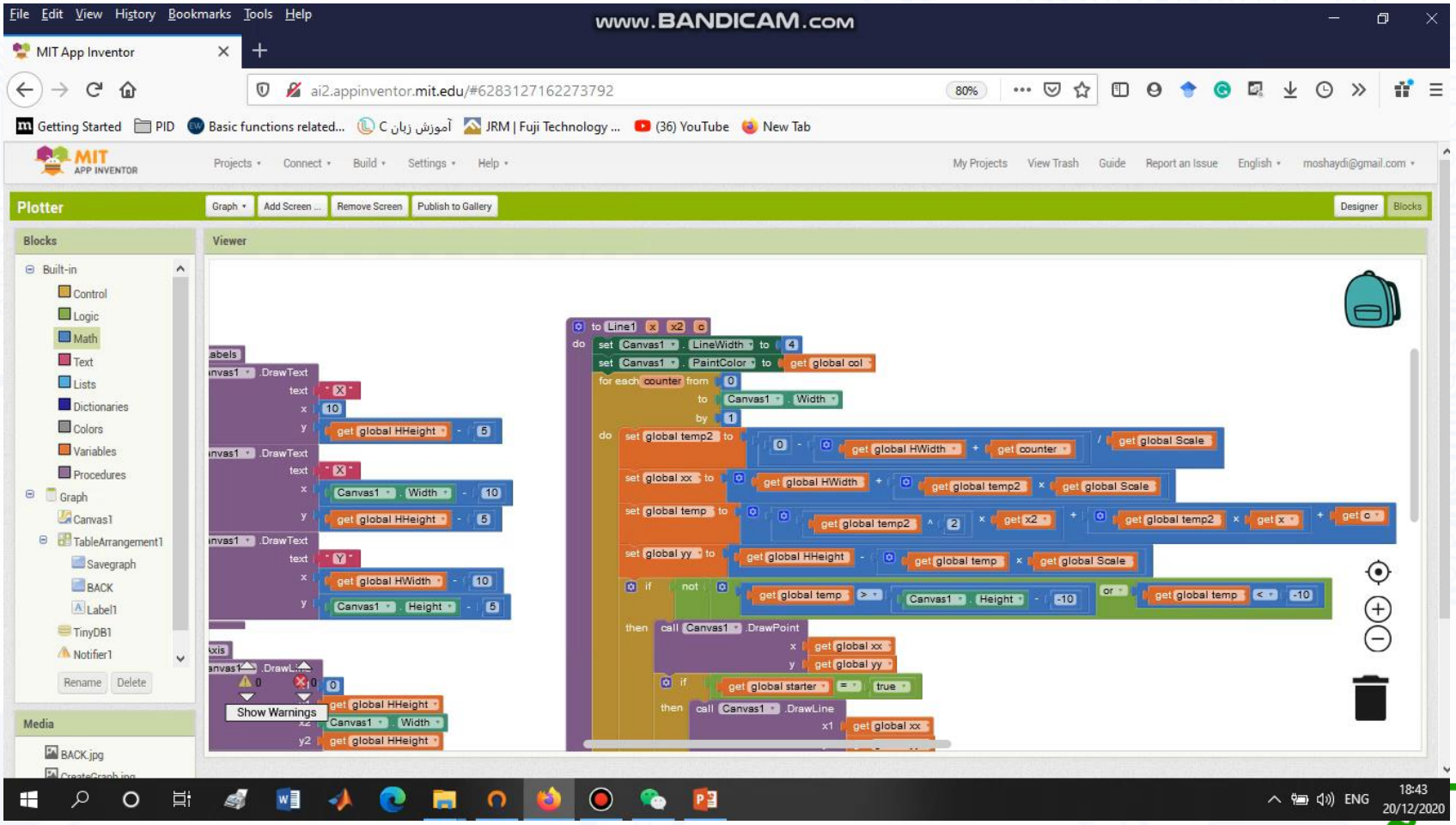
Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



Example01: Line Plotter: Coordinate Geometry



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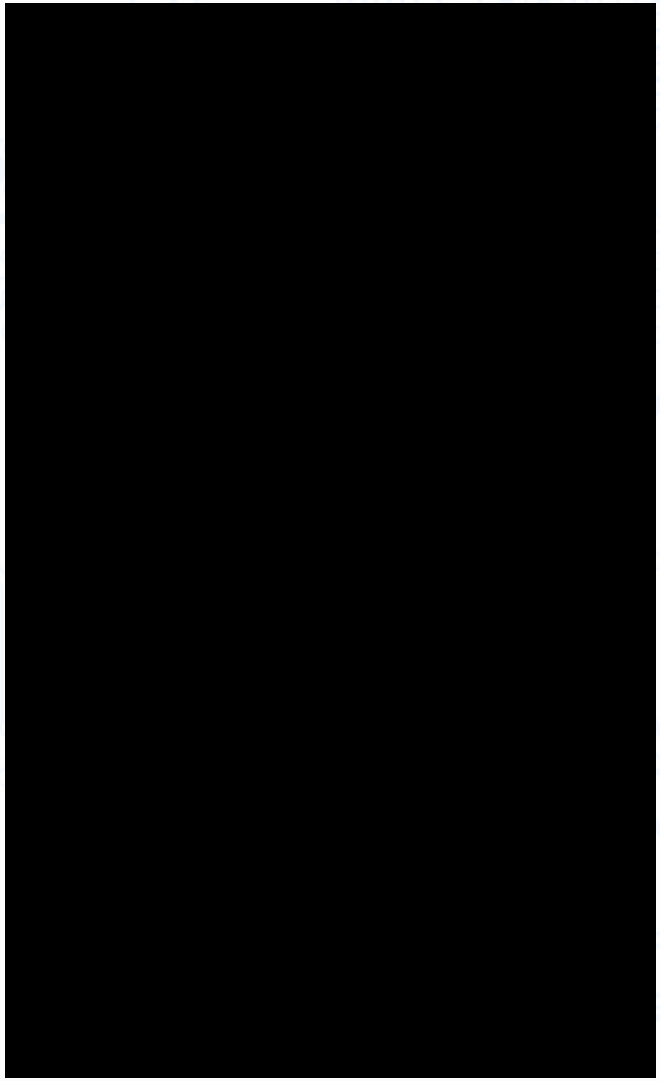
App Inventor

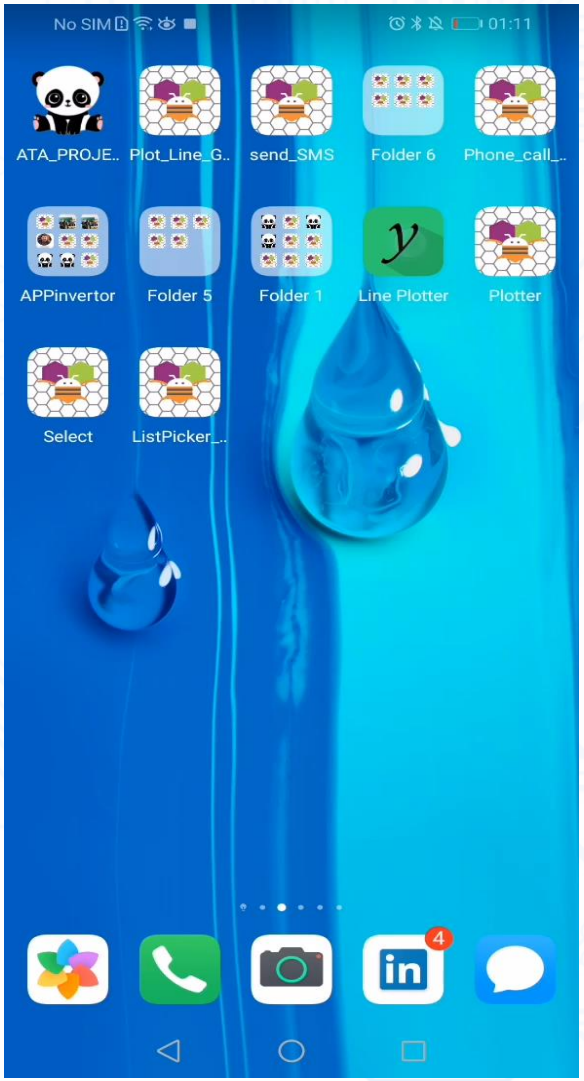
Example01: Line Plotter: Coordinate Geometry

Demo APP



Example01: Line Plotter: Coordinate Geometry

Demo APP



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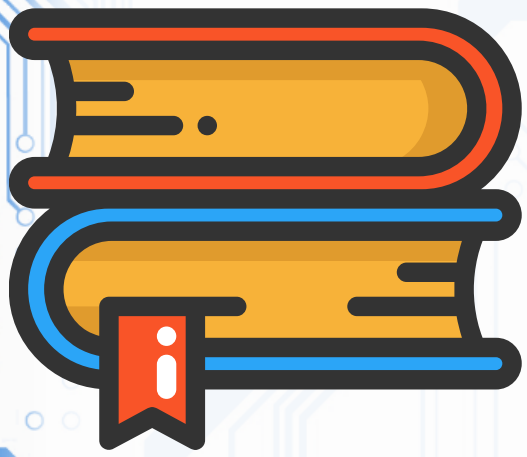

MOBILE APPLICATION DEVELOPMENT

Example02: Selection

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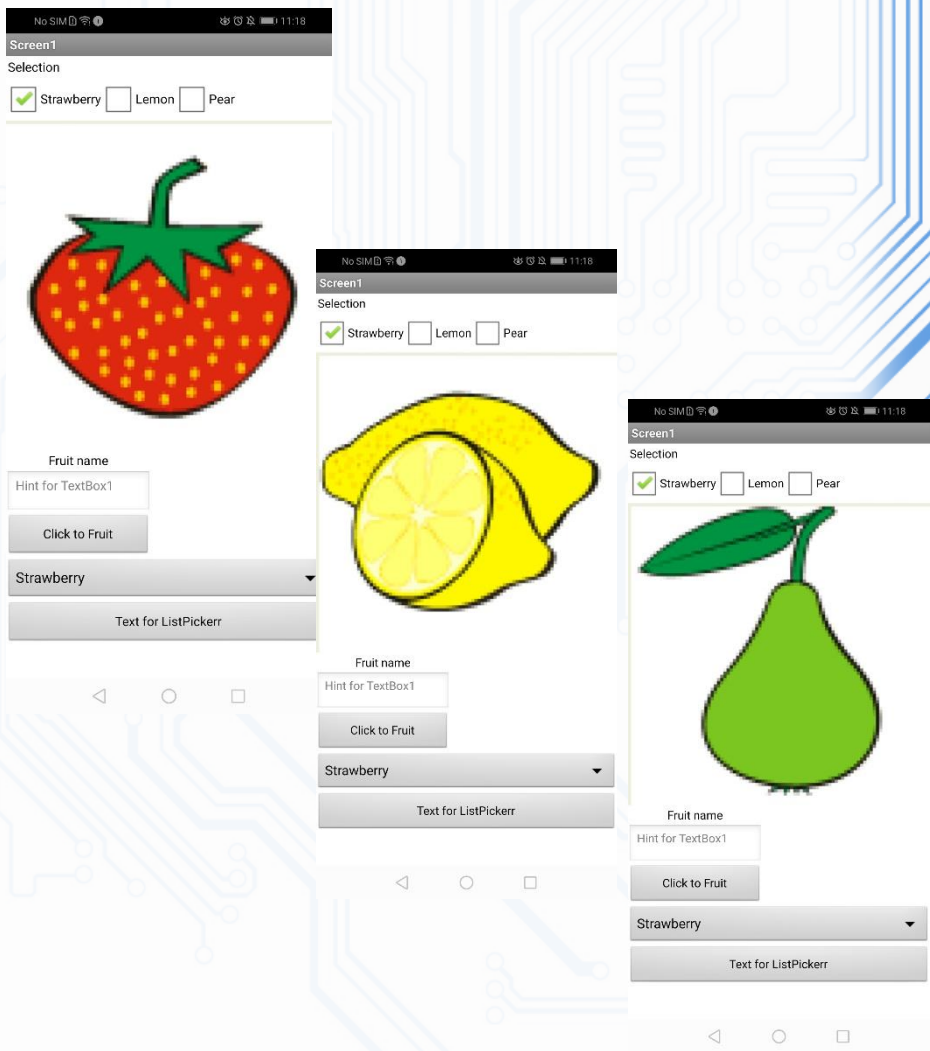
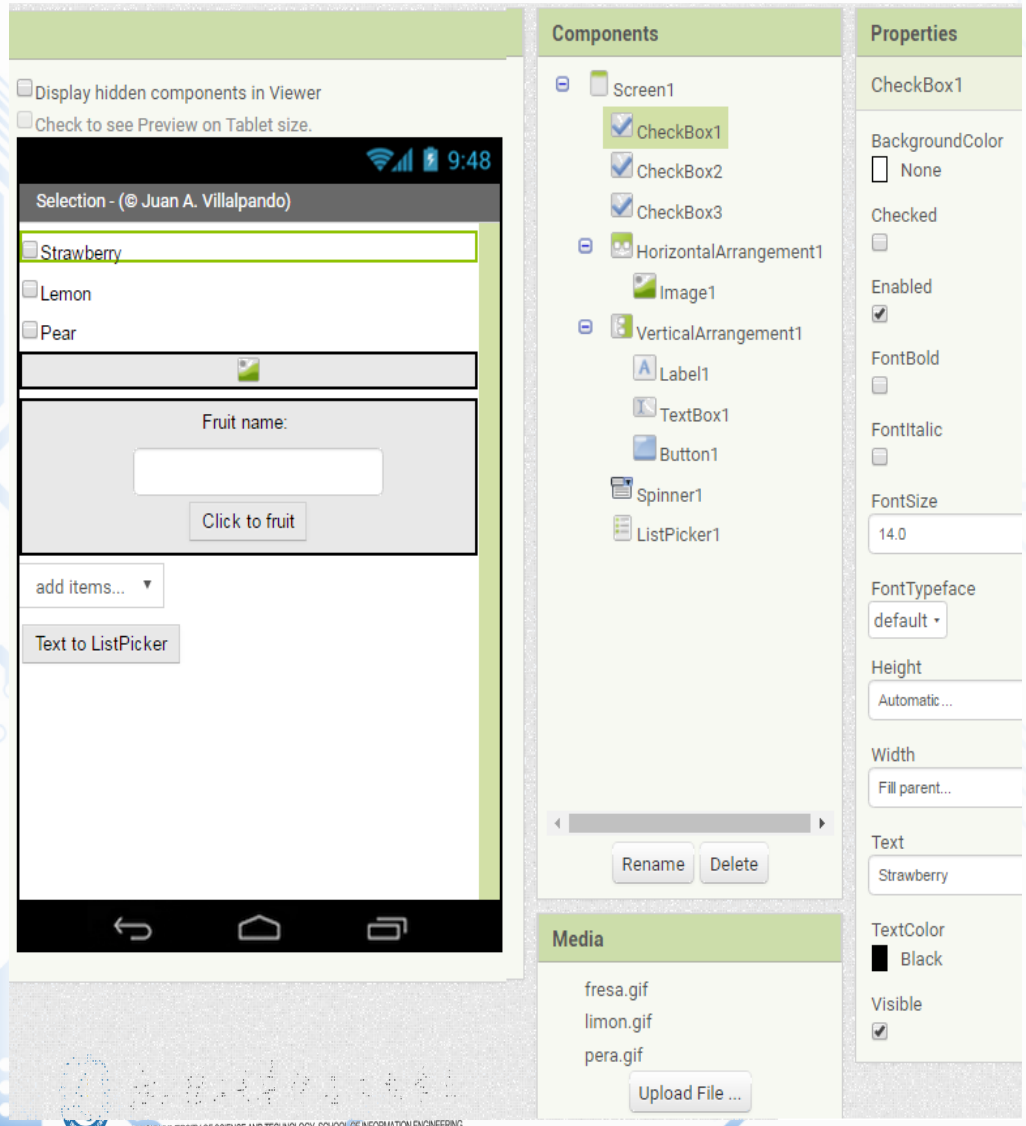
Example02:Selection

Example Aim

- Let's look at different ways to choose, select ... with **CheckBox, Spinner, ListView and TextBox.**
- Create a new project and add the controls to the next image ...



Example02:Selection



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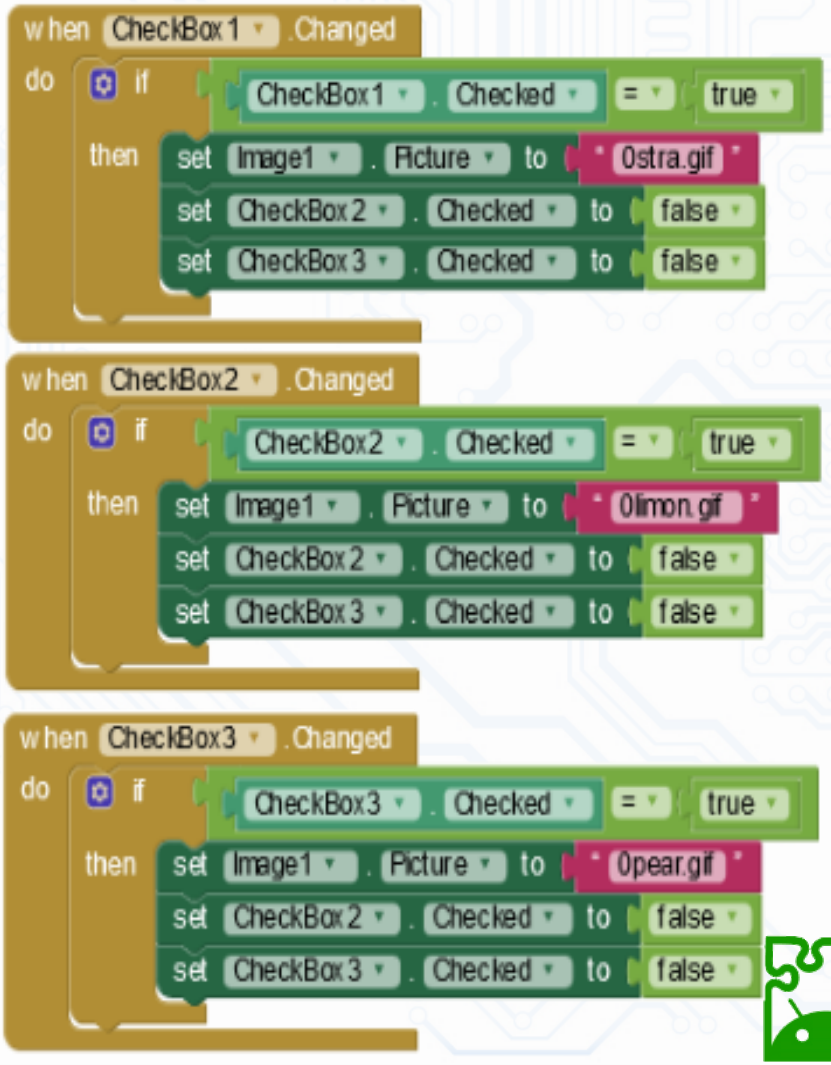
Example02:Selection

- Remember that for the **Layout** occupies the width must put in propierty **Width: Fill parent.**
- We went down to our computer these three image files (right click on the image and save) and then click **Upload File...** to our project.

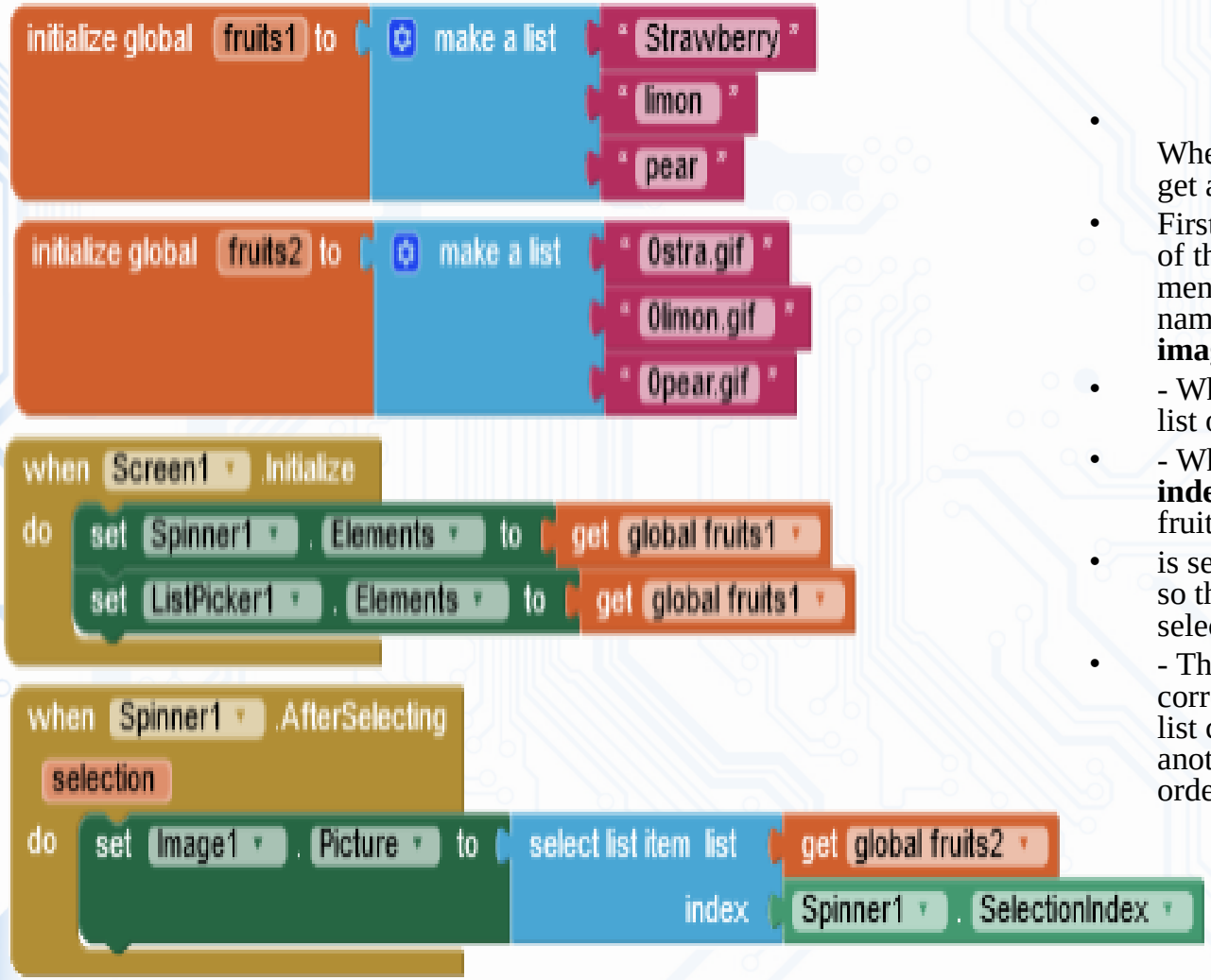
- The block section part
  1) **Checkbox**
  2) **Spinner.**
  3) **Selector the List and List menu.**
  4) **Selection by text.**

Example02:Selection 1.checkbox

- When we make a **CheckBox** the chosen image will appear in the control **Image1**.
- In addition **CheckBox,** uncheck the other (false).
- If we remove the **if** and each pair of **false CheckBox**, you can choose more than one box at a time.
- That is, we just **put Imagen.Photo as fresa.gif** within the **CheckBox.Changed.** (Same in the other two CheckBox)

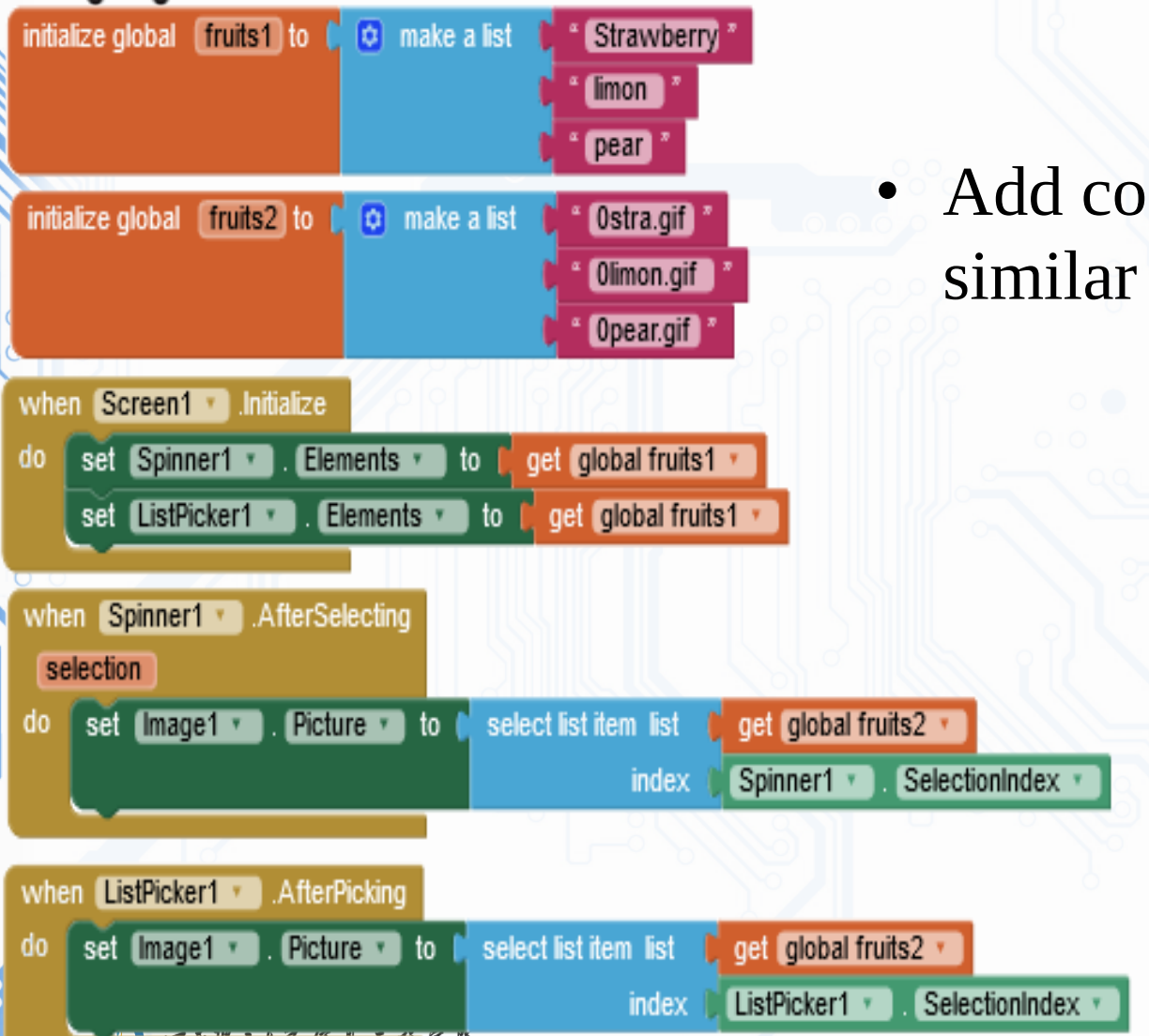


Example02:Selection 2.Spinner.



- When you press the **Spinner1**, we will get a list of options.
- First we create two lists with the name of the items you want to appear in the menu **Spinner** and another with the name of the file containing each **image.gif**
- - When the display starts, it loads the list of **fruits1** on the menu **Spinner.**
- - When you click an option, taken **index** of pulsed option, ie the rate of a fruit and
- is selected in the image list, this **index**, so that **matches** the index of the fruit selected with index image displayed.
- - The two lists have one correspondence, ie each elemente of a list corresponds to an element of another list and also respecting the order.

Example02:Selection
3.Selector the List and List menu.



- Add code for ListPicker, similar to Spinner.

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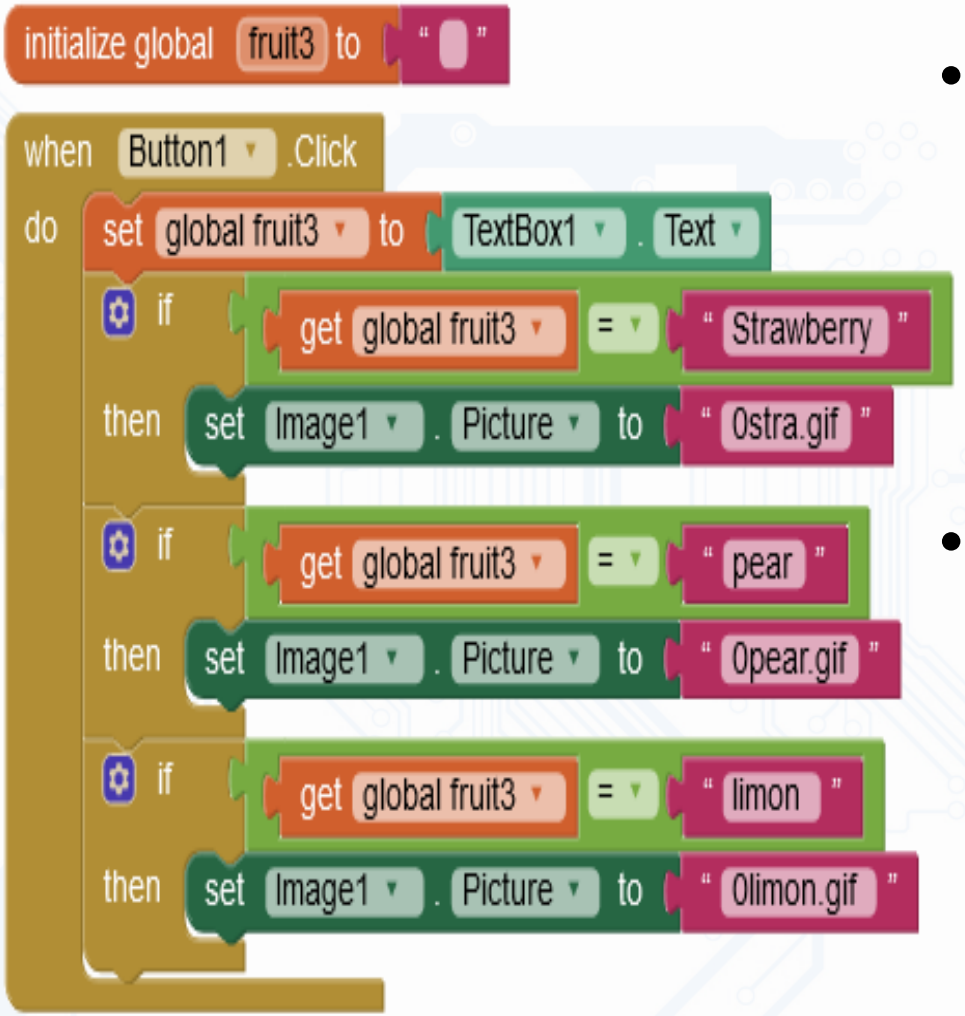
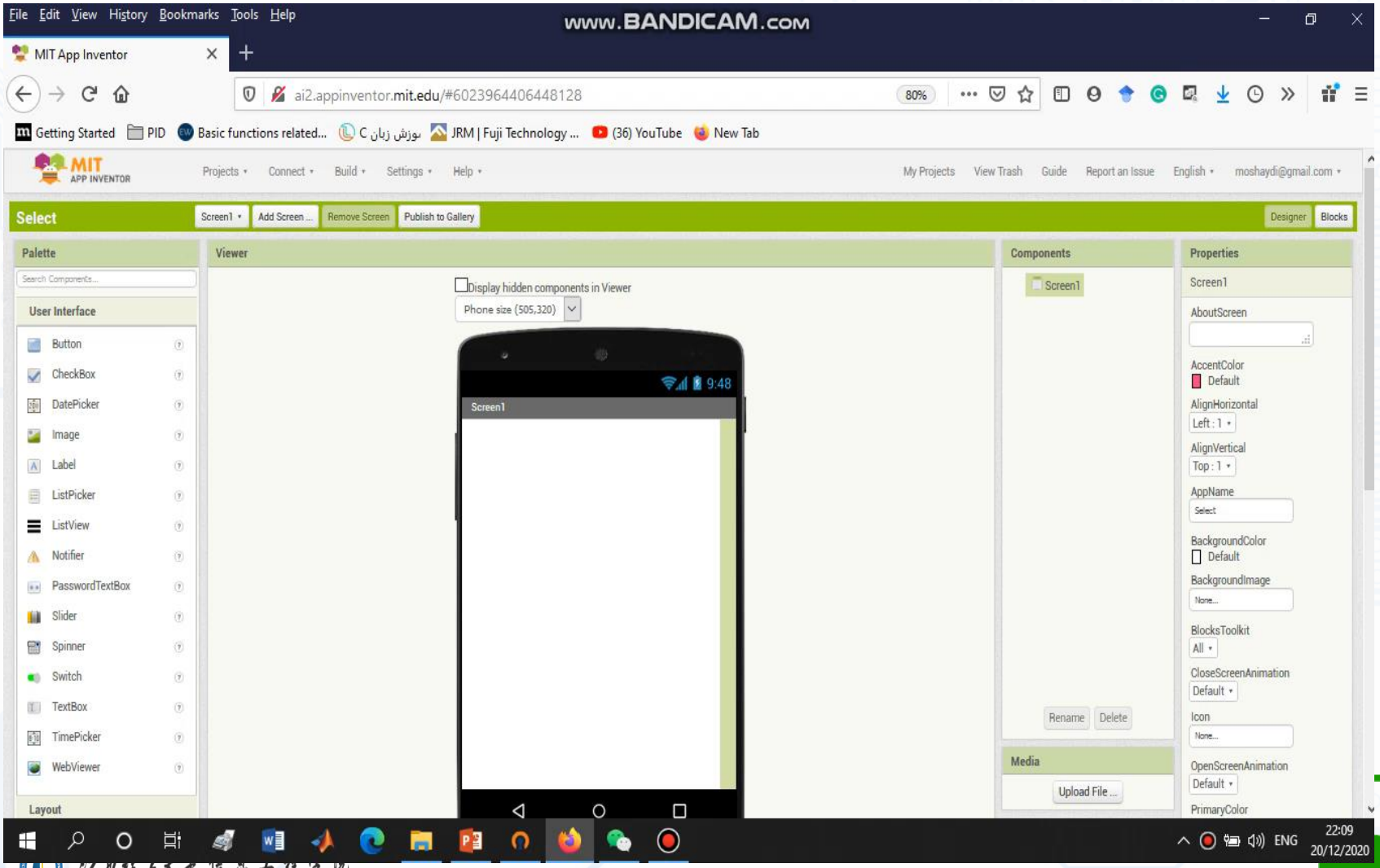
Example02:Selection
4.Selection by text.

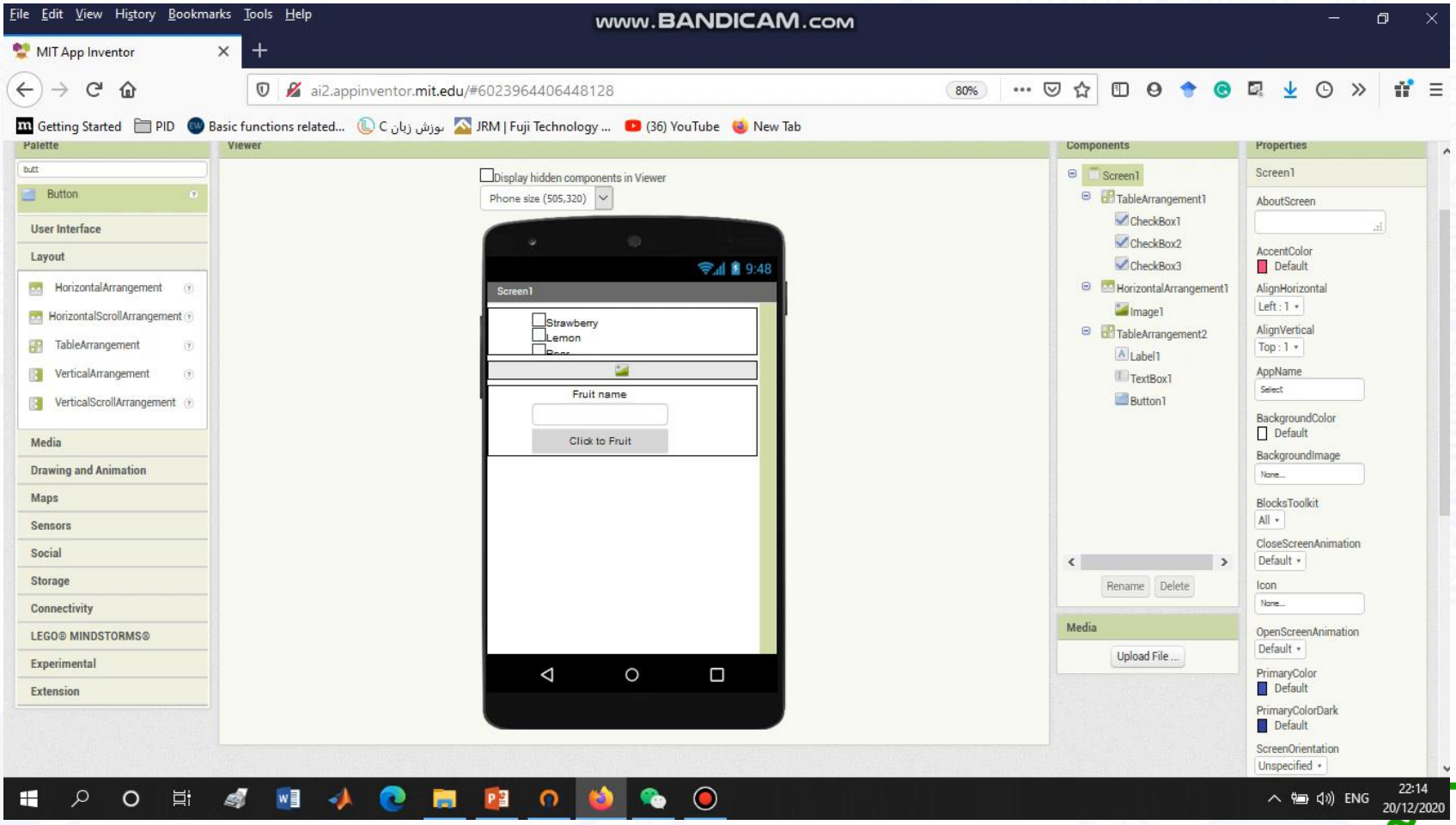


- We write a text (strawberry, pear or lemon) and using the command **if** an option is performed.
- **One must be careful with uppercase and lowercase.**

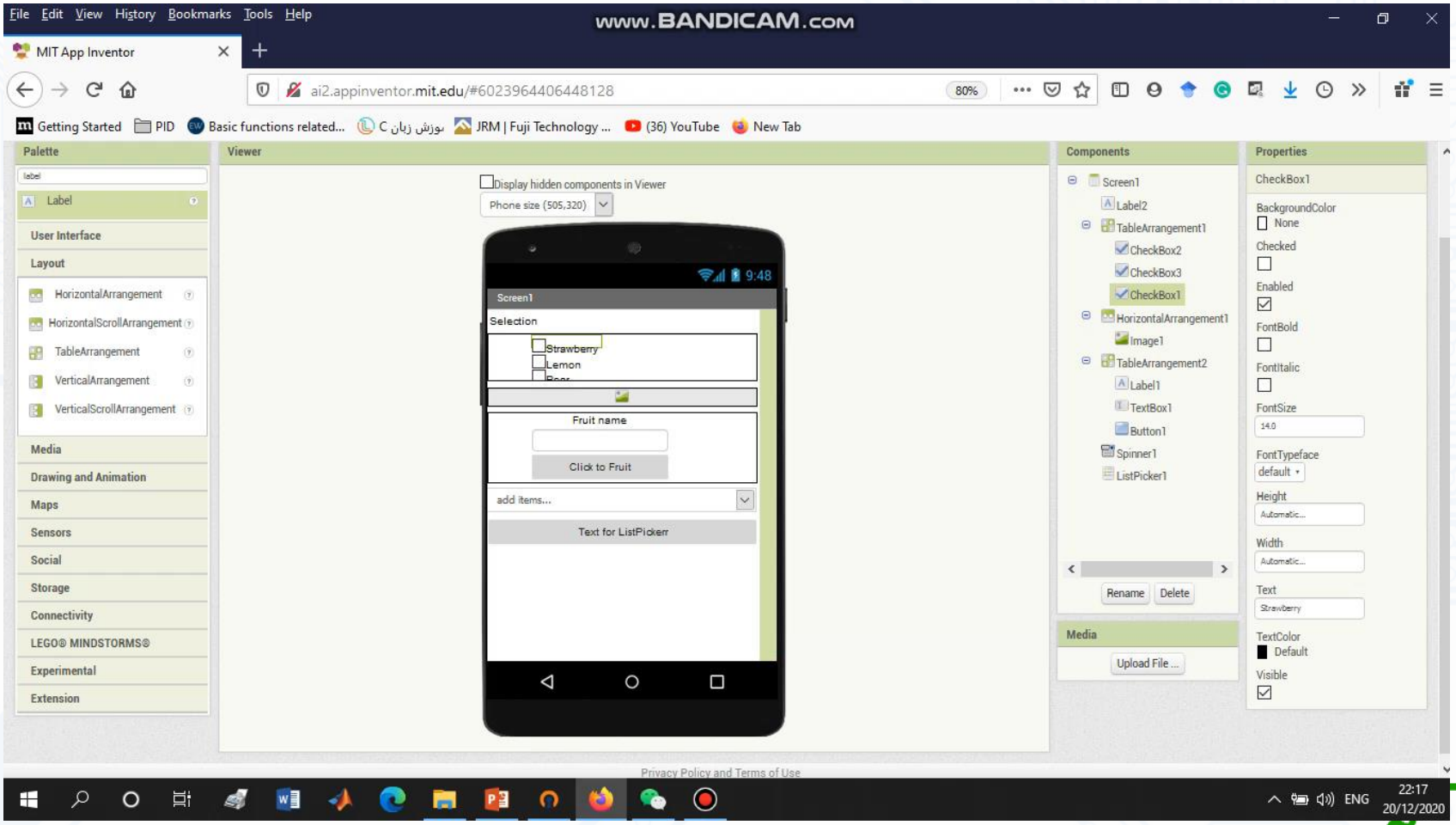
Example02:Selection



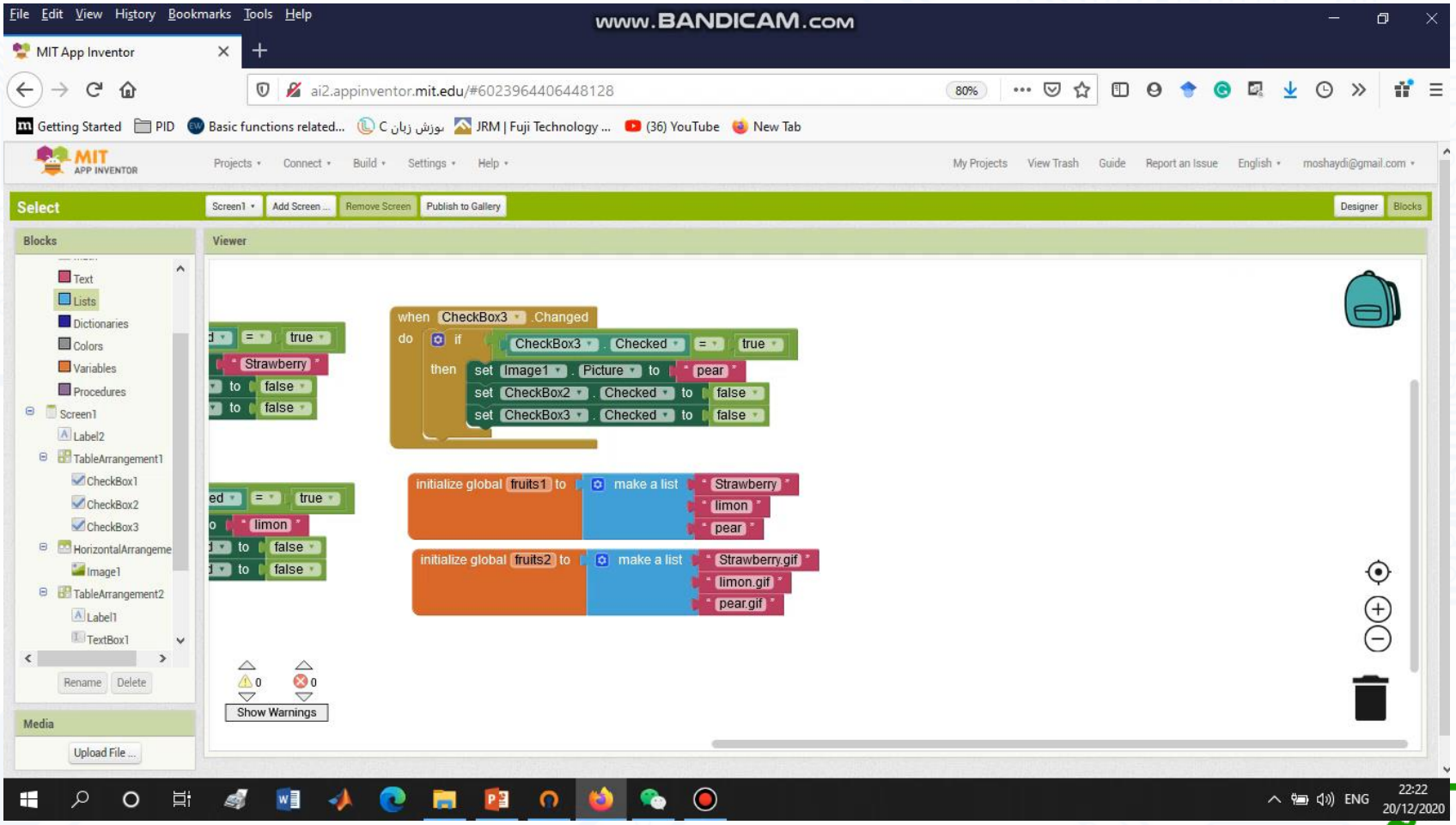
Example02:Selection



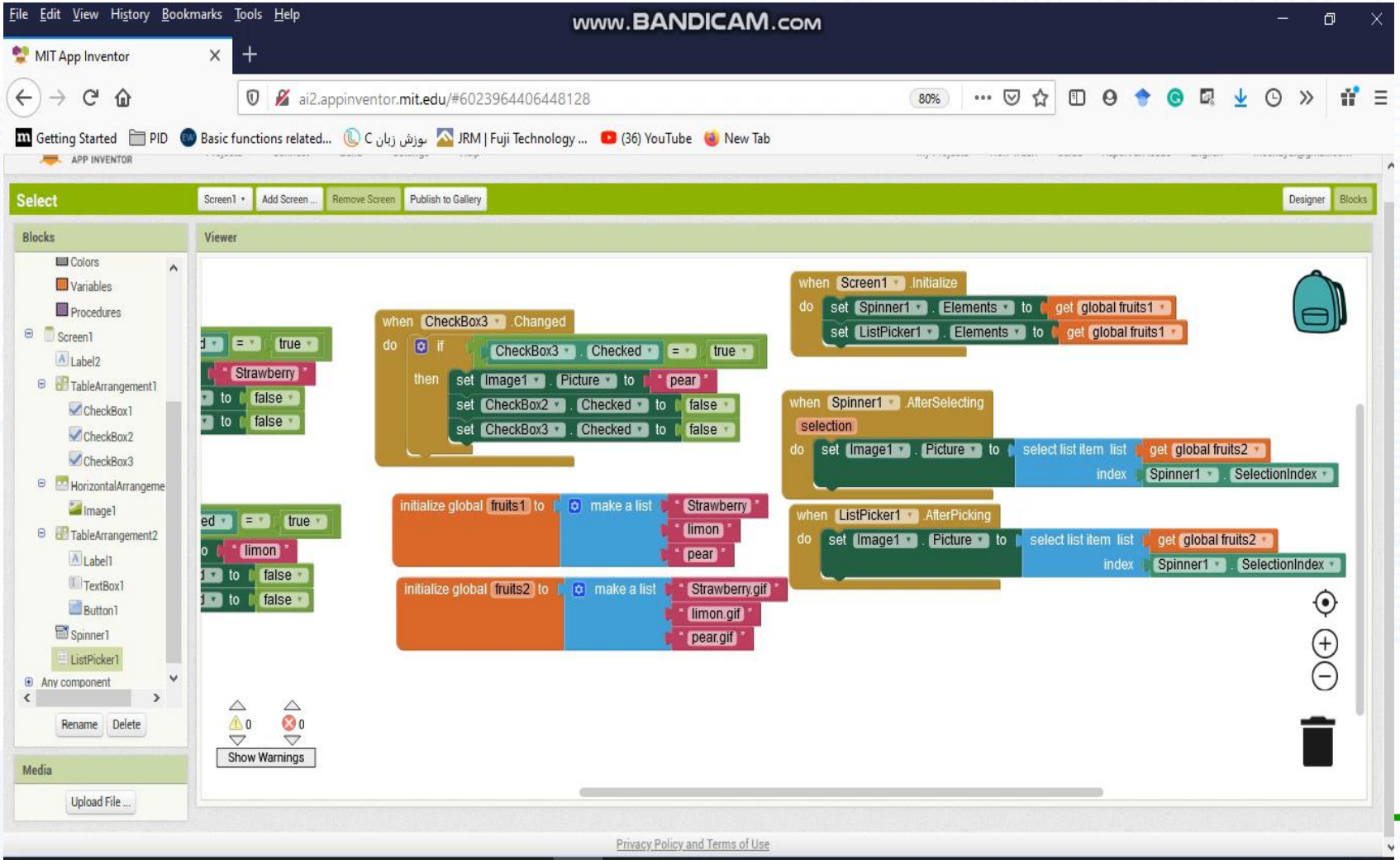
Example02:Selection



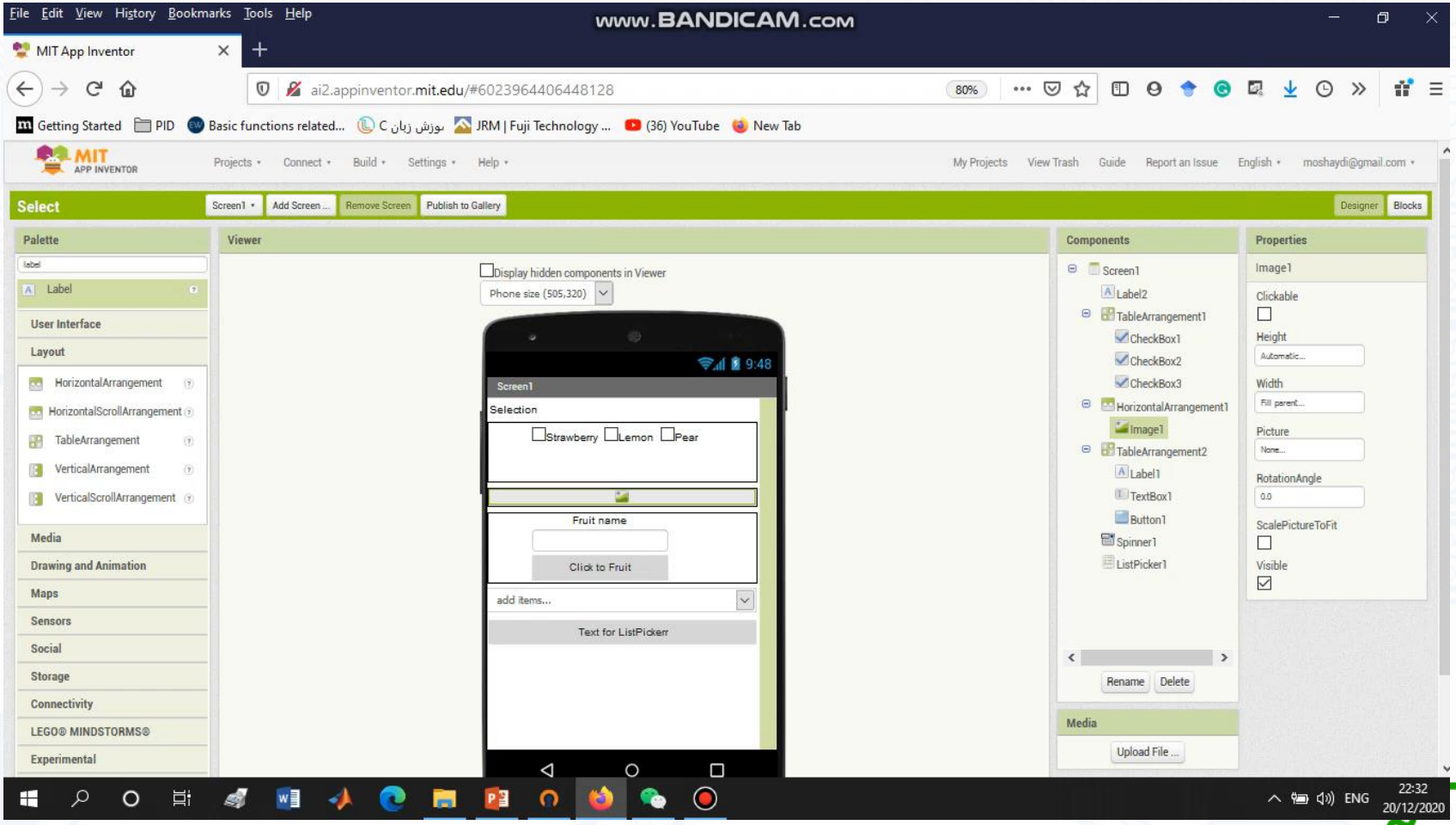
Example02:Selection



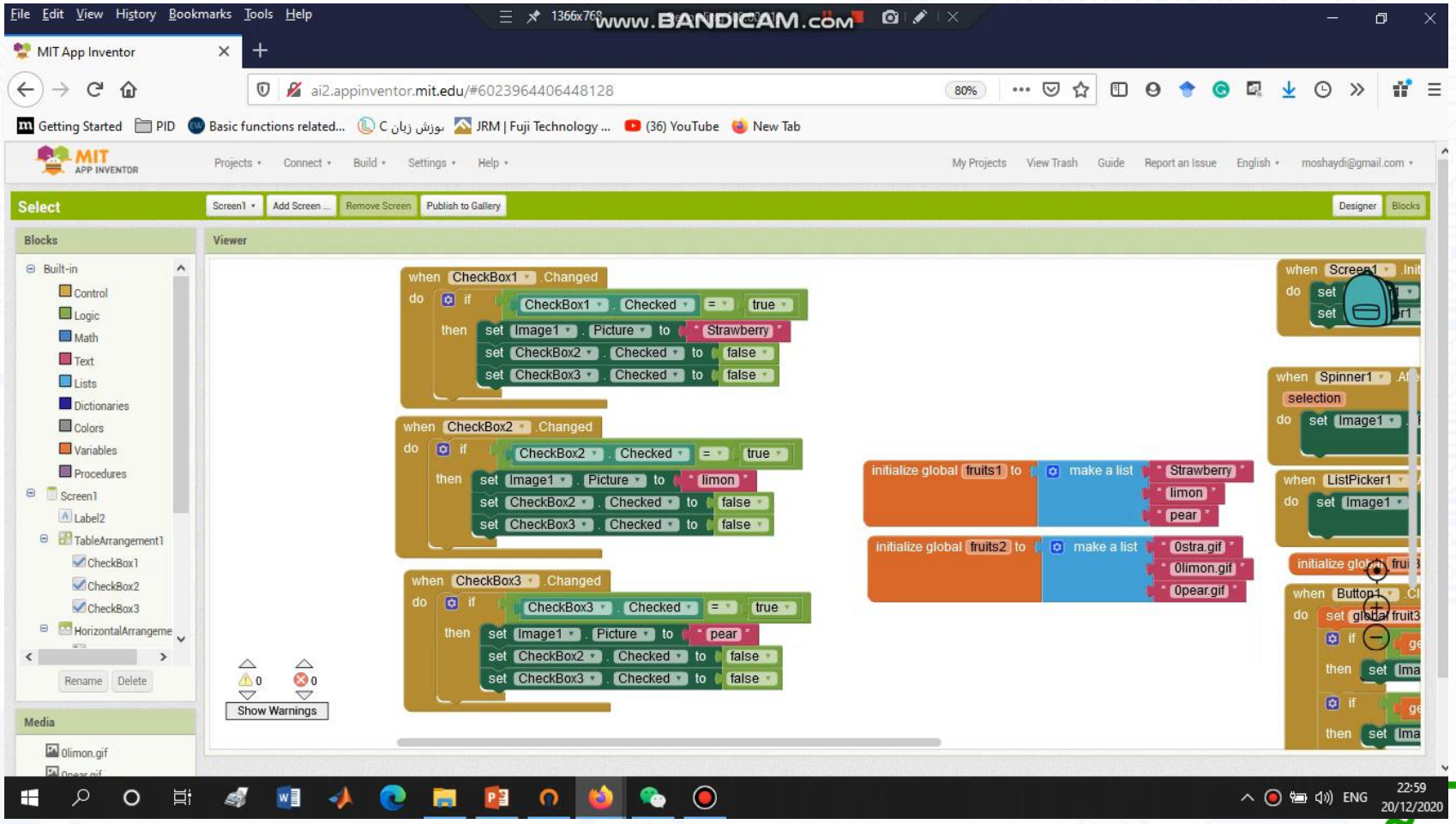
Example02:Selection



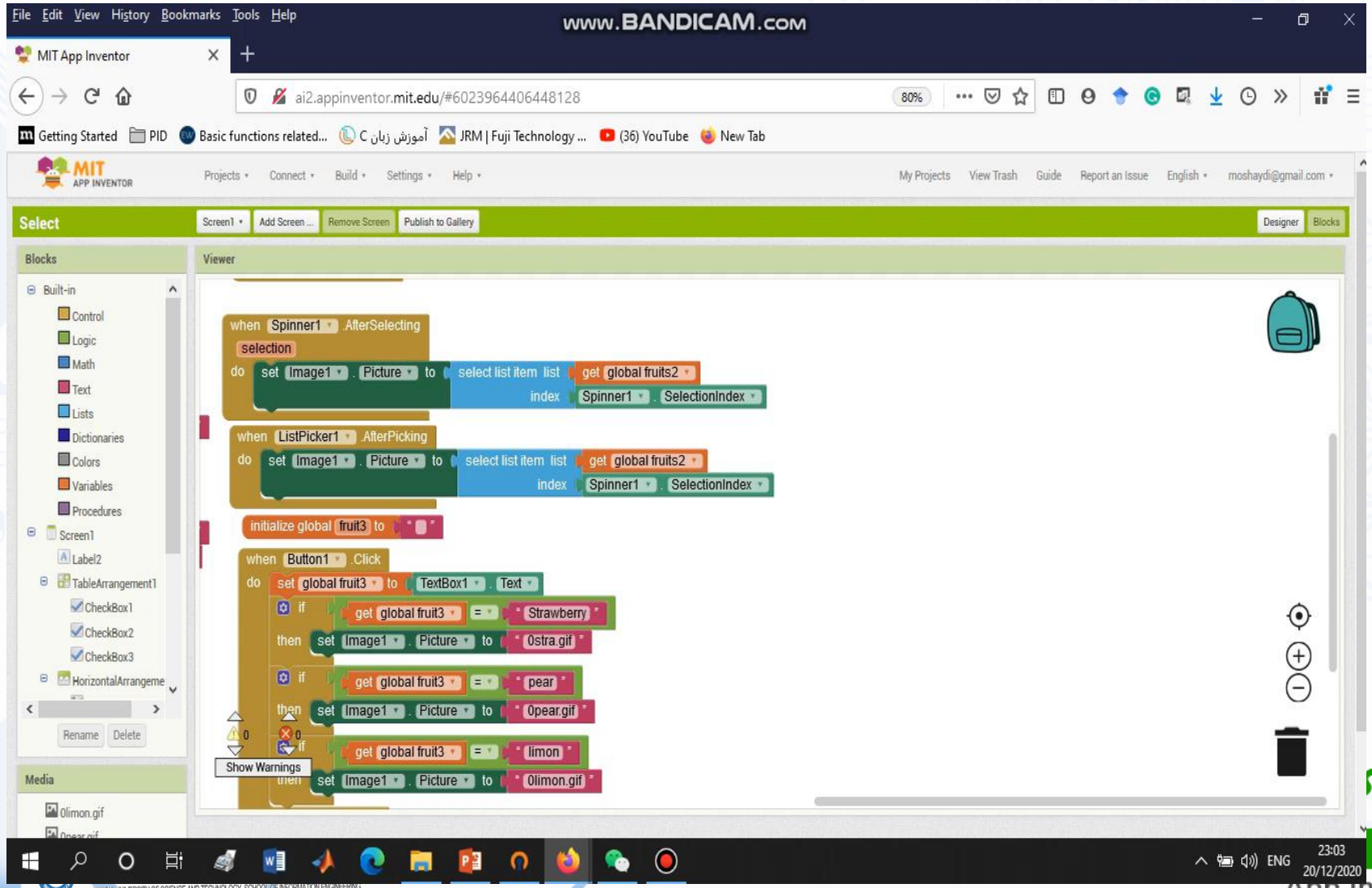
Example02:Selection



Example02:Selection

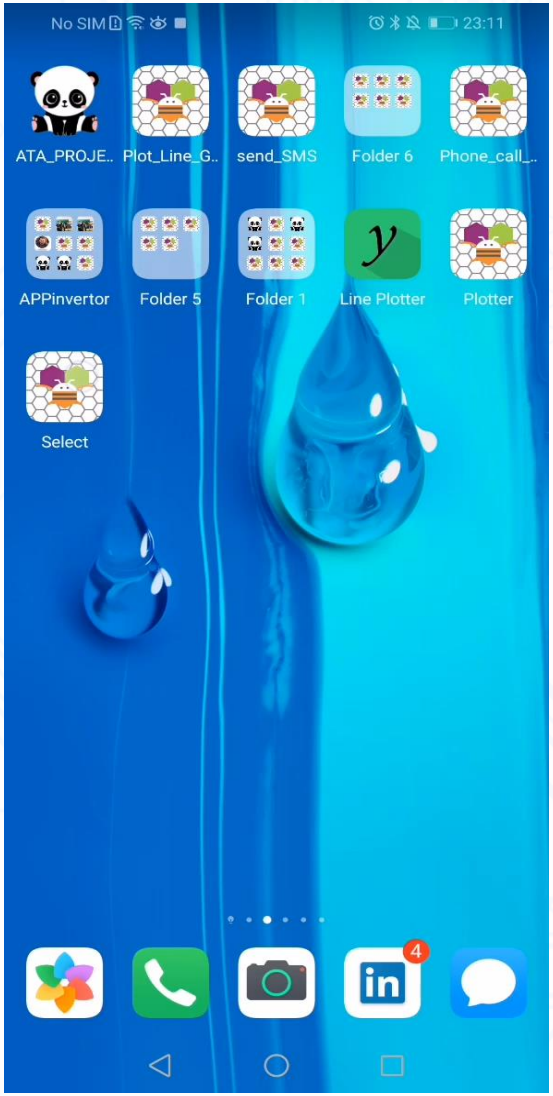


Example02:Selection



Example02:Selection

Demo APP



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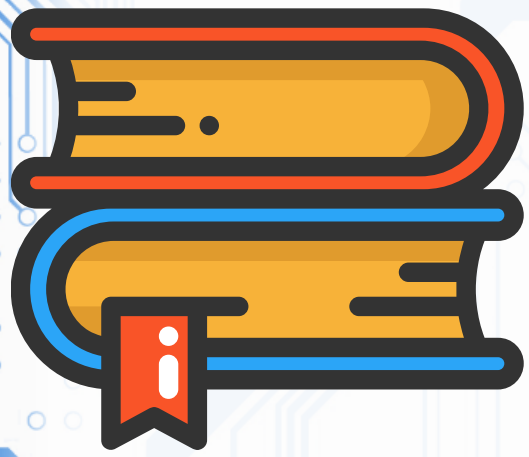

MOBILE APPLICATION DEVELOPMENT

Example03: ListPicker(2).

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Example03: ListPicker(2).

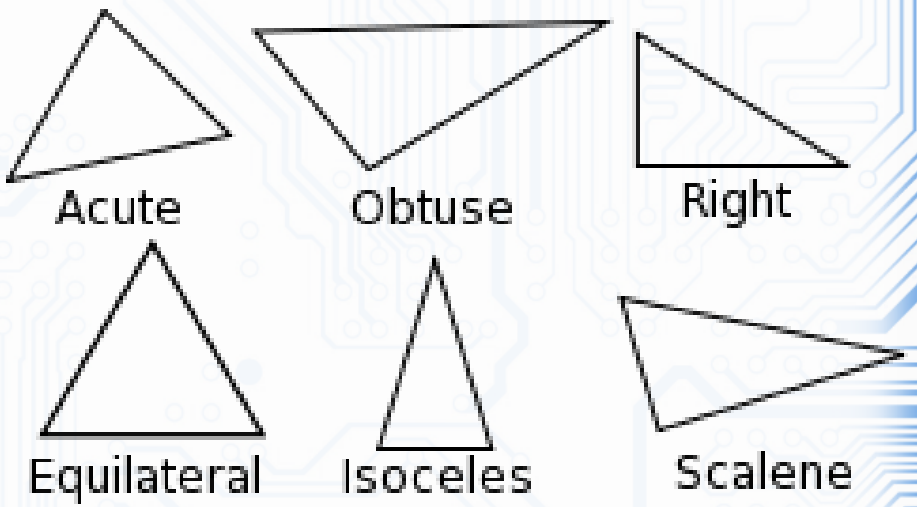
Example Aim

- We can choose between triangles and rectangles.
- According to choose one way or another we will Rectangle, Equilateral, Isosceles and Scalene. Or, Square, Rectangle, Rhombus and Rhomboid.
- When choosing one of these classes, we will get its definition

Example03:ListPicker(2).

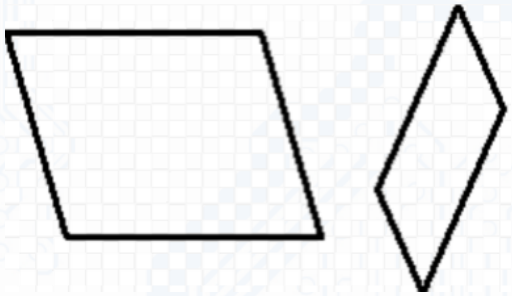
Triangles

Triangles are just shapes with 3 (straight) sides. They can be big or small and can look somewhat different. Depending on the angles and the sides we can sort the triangles into different types.

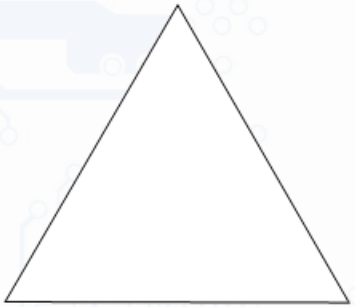


Example03:ListPicker(2).

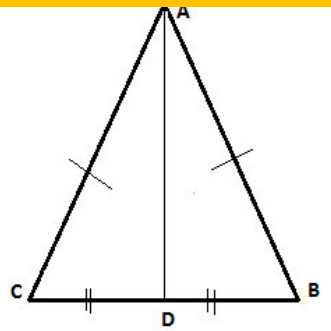
Rhomboid



Equilateral triangle



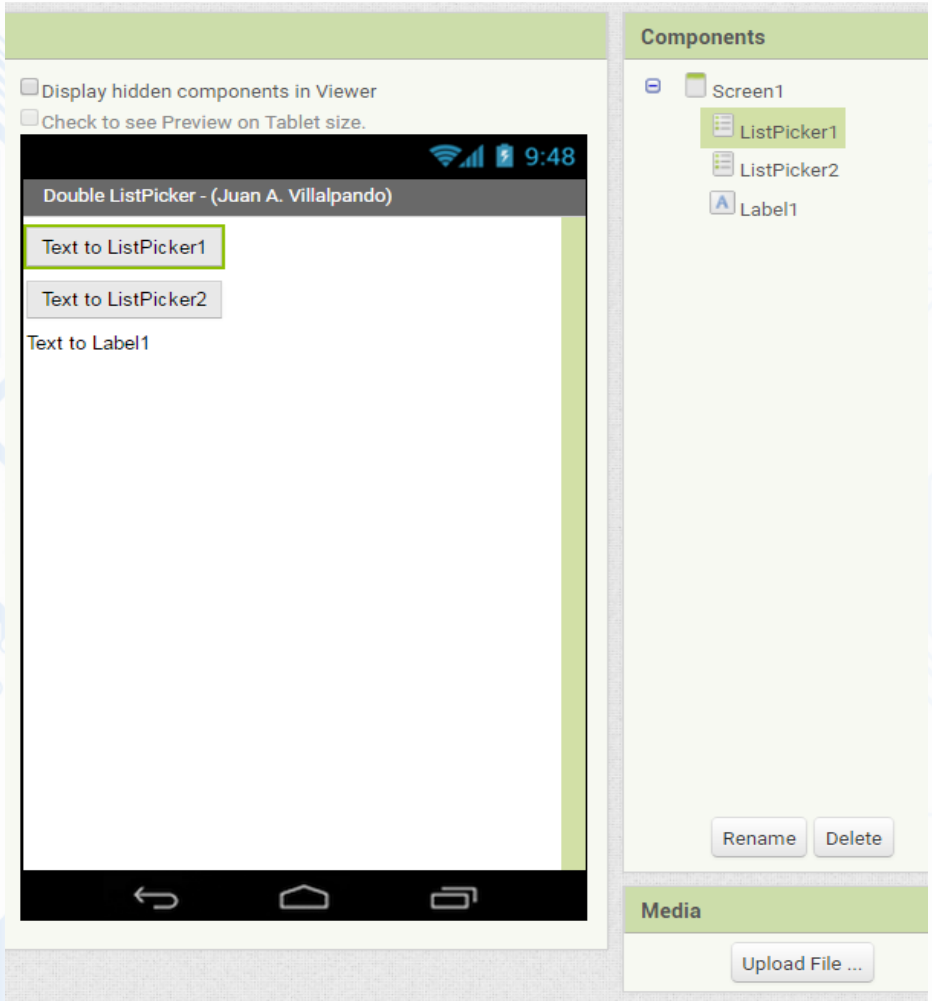
Isosceles Triangles
Median is Perpendicular to the Base



Rhombus
A quadrilateral having all four sides of equal length.

Rectangles
Rectangle:
A quadrilateral having four right angles

Example03:ListPicker(2).

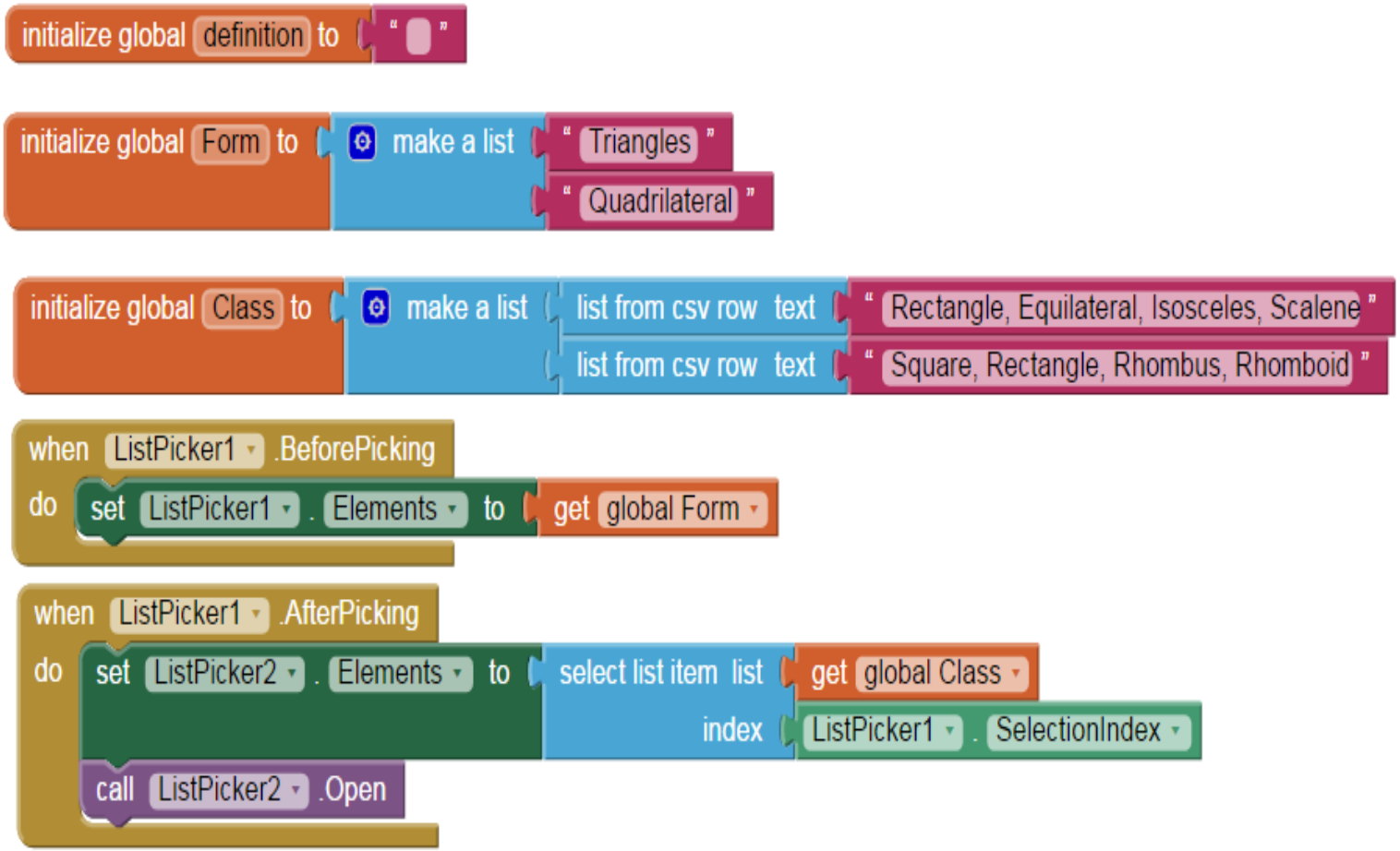


- In this case we put **one ListPicker1 and other ListPicker2** . Also we put a **Label1.**

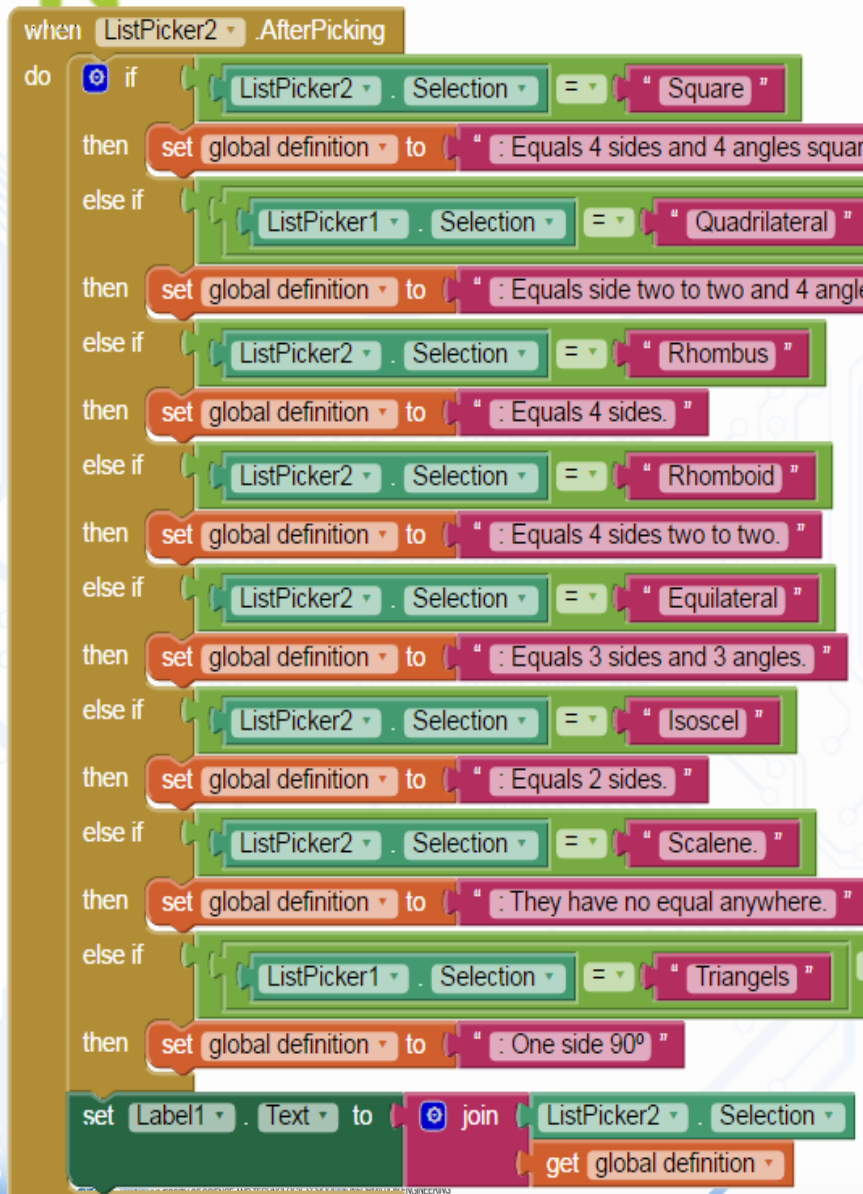
Example03:ListPicker(2).

- In the block section Note that two lists have been created.
- The list of triangles and squares, was made directly by adding those words, but the list box, Equilateral, ... Rombo, Romboide, was performed using a **csv file**, ie those words are passed to a csv format and then they get into the list.
- it's a somewhat complicated way to the beginning, but it is effective. in csv format elements are enclosed in double quotes and separated by a comma.
- The line change is performed by / n.

Example03:ListPicker(2).



Example03:ListPicker(2).



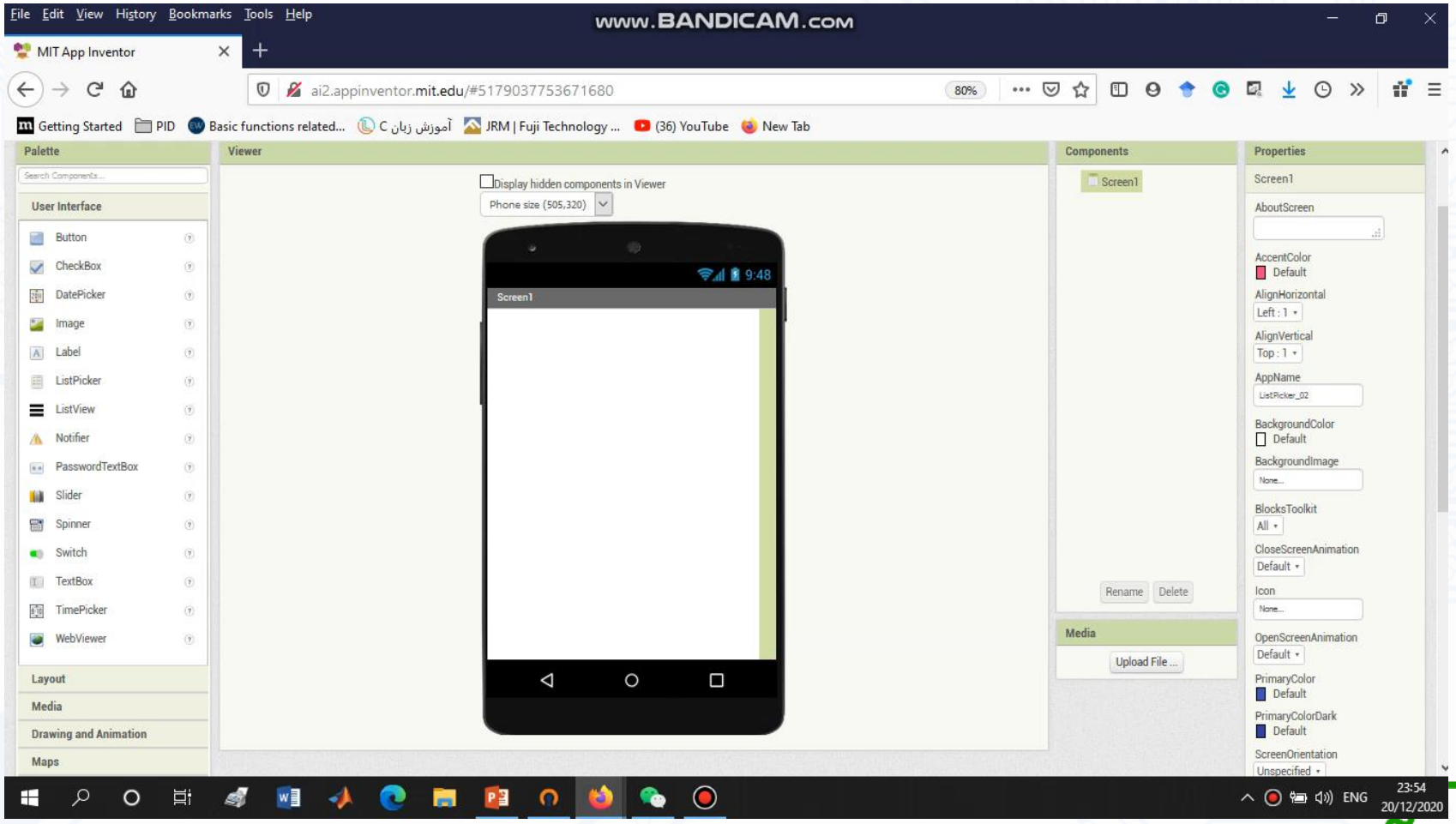
If you do not want it to look **ListPicker2** , we put the Property **Visible: false**

App Inventor

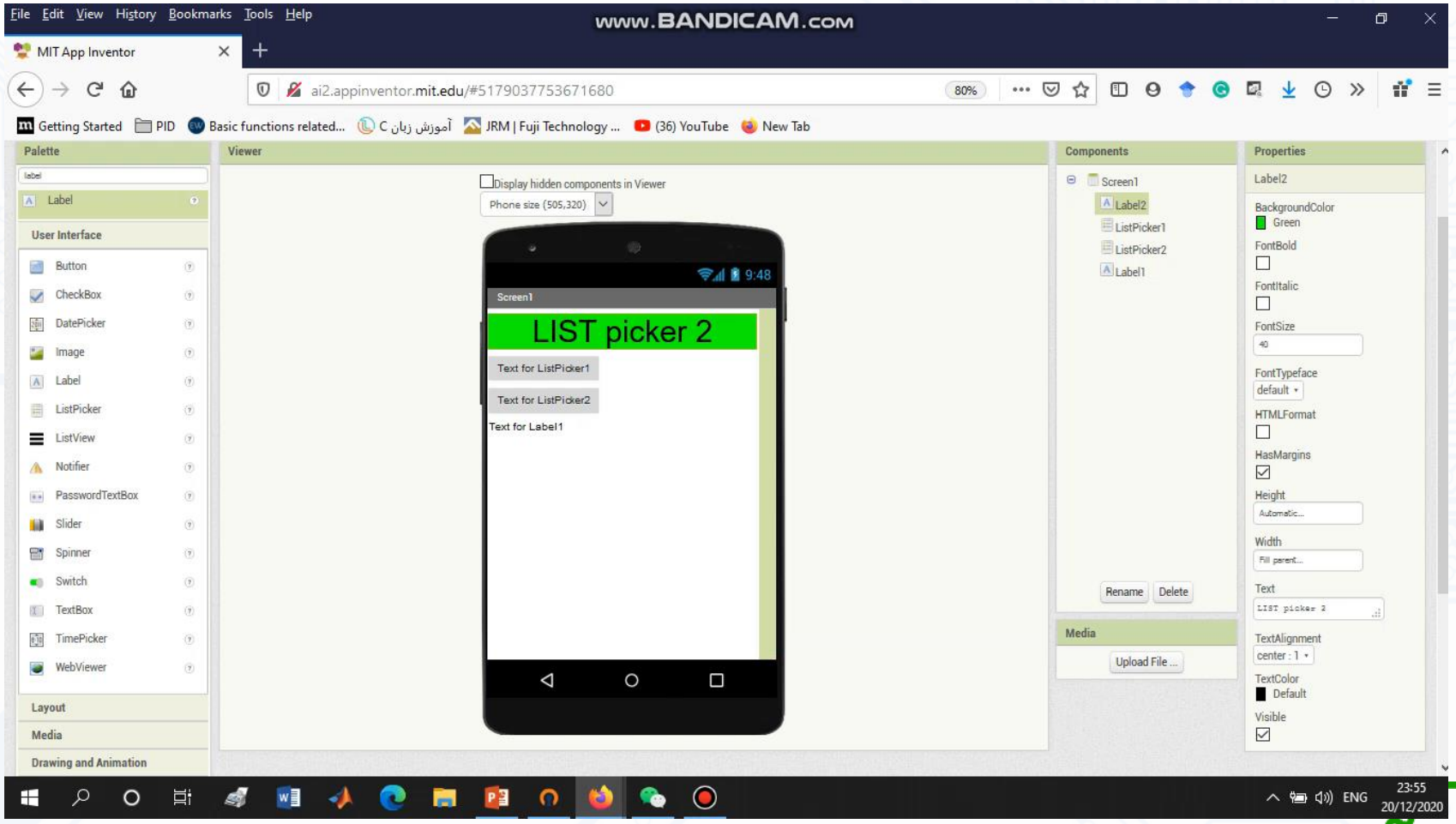
Example03:ListPicker(2).

- In this code it notes that the word **Rectangle** belongs to both **Triangles as Quadrilateral**. So when we want to get the definition has to check if it has arrived by selecting Triangles or Rectangles.

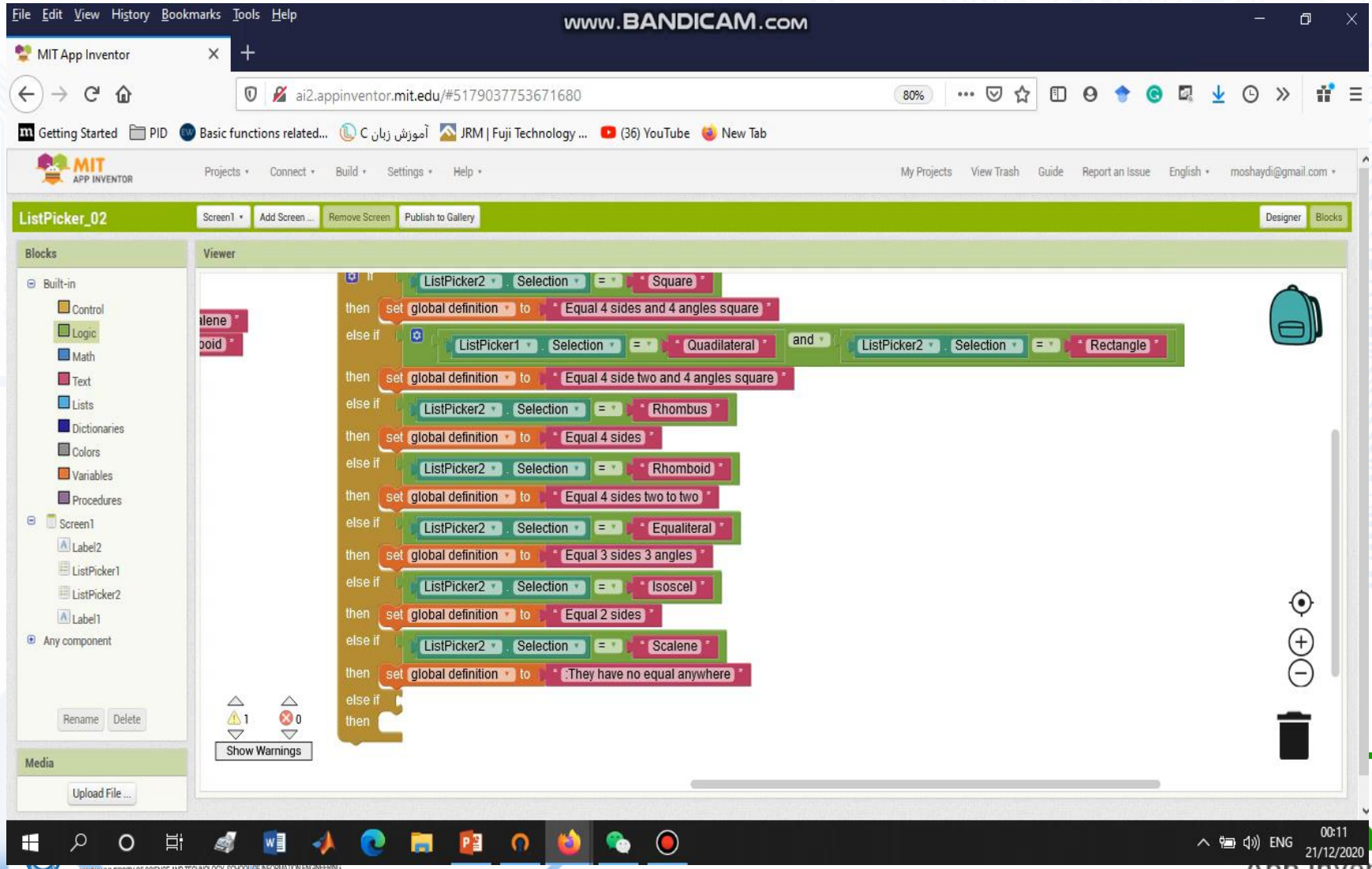
Example03:ListPicker(2).



Example03:ListPicker(2).

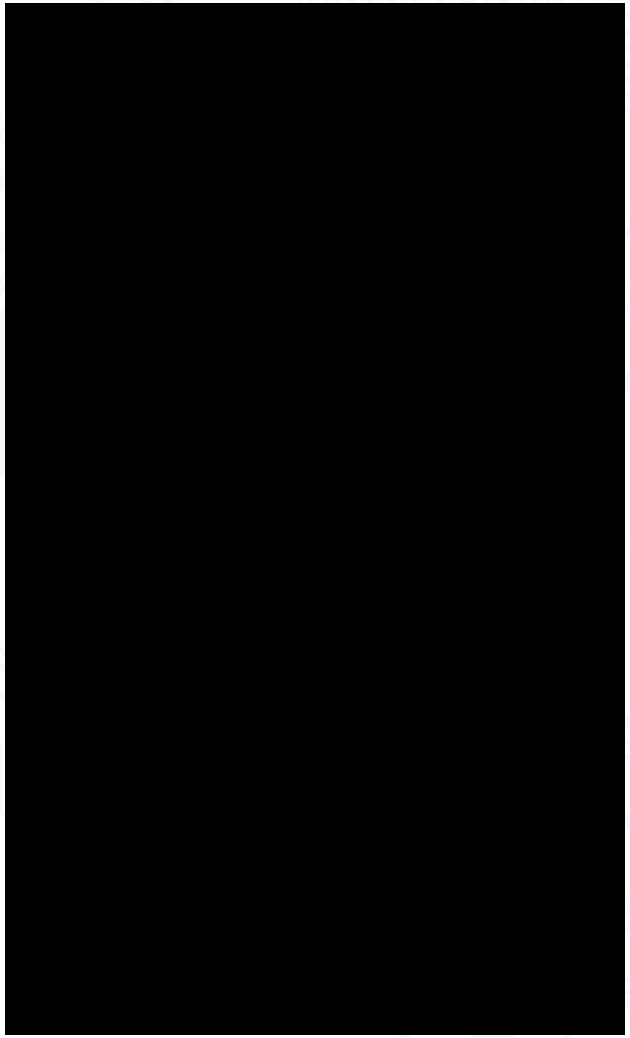


Example03:ListPicker(2).



Example03:ListPicker(2).

Demo APP



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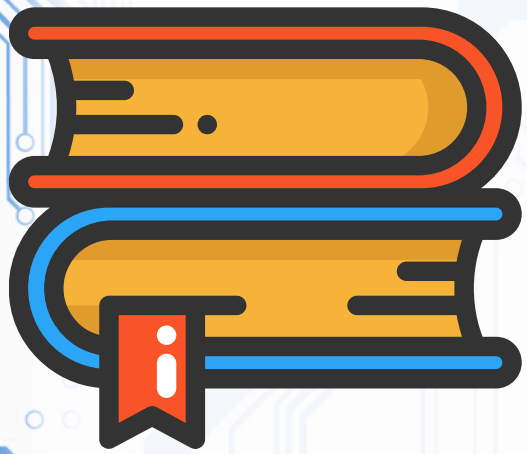

MOBILE APPLICATION DEVELOPMENT

Example 04:

Line graph

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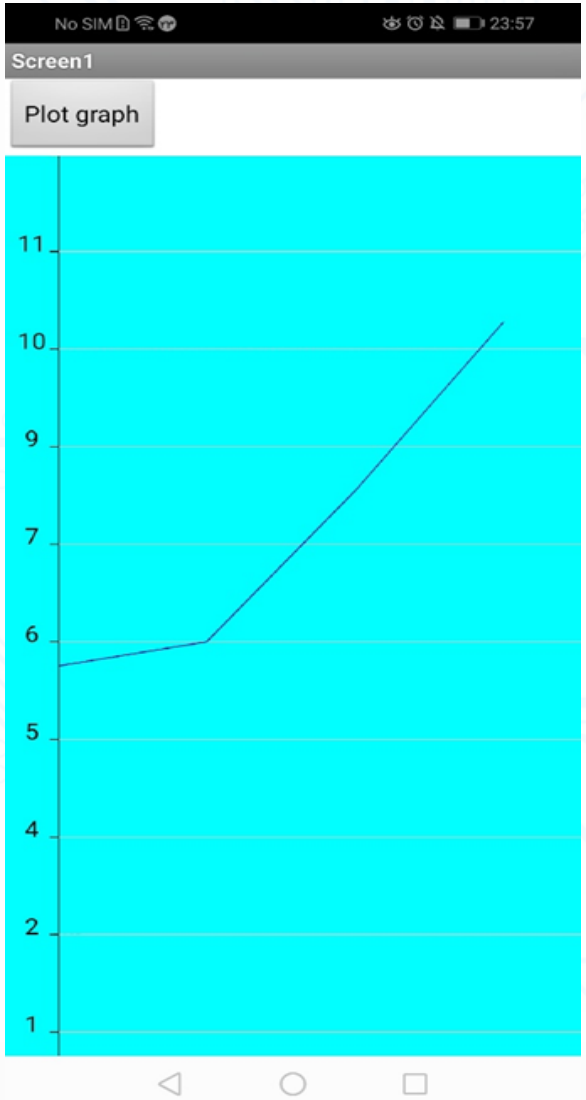
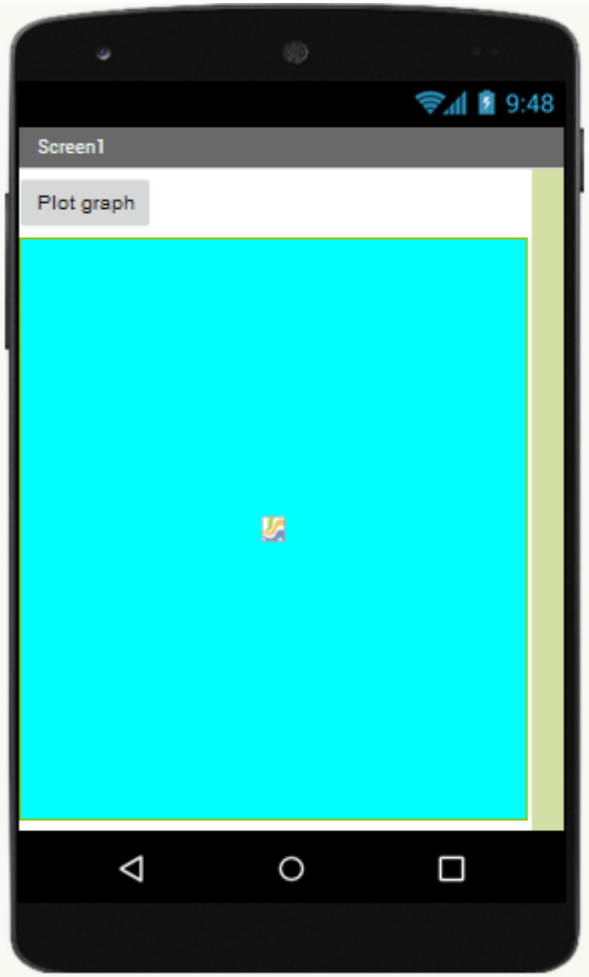
App Inventor

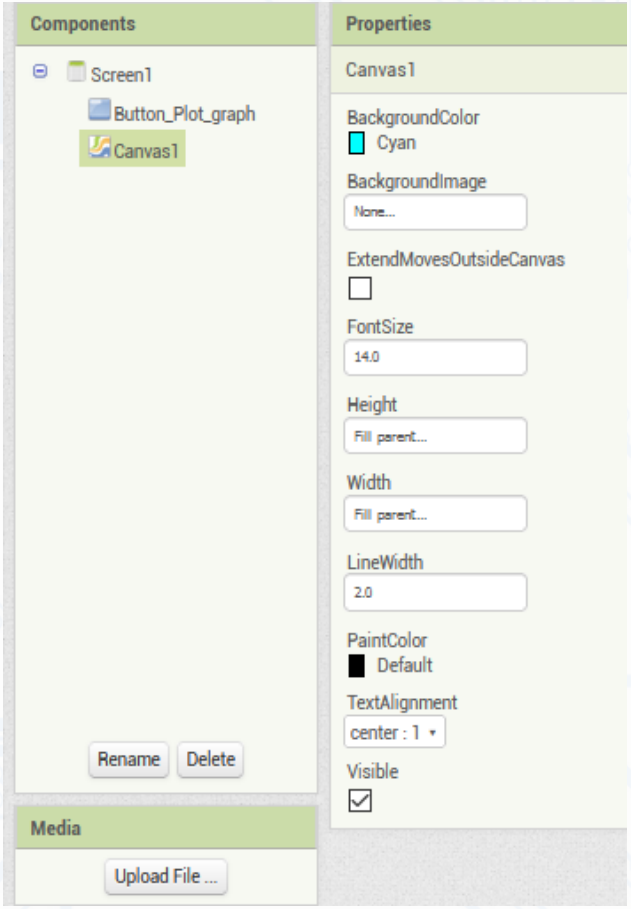
Example 04: Line graph

- The aia file is share in group
- You should modify and make the report

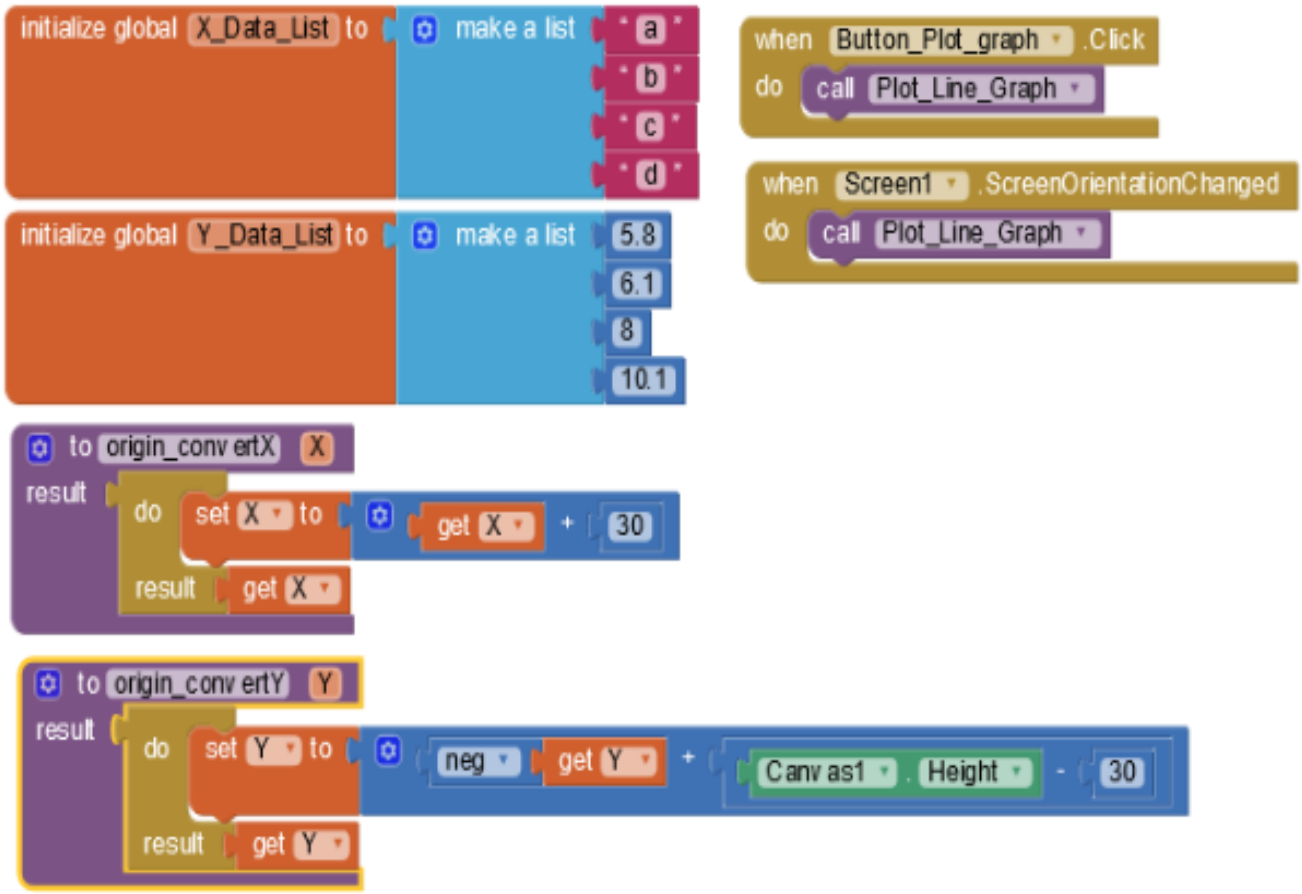


Example 04: Line graph

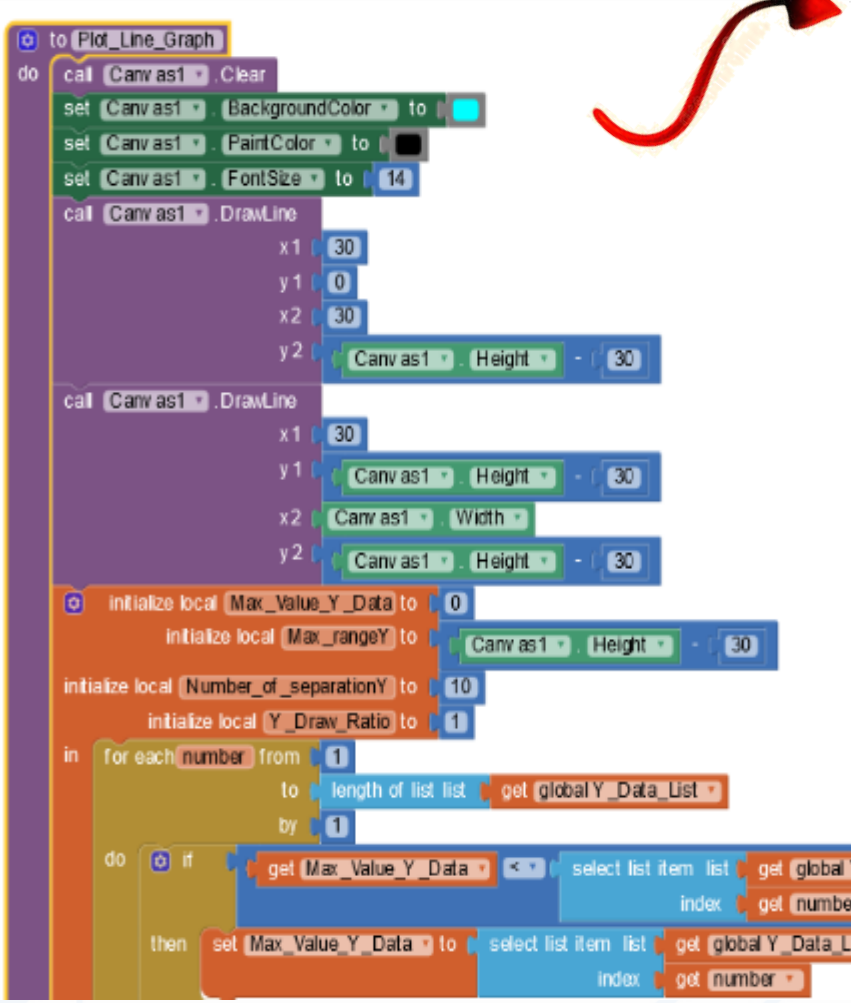


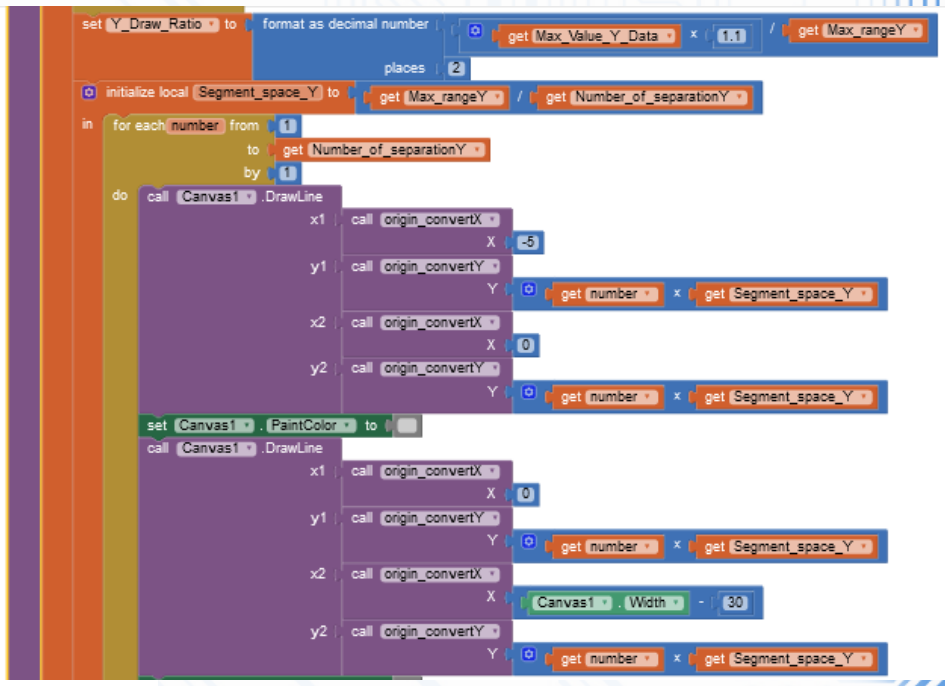


Example 04: Line graph

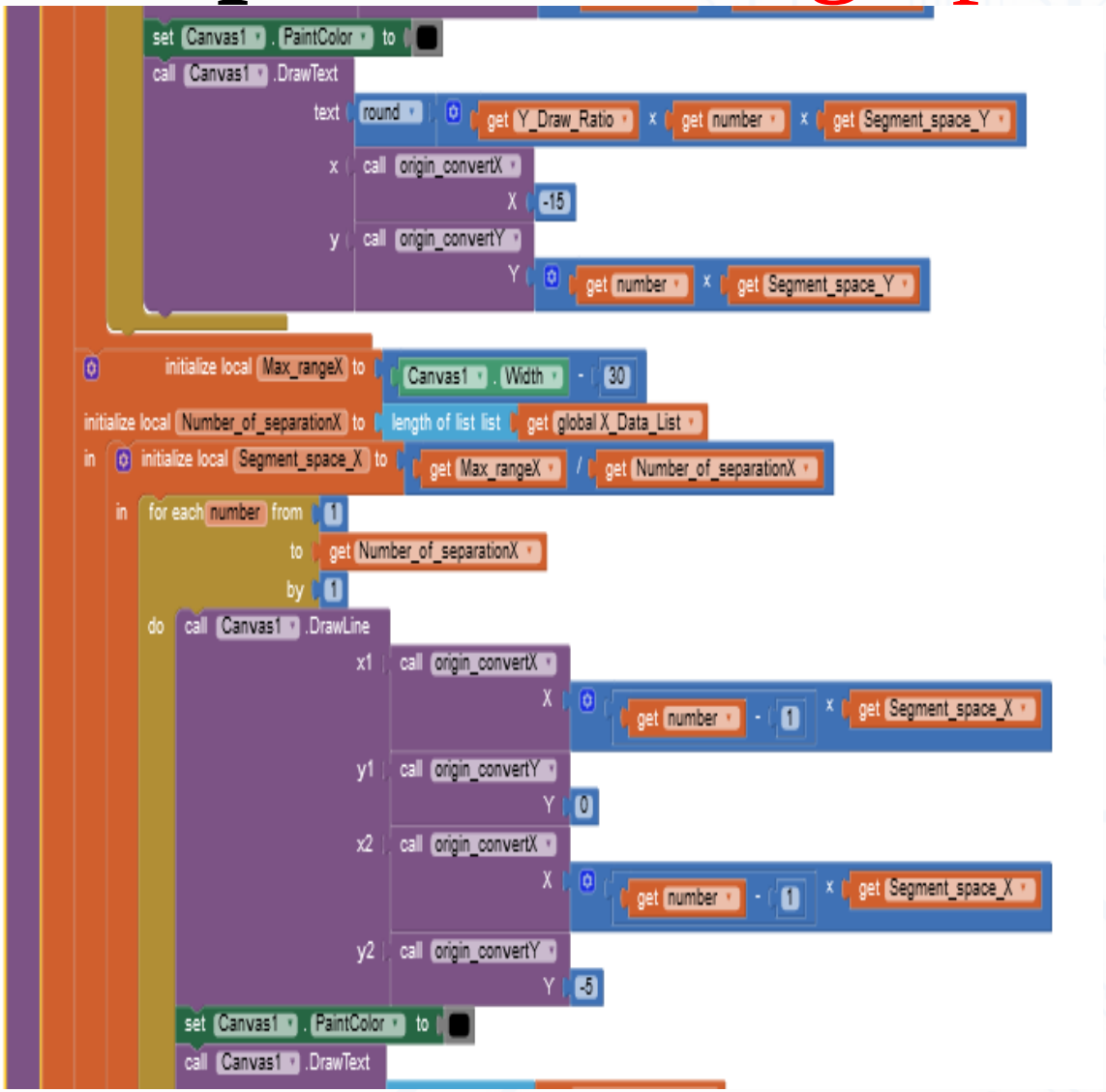


Example 04: Line graph

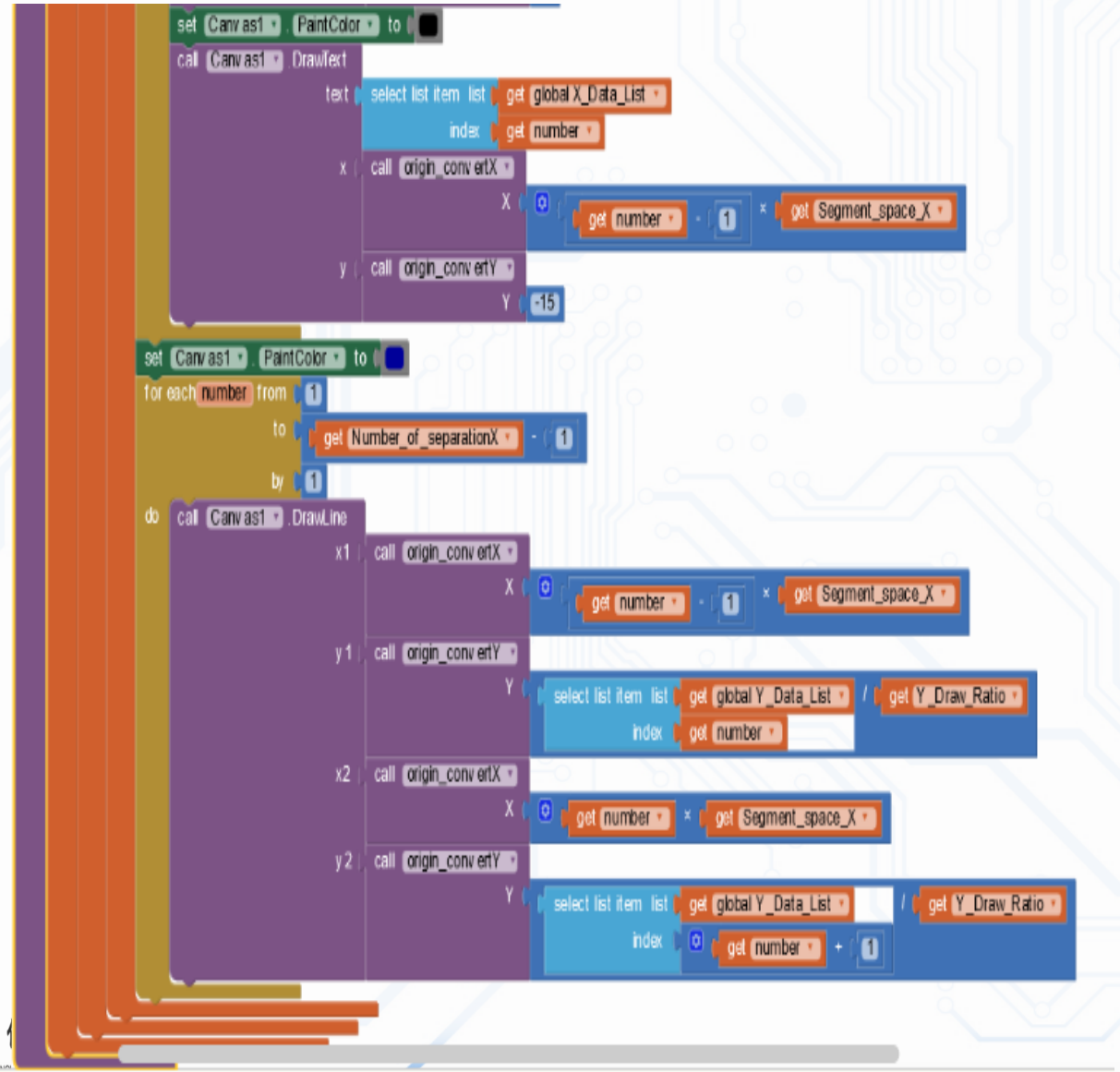




Example 04: Line graph



Example 04: Line graph



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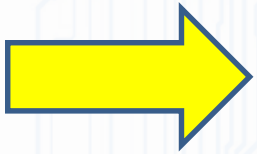
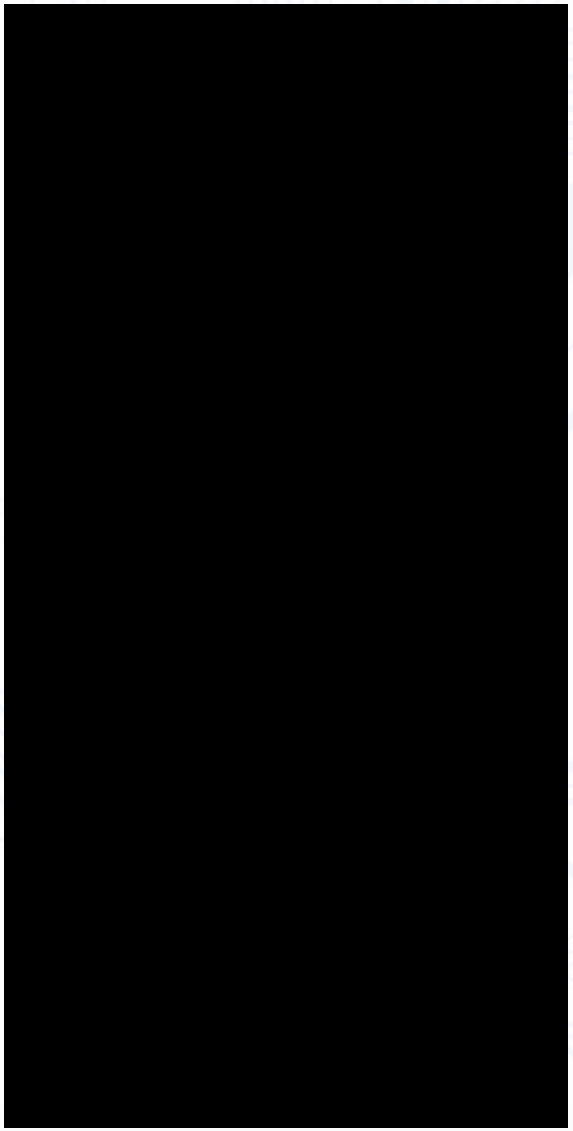
Example 04: Line graph

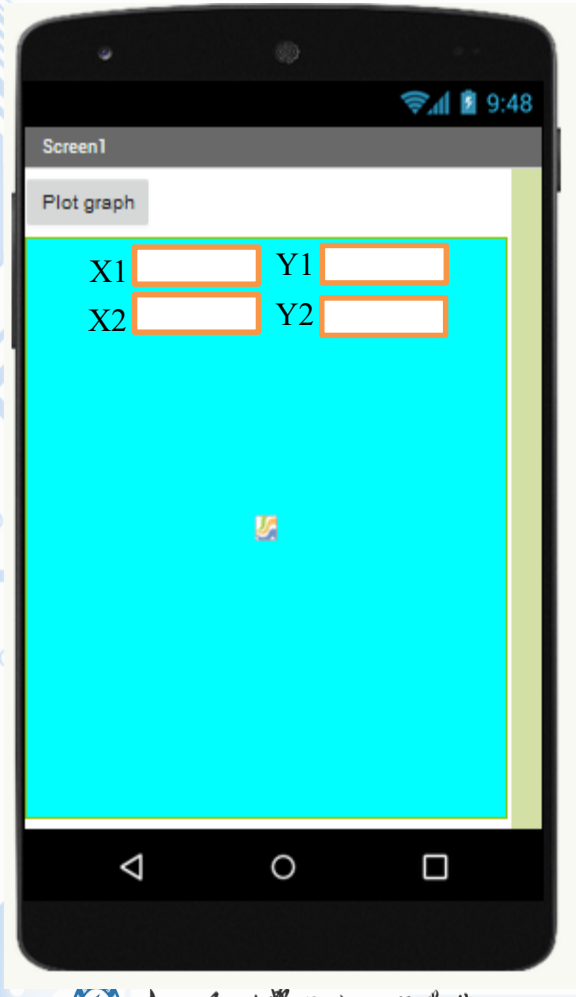
Demo APP

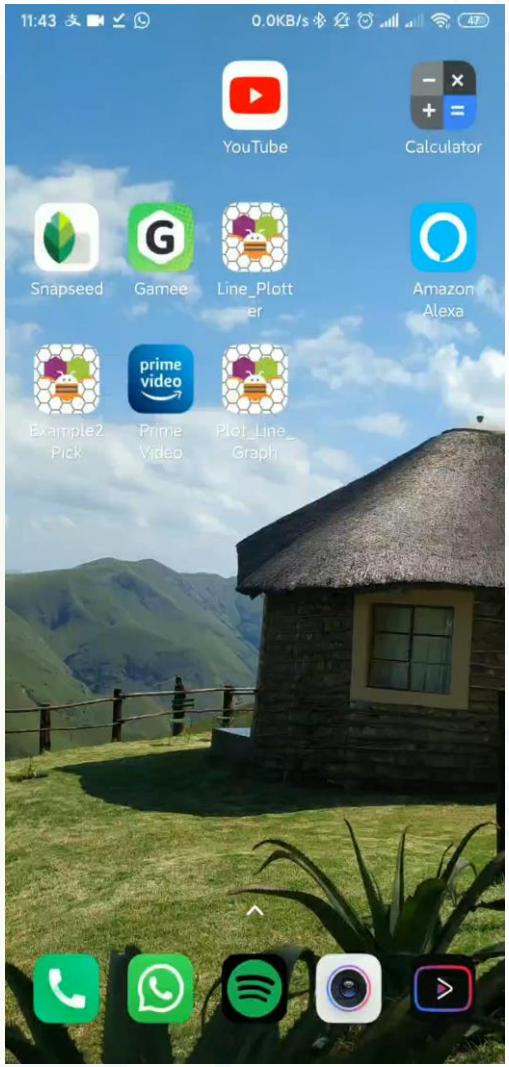





20:21
LINE
PLOTTER

Example 04: Line graph extenstion





- Get (X1,Y1), (X2,Y2) from user and Draw the line
- From(0,0) to (X1,Y1), (X2,Y2)

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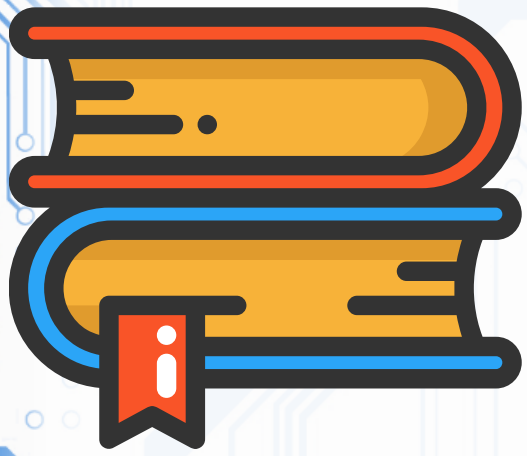

MOBILE APPLICATION DEVELOPMENT

Example 05:

BT_APP

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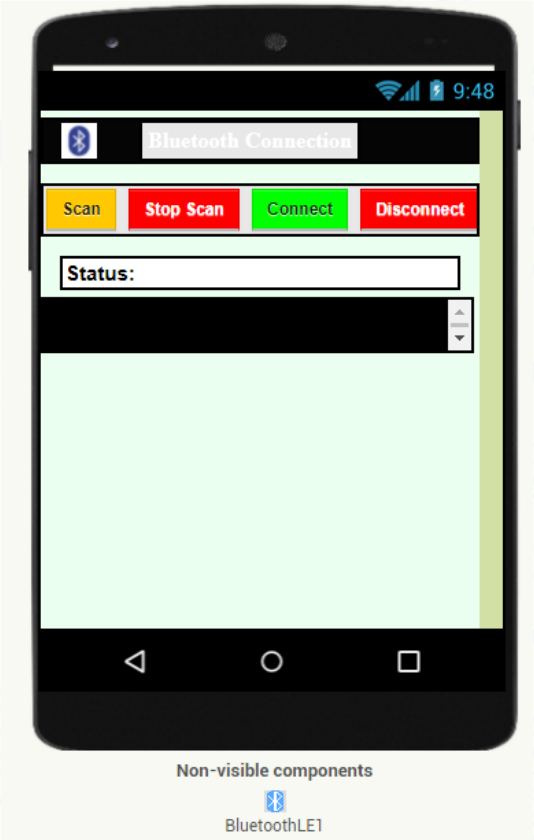
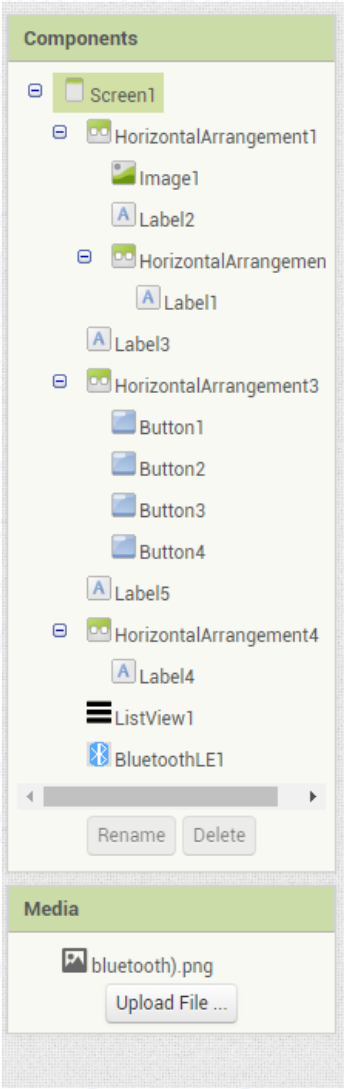
Bluetooth Example

The aim :

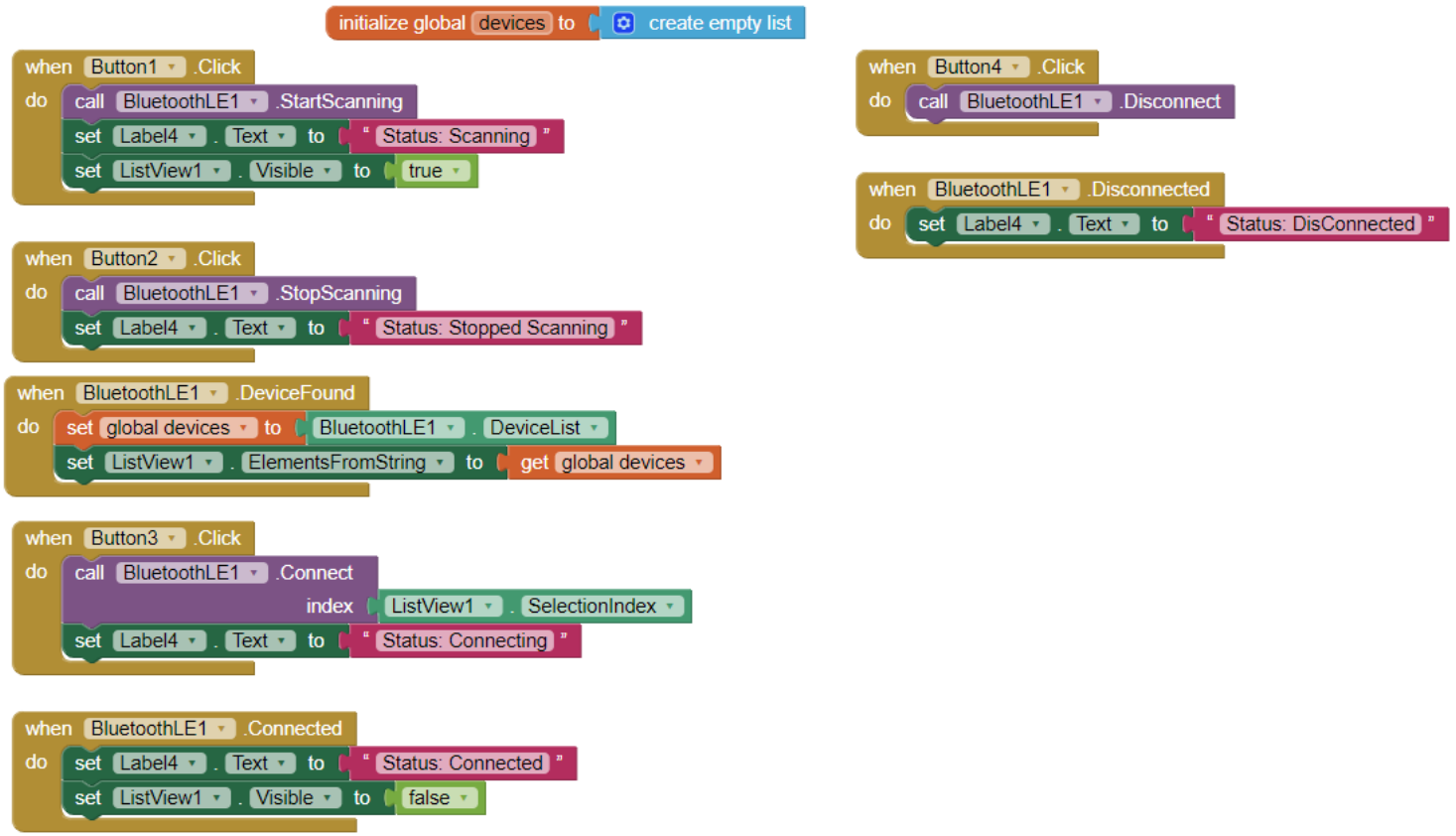
Connect Bluetooth with a device and share data.

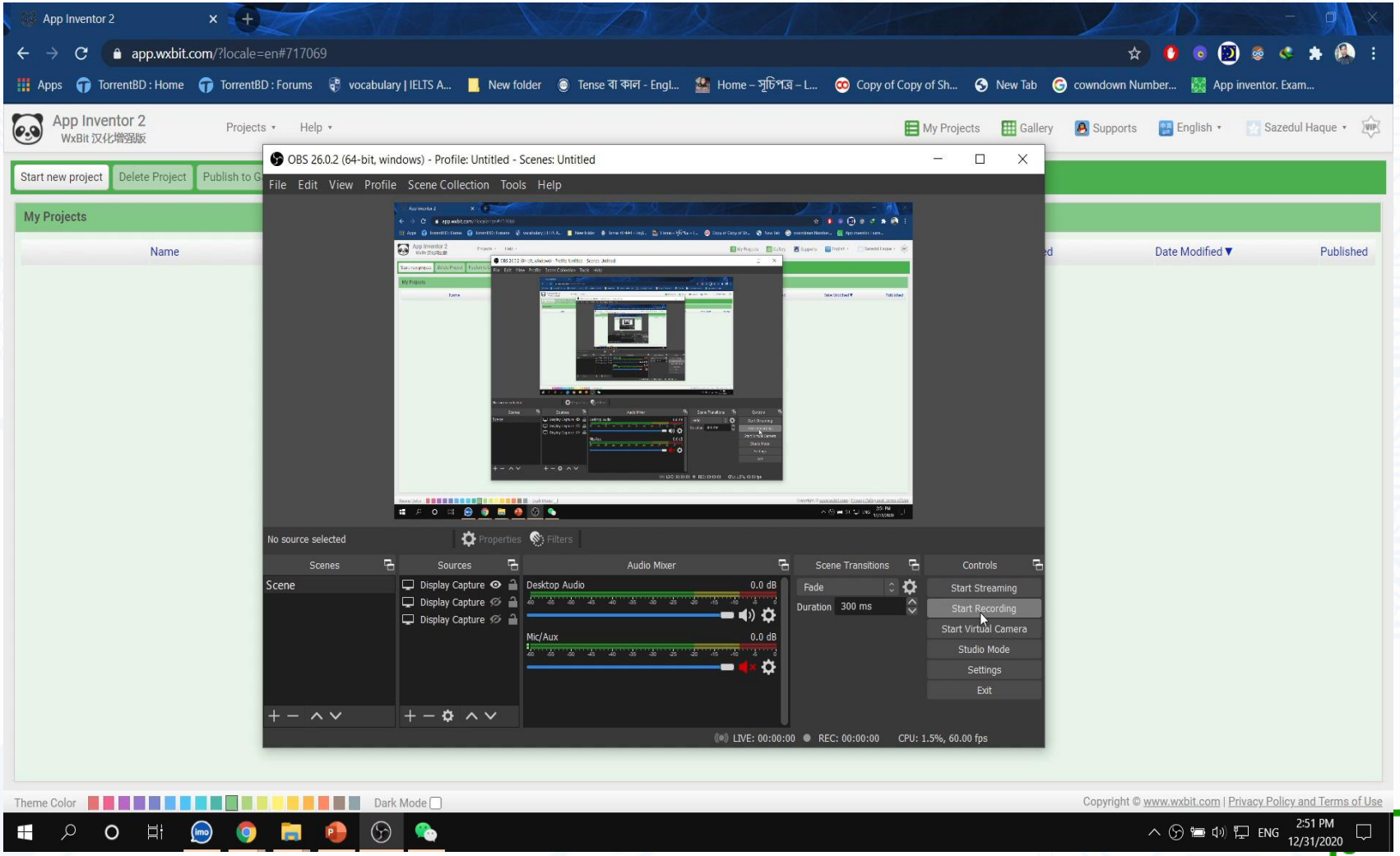




Bluetooth Example

Final App UI


initialize global devices to create empty list
when Button1 .Click
do call BluetoothLE1 .StartScanning
set Label4 . Text to " Status: Scanning "
set ListView1 . Visible to true
when Button2 .Click
do call BluetoothLE1 .StopScanning
set Label4 . Text to " Status: Stopped Scanning "
when BluetoothLE1 .DeviceFound
do set global devices to BluetoothLE1 . DeviceList
set ListView1 . ElementsFromString to get global devices
when Button3 .Click
do call BluetoothLE1 .Connect
index ListView1 . SelectionIndex
set Label4 . Text to " Status: Connecting "
when BluetoothLE1 .Connected
do set Label4 . Text to " Status: Connected "
set ListView1 . Visible to false
when Button4 .Click
do call BluetoothLE1 .Disconnect
when BluetoothLE1 .Disconnected
do set Label4 . Text to " Status: DisConnected "



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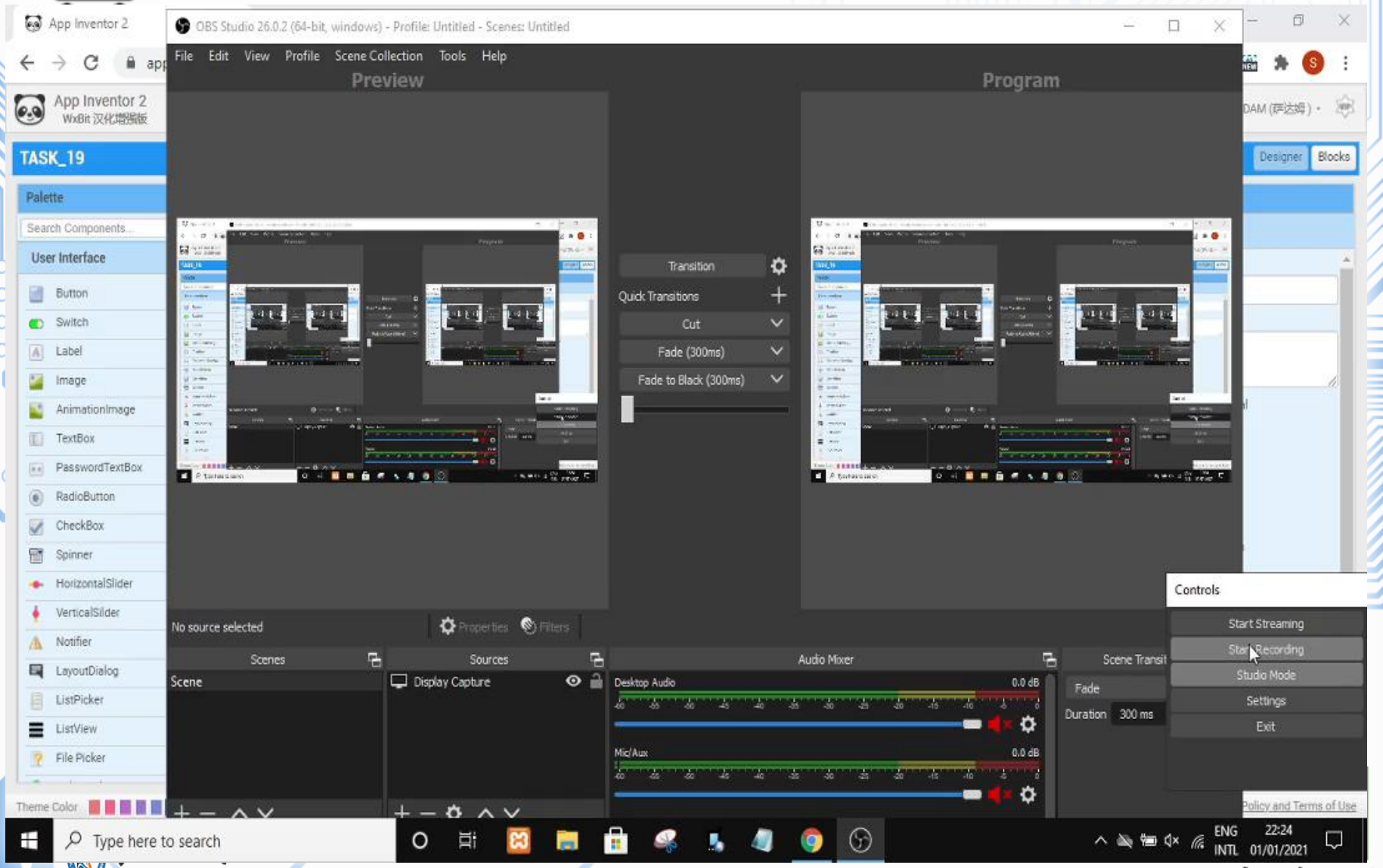
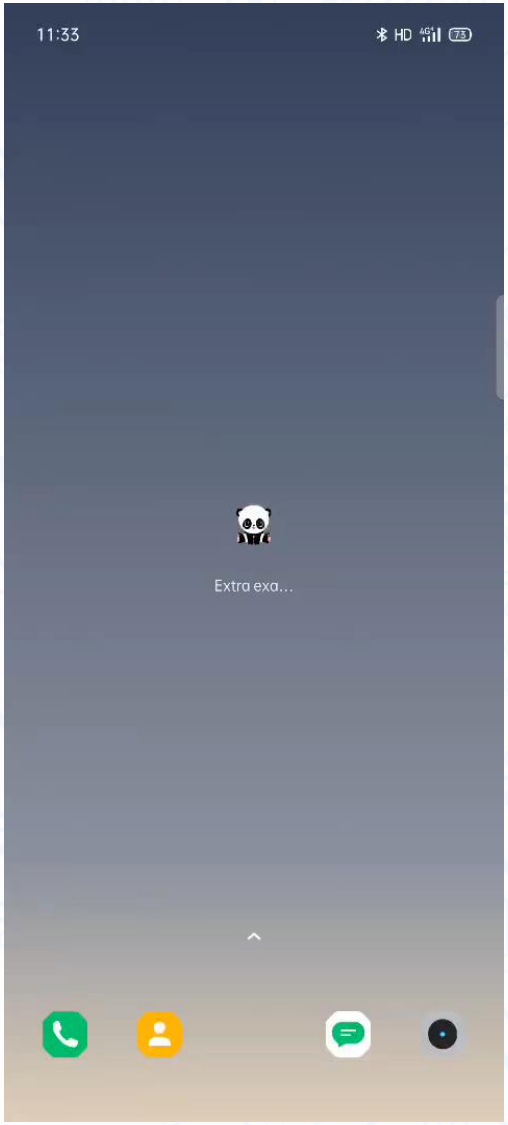
App Inventor

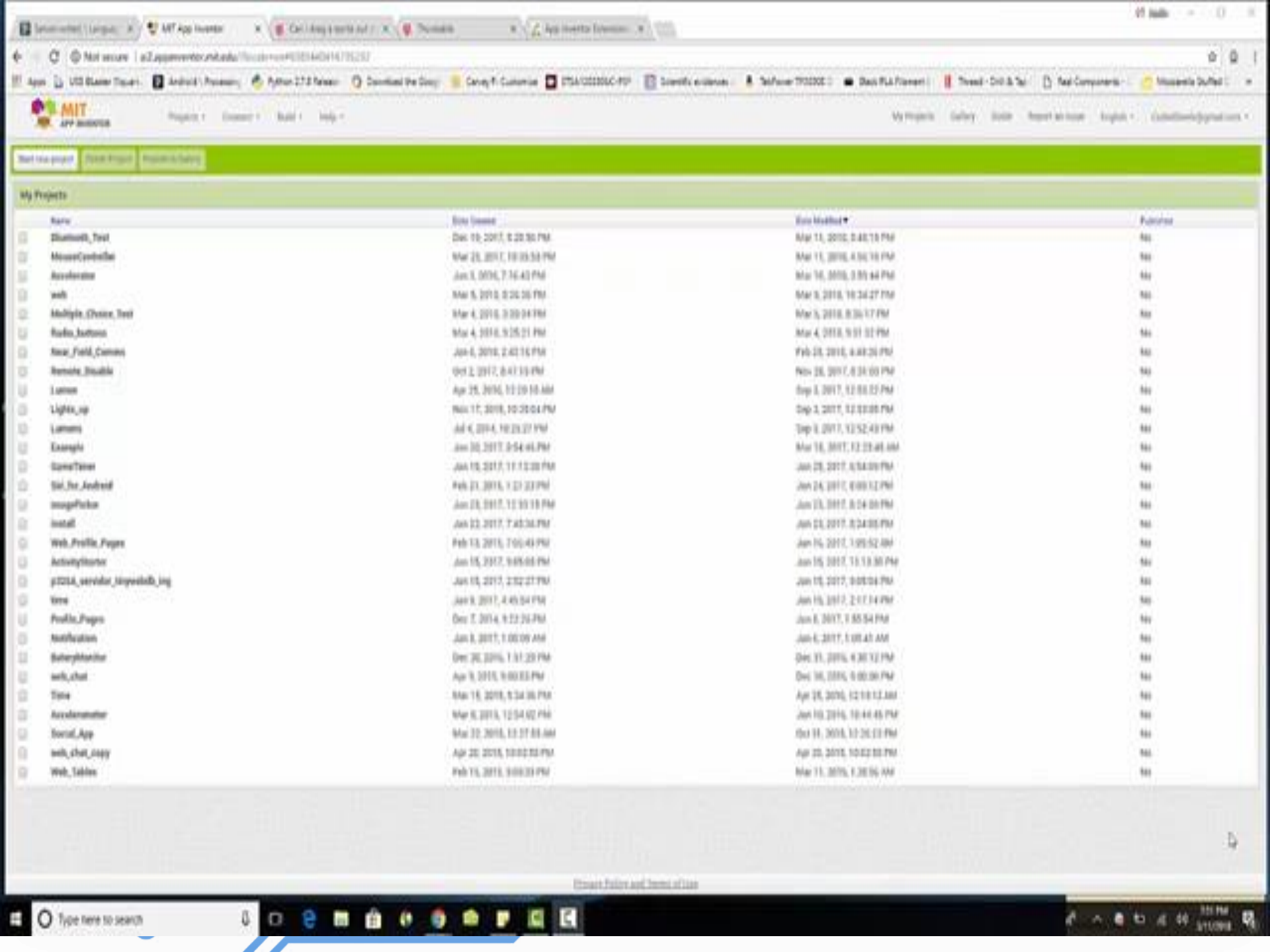
Working Demo

App process video

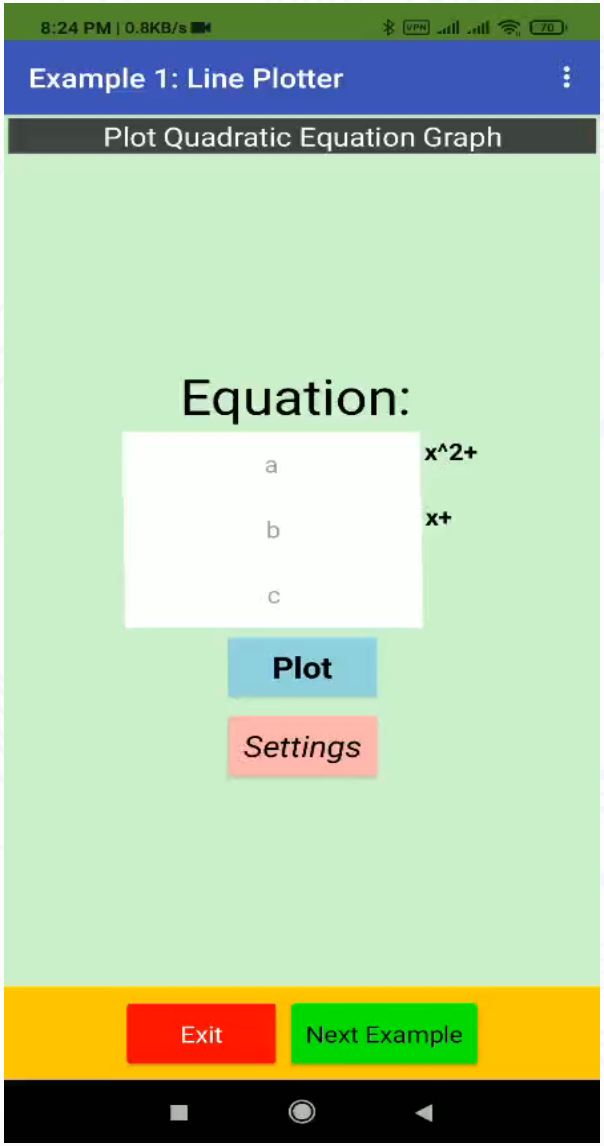


Demo App working from our mobile




MIT
My Projects

Review on all task



Student Task_17

Example 1: Plotter example:	no need to have process clips no need for any report but your apk file should work (send.apk and aia file) .Write comment about each function job and use(input/ out put and job)
Example 2: Select example:	report +process video, (send.apk and aia file)
Example03: ListPicker(2)	just report
Example04: Line example	report +process video(send.apk and aia file)
Example 05: BT	For student who want get more mark Report +process clip+send.apk and aia file

-
- **Your file should have this format of name**

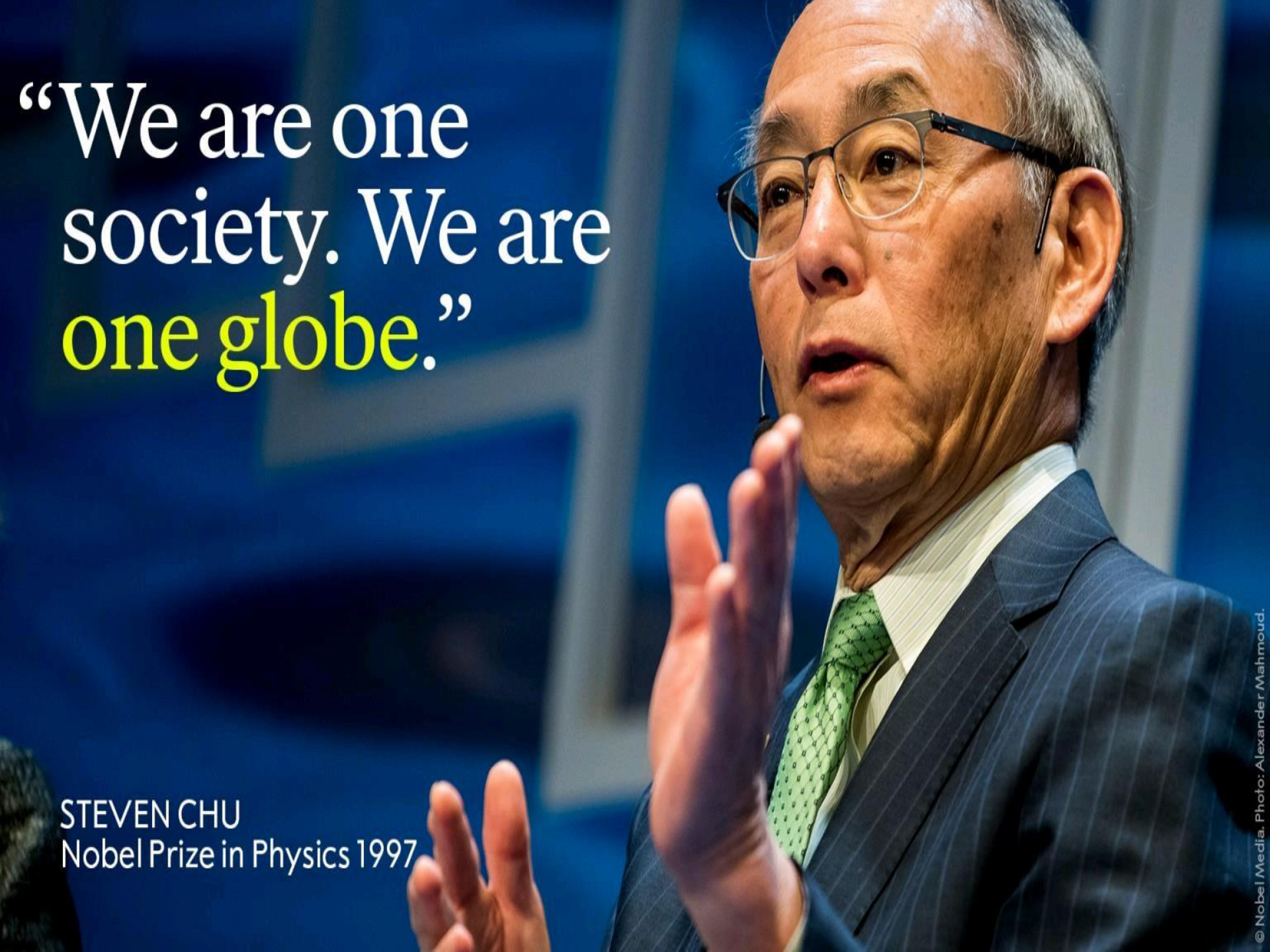
  <Task number><student name><Student ID>.ppt

NEXT

- Next lecture as the last one we will have some example about Game and review some exam point

Reference

- https://sites.google.com/site/lineplotterdemo/technical-description
- https://imagnity.com/tutorials/app-inventor/website-viewer-on-app-inventor/
- http://ai2.appinventor.mit.edu/reference/other/activitystarter.html
- https://appinventor.mit.edu/explore/ai2/concepts
- http://kio4.com/appinventori/23datasbetweenscreen.htm
- http://kio4.com/appinventori/7canvas.htm
- http://ai2.appinventor.mit.edu/reference/blocks/lists.html#selectlistitem
- **https://appinventor.mit.edu/explore/content/alertme.html**
- **Teaching with AppInventor** http://appinventor.mit.edu/explore/teach.html
  AppInventor Tutorials:
  http://appinventor.mit.edu/explore/ai2/tutorials.html
- **Sounds** http://www.soundbible.com
- **App Inventor:** http://appinventor.googlelabs.com/
- **Appinventor.org:** http://www.appinventor.org/
- **Wolber, Abelson et al. text:** http://www.appinventor.org/text2011
- **Group:** http://groups.google.com/group/app-inventor-instructors
- **Wolber course:** http://appinventor.org/course-in-a-box
- **Morelli course:** http://turing.cs.trincoll.edu/~ram/cpsc110/


"We are one society. We are one globe."
STEVEN CHU
Nobel Prize in Physics 1997
© Nobel Media. Photo: Alexander Mahmoud.

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School of information engineering

Digital Image Processing

THANK YOU

"BE HUMBLE. BE HUNGRY. AND ALWAYS BE THE HARDEST WORKER IN THE ROOM."