

SKETCH & GUESS: PART 2

SEQUENCE OF EVENTS

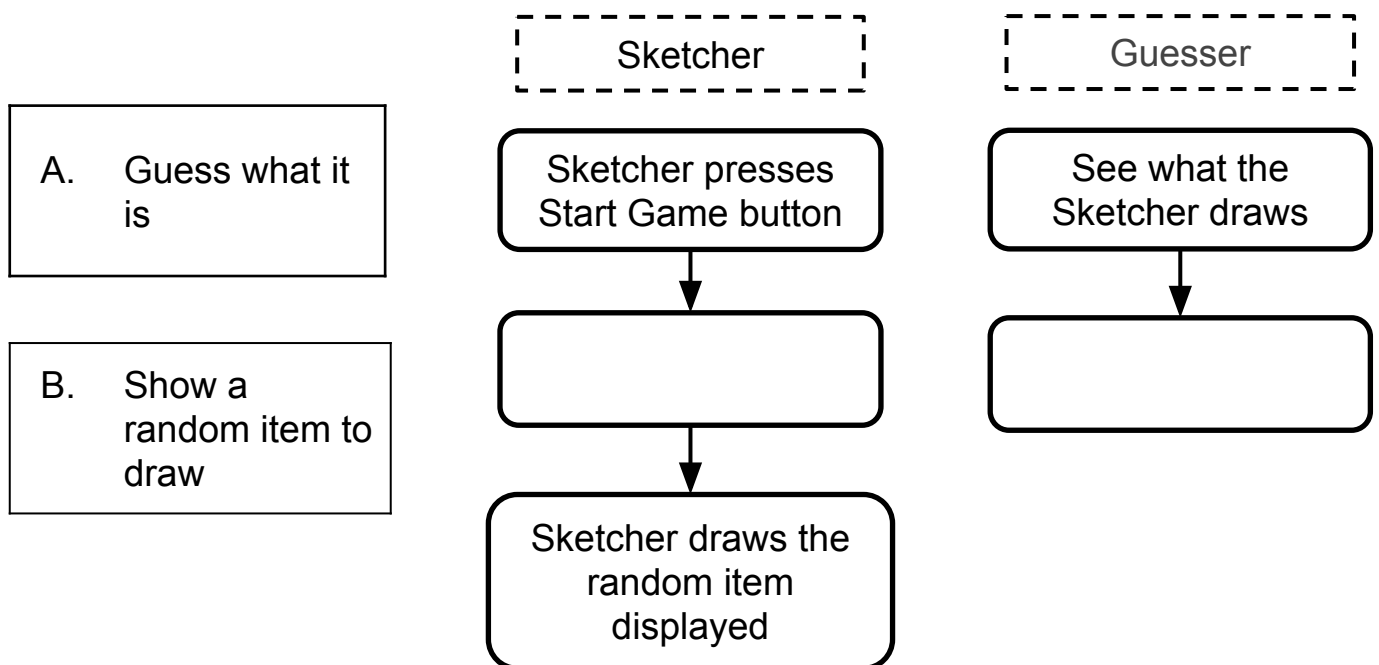
In this lesson, your drawing will be shown on your partner's screen so they can see what you have drawn on their device



In Lesson 1, you built a Sketch app. To make it more fun, code it so you can draw something on your device and your partner can see the drawing on their device.

1

Review with your partner the diagrams below. Check that you understand the sequence of steps on the drawing part of the Sketch and Guess App. Fill in the empty spaces with A or B.



USING CLOUDDB TO DRAW ACROSS DEVICES

In this lesson, *you will* use the **CloudDB** component that you used in the Two-button Game.

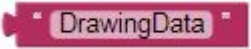
Using the **CloudDB.StoreValue** and **CloudDB.DataChanged** blocks, two devices communicate with each other through CloudDB, based on the tag.



A **tag** is a name you give to data. It works like a variable. Each **tag** has a **value**, just like variables have values.

You store a value by its **tag**, and you can see what has changed for each tag.

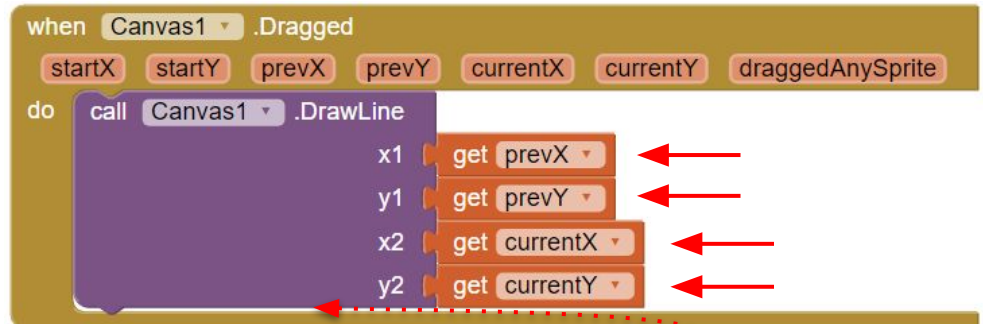
The name of the tag to store what is being drawn is **DrawingData**.

Tags	Meaning	Sketcher (You)	Guesser (Partner)
	The start point and end point for drawing	Store the coordinates of drawing	Get the coordinates of drawing

USING CLOUDBDB TO DRAW ACROSS DEVICES

- 2 Open your project developed in Part 1.

To display lines you have drawn on your partner's screen, the lines first need to be saved on the CloudDB server using the **CloudDB1.StoreValue** block.



There are four coordinates that are used to draw when you drag on the screen. You will package those 4 coordinates in a list and store them in a single tag in CloudDB rather than using 4 separate tags.

- 3 Pull out **CloudDB1.StoreValue** from the CloudDB1 drawer.



- 4 The tag will be "DrawingData".



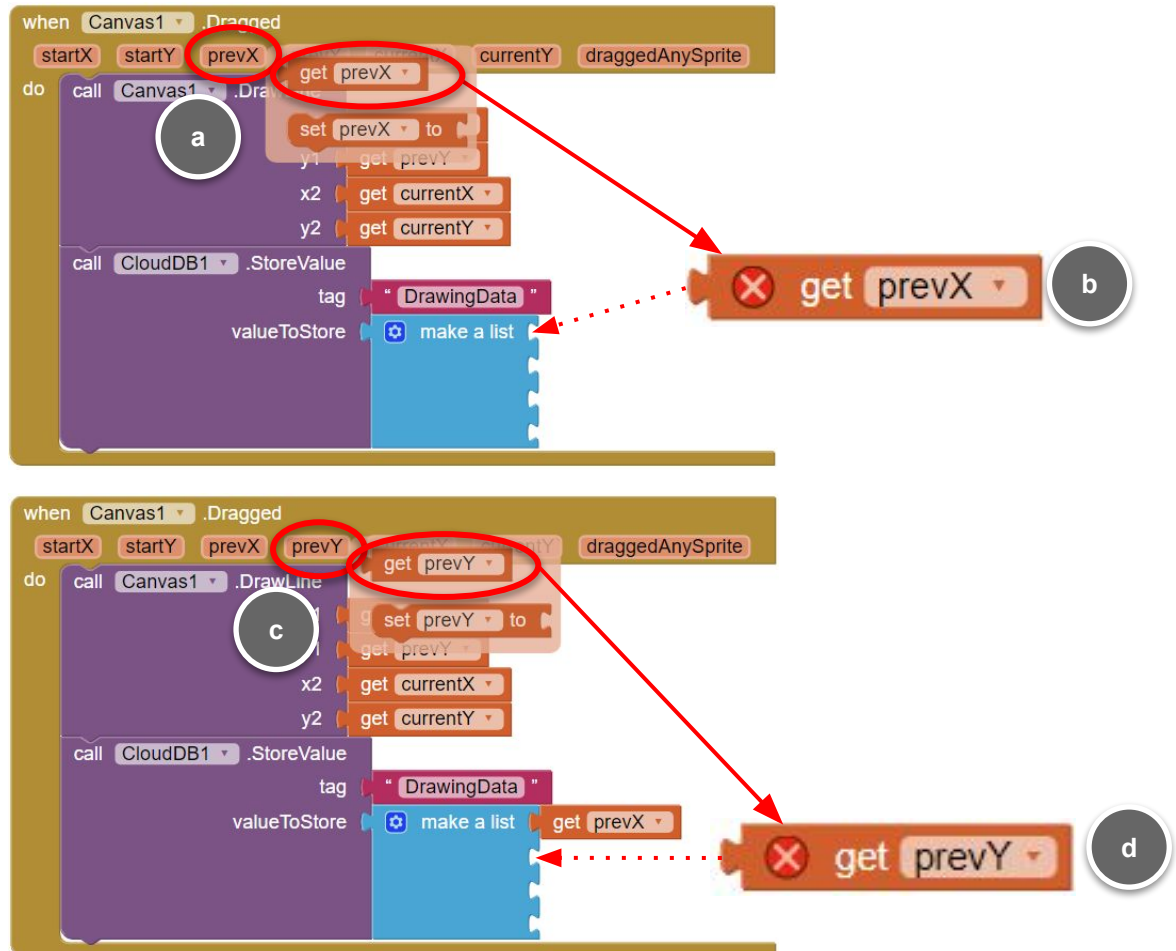
- 5 Drag out a **make a list** block for the **valueToStore**.



STORE THE COORDINATES IN CLOUDDB

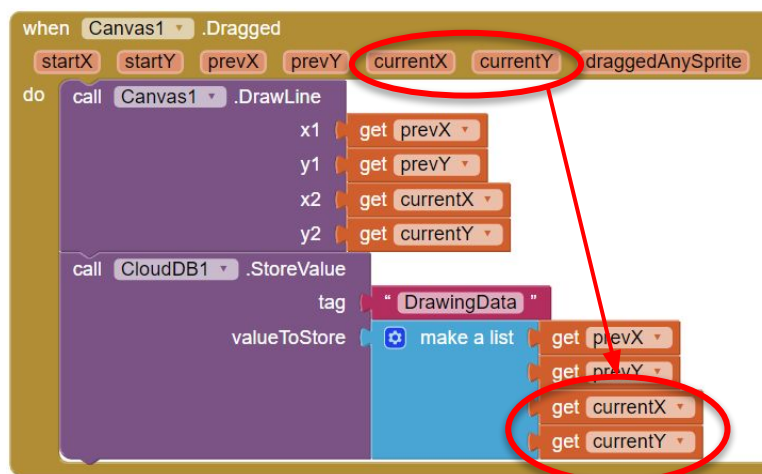
6

Mouse over the **prevX** and **prevY** blocks from **Canvas1.Dragged** and snap those blocks to the **make a list** block.



7

Do the same for the remaining blocks: **currentX** and **currentY**.

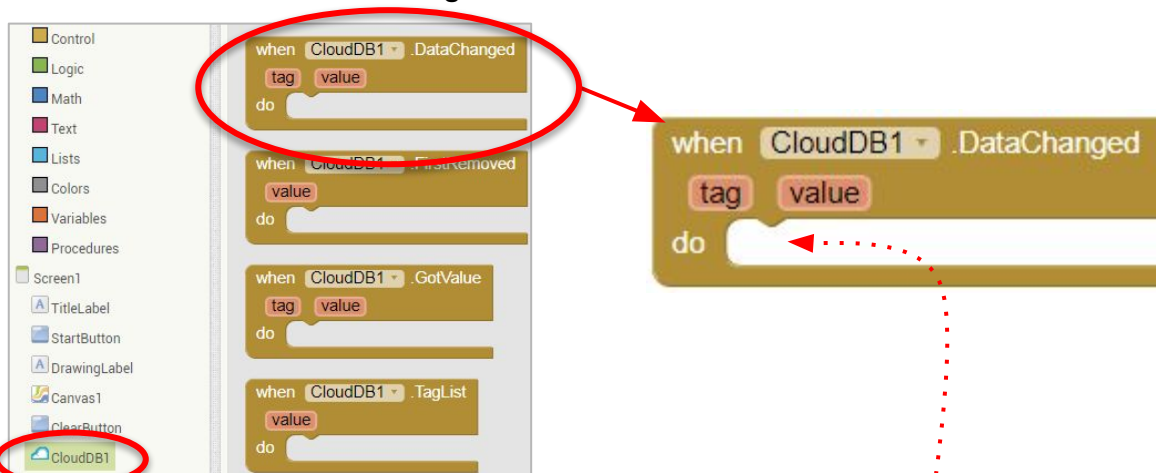


GET THE DRAWING COORDINATES FROM CLOUDDB

You just coded blocks to store drawing coordinates on the CloudDB server using the **CloudDB.StoreValue** block. Other players need to update the drawing on their device when new coordinates are stored. Any new stored information triggers a **CloudDB.DataChanged** event.

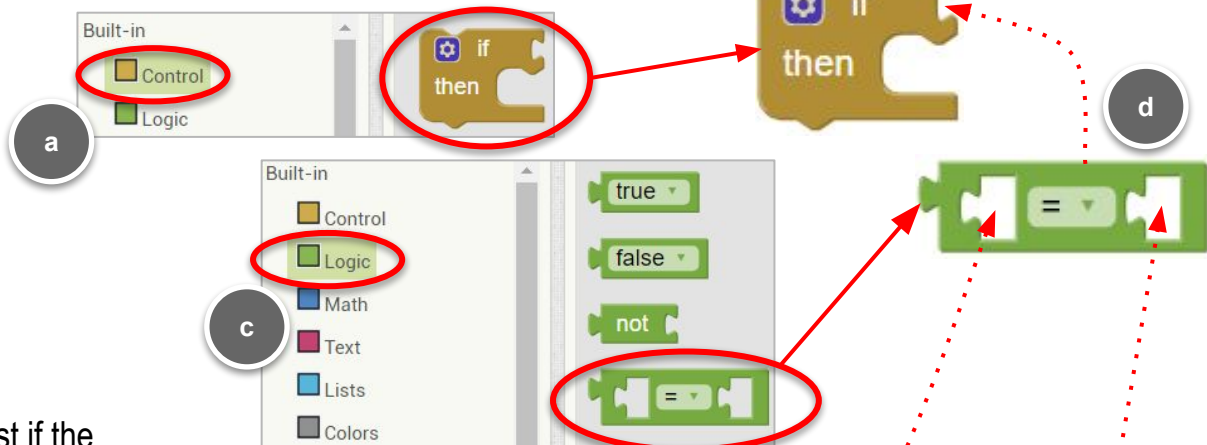
8

Pull out the **CloudDB1.DataChanged** block from the **CloudDB1** drawer.



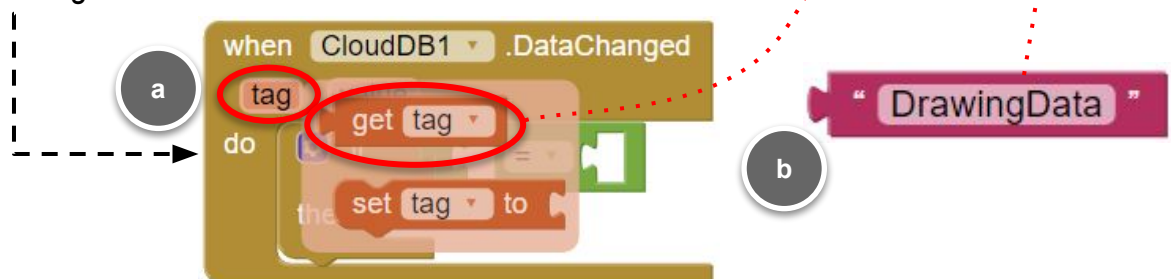
9

Many tags can be saved to CloudDB, so you need to check and make sure you've got the right tag, "DrawingData".



10

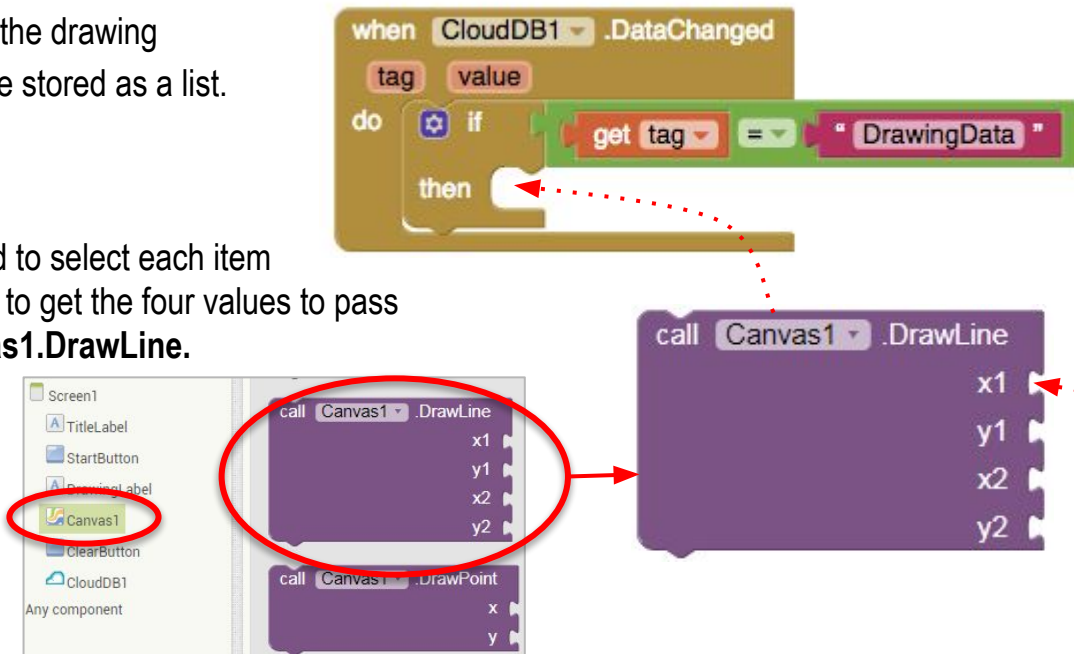
Test if the **tag** = "DrawingData".



GET THE DRAWING COORDINATES FROM CLOUDDB

Remember that the drawing coordinates were stored as a list.

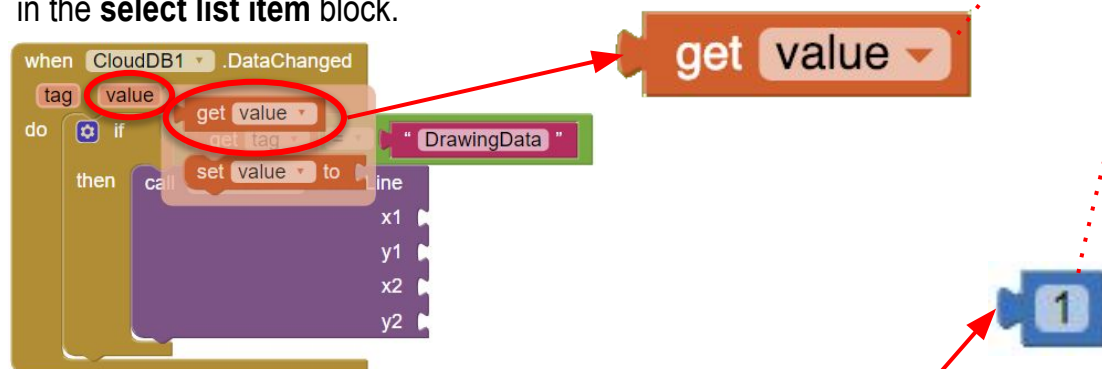
- 11 You need to select each item in the list to get the four values to pass to **Canvas1.DrawLine**.



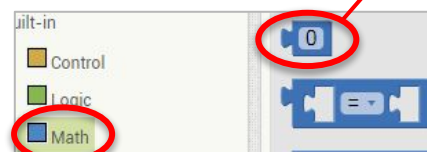
- 12 Drag out a **select list item** block and snap to x1.



- 13 Mouse over value and snap the **get value** block to the **list** in the **select list item** block.

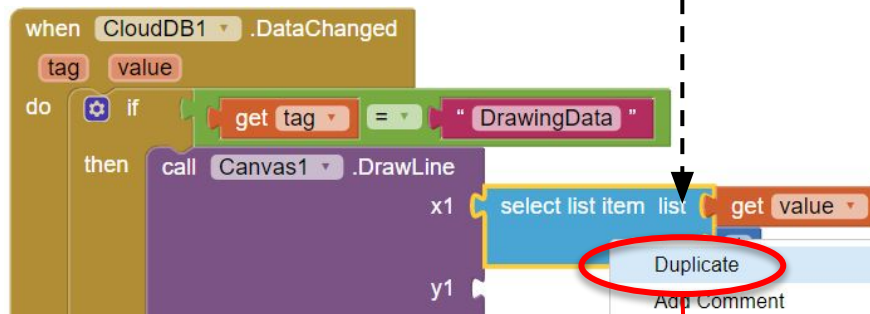


- 14 And drag a Math **0** block, and change to 1 for the **index**.

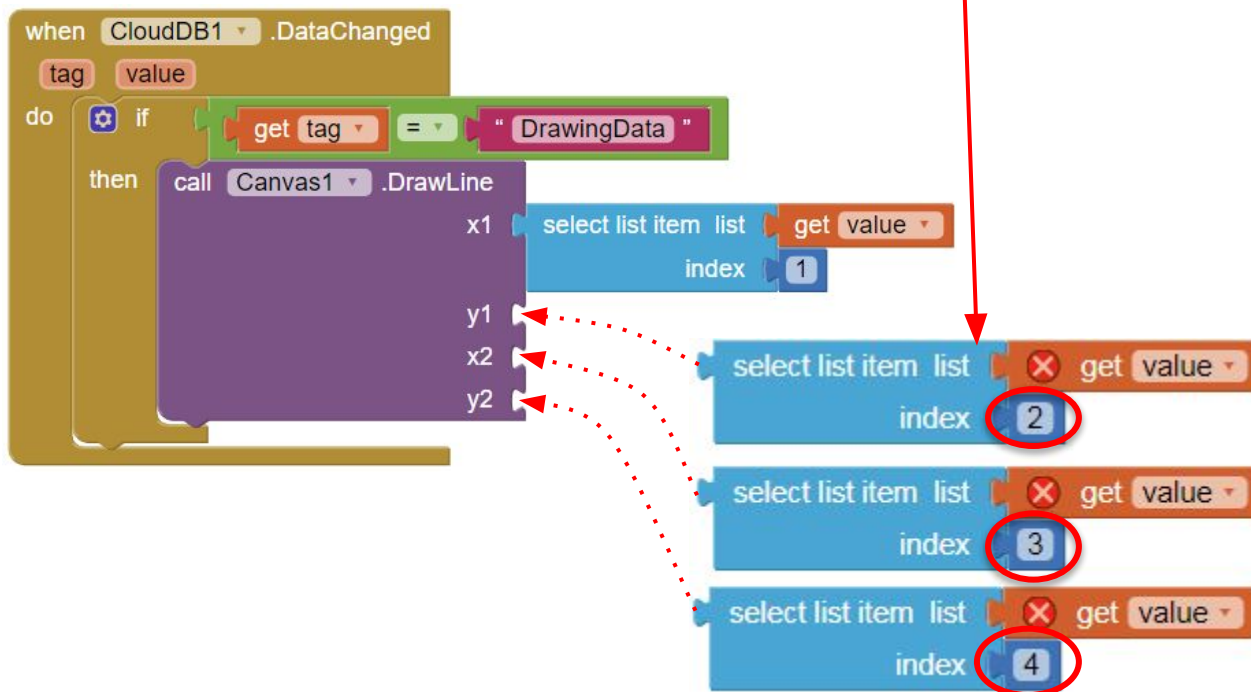


GET THE DRAWING COORDINATES FROM CLOUDDB

- 15 Duplicate the **select list item** block three times.



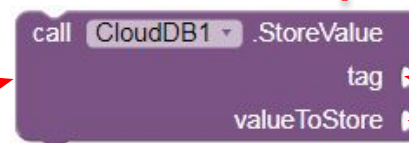
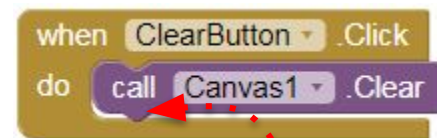
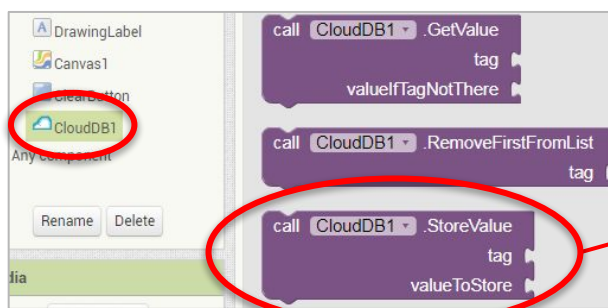
- 16 Change the index appropriately for each, then snap into the **y1**, **x2**, and **y2** slots in **Canvas1.DrawLine**.



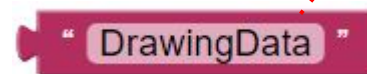
CLEAR THE CANVAS

When the Sketcher clears the screen, they need to send a message to the other device to clear that screen too.

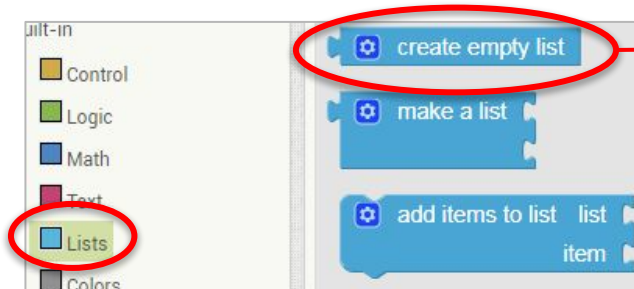
- 17 To clear the screen on the Guesser's device, store an empty list using the "DrawingData" tag on CloudDB.



- 18 Drag a text block with the text "DrawingData" and snap in as the **tag**.



- 19 And snap in **create empty list** as the **valueToStore**.

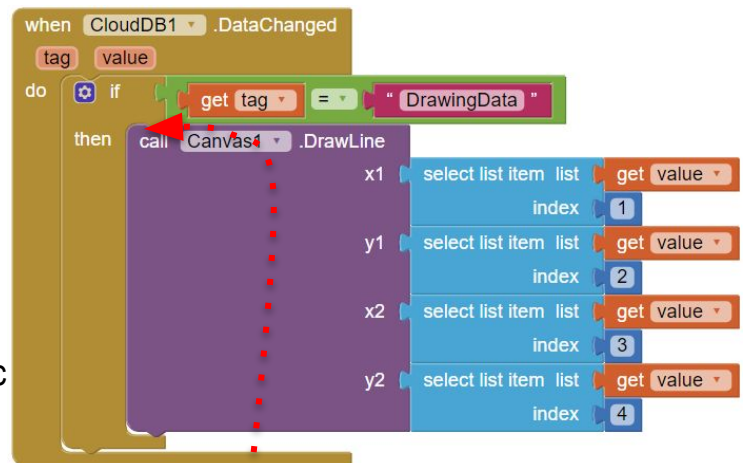


CLEAR THE CANVAS

Just as with drawing lines, you need to add code to the **CloudDB1.DataChanged** event to check if you need to clear the canvas on the Guesser's device.

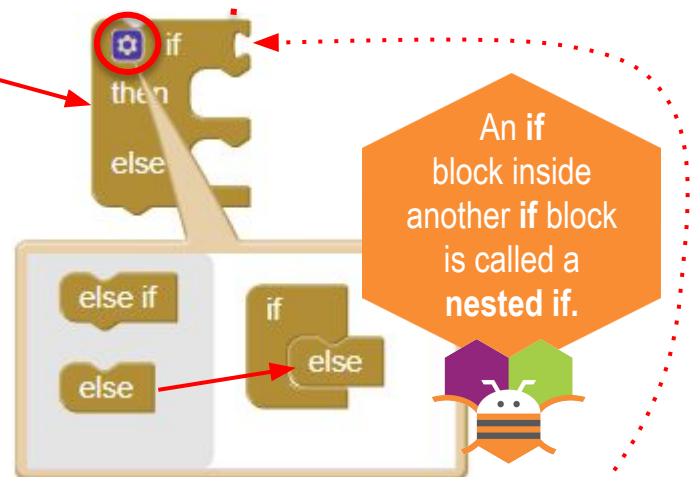
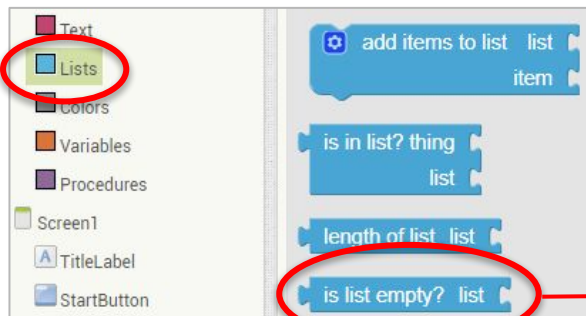
20

Make an **if-then** block into an **if-then-else** block. Snap it inside the **if tag = "DrawingData"** block.



21

Snap in a **is list empty?** block from the Lists drawer.



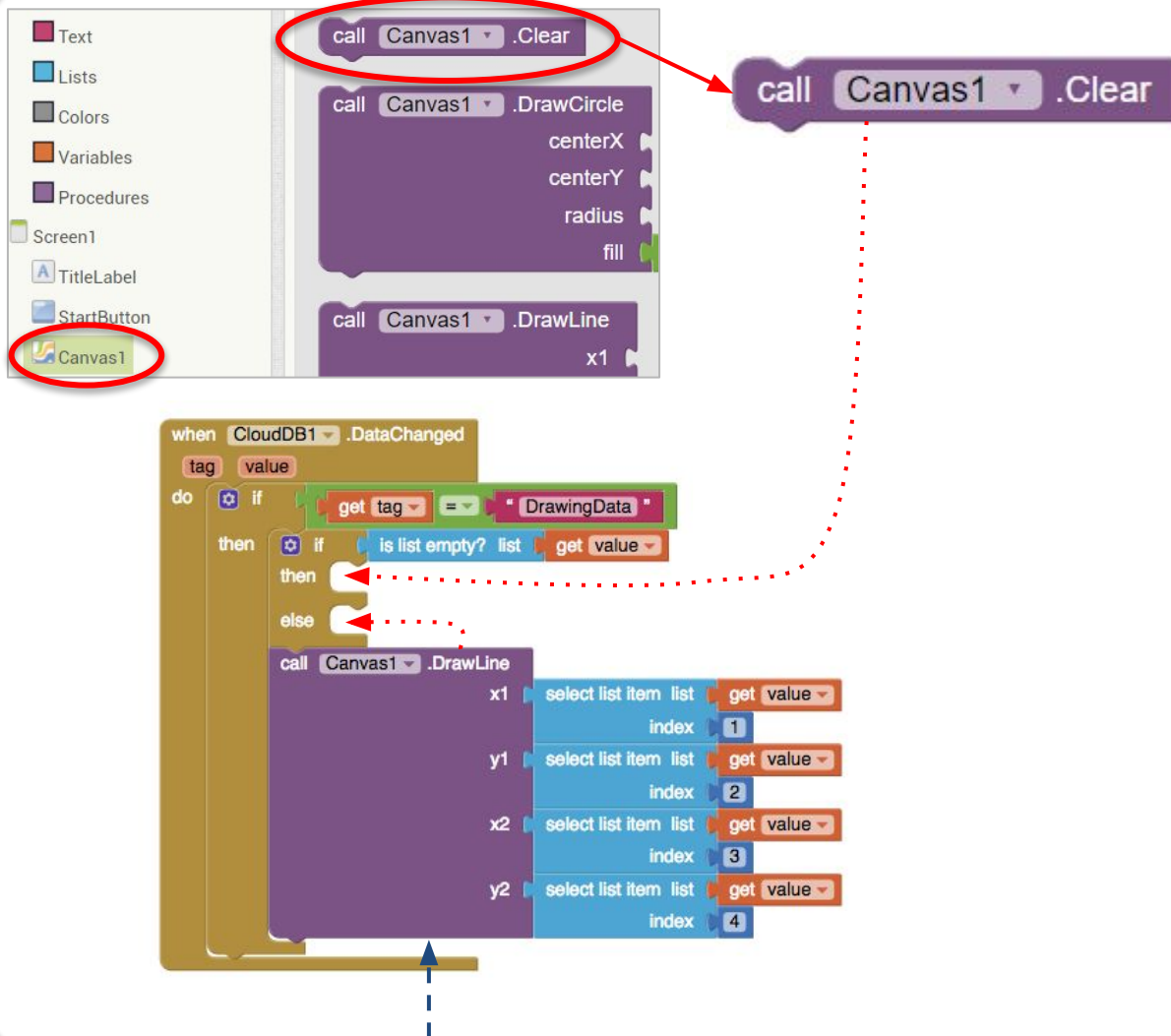
22

The value from CloudDB will be the list to check.



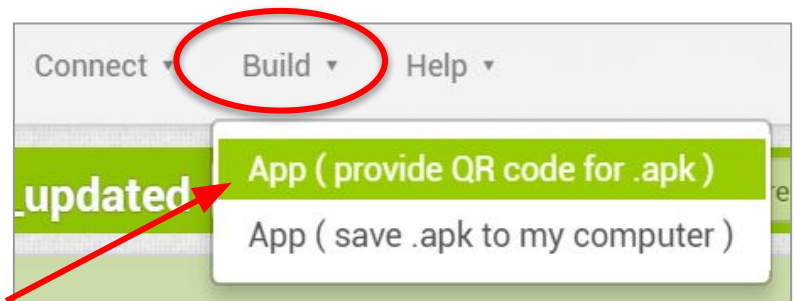
CLEAR THE CANVAS

23 If the list is empty, clear the Canvas.



24 Lastly, move the **Canvas1.DrawLine** block into the else part of the **if-then-else** block.

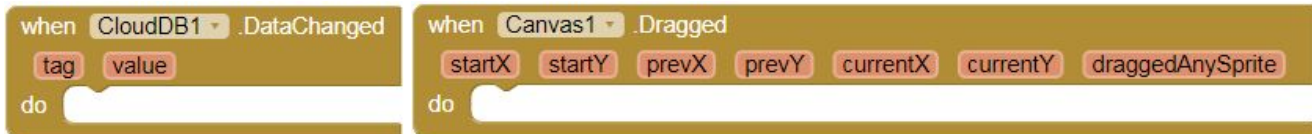
25 Test with your partner. Build the apk using the QR code option, scan the QR code and download and install the apk on your individual devices. Can one person draw and the other see it being drawn on their device?



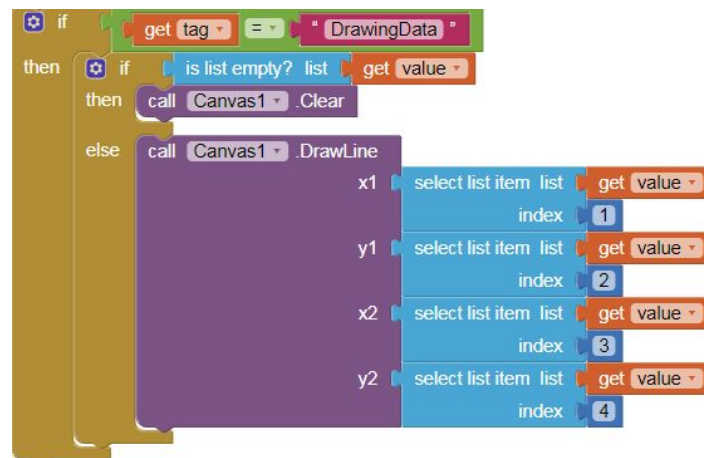
COMPUTATIONAL THINKING CONCEPTS

Sketch And Guess Part 2

1.Events



2. Conditionals



3. Naming / variables



4. Manipulation of data and elementary data structures

