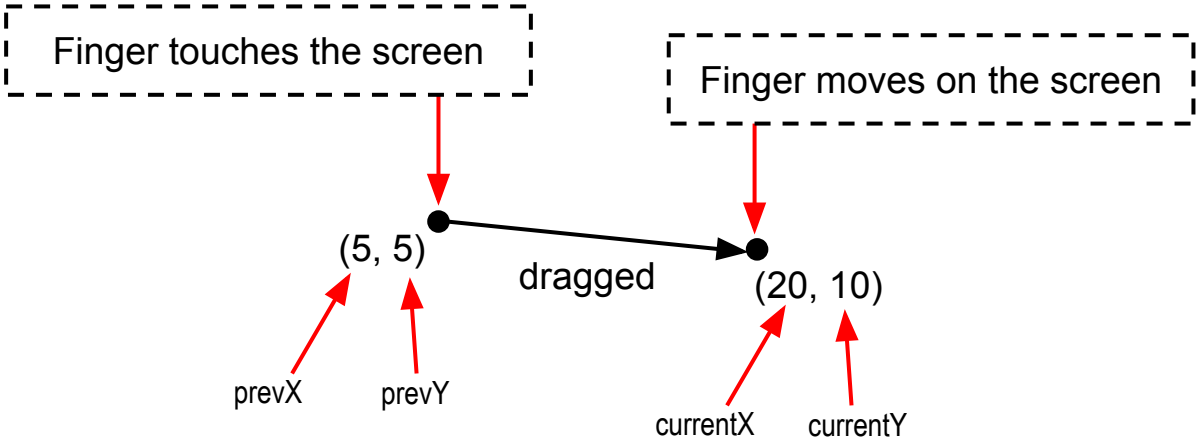
SKETCH & GUESS: PART 2

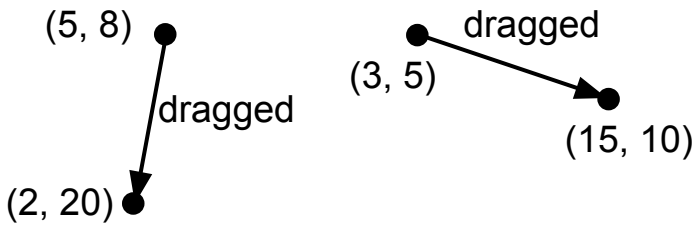
HOW TO DRAW A LINE IN THE APP

You'll start coding on the **SketcherScreen**, and make the drawing part of the app.
To draw something on the Canvas, you need to use the **when Canvas.Dragged** block and the **call Canvas1.DrawLine** blocks.

The diagram below shows how to use coordinates to draw a line in the app. A line is drawn by joining two points. Using **Canvas1.DrawLine**, you need to specify the position of the start point (x1, y1) and the position of the end point (x2, y2).



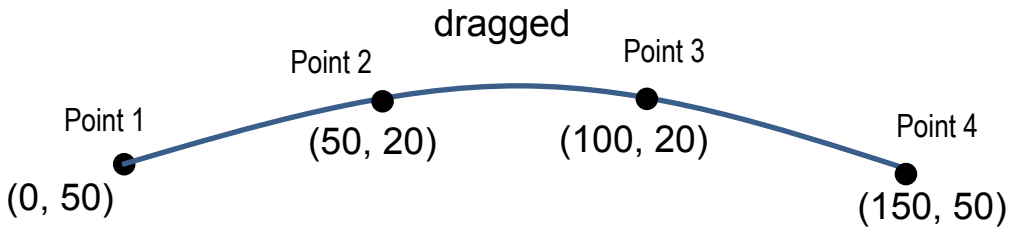
If you want to draw a line in the app, you need to use **prevX**, **prevY** and **currentX**, **currentY**. Below please work with your partner to fill in the blanks.



prevX		
prevY		
currentX		
currentY		

HOW TO DRAW A CURVE IN THE APP

A line is formed by connecting many dots. Each of the dots is represented by its coordinate (x,y).

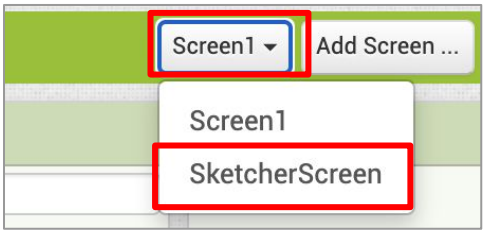


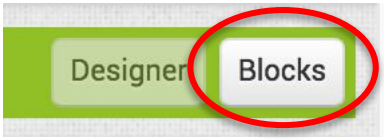
If you want to draw a curve in the app, you need to draw many lines, each with its own **prevX**, **prevY** and **currentX**, **currentY**. Below please work with your partner to fill in the blanks.

	segment 1 (Point 1-Point 2)	segment 2 (Point 2-Point 3)	segment 3 (Point 3-Point 4)
prevX			
prevY			
currentX			
currentY			

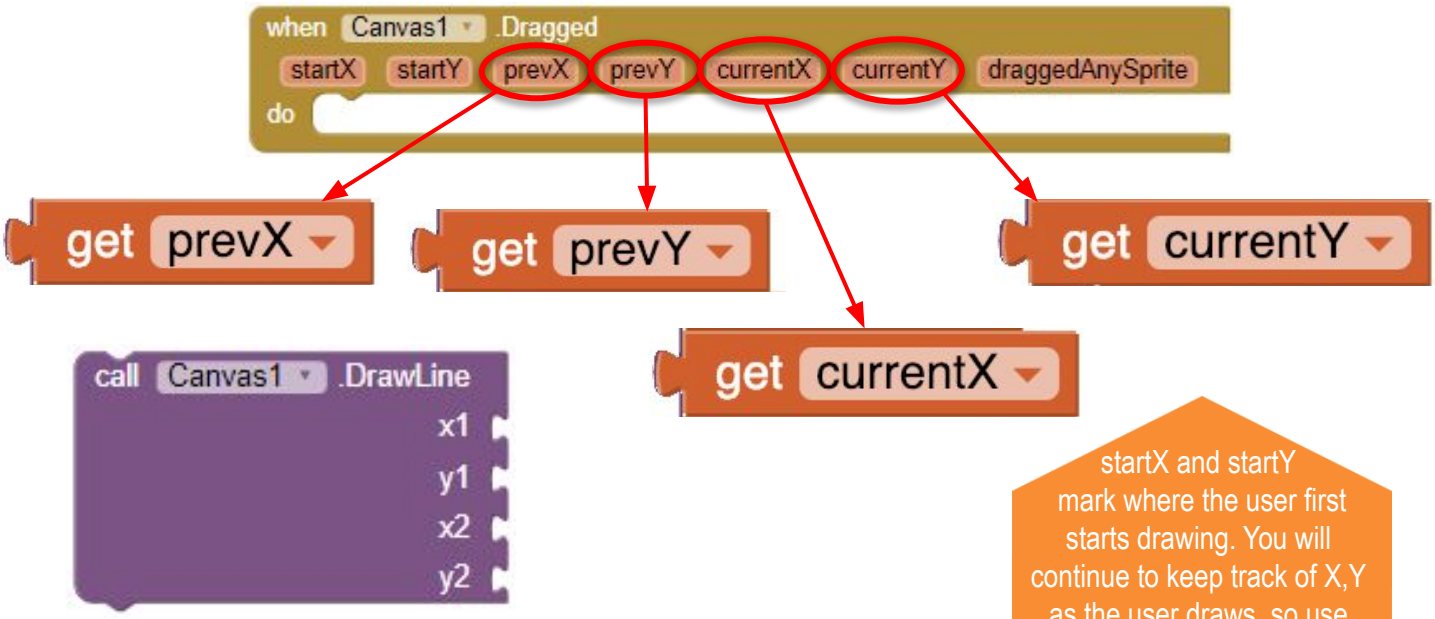
DRAW WHEN USER DRAGS ON THE CANVAS

1 Switch to the SketcherScreen and make sure you are in the Blocks editor.



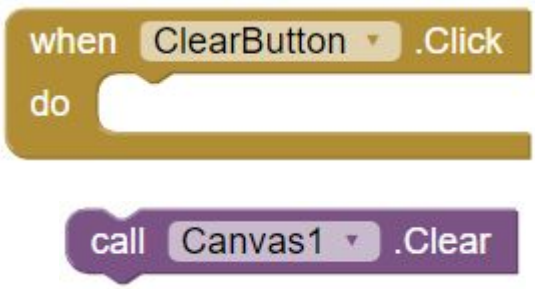


2 First step is to write the code to draw a line when the user drags their finger on the screen. Use the blocks below.



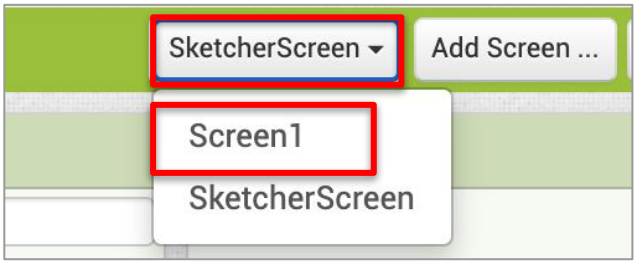
startX and startY mark where the user first starts drawing. You will continue to keep track of X,Y as the user draws, so use prevX, prevY to currentX, currentY.

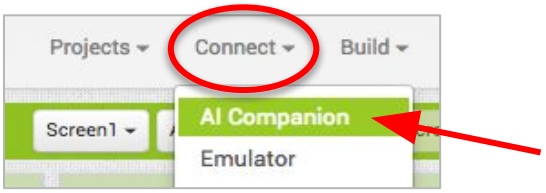
3 And clear the Canvas when the user clicks the ClearButton. Use the blocks below.



TEST THE APP

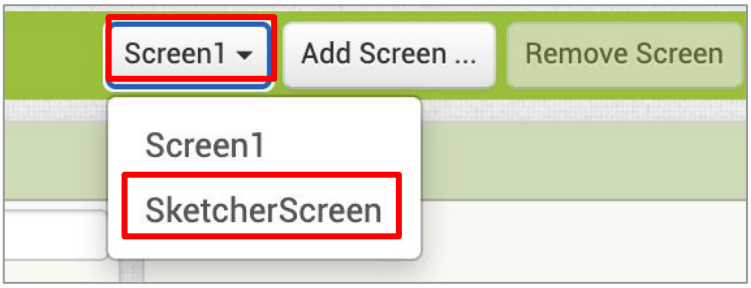
4 Make sure you have Screen1 open. Test your app using MIT AI2 Companion. Choose the "I want to draw" option and then try drawing on the screen. Press the Clear button to clear the drawing.



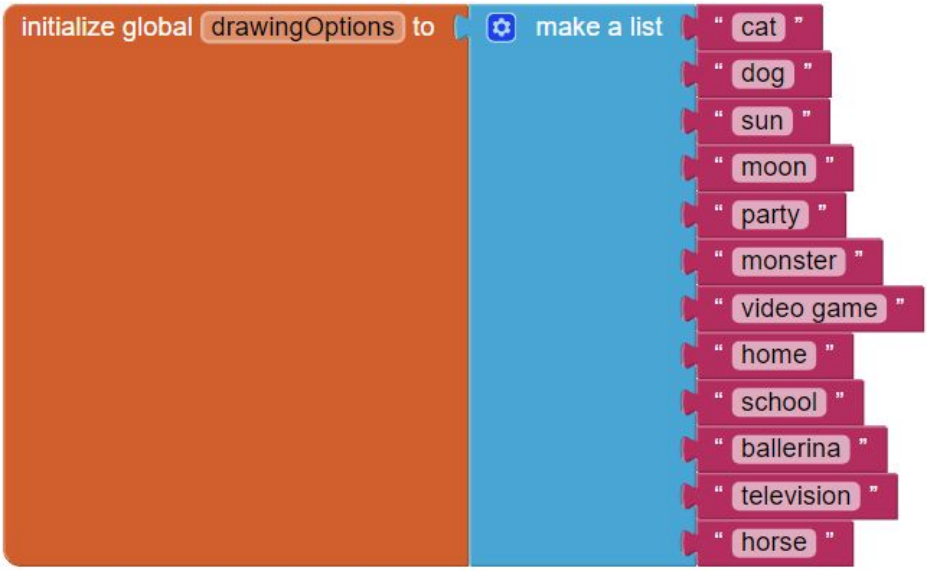


ADD DRAWING OPTIONS FOR SKETCHER

5 Switch to the **SketcherScreen** and to the **Blocks Editor**.



6 The Sketcher needs a list of possible objects to draw. The app will randomly display one for the Sketcher to draw. Initialize a variable **drawingOptions** with a list of at least 12 items. This is a sample list. You can choose your own drawing objects to add to the list. ----------►



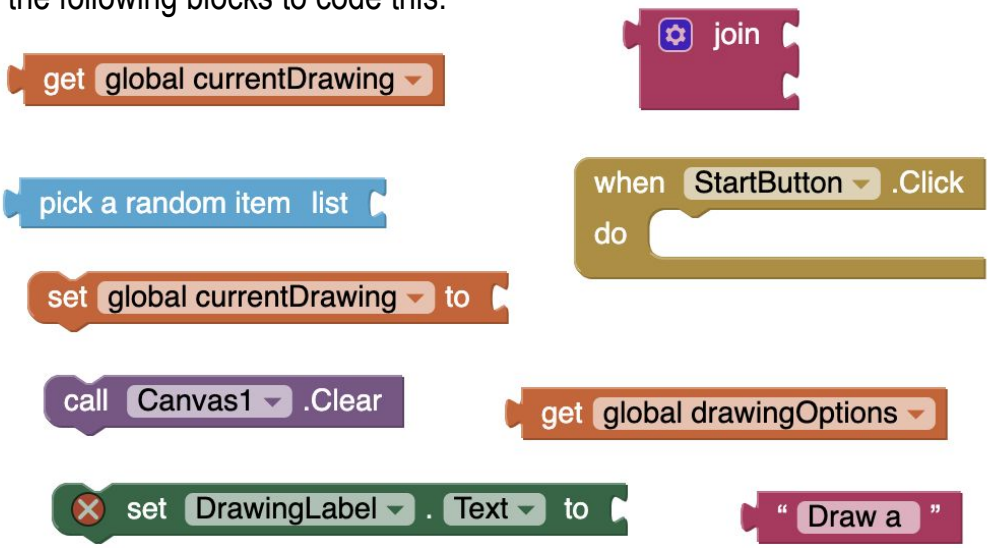
PICK A RANDOM ITEM WHEN STARTBUTTON IS CLICKED

7 Create another new variable, and name it **currentDrawing**. Initialize it to a blank Text block. This variable will be used to save a random item from the **drawingOptions** list that will be the object the Sketcher will draw.

8 When the user clicks the StartButton, the following should happen:

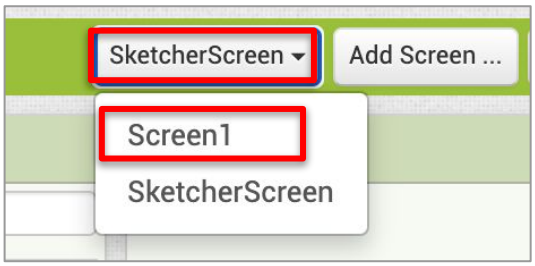
- currentDrawing should be set to a random item from the drawingOptions list
- DrawingLabel should instruct the user what item to draw.
- The Canvas should be cleared.

Use the following blocks to code this.

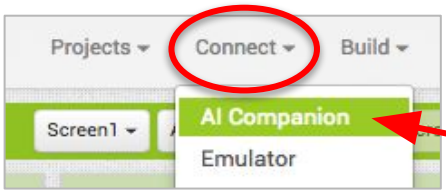


TEST DRAWING OPTIONS

9 Make sure you have Screen1 open.
Connect to the MIT AI2 Companion to test.



10 Choose the "I want to draw" option.
Press the New Picture button in SketcherScreen.
A random item should be displayed for the user to draw.
Try pressing the button again.
Check that random objects to draw are displayed.

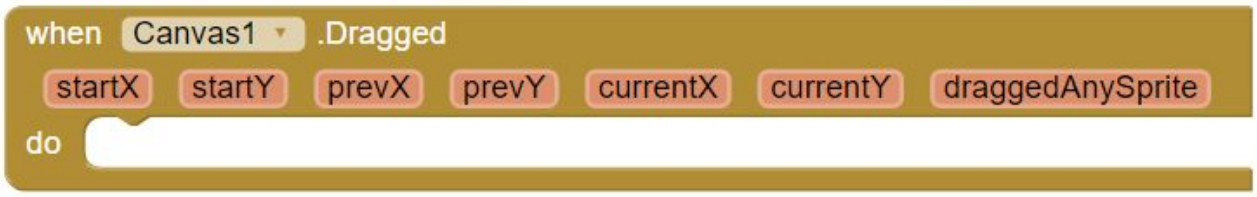


COMPUTATIONAL THINKING CONCEPTS

Sketch And Guess Part 2

1. Sequences

2. Events



3. Naming/Variables

4. Manipulation of data and elementary data structures