Topic	OnClick EVENTS	
Class Description	**Using Events to trigger complex on-screen outcomes. Kids learn Advanced Design Thinking in using code to design interactive outcome-based user experiences.**	
Class	**ADV-C5**	
Class time	**55 mins**	
Goal	• Understand and apply appropriate events to build user interactivity.	

Resources Required	• Teacher Resources
	  ○ Use your Code.org login credentials
	  ○ Earphone with mic
	  ○ Notepad and Pen
	• Student Resources
	  ○ Use your Code.org login credentials
	  ○ Earphone with mic (optional)
	  ○ Notepad and Pen	

Class structure	**PTM SESSION** **Warm Up** **Teacher-Led Activity** **Student-Led Activity** **Wrap Up & Fun With Tech** **Project Pointers and Cue**	**15 Mins** **8 mins** **5 mins** **12 mins** **10 mins** **5 Mins**
MIT App inventor is not yet there for IOS, so please use any android phone for live testing. **Teacher should download MIT App for live testing from before Teacher Reference Activity 1 class**		
PTM SESSION-15 MINS		

WARM UP SESSION - 8 mins

Teacher starts slideshow from slides 1 to 18.
Refer to speaker notes and follow the instructions on each slide.

TEACHER ACTIVITY - 5 mins

Teacher Initiates Screen Share

Say	Do
We will first take a look at some events that are	

available and learn about them. First is **When Run** event, which we have been using in all the classes so far. As you know every event triggers an action. Q Can you tell me what actions the **When Run** event trigger?  A The **When Run** event triggers the computer to run or execute the code written in the code blocks that follow the "**When Run**" block. Excellent! This is equal to an "On start" event block and is crucial for every program to run. This event block activates the code for the entire program on the Click of the Run button. The green blocks that you see are Event which trigger code for the event. We will learn how to program the **When Click** event. The "**When Actor Clicked**" event triggers code when you click the sprite or actor object seen on screen. In this case it is Ollie the Octopus. Let us code and see how it works.	Prompt the student to reply. Open Teacher Activity 1-PLAY LAB

When we Run the program using 

button, the 

event gets activated

However, as you see, nothing happens…

This is because the code block **Say Hello** is written following the **When Actor Clicked** event.

To see it in action, we need to trigger the When Actor clicked event by clicking on the Octopus actor.

and wow ... see … he does say Hello.

All the green event blocks don't have to be connected to the 

block, as they are not part of the default program flow.

The green blocks get activated when an appropriate user action is made.

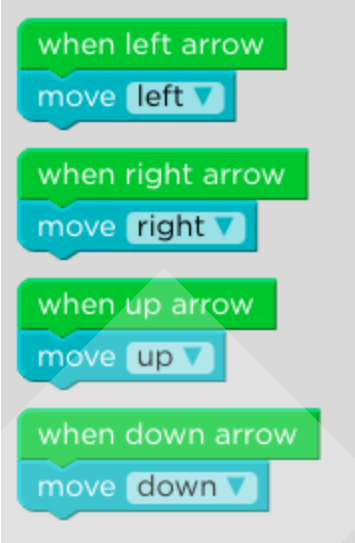
Solution 2

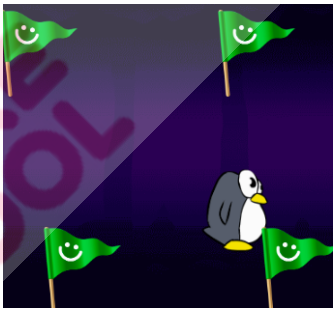
Teacher Stops Screen Share

Teacher starts slideshow  **from slides 19 to 21.**
Refer to speaker notes and follow the instructions on each slide.

STUDENT ACTIVITY  **- 12 mins**

Let's learn more events starting with the **When Run** event.	
• **Ask Student to press ESC key to come back to panel** • **Guide Student to start Screen Share** • **Teacher gets into Fullscreen**	
Student Initiates Screen Share	
Say	**Do**
You just saw how to use the event block. Now, you try and apply this event to characters Dog and Cat on screen to create a conversation between them triggered by the  event. This activity is a variation of the **When event**. "**When actor"** clicked and here we will track and trigger code for **When Arrow Key** event. This makes use of the four arrow keys on your keyboard to trigger some code. Usually arrow key events are used for moving game characters on screen. Similarly, here the Waddles Penguin will win if he is able to strike the Red flags. Can you help Waddles move and collect the flags so that he can win? Let's code for a sure win!	Student Activity 1-PLAY LAB Solution

<table>
<tr>
<td></td>
<td> 

 </td>
</tr>
<tr>
<td>This activity is some more practice for When arrow Key event and Repeat block logic.

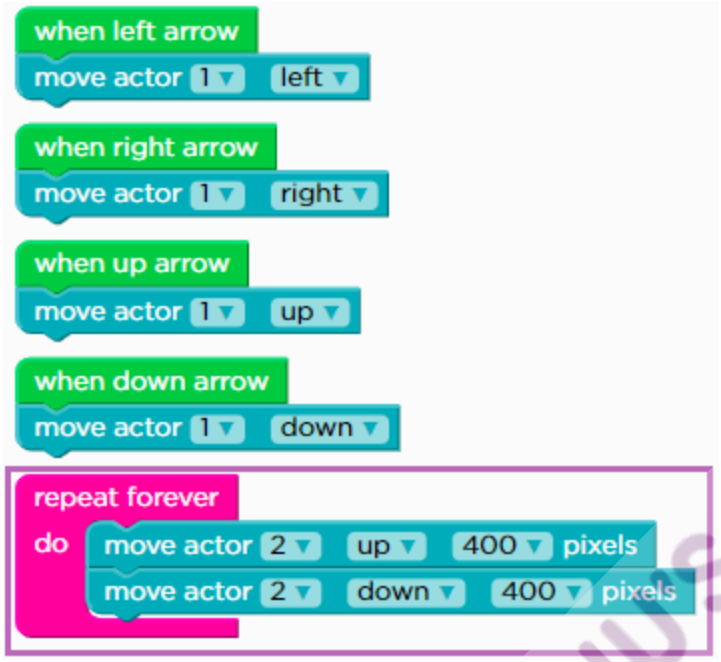
The existing code on events moves Waddles penguin up and down on the screen.

Your code should move Draco dinosaur Up and down continuously.

Repeat block just repeats the code statements inside it, and so we will use repeat block to repeat the events continuously.</td>
<td>Student Activity 2-PLAY LAB

Solution</td>
</tr>
</table>

Solution 3:



Great! Good Job.

Before we start with your profile app. Let's see the flow:

1. A gmail account is required to login in to MIT Platform and create the app, which you have already created.
2. After you login, I will give the link of the app, in which you have to make changes as per my instruction.

So let's start -
First, upload your picture into the design of the app.

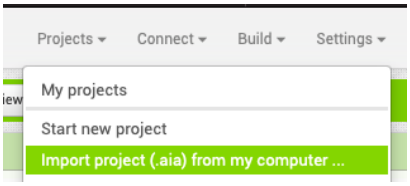
I have started the app for you. You need to upload your picture, your bio and your icon.

In today's class, we are just going to upload your profile picture into your app.

1. Download aia file from Student Module Activity 4.1
2. Then open Student Module Activity 4.3 and

Download aia file from Student Module Activity 4.1 Open MIT INVENTOR and login.

Then click on the Project and select Import project (aia):

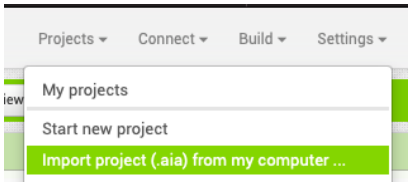


Import the downloaded aia file

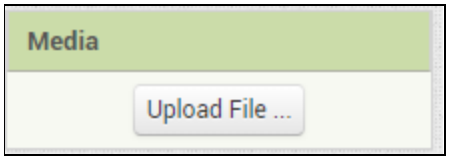
Then click Connect and select AI Companion:

login.

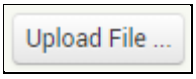
3. Then click on the Project and select Import project (aia):



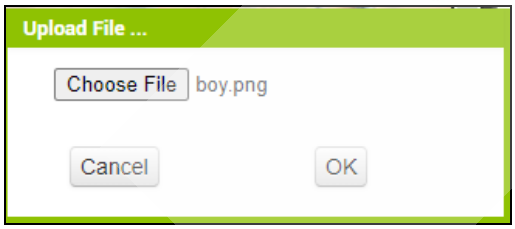
4. Import the downloaded aia file.
5. On the MIT website there is a media section under the Components section:



6. Click on the Upload File option:



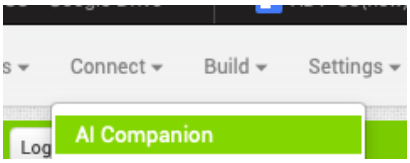
7. Locate and select the pic from your drive:



8. Click on the OK button:

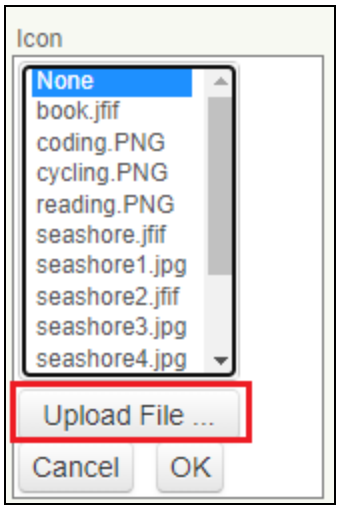
9. Done.

10. At the end of the dropdown you can see a Upload File… button, like this:



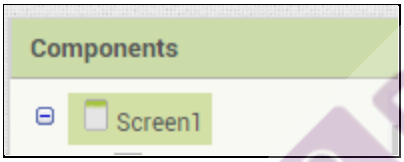
A barcode will come. Scan this barcode in the MIT app which you downloaded on your android phone.
Then do a live test and showcase the app.

In case of any confusion how to test MIT app on android phone, please check Teacher-Reference-Activity-2

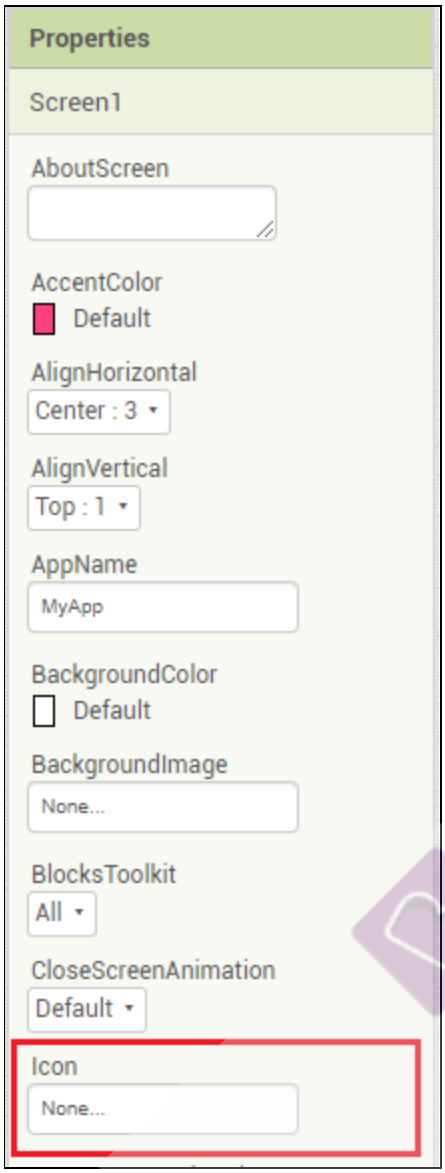


Let's also upload your picture for the app icon.

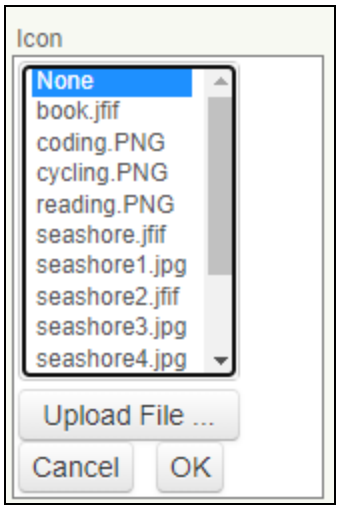
1. Click "**Screen1**" component



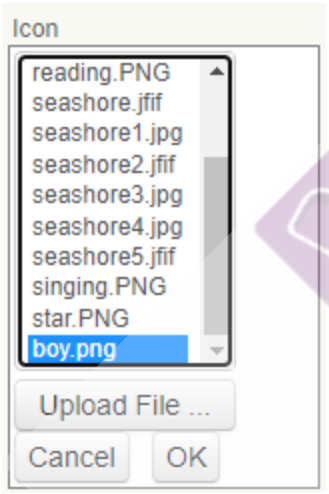
2. In the properties tab of **Screen1** on the right hand side, click on the Icon input box.



3. As you click the input box, a drop down will open like this:



4. Select the icon image. Now when you install the app you will see your pic as the icon of the app in your phone:



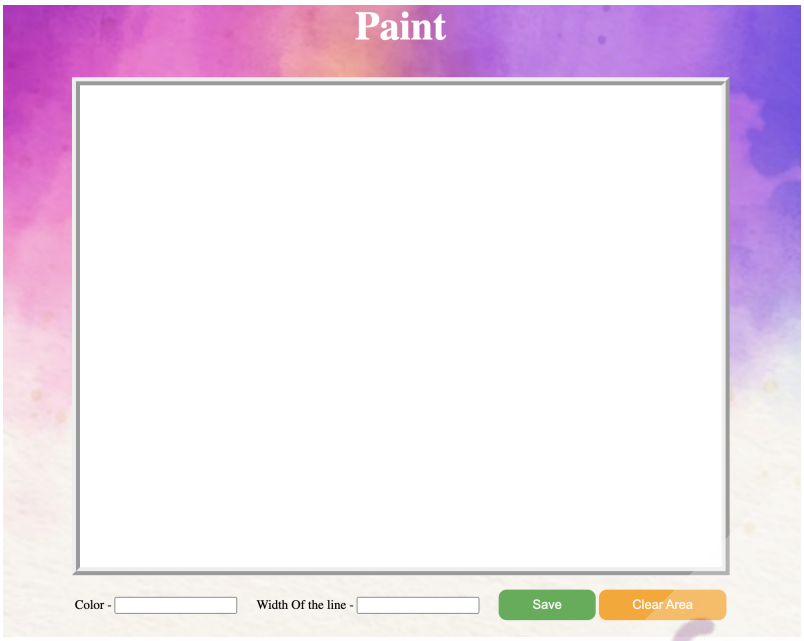
5. Click on the OK button:

6. Done.

NOTE -

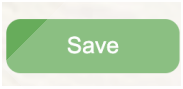
In the worst case, seniors if the student doesn't have an android phone to test the MIT app then guide the student on how to download and test MIT apps on the emulator.

Teacher Should go through Teacher-Reference-Activity-3 before class so that she can guide the student on how to download and test the MIT apps on the emulator. Great!! In the next class, we will update your Bio in the app.	
Keep this project safe, as we will complete this project in the next class.	
Teacher Guides Student to Stop Screen Share	
WRAP UP SESSION & FUN WITH TECH - 5 mins	
Teacher starts slideshow  **from slides 22 to 26.** Refer to speaker notes and follow the instructions on each slide.	
FUN STUDENT ACTIVITY  **- 5 mins**	
• **Ask the student to press the ESC key to come back to the panel.** • **Guide the student to start Screen Share.** • **Teacher gets into Fullscreen.**	
Student Initiates Screen Share	
Shall we begin with today's fun activity of free-hand creative drawing on a canvas?	Student Activity 3-Paint Application *Ask the student to open the link for student activity 3.*



Draw whatever you wish to, and showcase your creativity, using your mouse. You also have an option to set the color and width of your brush from the input boxes present at the bottom of the page.

➔ You can save the drawing by clicking on the



button.

➔ You can also clear the canvas by clicking on the

button.

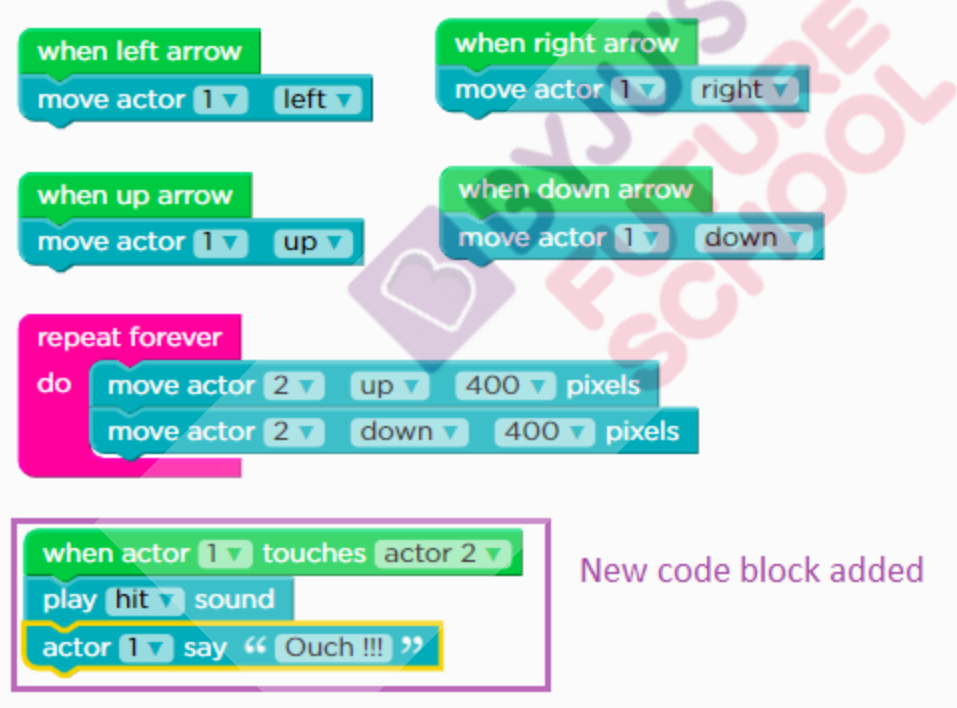
Further in the curriculum, you will develop this entire paint application on your own. You will also make this paint application compatible with mobile devices such that you can use it for drawing from your mobile phone as well as from your computer.

Sounds exciting, isn't it? I am curious to see what new features you will add to it when you make this application. Now let's move ahead.	
Student Stops Screen Share	
DID YOU KNOW, UPCOMING CLASS, AND PROJECT POINTERS - 5 Mins	
Teacher starts slideshow  **from slides 27 to 29.** Refer to speaker notes and follow the instructions on each slide.	
Teacher Initiates Screen Share	
Say	**Do**
Project Name: MAGICAL FIX **Goal of the Project:** Today, you learned about events and how to use events to trigger outcomes. In this project, you will have to practice and apply what you have learned in the class and help wizard to fix the robots. **Story:** The Robots need to be fixed and only the wizard with the magical powers can fix them. You need to help the wizard to fix the robots by controlling the movement of the wizard using the arrow keys. Be Careful! Don't let the witch touch the wizard, else the wizard will be sent down.	**Note: You can assign the project to the student in class itself by clicking on the Assign Project button which is available under the projects tab.** Open the **Project Solution** link and demo the project to the student

The project will take only 30 minutes to finish. You can try and finish it immediately after this class. I am very excited to see your project solution and I know you will do really well. Bye Bye!	
Teacher Stops Screen Share	
Teacher Clicks ✖ End Class	
Additional Activities	
Teacher starts slideshow  **from slides 30 to 34.** Refer to speaker notes and follow the instructions on each slide.	
STUDENT ADDITIONAL ACTIVITY 	
Student Initiates Screen Share	
Say	**Do**
Additional Activities Here are some additional activities which will help in making your concept more strong. **Additional Activities 1** As you have learned the basics of how events occur and how they trigger code for it, let's write code to handle the User inputs.	Additional Activity 1 (Do 8 to 10) - PLAY LAB

In this **Additional Activities 1**, you have to program Waddles Penguin to say "Ouch" and indicate it by playing a hit sound when he runs into Draco dinosaur. This activity extends your earlier code, you must build on it using a new event block called **Touches** The **"Touch** event" triggers an action when characters touch each other on screen. Scroll below in the workspace and Lets get coding.	Solution for level 8 below:

Solution 4: Puzzle Level 8

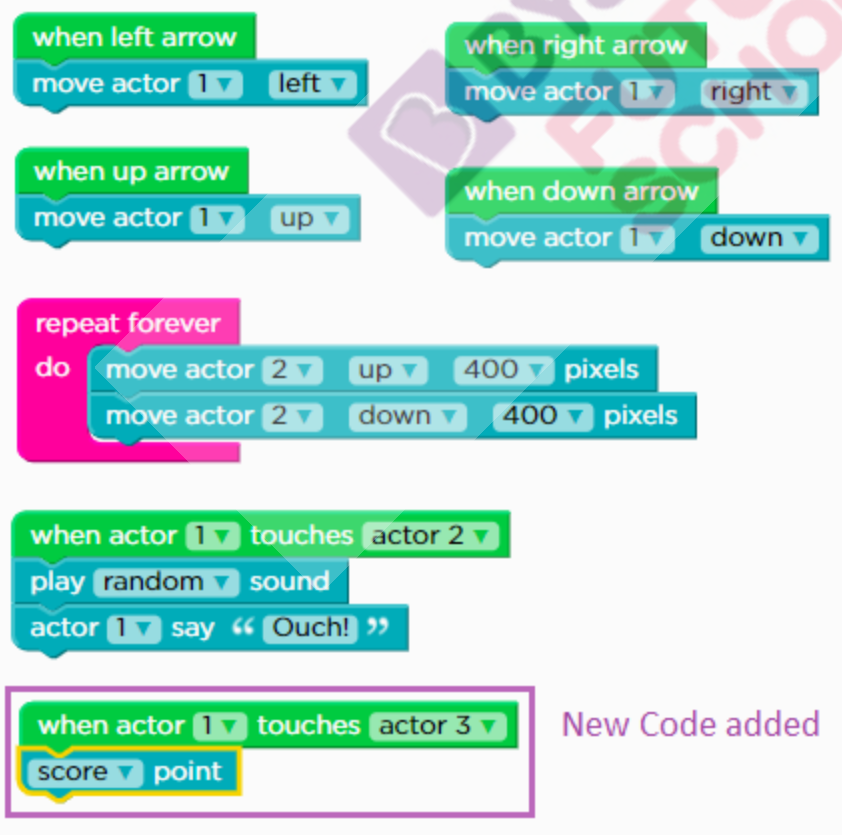


Now we take this further to get Waddles penguin to score a point if it runs into Ollie Octopus.

We track user keyboard action to write code so that when moving right Waddles penguin runs into Octopus and scores a point.

Click next to go to level 9

Solution: Puzzle level 9

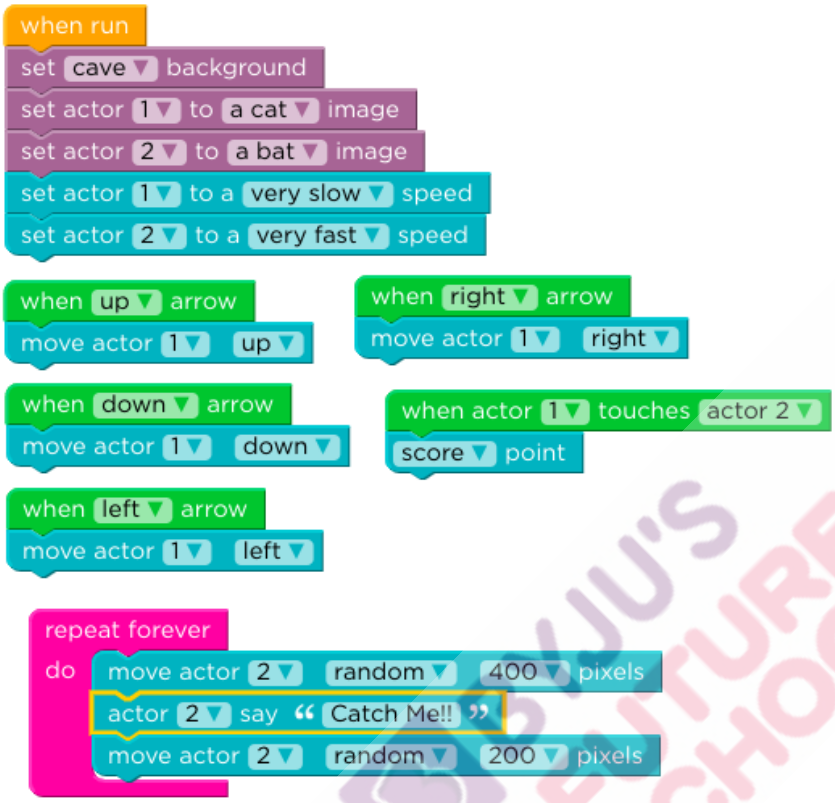


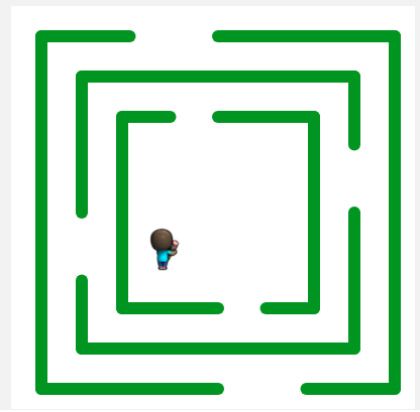
Now, let us conclude by combining **When run** event code and other events together. On the run, you are required to change the background for the scene and also set Waddles penguin to a faster speed.	Click and go to level 10

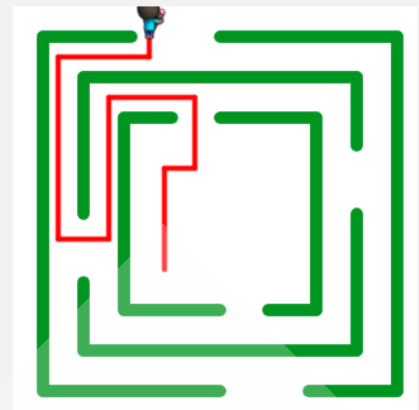
Solution: Puzzle level 10

Additional Activities 2 Create a story in which a **slow speed cat** scores a point each time it catches a randomly moving **high speed bat.**	Additional Activity 2-PLAY LAB

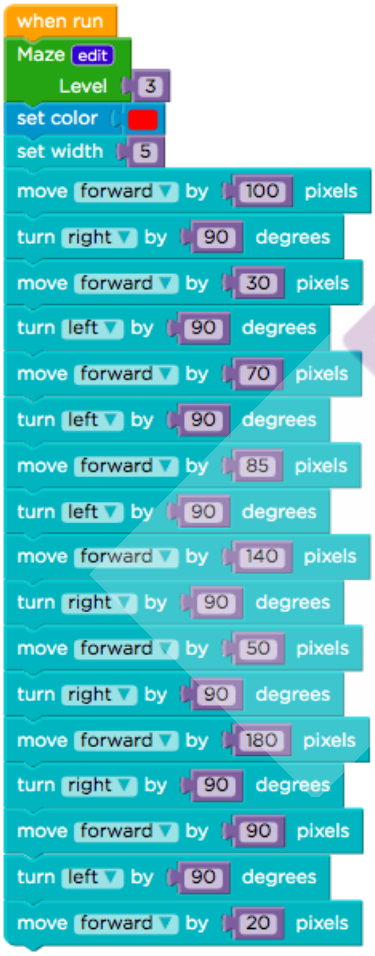
	Solution AA2



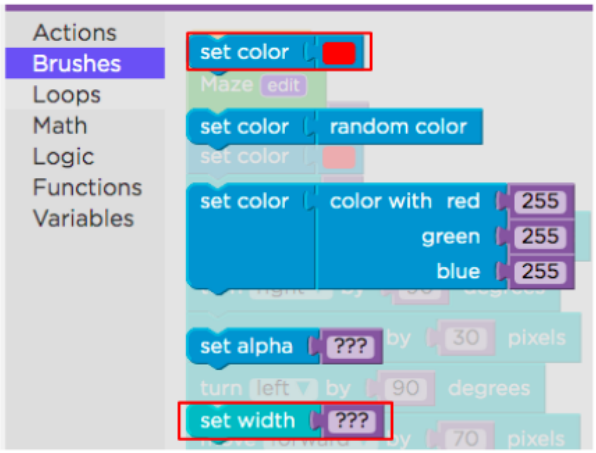
	We will be doing a revision of some code that we have performed in additional activities in the previous classes. Your task is to escape from this maze. Use angle left 90 degree or angle right 90 degree to change the directions. Make an algorithm in your mind and execute the code. The base for the algorithm will be setting a different color to the brush, setting the width to the brush and then moving forward and	Additional Activity 3-ESCAPE THE MAZE 1  Escape the maze

	changing the direction until you escape the maze. NOTE - You can't use JUMP block for this activity.	**Required output** 

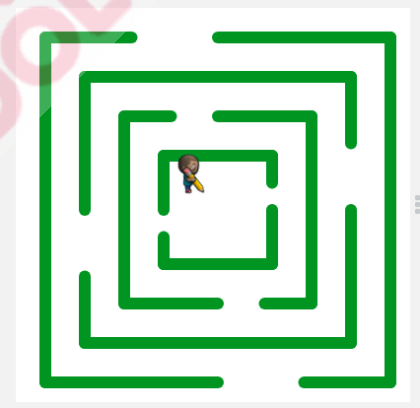
Solution for AA 3

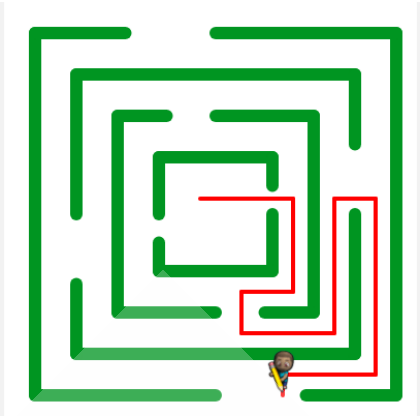


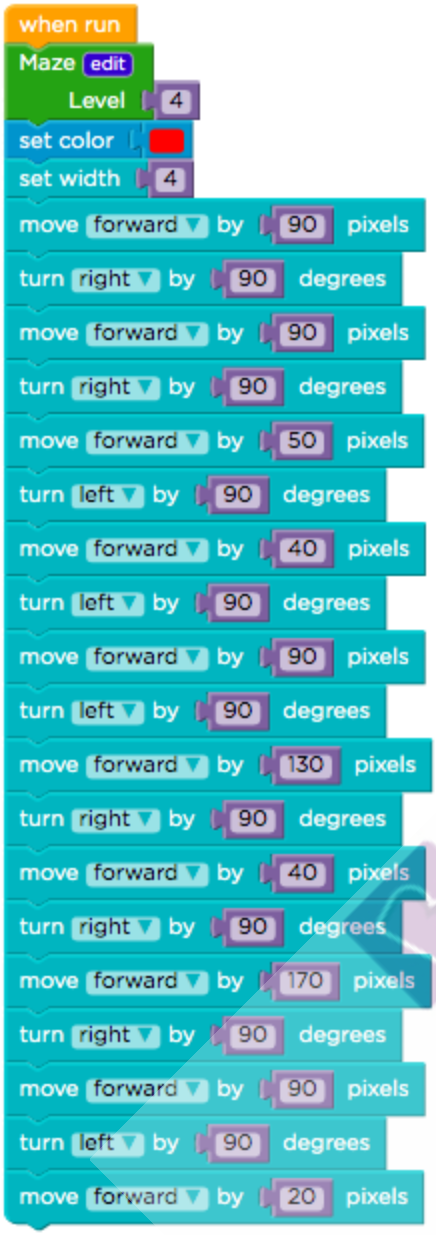
Set the brush color and the width of the brush:



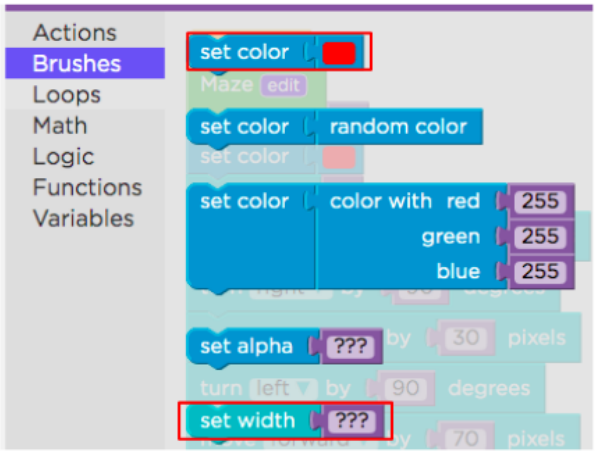
Then start moving forward and change direction by right 90 degrees or left 90 degrees until you escape the maze.

	Now that you have an algorithm in your mind, let's write a code according to that **algorithm**.	Additional Activity 4-ESCAPE THE MAZE 2  Encourage the student to answer. **Required output**:

		
Solution for AA 4:		



Set the brush color and the width of the brush:



Then start moving forward and change direction by right 90 degrees or left 90 degrees until you escape the maze.

Activity No	Name	Link
Teacher Activity 1	PLAY LAB	https://studio.code.org/s/course2/stage/17/puzzle/5
Teacher Reference Activity 1	MIT AI2 Companion App DOWNLOAD	https://play.google.com/store/apps/details?id=edu.mit.appinventor.aicompanion3&hl=en_IN&gl=US
Teacher Reference Activity 2	HOW TO TEST MIT ON ANDROID PHONE	https://drive.google.com/file/d/1n4b_5fuNLIu7xOHVnl90yshWa6Nxfb98/view?usp=sharing
Teacher Reference Activity 3	HOW TO TEST MIT WITHOUT PHONE	https://docs.google.com/document/d/e/2PACX-1vS8ELH-KuHr73bS51NitsqpfY0Qd49RHU7Luaf9aqzOW8XCJA09RAfHS-h6yorHqKpn3vG9tgftwdE7/pub
Student Activity 1	PLAY LAB	https://studio.code.org/s/course2/stage/17/puzzle/6
Student Activity 2	PLAY LAB	https://studio.code.org/s/course2/stage/17/puzzle/7
Student Activity 3	PAINT APPLICATION	https://mahdihat791.github.io/ADV/ADV-C82/index.html
Student Module Activity 4.1	PROFILE APP	https://drive.google.com/file/d/1P6uFyL7xKbj1wzME97v7RJNf2sPhTZHE/view?usp=sharing  click on the download button which is on the top right hand side of the screen.
Student Module Activity 4.2	MIT AI2 Companion App DOWNLOAD	https://play.google.com/store/apps/details?id=edu.mit.appinventor.aicompanion3&hl=en_IN&gl=US
Student Module Activity	MIT	https://appinventor.mit.edu

4.3	INVENTOR	
Additional Activity 1	PLAY LAB (Do levels 8 to 10)	https://studio.code.org/s/course2/stage/17/puzzle/8
Additional Activity 2	PLAY LAB	https://studio.code.org/s/course2/stage/17/puzzle/11
Additional Activity 3	ESCAPE THE MAZE 1	https://studio.code.org/projects/artist/dRFIo3fSqlCqDeGYTshH4kLQOi87GSjMOKpo2wskTnk/view
Additional Activity 4	ESCAPE THE MAZE 2	https://studio.code.org/projects/artist/U5Eo3jW8jhka-OXNcD0r7Ox78Ve00Yb5-LLsmL4ZEa4/view
PRACTICE ACTIVITY 1	PRACTICE	https://studio.code.org/s/iceage/stage/1/puzzle/3
PRACTICE ACTIVITY 2	PRACTICE	https://studio.code.org/s/iceage/stage/1/puzzle/4
PRACTICE ACTIVITY 3	PRACTICE	https://studio.code.org/s/iceage/stage/1/puzzle/5
REFERENCE VIDEO 1	REFERENCE	https://youtu.be/TMyUA9Julzg
Project Solution	MAGICAL FIX	https://studio.code.org/projects/playlab/N-u1jObErDtATIAZv6ejyU0npMFDHTueFnfPPpb9DOM
Teacher Reference Visual aid link	Visual aid link	https://s3-whjr-curriculum-uploads.whjr.online/1fdc419c-c29a-4fc3-a538-f31a24c1485d.html
Teacher PTM Reference	PTM With cues	https://s3-whjr-curriculum-uploads.whjr.online/c9f82144-1514-4dce-9a23-969004bf99c4.html
Teacher Reference In-class quiz	In-class quiz	https://s3-whjr-curriculum-uploads.whjr.online/531ed708-9aa6-4cd8-8f5d-df9e32bbab69.pdf