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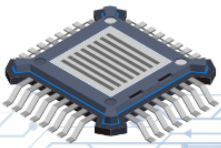
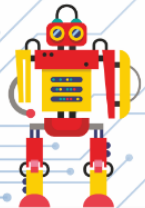




Artificial Intelligence

Project 2: Audience sentiment Analyzer

You are attending the annual day event in your school and there are various activities lined up in the event such as dance performance, drama, and prize distribution. Halfway into the event, you have noticed that the audience is distracted and is not paying attention to the performances. This is very discouraging for you and your friends who have worked hard in the year to participate and celebrate this day. You have also noticed that the organizers of the event are not aware of this problem and hence no action is in place to manage the audience and bring their attention to the event.

You have decided to solve this problem and want to ensure that your school has a system that can identify the sentiment of the audience so that it can help the organisers to manage the audience. This will benefit your school for all the future events and the participants will feel motivated by the appreciation received from the audience.

In this project, you will learn to build an AI model that will analyse a few captured sentiments of the audience.

Let's get started!

Prerequisite:

Ensure that you have gone through all the videos of the course "Artificial Intelligence" in the Emerging Technologies section on the portal Planet code: https://planetcode.in/ These videos will help you to learn about the important terms and concepts as well as equip you with the tools needed for this project. Please complete them before you proceed. If you have already completed watching all the videos, well done! You are all set to begin the project.

1. Platforms / Tools Needed

a) Dancing with AI using Scratch https://dancingwithai.media.mit.edu/

b) Google teachable machine https://teachablemachine.withgoogle.com/

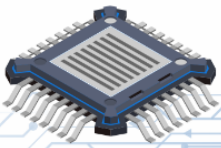
2. Major Steps to be performed in the Project

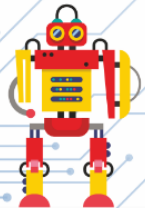
a) Import a trained AI model with the audience's reactions like clapping, crowd noise, and booing, into the Dancing with AI platform.

b) Program the initial settings needed for the project. Initialize required variables associated with the audience's reactions.





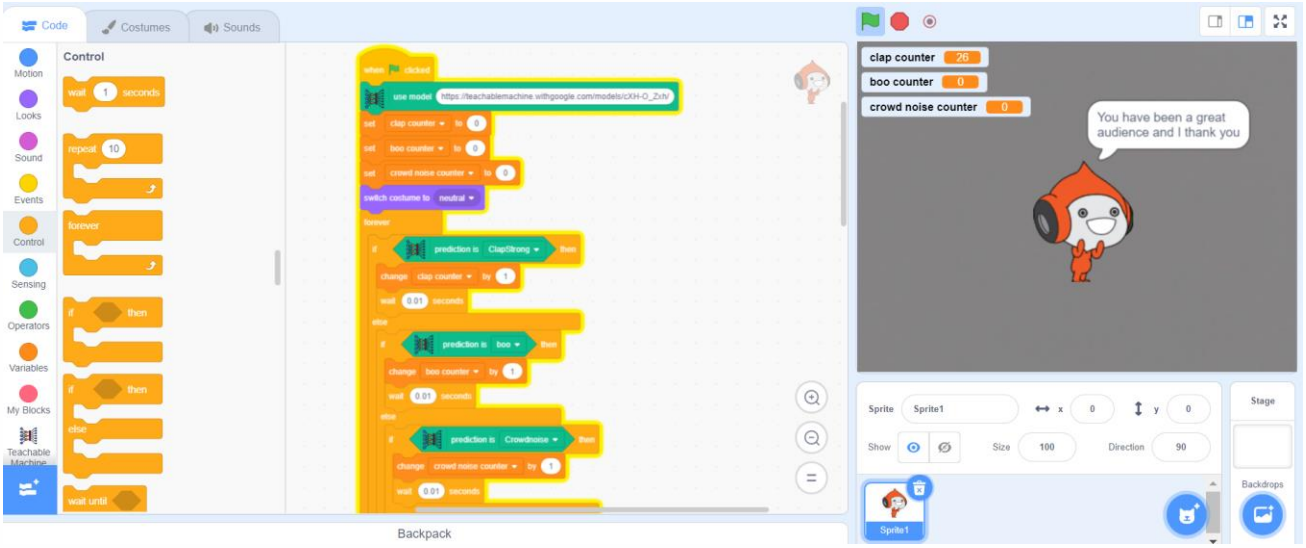




c) Program to use the AI model to analyse and identify the audience's sentiments and change the values of the variables respectively.

d) Based on the identified sentiment, program suitable responses in the form of the look of the sprite, text and speech.

e) Run the program to test your project.



Components Used:

STEP by STEP Instructions

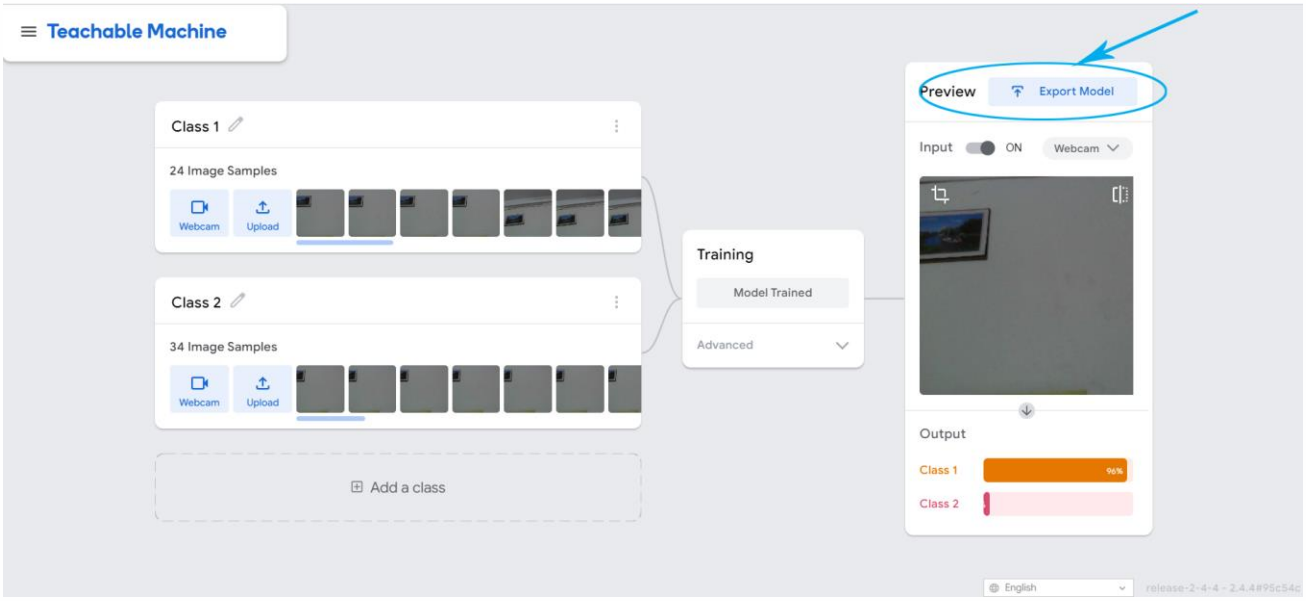
Part 1: Import a trained AI model with the audience's reactions like Clapping, Crowd noise, and Booing, into the Dancing with AI platform.

You will train and export the Google teachable model with the audience's reactions.

Step 1

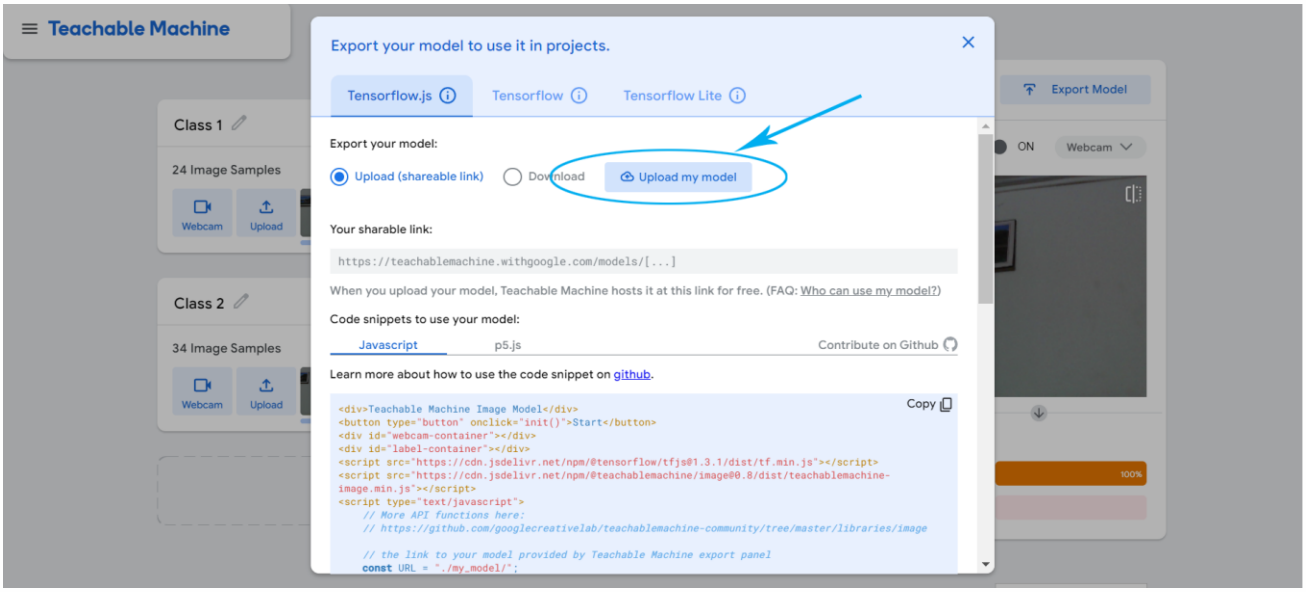
You can export your model as a TensorFlow.js model and host it on Teachable Machine for free, so you can call it into any website or app. You can also convert it to TensorFlow and TensorFlow Lite and download it for local use.

Export your trained GTM model as shown below.



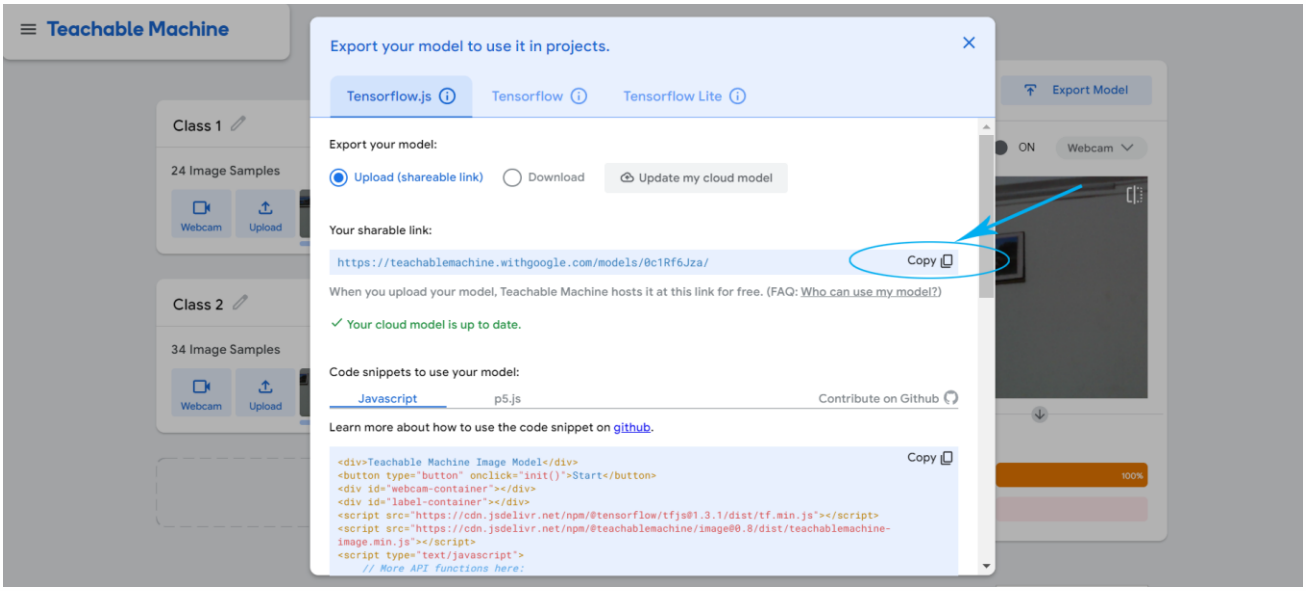
Step 2

Upload your model to get the link



Step 3

First **Copy** and then **save** the link of the Exported model. You can then import this model into the **Dancing with AI** platform.

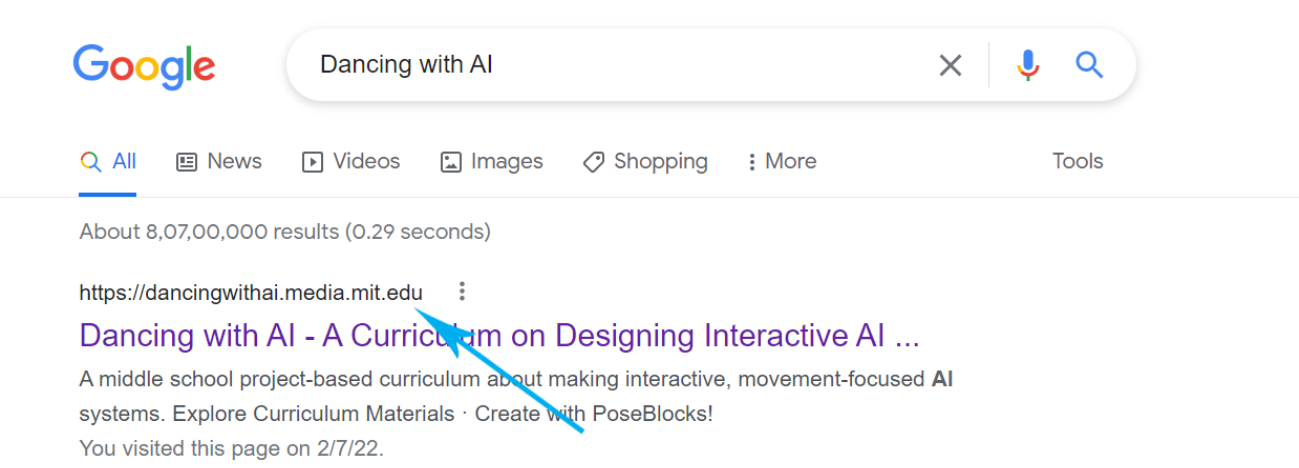


Import the trained AI model into the platform Dancing with AI.

Step 4

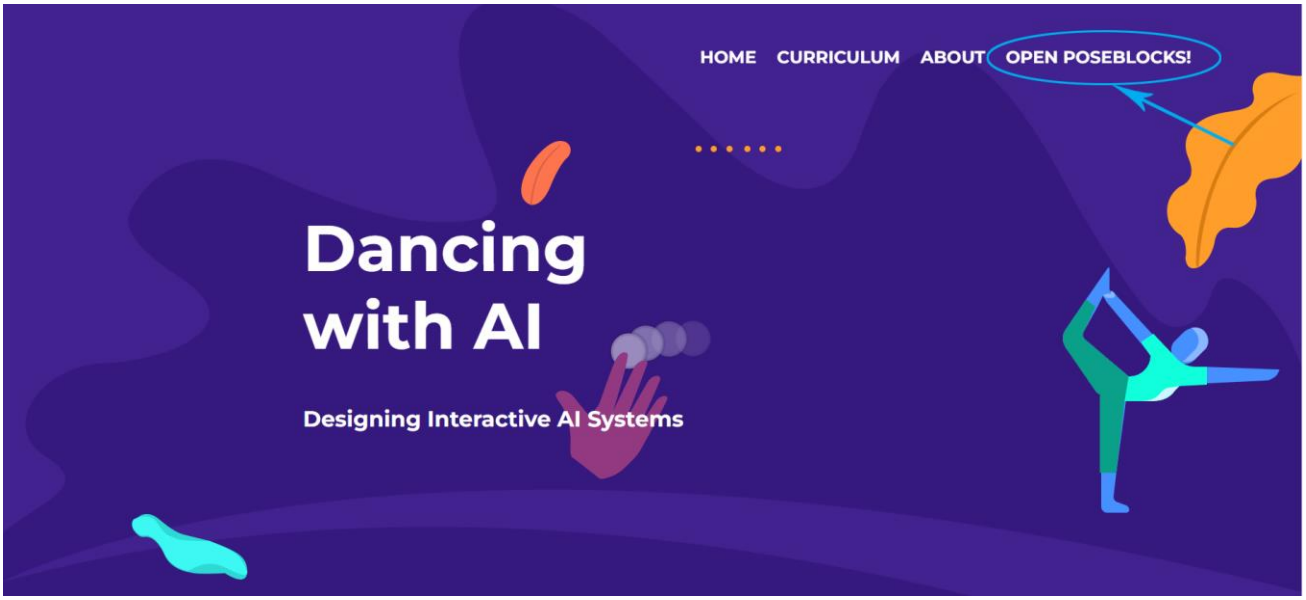
Open Dancing with AI platform on your web browser

https://dancingwithai.media.mit.edu/



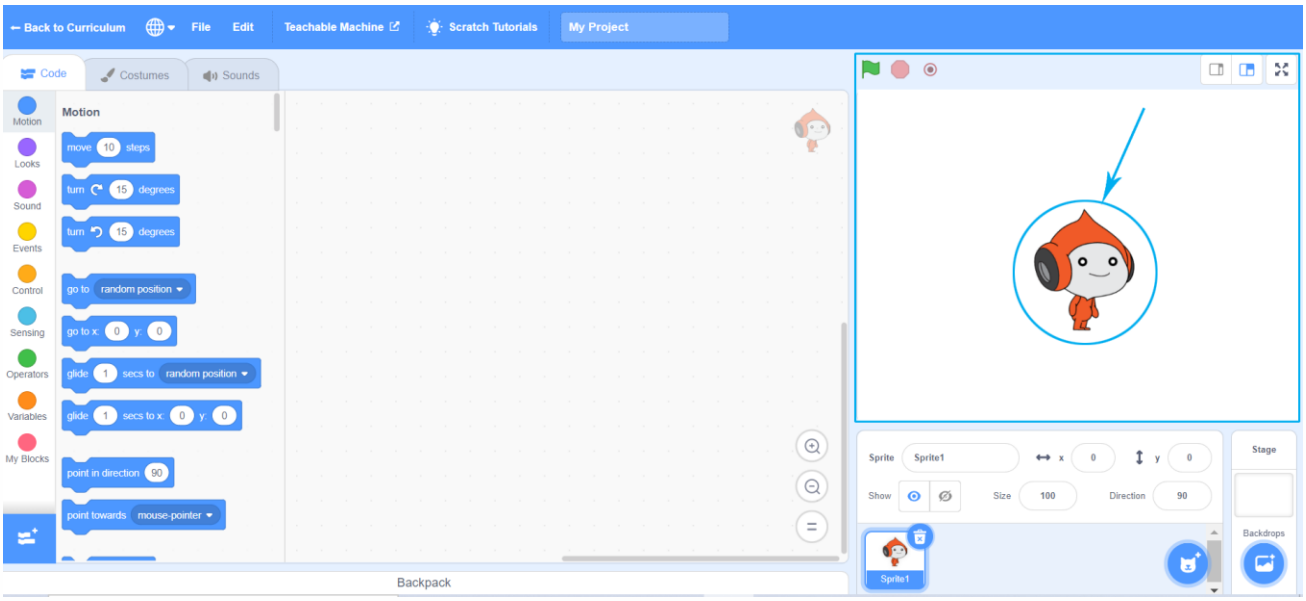
Step 5

Click on 'OPEN POSEBLOCKS' tab on the top of the screen.



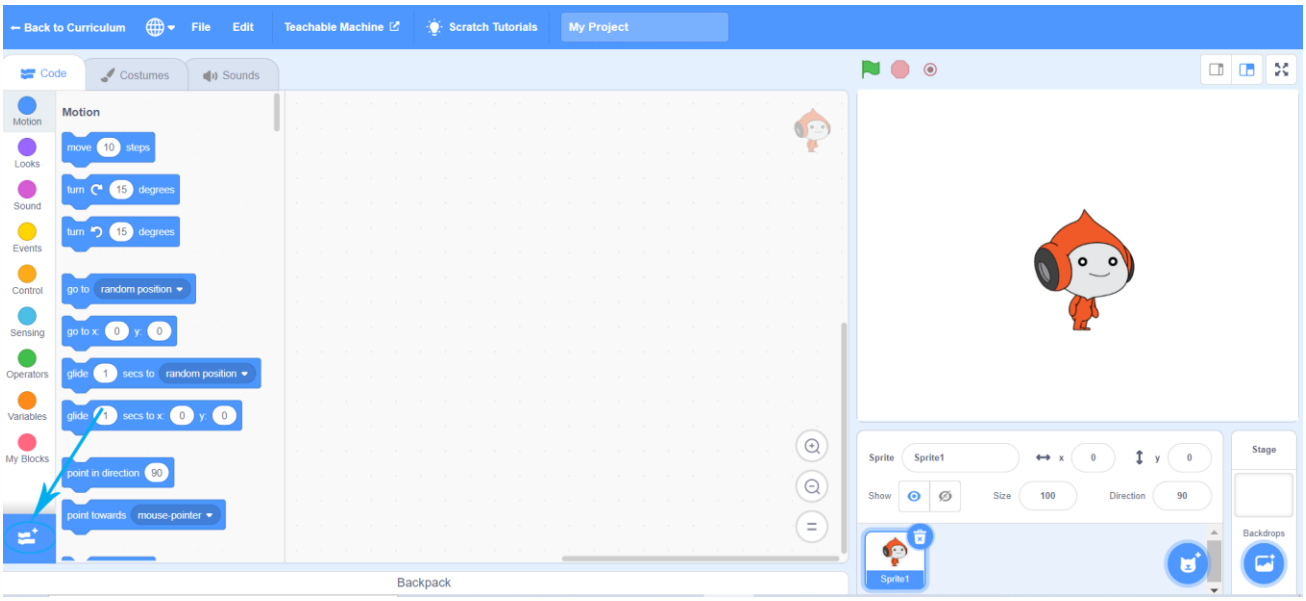
STEP 6

You have reached the Dancing with AI interface. You can see an image in the stage area called ‘Sprite’. Let the sprite remain on the stage area.



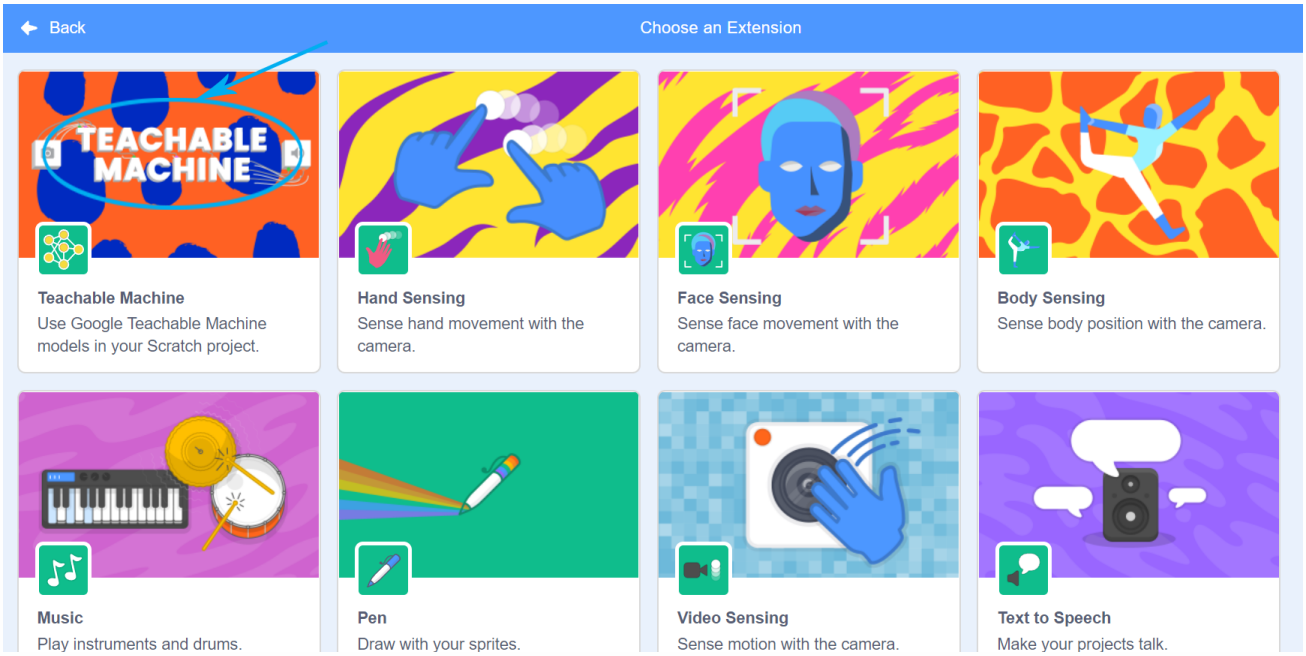
Step 7

In the code panel on the left, go to the bottom of the screen and click on the button “**Add Extension**”.

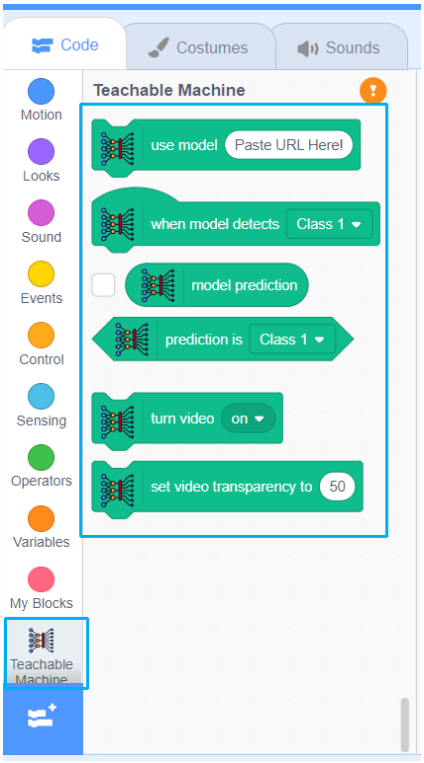


Step 8

Click on the extension "**Teachable Machine**". This extension will enable you to import the trained AI model to your code.



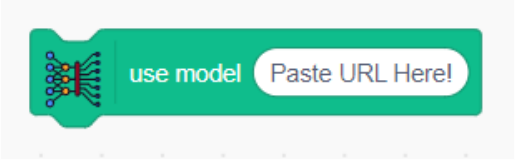
Notice that the Teachable Machine extension has been added at the bottom of the code block panel. By clicking on this button, you can now access its corresponding code blocks.

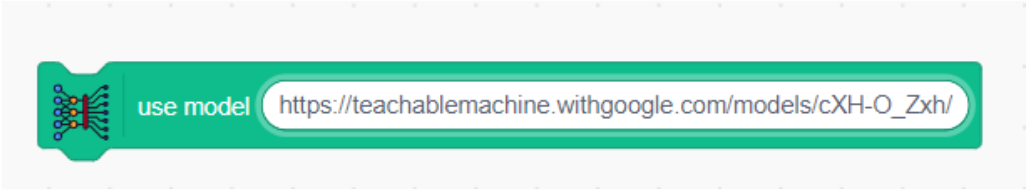


Step 9

Copy the URL of your AI model trained on the Google Teachable Machine and Paste it in the 'use model' block.

Refer to step 3 for more information

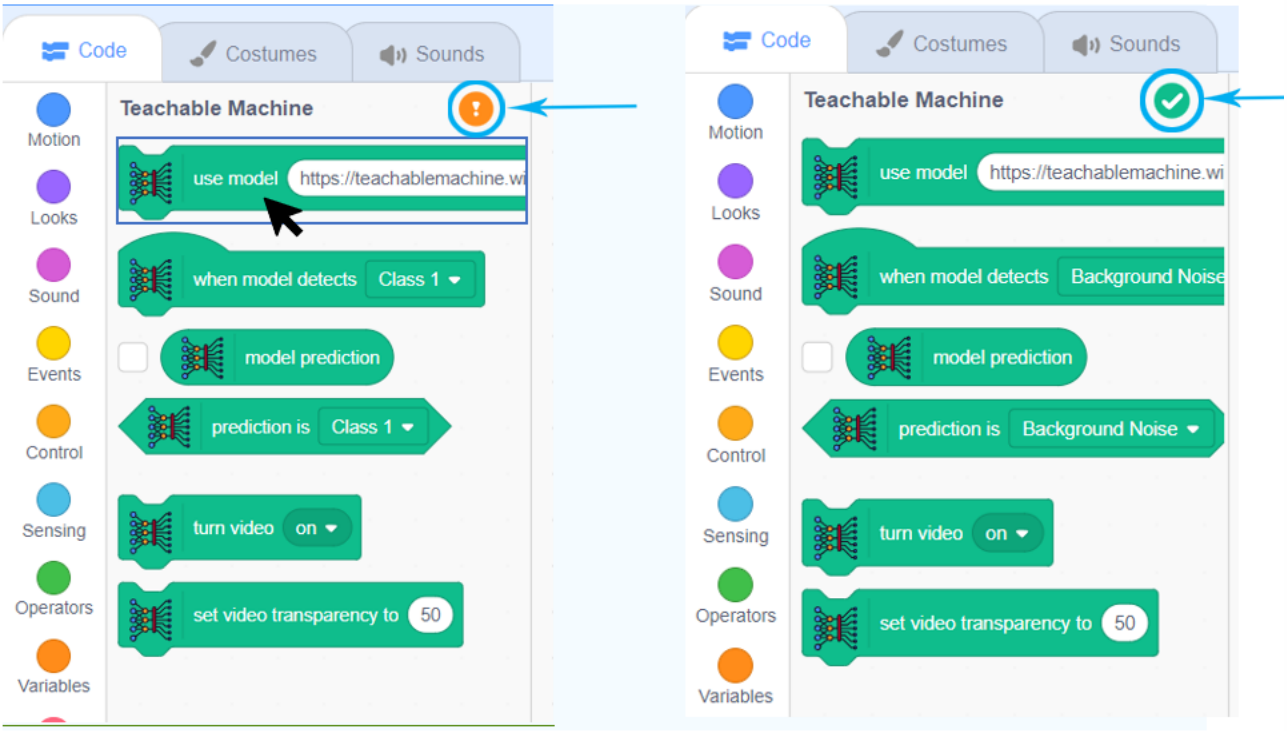




Step 10

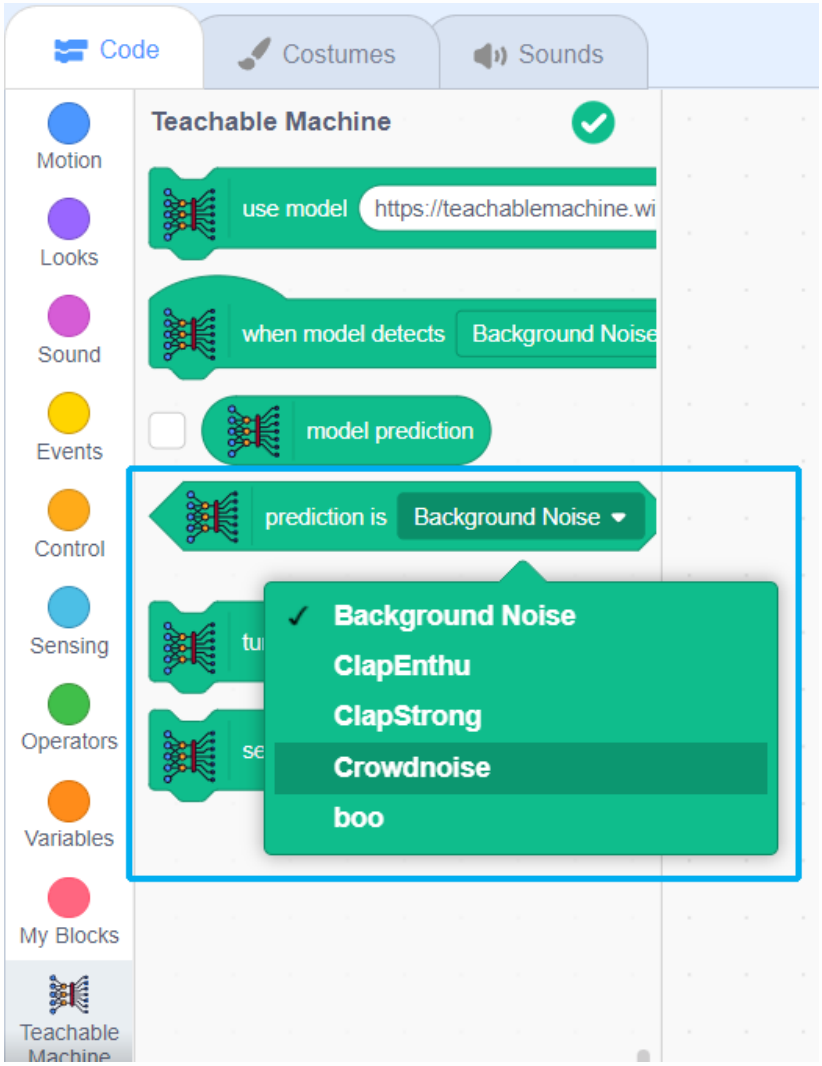
After pasting the URL in the 'use model' block,

Click the 'use model' block and wait until the exclamation symbol changes to the green Tick symbol as shown.



Step 11

Now you can see the classes related to your trained model automatically updated in the prediction blocks



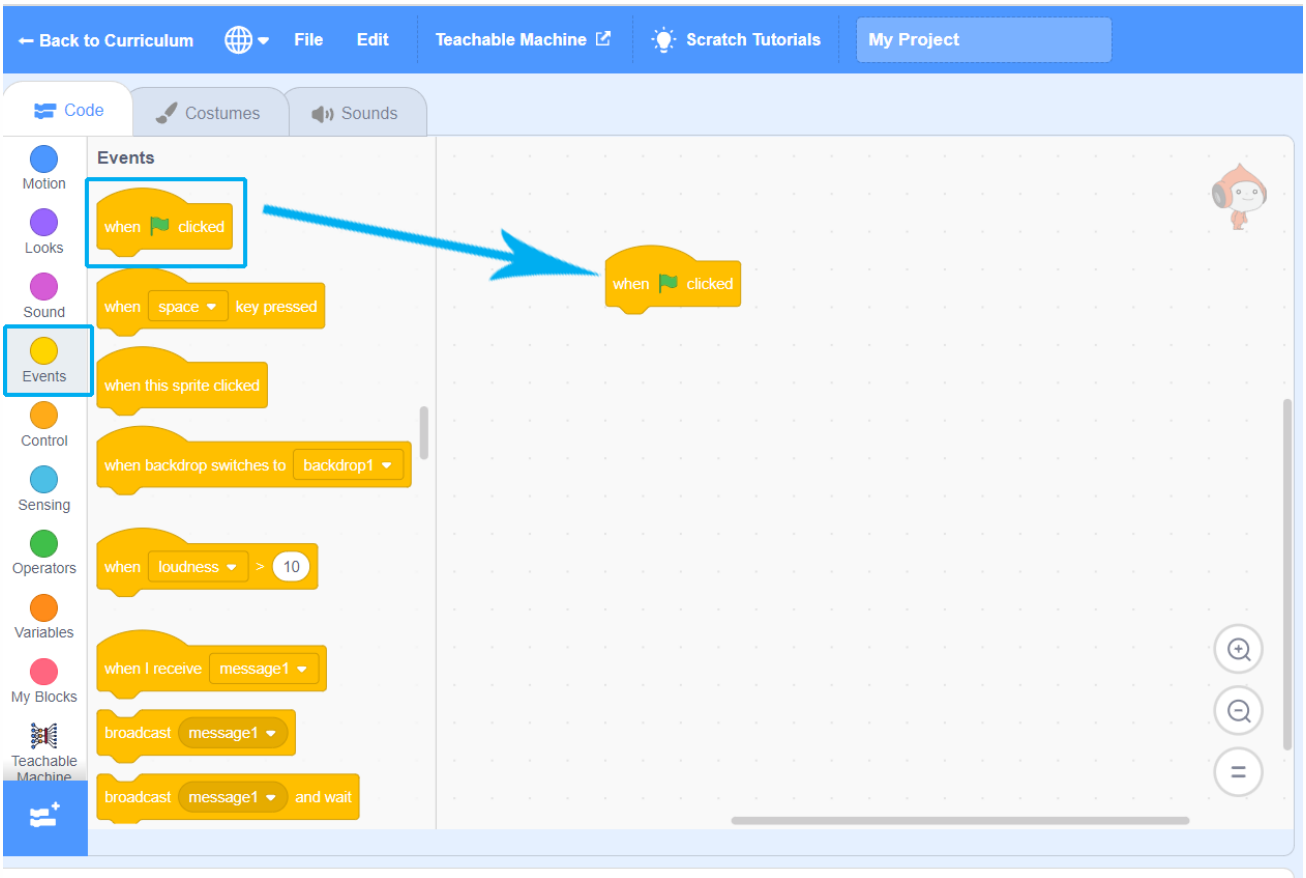
Now you are all set, to start Programming!

Part 2: Program the initial settings needed for the project. Initialize required variables associated with the audience's reactions.

Step 12:

Select '**Events**' menu,

Drag and drop the '**when green flag is clicked**', to the code area.

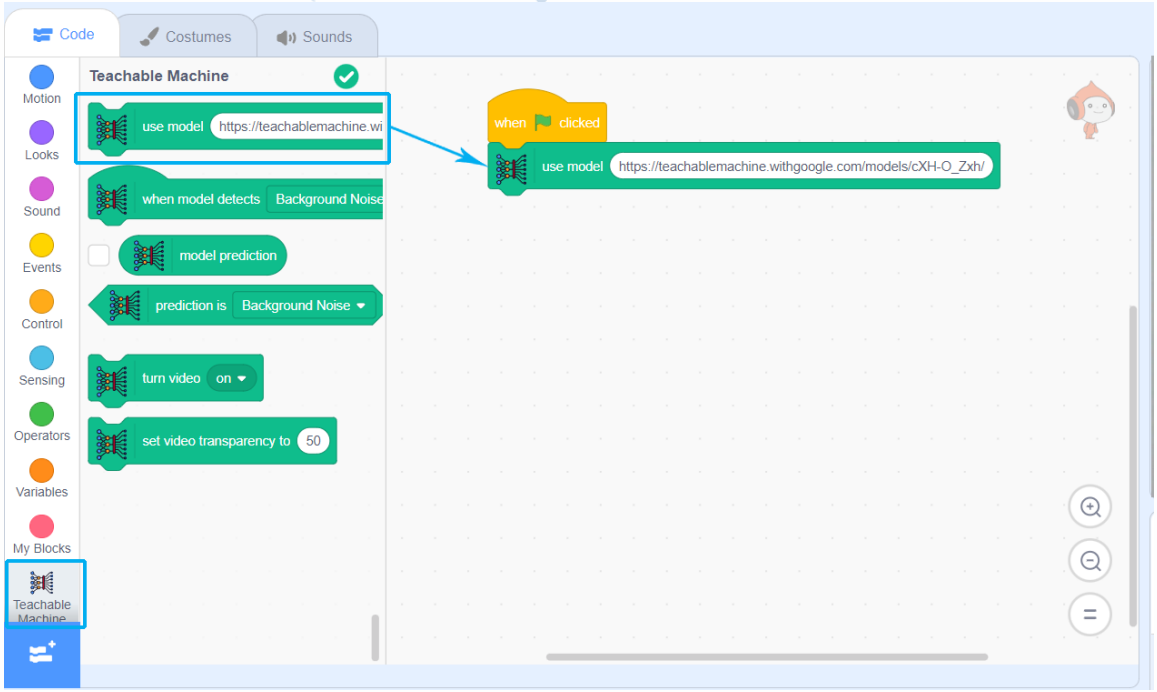


Step 13

Select '**Teachable Machine**' from the code blocks menu.

Drag the '**use model**' block.

Connect it to the '**when green flag clicked**' block as shown.

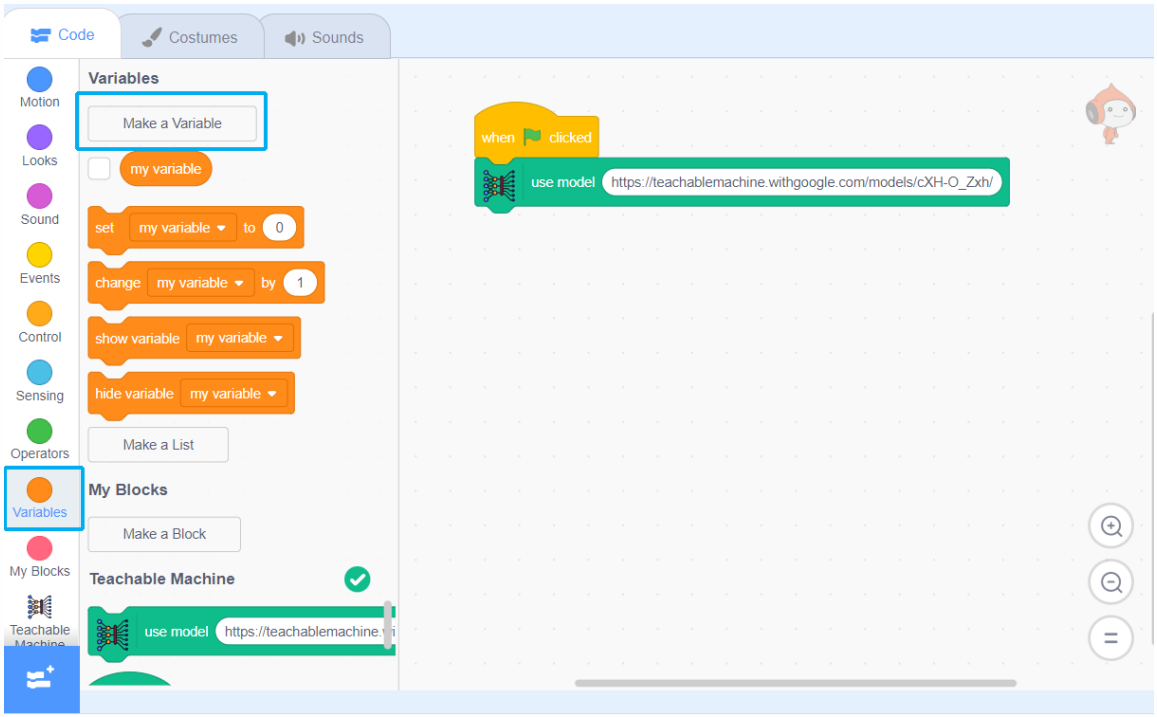


You will now Create a Variable '**clap counter**'.

Step 14

Choose '**Variables**' in the code blocks menu.

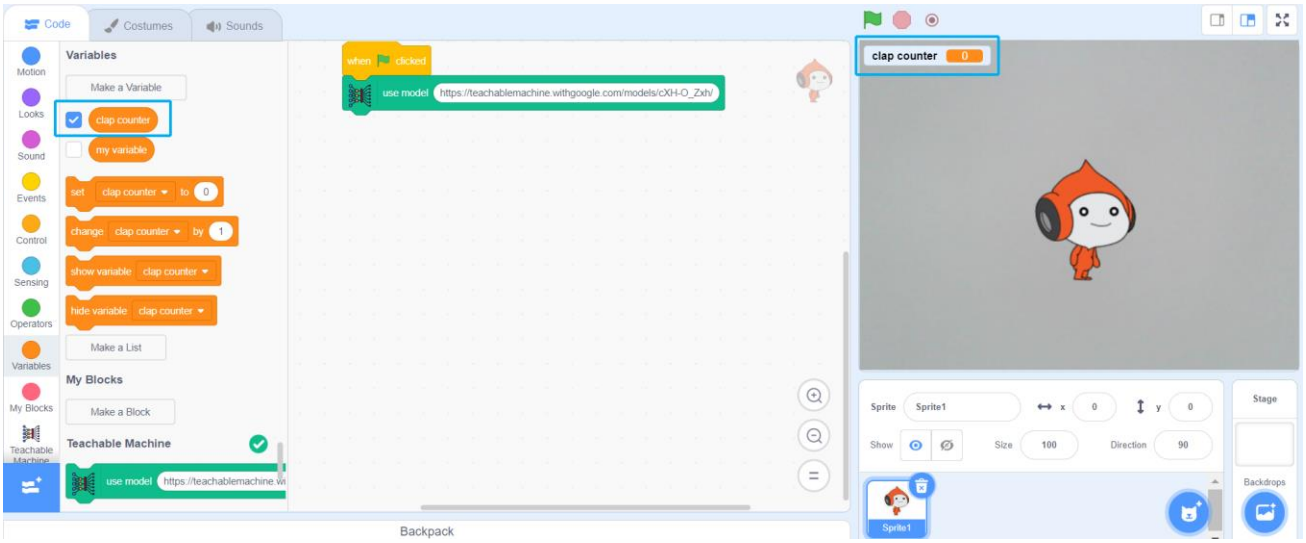
Click on '**make a variable**' button.



Step 15

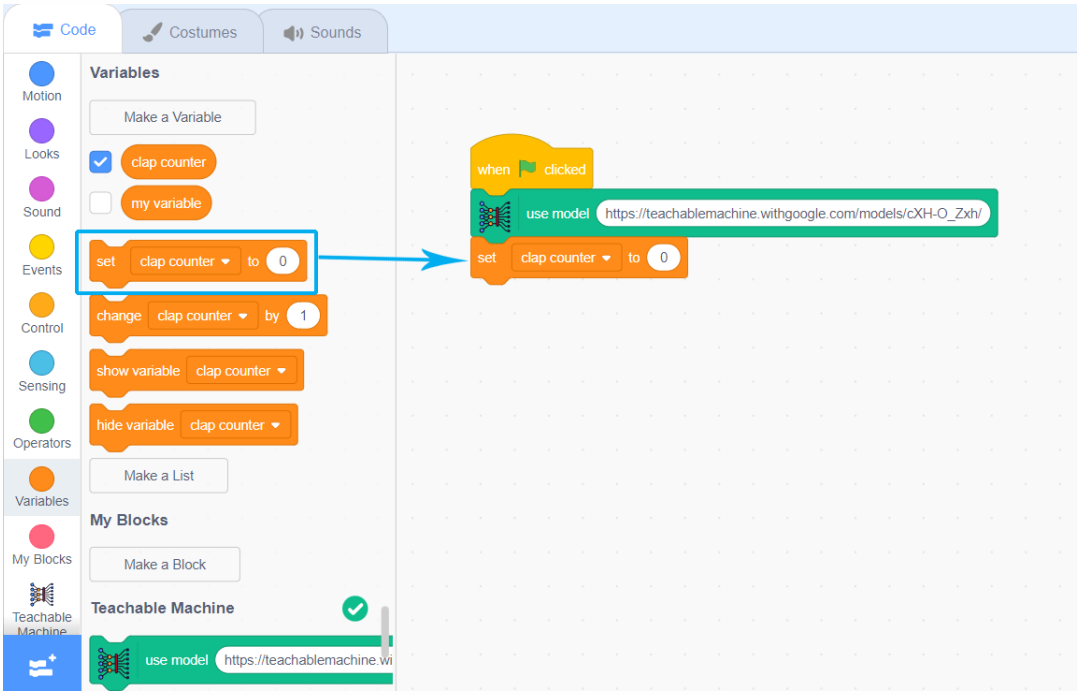
Enter the New variable name as clap counter and click ok

Now you can see the newly created variable both in the 'variables' code blocks menu and also in the stage area.



Step 16

Drag the block ‘set clap counter to 0’ and connect it as shown

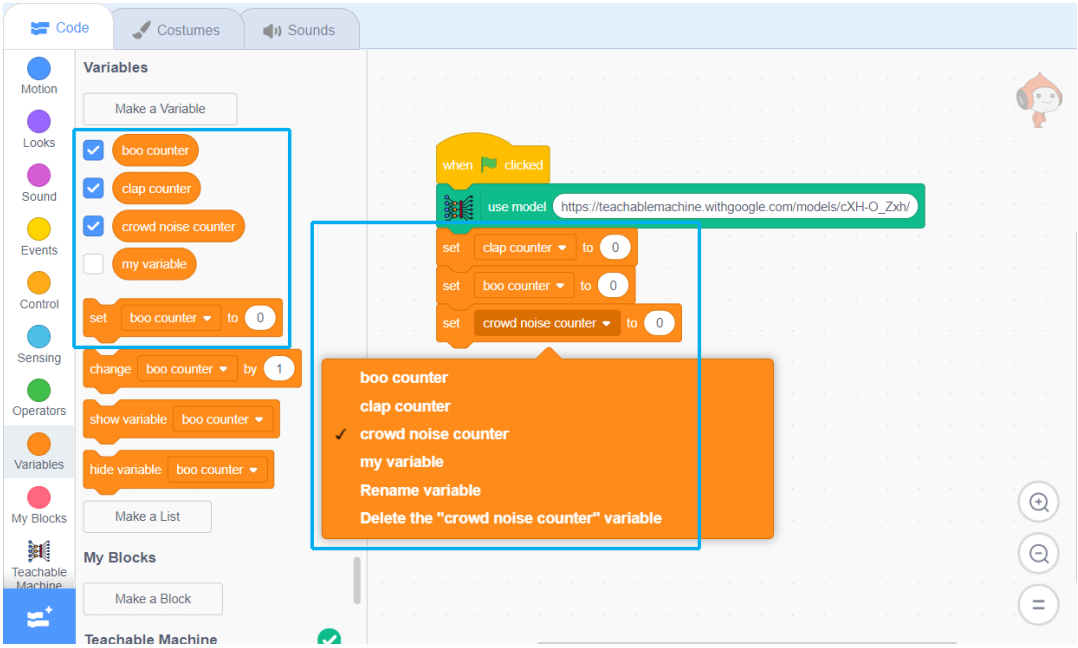


Step 17

Similarly create variables ‘boo counter’, ‘crowd noise counter’.

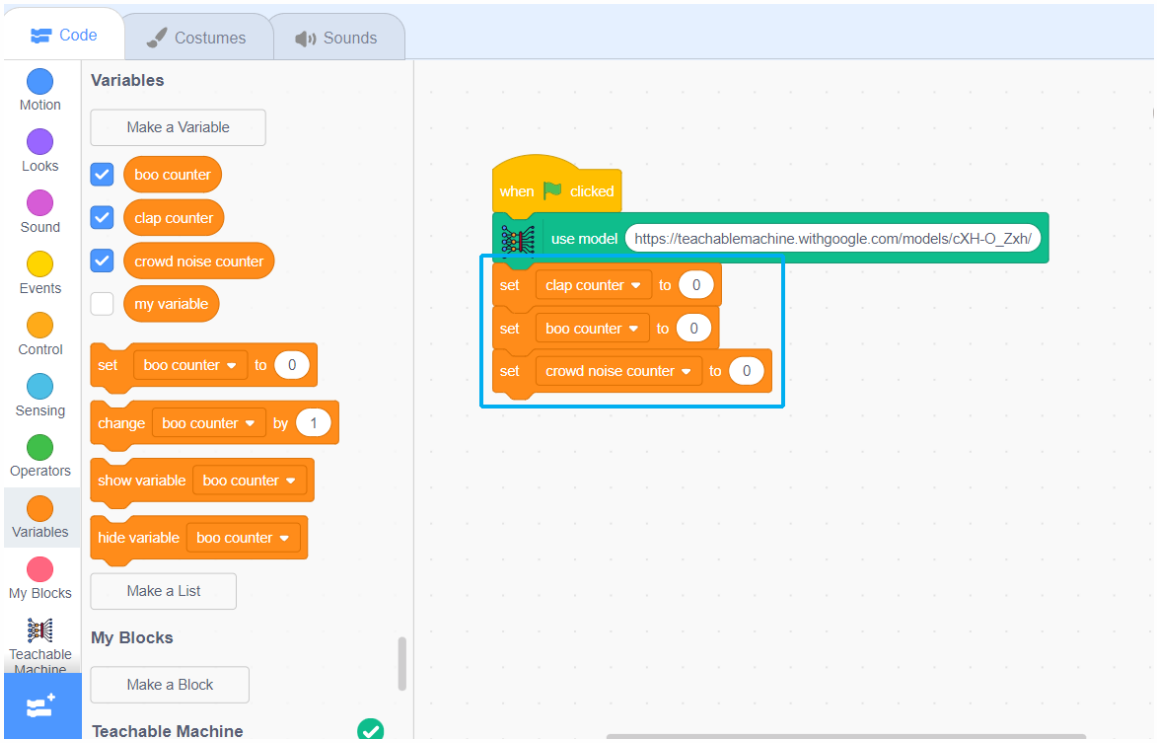
Connect ‘set boo counter to 0’, ‘set crowd noise counter to 0’ blocks as shown.

(You can select the variable from the dropdown of the ‘set variable to 0’ block)



Step 18

Ensure the code blocks are connected as shown.



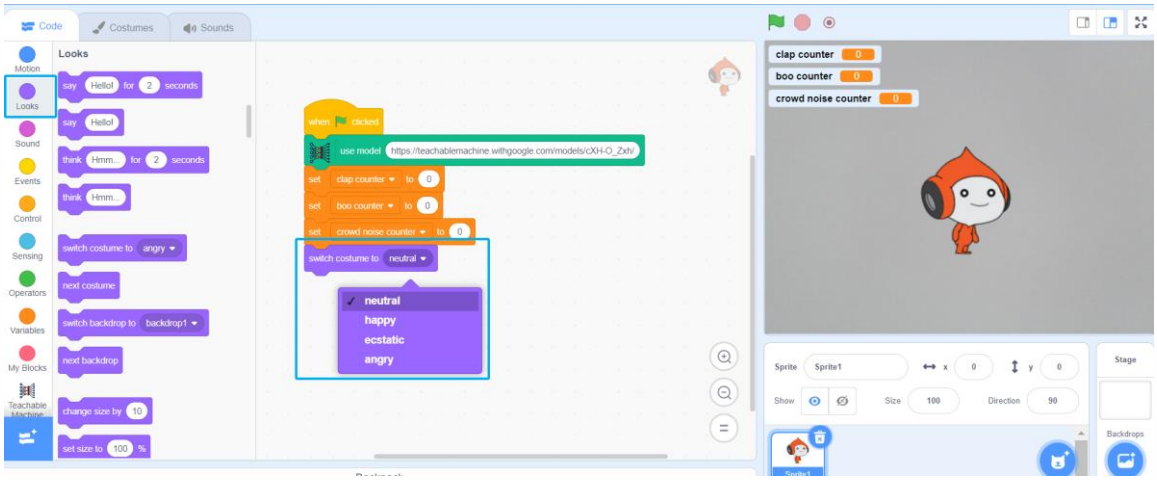
Here you will set the initial look of the sprite.

Step 19

From the code blocks menu select '**Looks**'.

Drag '**switch costume to**' block and connect as shown.

Ensure the costume is set to '**neutral**'.



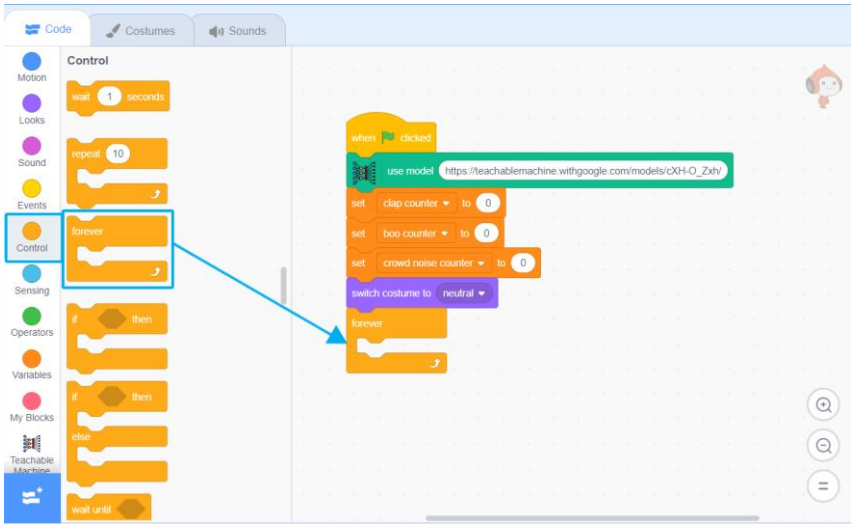
PART 3: Program to use the AI model to analyse and identify the audience's sentiments and change the values of the variables respectively.

Next, we will check the clap prediction and alter the clap counter variable accordingly.

Step 20

From the code blocks menu select '**Control**'.

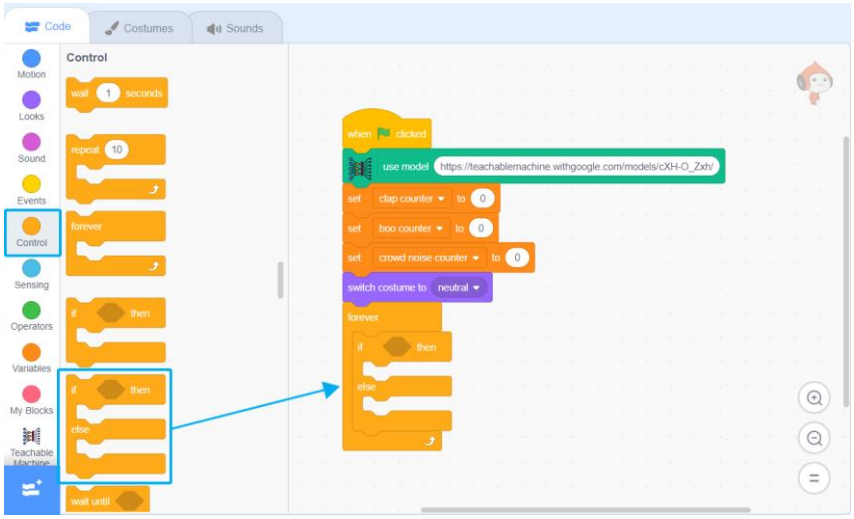
Drag the '**forever**' block and place it as shown.



Step 21

Find '**if else**' block in the same section.

Drag and place it inside the '**forever**' block.

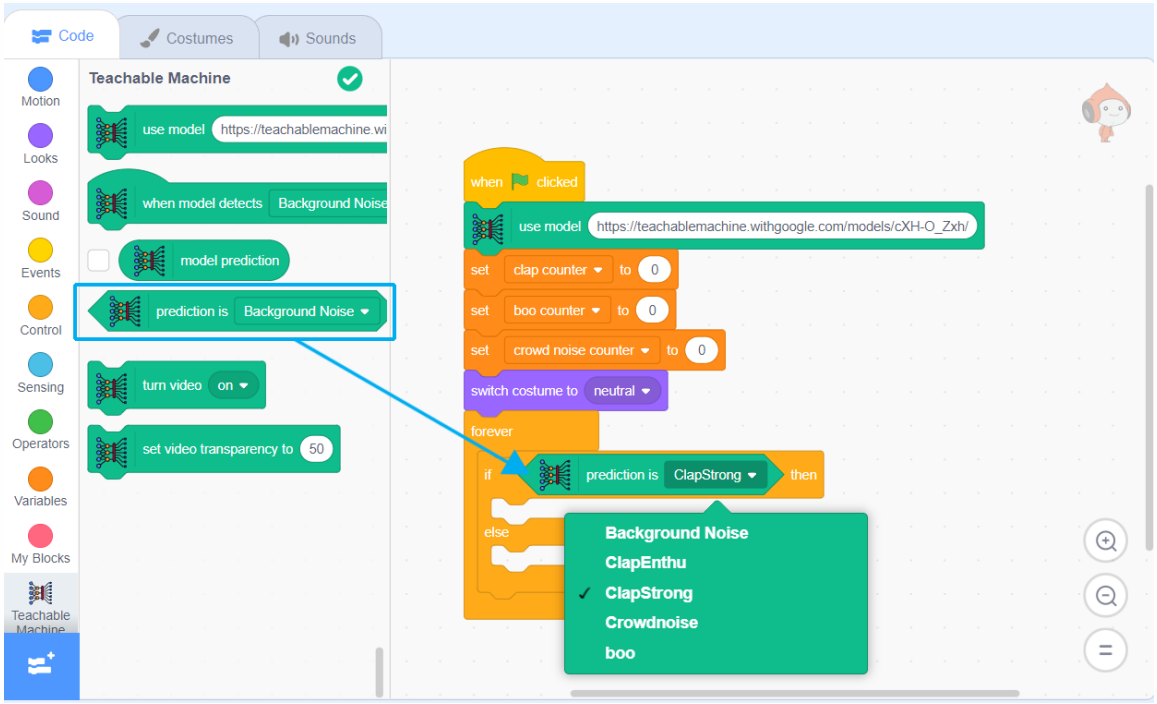


Step 22

Select '**Teachable machine**' in the code blocks menu.

Drag and place the '**prediction is**' block as shown.

Select '**ClapStrong**' option from the dropdown list.



Now you will add the code blocks to increase the clap counter value by 1, each time the prediction '**ClapStrong**' is true.

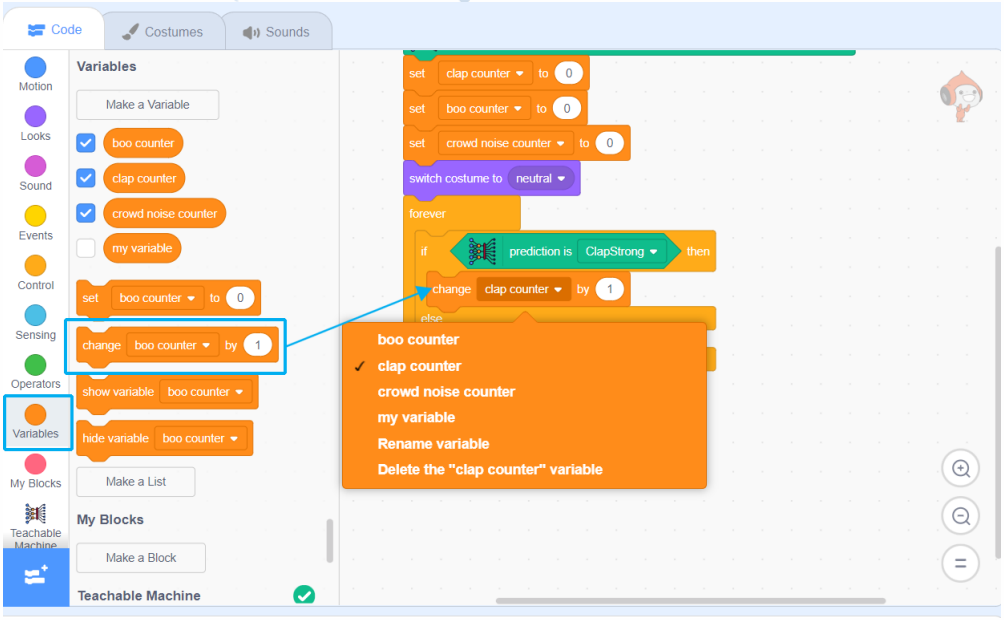
Step 23

Go to '**Variables**' in the code blocks menu.

Select '**change variable by 1**' block.

Place it inside the '**if**' block.

Select the variable '**clap counter**' in the dropdown list as shown.



You will now add a delay of 0.01seconds.

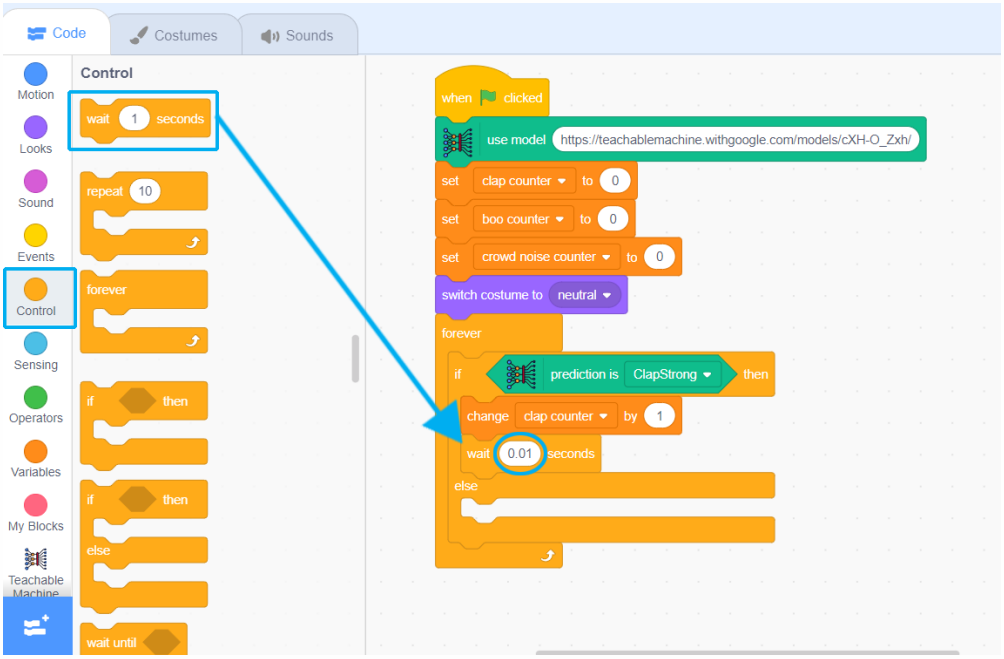
Step 24

To do so, go to '**control**' in the code blocks menu.

Select '**wait 1 seconds**' block.

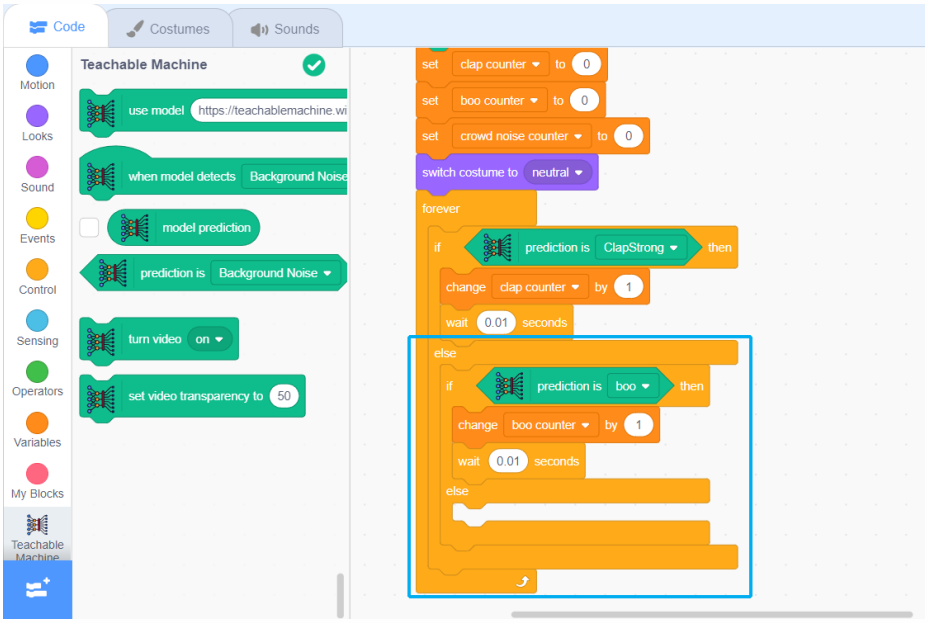
Place it inside the '**if**' block as shown.

Change the value 0 to 0.01.



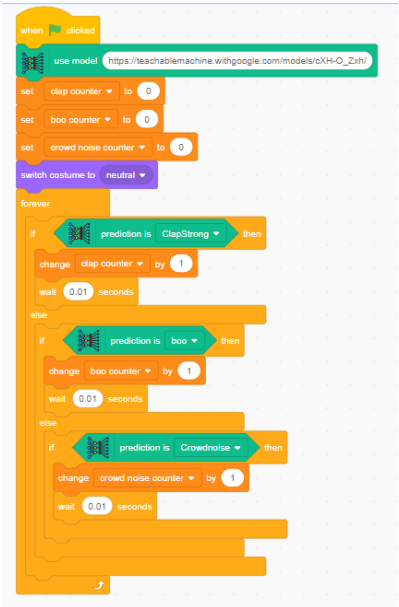
Step 25

If the prediction does not match '**Clap**' you will check if the prediction is boo, and increase the boo counter by 1. You may make use of the 'prediction is', '**change variable by 1**', and 'wait' block as shown.



Step 26

If the prediction does not match either '**Clap**', or 'Boo', then check for '**CrowdNoise**'. If it does match then increase the crowd noise counter by 1. Nest, this inside the second else condition.



You are done with the condition checks.

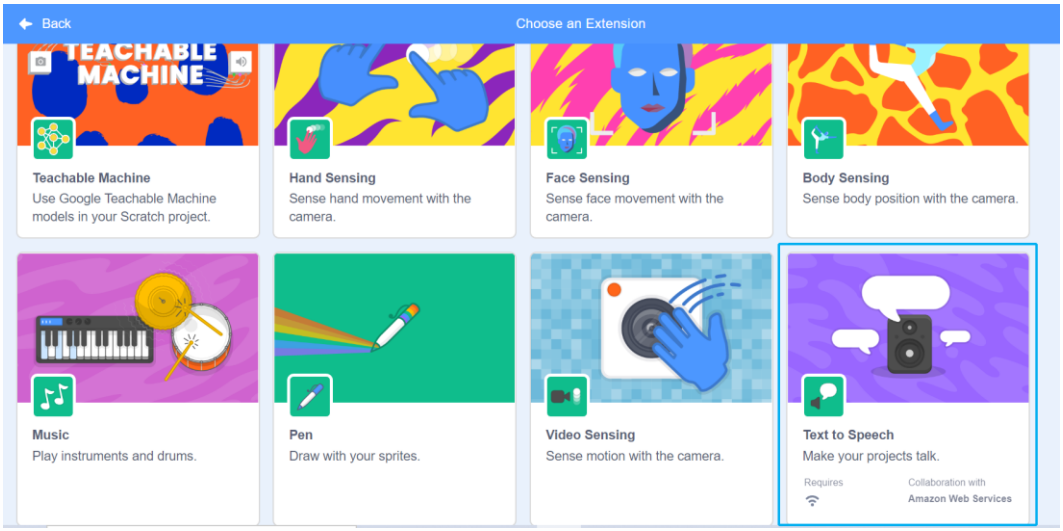
Part 4: Based on the identified sentiment, program suitable responses in the form of the look of the sprite, text and speech.

You will use Text to Speech as one of the responses. To use text to speech, you will need to add Text to Speech extension as you did previously.

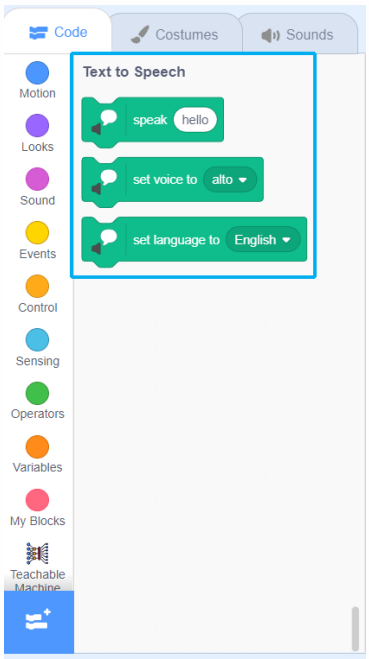
Step 27

Click the '**Add extension**' button.

Select '**Text to Speech**' option.



Now you will see the code blocks of text-to-speech added.



Here you will set the response according to the prediction

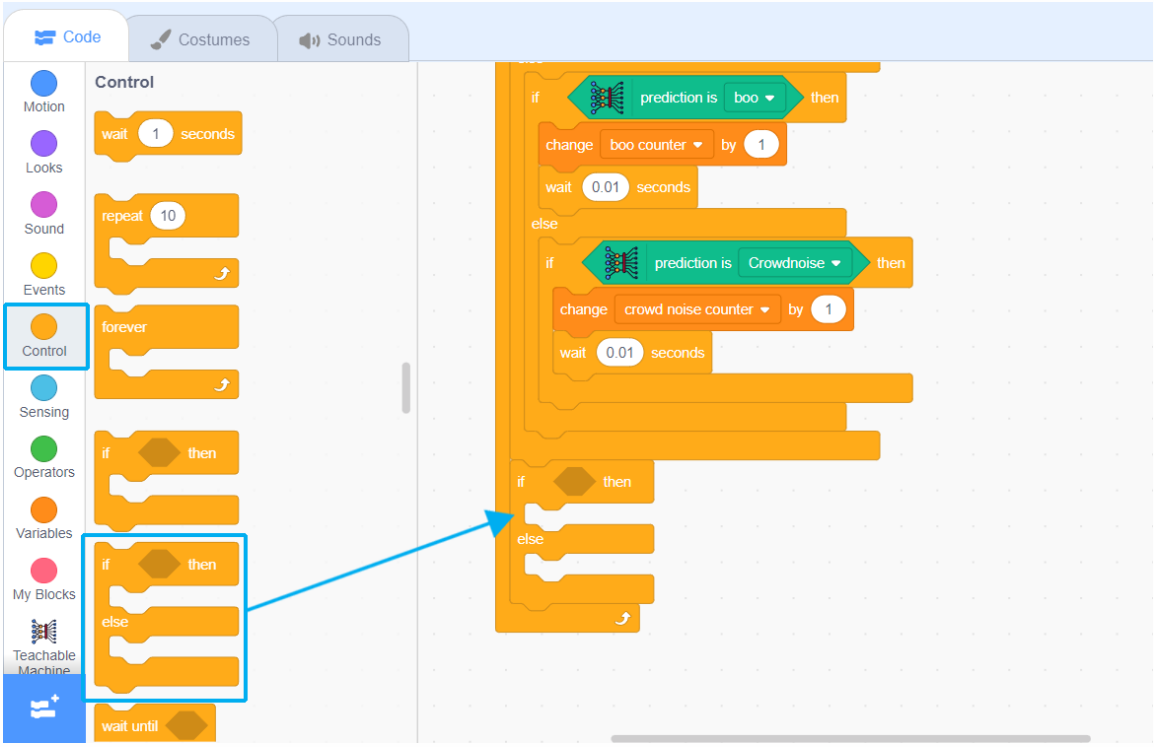
To set the responses for the clap sound, you will first confirm that clap sound is detected by checking if the value of the clap counter is greater than 25.

Step 28

Choose '**Control**' from the code blocks menu.

Select and place the if-else block inside the forever block as shown.

Make sure that you have ended the previous if-else structures as shown.



Step 29

Choose '**Operators**' from the code block menu.

Select '**greater than**' block.

Place it inside the '**if-else**' block.

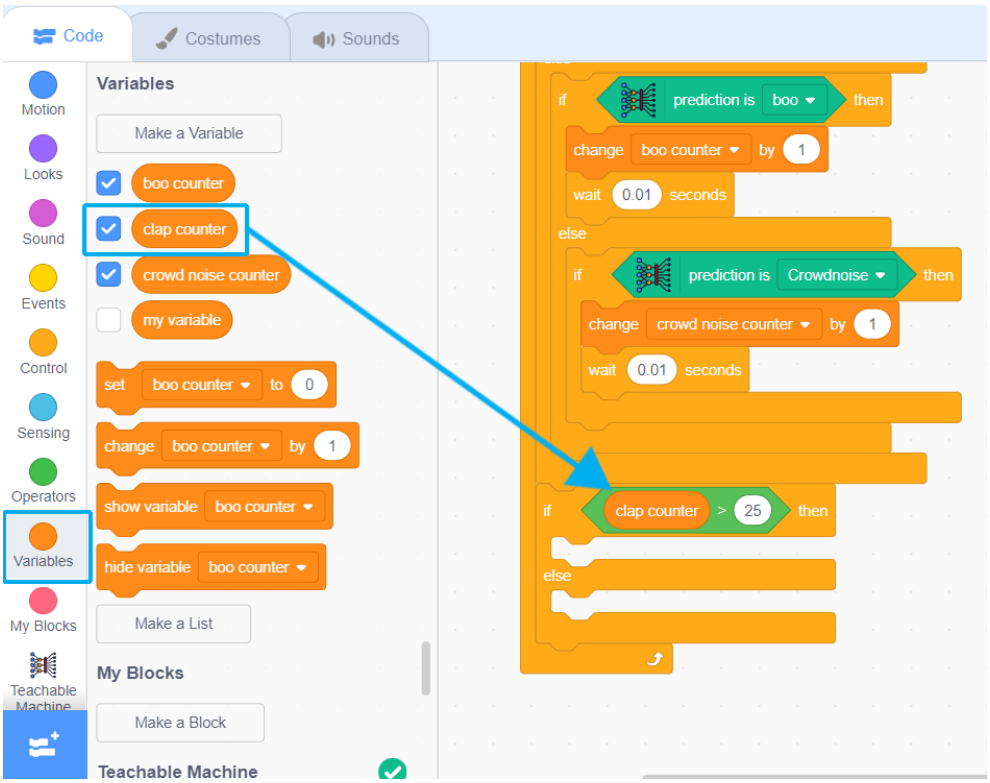
Change the value 50 to 25.

Step 30

Choose '**variables**' from the menu.

Select the '**clap counter**' variable block.

Place it in the comparison block



Now you will set the response for the clap sound.

Step 31

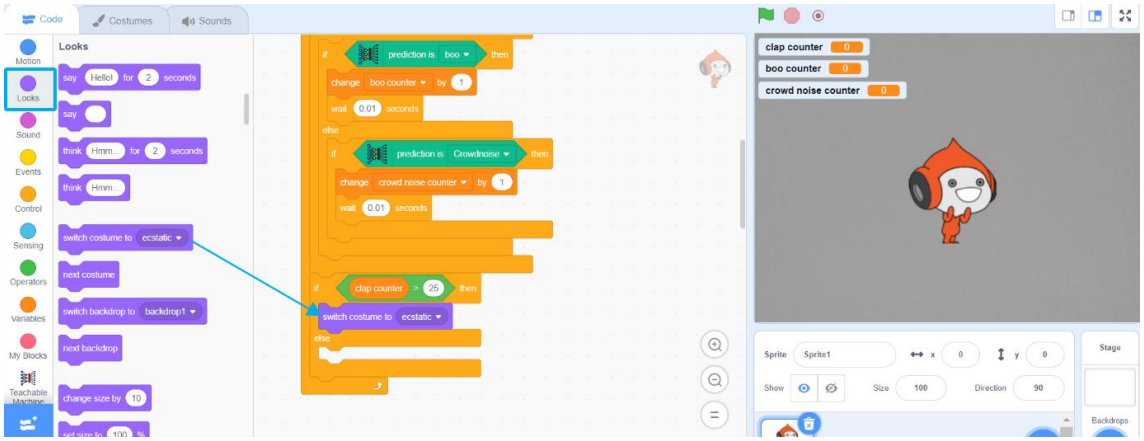
The first step of response is to change the look or appearance of the sprite.

Choose '**Looks**' menu.

Select '**switch costume to**' block.

Place it inside the '**if**' block as shown.

Then, select '**ecstatic**' costume in the dropdown.



Then you will make the sprite say 'thanks' in text.

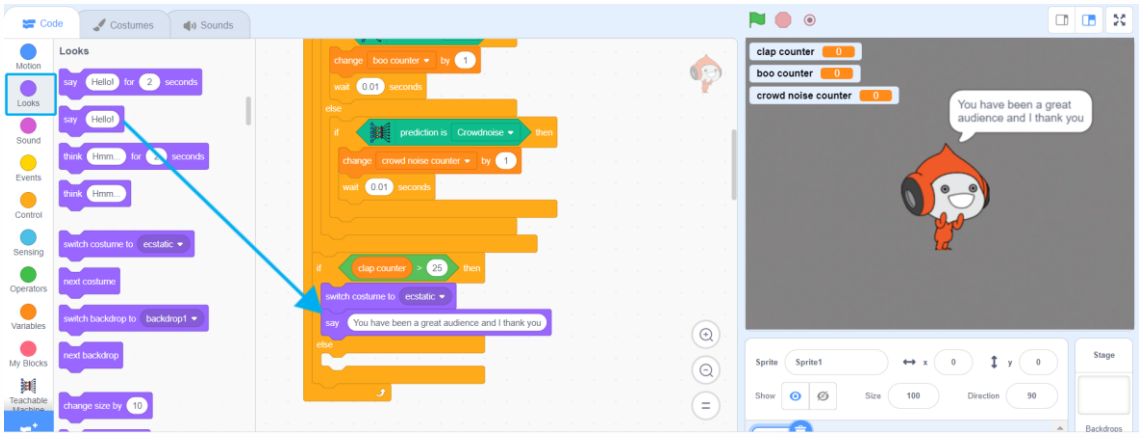
Step 32

Choose the '**Looks**' menu.

Select '**say hello**' block.

Place it in the '**if**' block.

Change the text '**Hello**' to '**You have been a great audience and I thank you**'.



Make the sprite say thanks as speech.

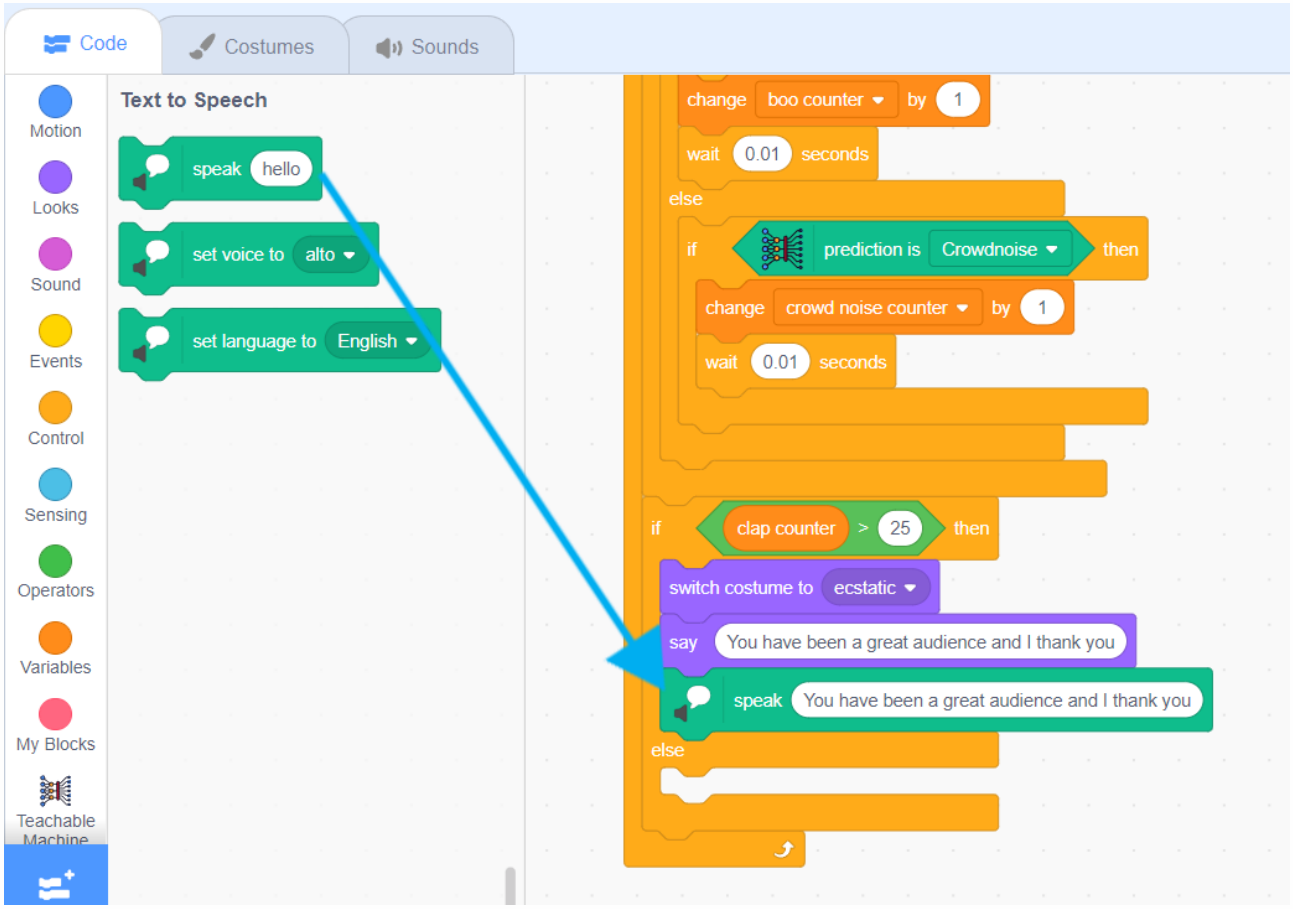
Step 33

Scroll down to Text-to-speech menu,

Select '**speak**' block and place it in the 'if' block.

Change the text '**hello**' to '**you have been a great audience and I thank you**'.

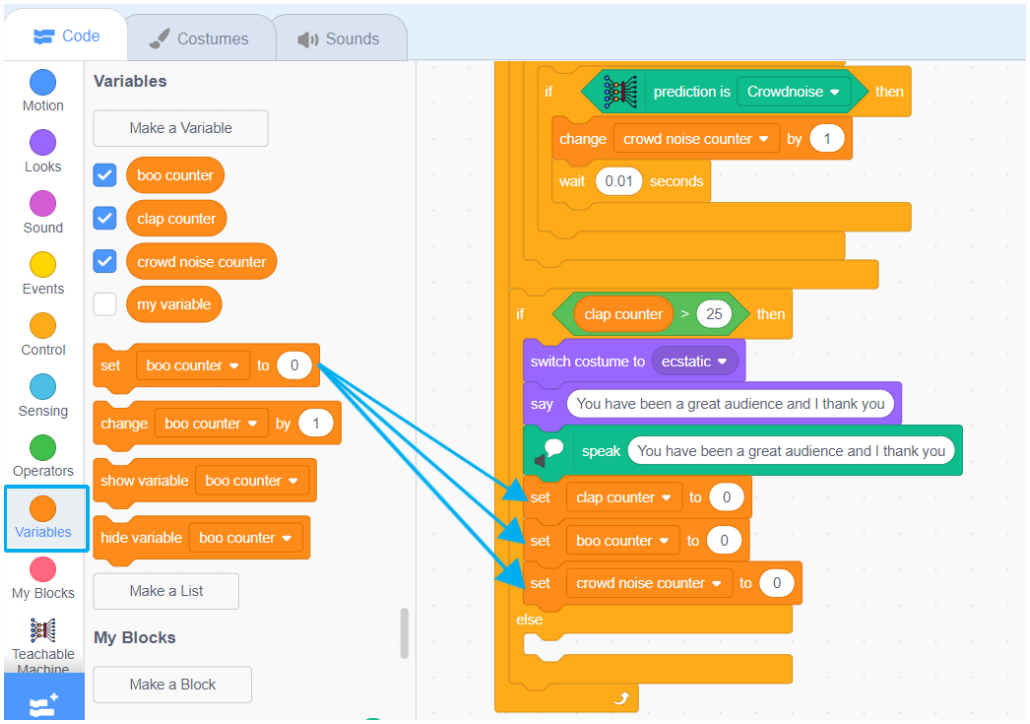
Refer to the image below.



This is the response for if the audience were to clap.

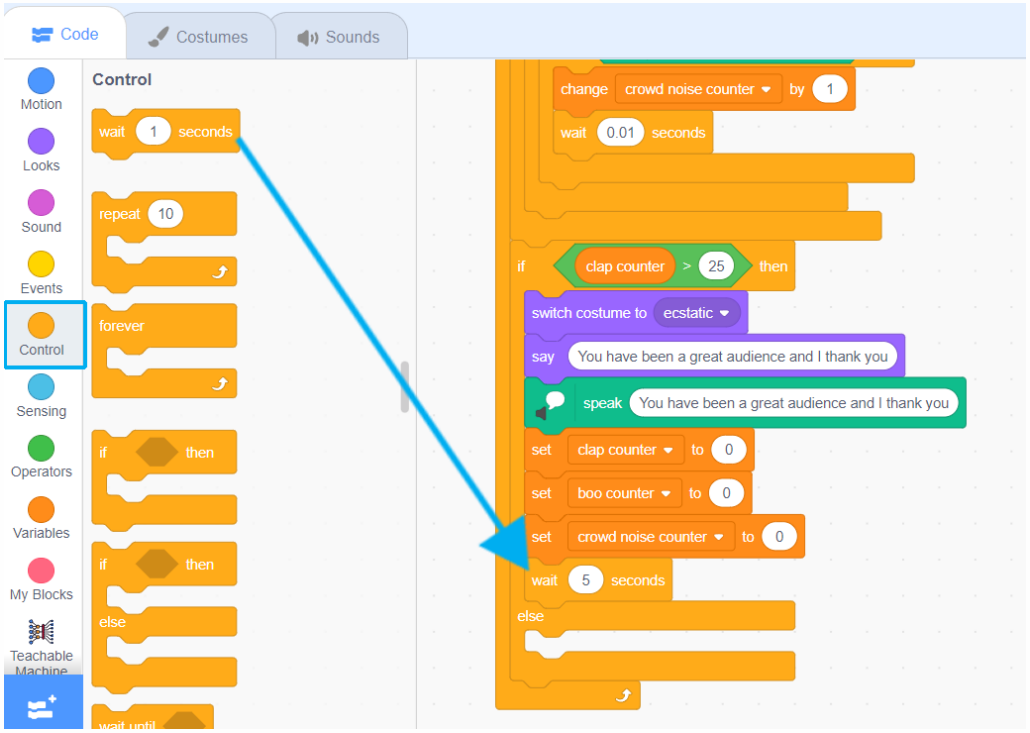
Step 34

Now you will set all the variables to 0.



Step 35

Add block 'wait for 5 seconds' as shown.



Step 36

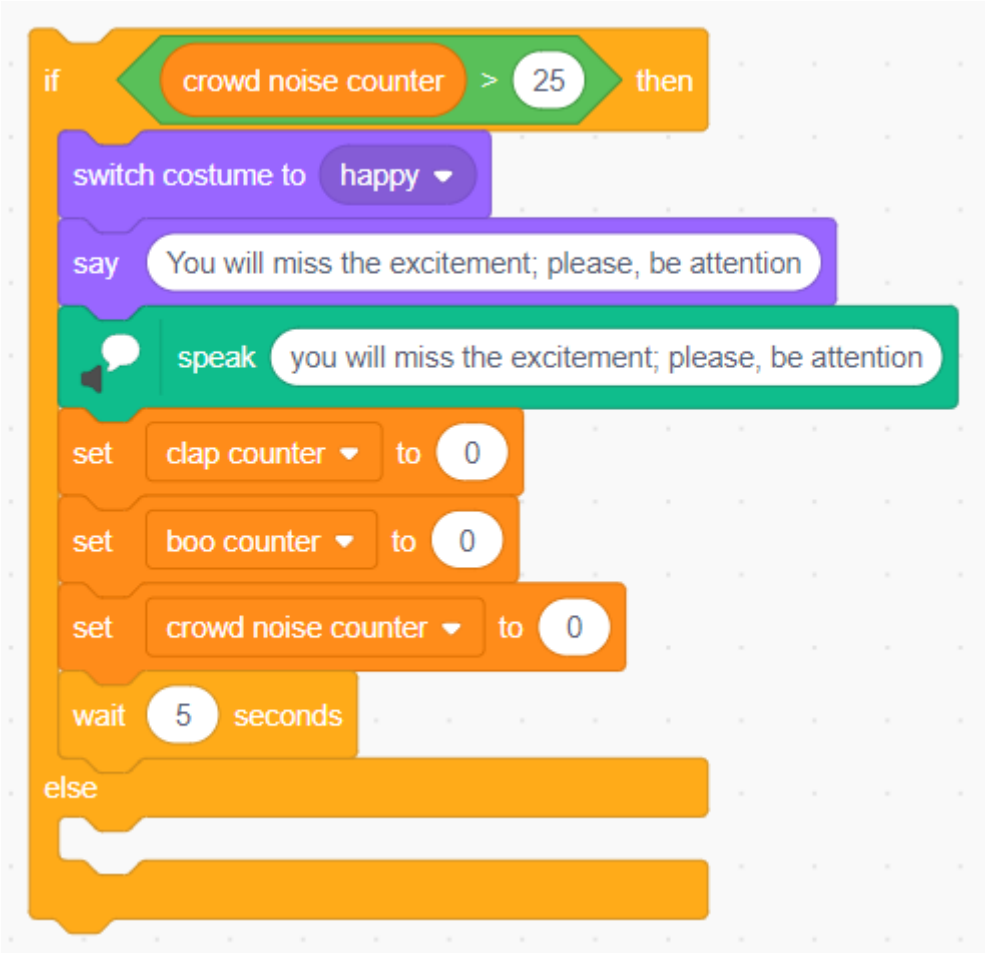
Just like you did previously, you will next check if the crowd noise is greater than 25, change the looks of the sprite to happy, as a response.

Then you will make the sprite say '**You will miss the excitement; please, be attention**'.

In addition to that you will make the sprite say '**You will miss the excitement; please, be attention**' as speech.

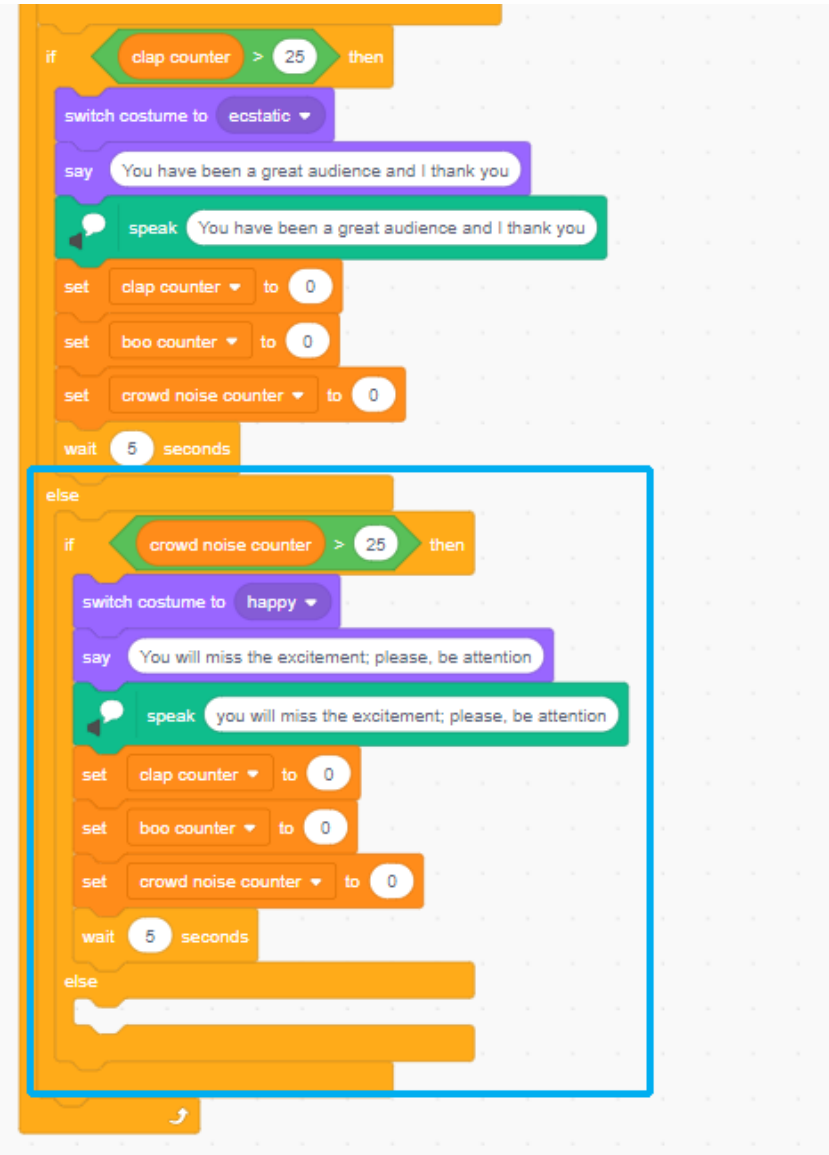
And

Set all the variables to 0 and wait for 5 seconds.



Step 37

Place this inside the else of '**if clap counter > 25**' as shown in the picture.



Step 38

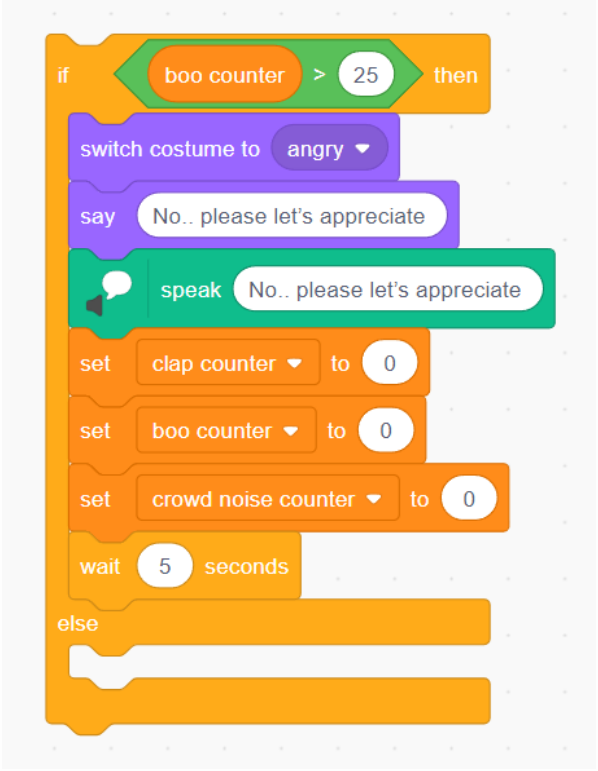
Next check if the '**boo counter**' is greater than 25, and change the looks of the sprite to '**angry**' as a response.

Make the sprite say '**No.. please let's appreciate**' in text.

Make the sprite say '**No.. please let's appreciate**' in speech too.

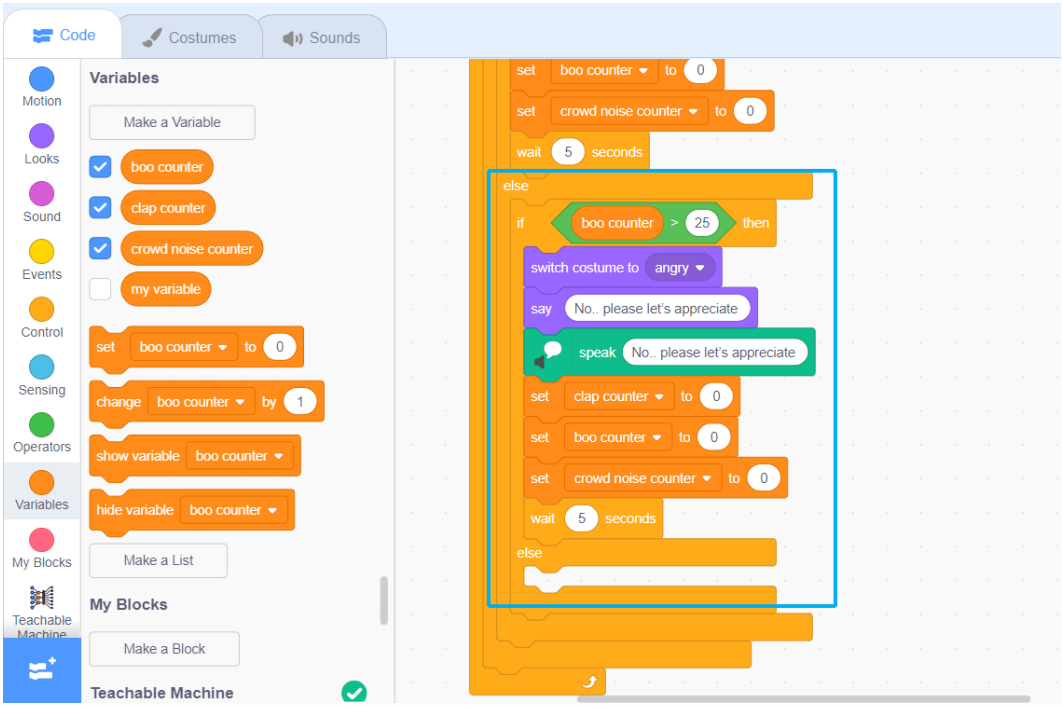
And

Set all the variables to 0 and wait for 5 seconds.



Step 39

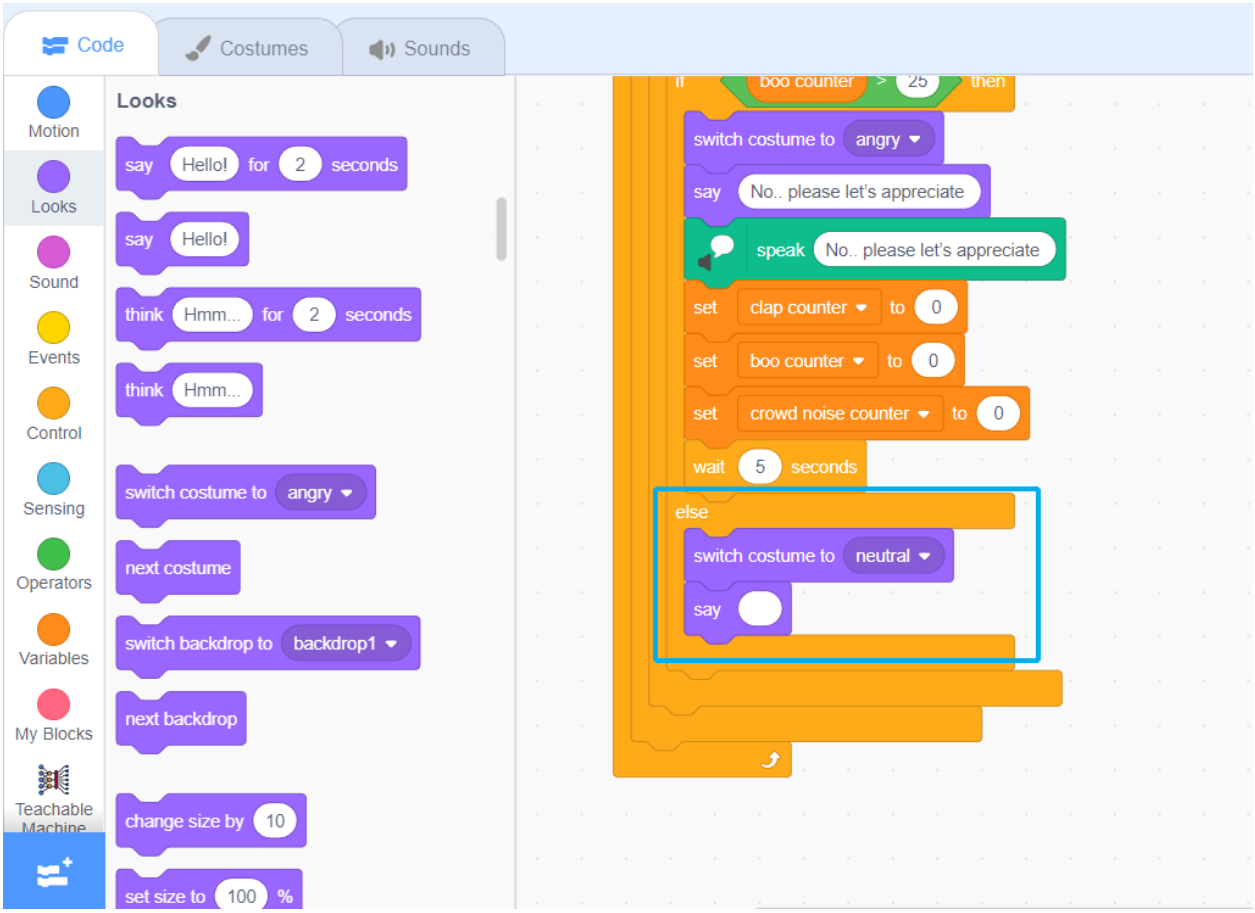
Place this if else block in else of the '**if crowd noise counter > 25**'.



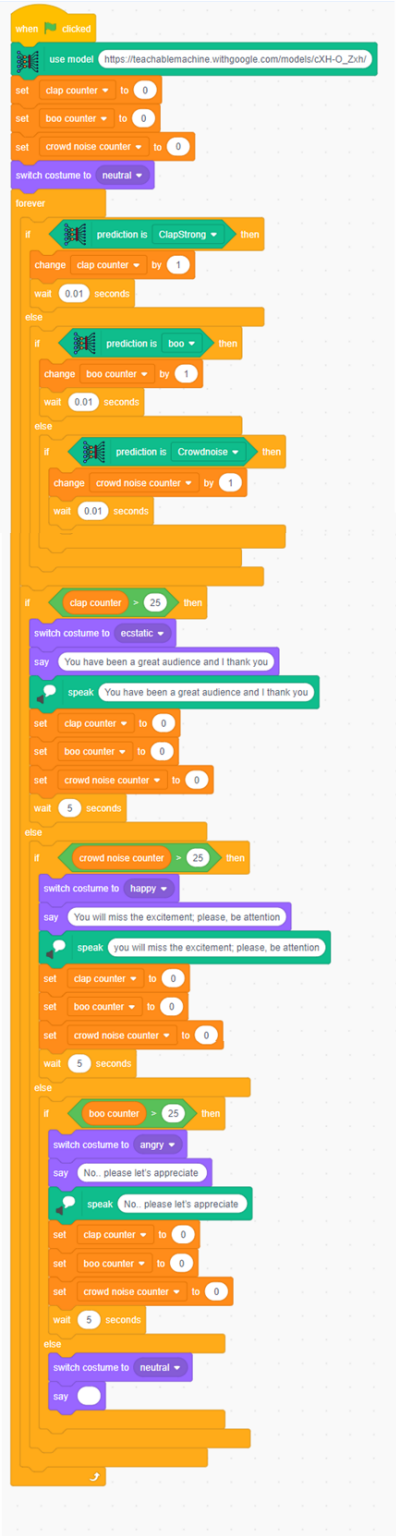
Now we come to the last step.

Step 40

Place the '**switch costume to neutral**' and '**say hello**' block inside the last else and make '**say**' block text empty.

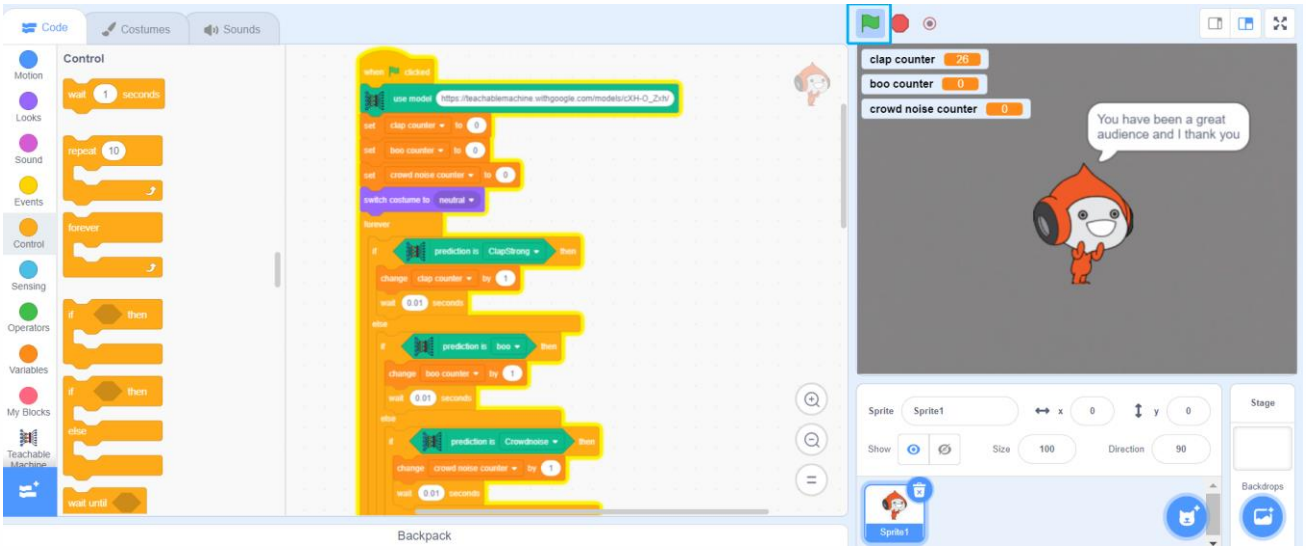


You are done! Check if you have arranged your code blocks correctly in reference to the image below.



Part 5: Run the program to test your project.

Click on the green flag in the stage area to run your code. Correct the errors if any and test until you get the intended result.



What can you do with this project?

Now that your AI-based Analyzer is working perfectly, the next time there is an annual day or any other event scheduled in your school, you can put your AI model to analyse the audience's sentiment which will help you and your school management to may make necessary changes for a successful event!