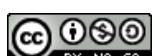
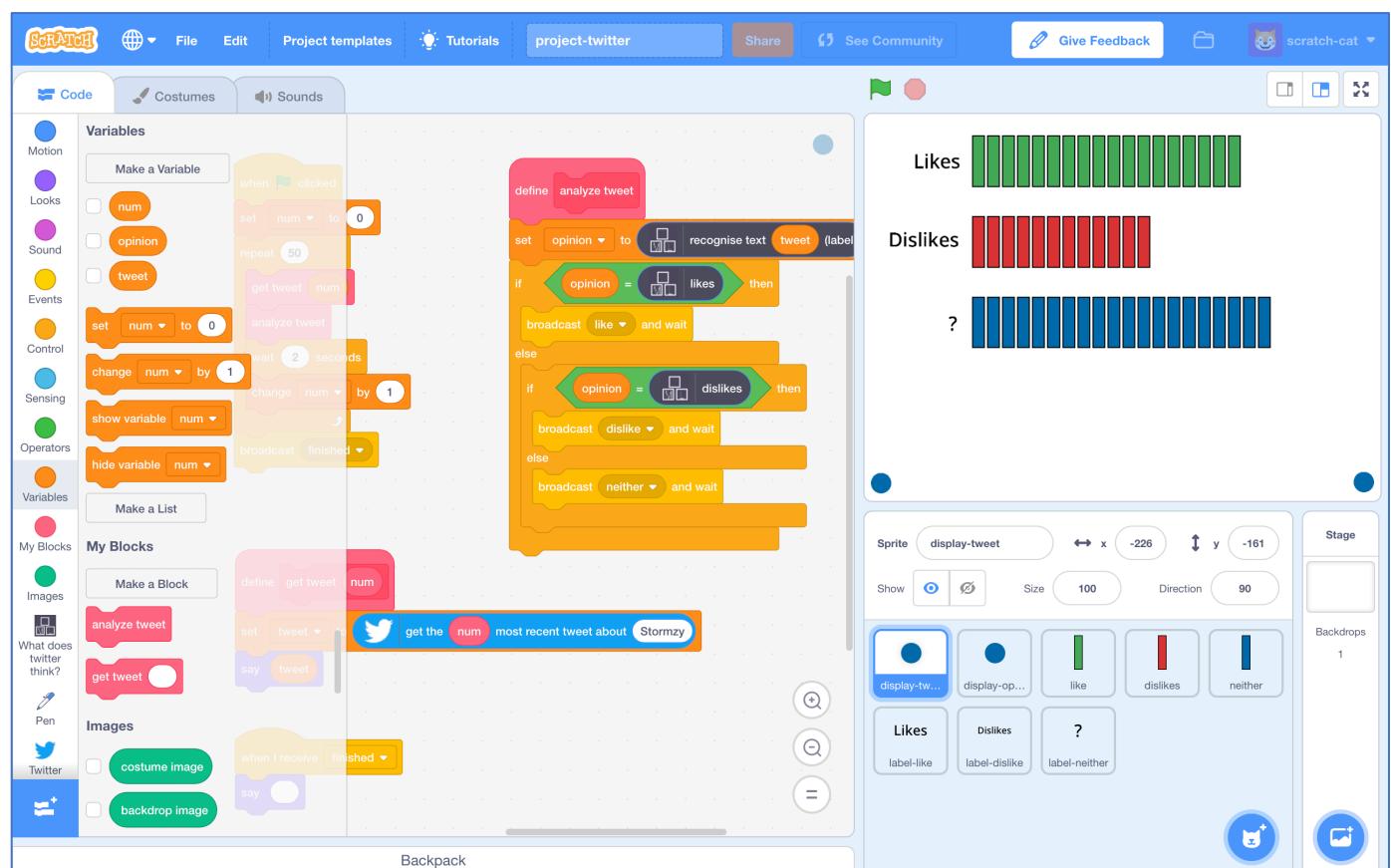


What does Twitter think?

In this project you will use machine learning to estimate what people think about a topical issue of your choice.

You'll train a machine learning model to recognise positive and negative comments about your topic, by collecting examples from social media.

You'll use your machine learning model in Scratch to analyze public discussion and represent this in a live graph.



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1. Choose a topic that you'll use for the project

In this project, you'll be analysing what people on Twitter think about something.

Choose something topical that you think people will be talking about. It could be a new movie, a TV show, or something that is in the news.

Check your idea with your teacher or group leader before continuing.

(For the rest of the screenshots in this worksheet, I'll be using Stormzy as I wrote this soon after Stormzy was announced as headlining the music festival Glastonbury).

2. Go to <https://machinelearningforkids.co.uk/> in a web browser

3. Click on “Get started”

4. Click on “Log In” and type in your username and password

5. Click on “Projects” on the top menu bar

6. Click the “+ Add a new project” button.

7. Name your project “What does twitter think?” and set it to learn how to recognise “text”.

Click the “Create” button

The screenshot shows a web-based form for creating a new machine learning project. The title at the top is "Start a new machine learning project".

Project Name *: What does twitter think?

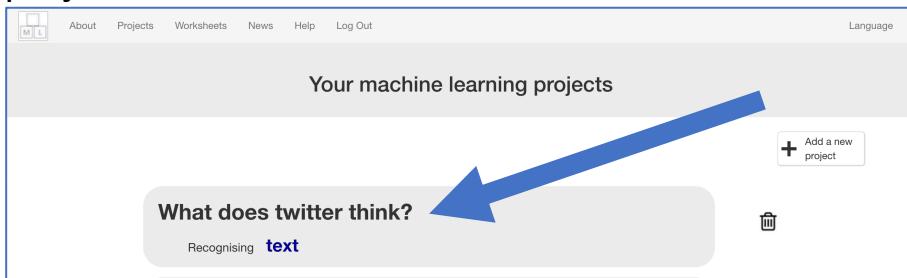
Recognising *: text

A tooltip for "Recognising" provides the following information: "What type of thing do you want to teach the computer to recognise? For words, sentences or paragraphs, choose "text". For photos, diagrams and pictures, choose "images". For sets of numbers or multiple choices, choose "numbers"."

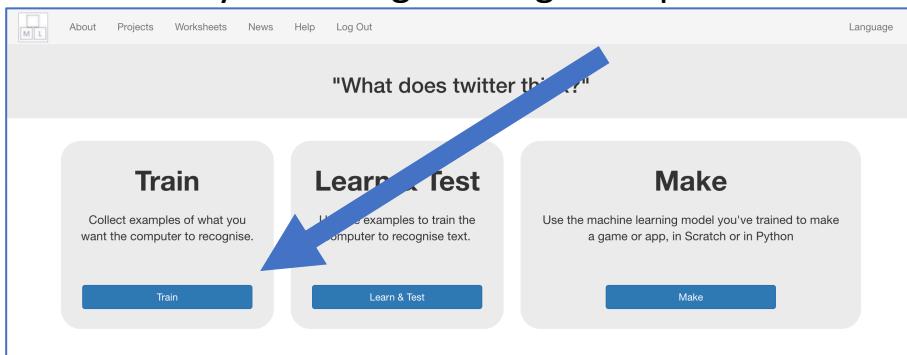
Language: English

At the bottom right are two buttons: "CREATE" and "CANCEL".

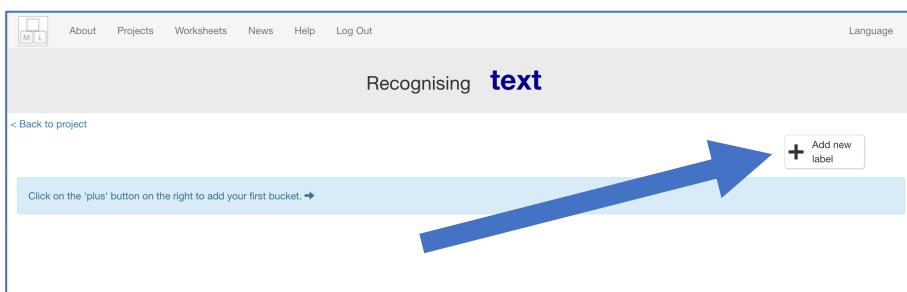
- 8.** You should now see “**What does twitter think?**” in the list of your projects. Click on it.



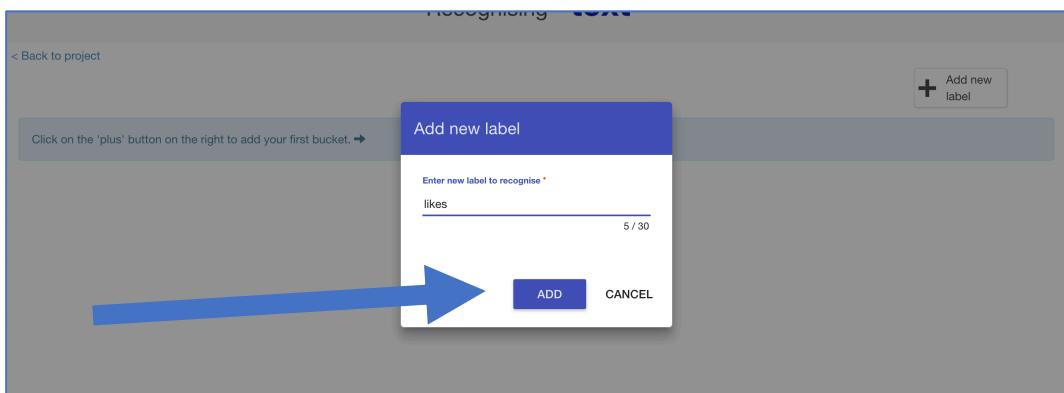
- 9.** Start by collecting training examples. Click “**Train**”



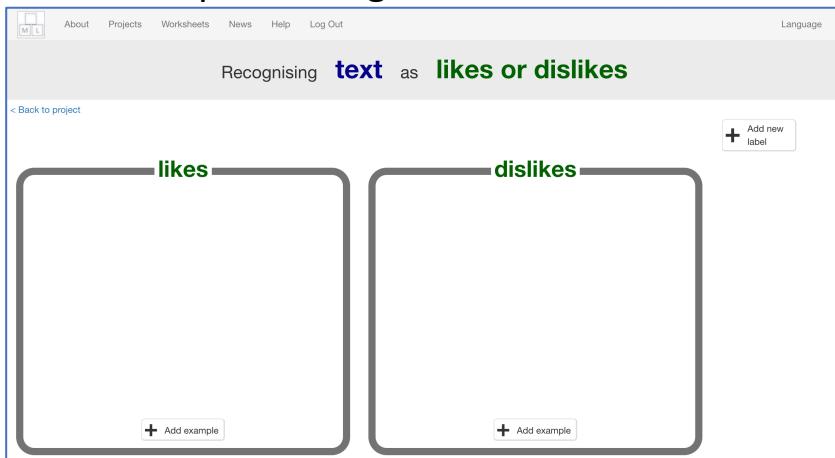
- 10.** First, create a space to store examples of positive comments. Click “**+ Add new label**”



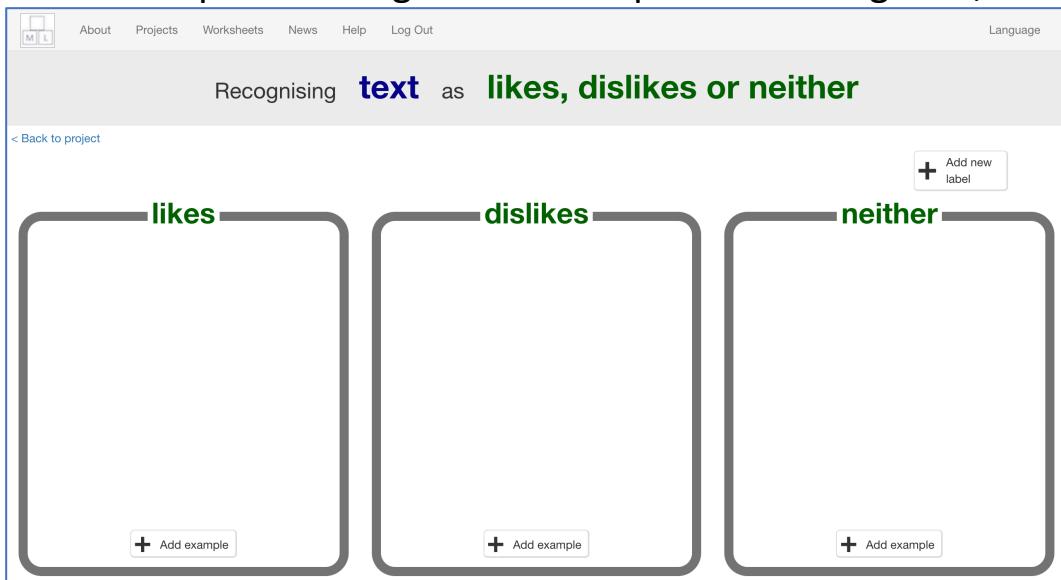
- 11.** Call this bucket “**likes**” and click “**Add**”



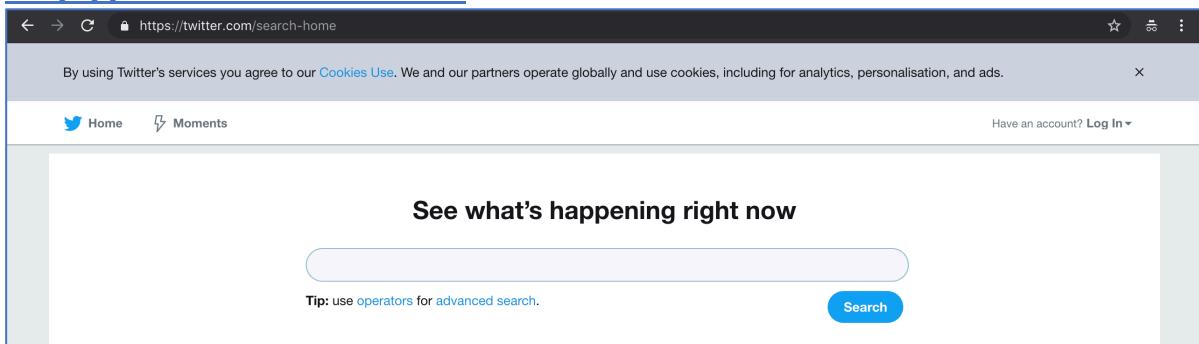
- 12.** Click the “+ Add a new label” button again, and create a space to store examples of negative comments, called “**dislikes**”



- 13.** Click the “+ Add a new label” button again, and create a space to store examples of things that aren’t positive or negative, called “**neither**”



- 14.** Open a new web browser window and go to
<http://search.twitter.com>



15. Search for the topic you're using for this project

stormzy

Top Latest People Photos Videos News Broadcasts

Search filters · Show

Related searches
@glastofest

New to Twitter?
Sign up

Worldwide trends
#IREvNZL 30.3K Tweets
Ohio State 45.9K Tweets
#شغور_لخته_ای 25.4K Tweets
Urban Never

People

Glastonbury Festival @GlastoFest

Tweets 5,829 Following 291 Followers 693K Follow

Official Glastonbury feed. We can't answer all questions asked here, but they should be answered at our website (link below). Glastonbury 2019, June 26-30 2019.
Worthy Farm, Pilton • glastonburyfestivals.co.uk

ROB @RKELLAS · Nov 15
Stormzy headlining Glasto. You have got to be joking?

jamie cairney @tombsjay · Nov 15

16. Find an example of someone saying something negative about your topic, and copy it to the clipboard

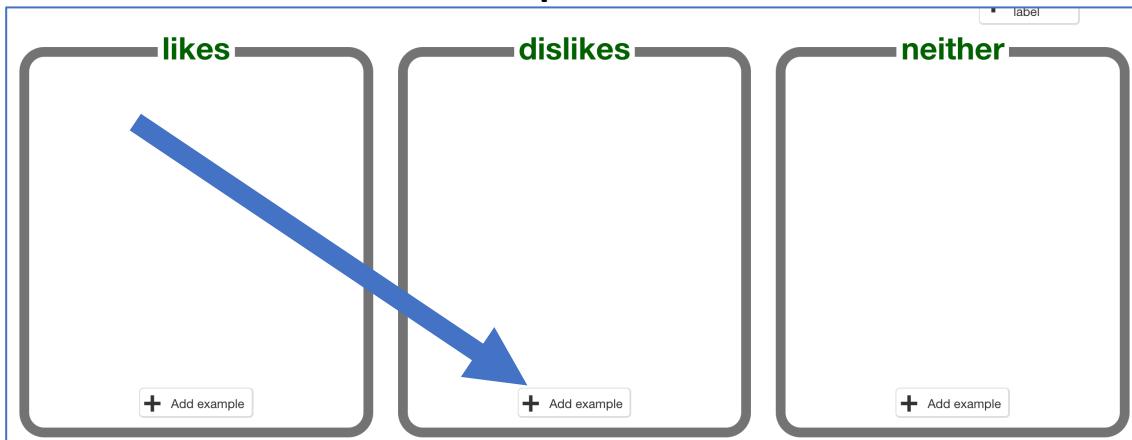
Worldwide trends
#IREvNZL 30.3K Tweets
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answered at our website (link below). Glastonbury 2019, June 26-30 2019.
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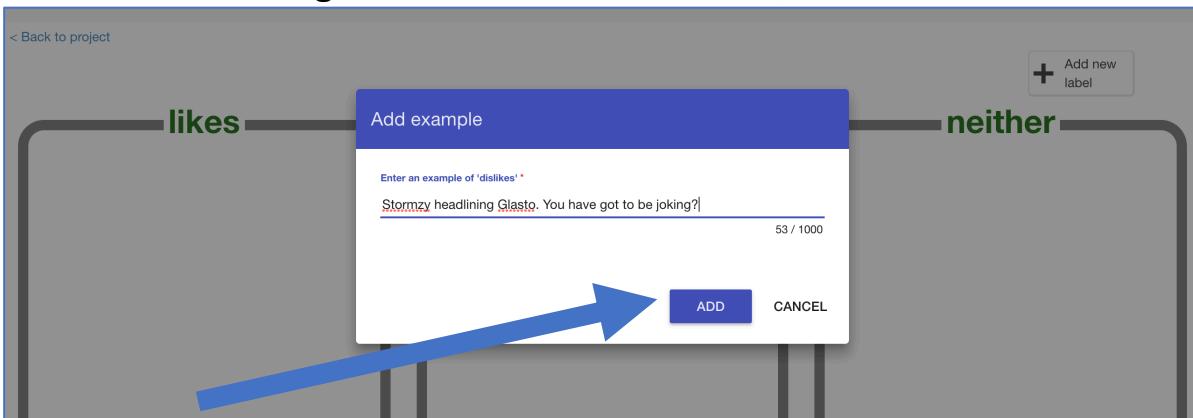
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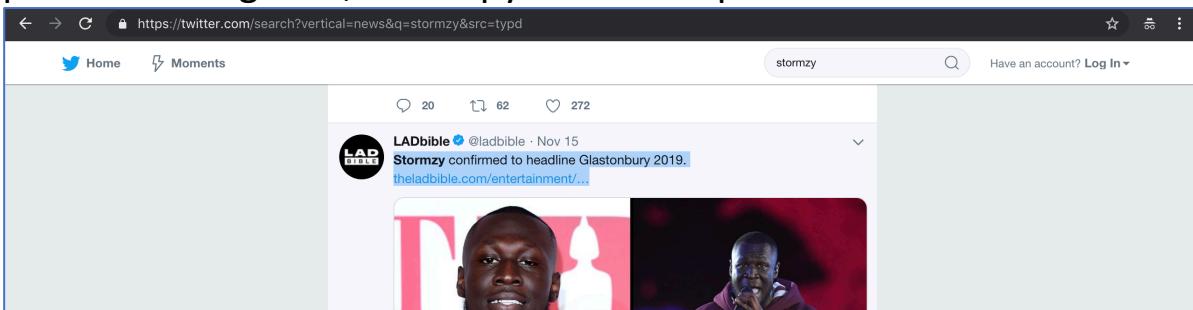
17. Click on the “+ Add example” button in the “dislikes” bucket



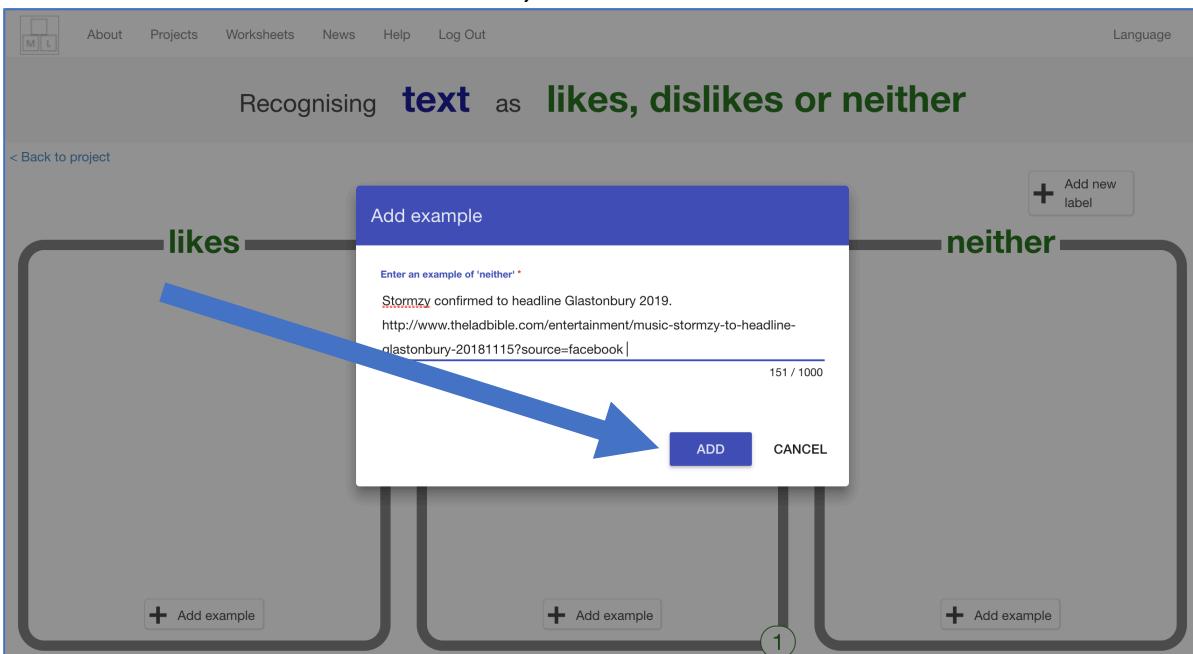
18. Paste the negative comment in the box, and click “Add”



19. Find an example of someone mentioning your topic, that isn't really positive or negative, and copy it to the clipboard



20. Click on the “+ Add example” button in the “neither” bucket Paste the comment in the box, and click “Add”



21. Find an example of a positive comment about your topic and copy it

A screenshot of a web browser showing a Twitter search results page for the query "stormzy". The top bar shows the URL as https://twitter.com/search?vertical=news&q=stormzy&src=typd. The search term "stormzy" is entered in the search bar. A tweet from the account @MOBOAwards is displayed, posted on Nov 15. The tweet content is: "Stormzy will become the first grime artist to headline Glastonbury next year. Let that sink in". Below the tweet is a small image of a festival stage.

22. Click the “+ Add example” button in the “likes” bucket

A screenshot of a web application for sentiment analysis. The main title is "Recognising text as likes, dislikes or neither". Below the title, there are three categories: "likes", "dislikes", and "neither". Each category has a box containing some text and a button labeled "+ Add example". A large blue arrow points from the text "Paste the positive comment in the box and click 'Add'" in step 23 to the "+ Add example" button in the "likes" category. In the "dislikes" and "neither" categories, there are green circles with the number "1" inside, indicating new examples.

23. Paste the positive comment in the box and click “Add”

A screenshot of a modal window titled "Add example" within the "likes" category. The modal contains a text input field with the text "Stormzy will become the first grime artist to headline Glastonbury next year. Let that sink in". Below the input field is a character count "119 / 1000". At the bottom of the modal are two buttons: "ADD" and "CANCEL". A large blue arrow points from the text "Paste the positive comment in the box and click 'Add'" in step 23 to the "ADD" button.

24. Repeat to fill all three buckets with examples

The more examples, the better your project will work, but the minimum for a working project is about 5 in each bucket.

The screenshot shows a web interface for collecting examples of text. At the top, there's a navigation bar with links for About, Projects, Worksheets, News, Help, Log Out, and Language. Below the navigation, the title "Recognising **text** as **likes, dislikes or neither**" is displayed. Underneath the title, there are three labeled sections: "likes", "dislikes", and "neither". Each section contains a list of 12 examples. At the bottom of each section, there is a button labeled "+ Add example". A green circle with the number "12" is overlaid on each of the three sections.

25. Click the “< Back to project” link

26. Next, use the examples you've collected to train a machine learning model. Click “Learn & Test”

The screenshot shows a web interface for training a machine learning model. At the top, there's a navigation bar with links for About, Projects, Worksheets, News, Help, Log Out, and Language. Below the navigation, the title "What does twitter think?" is displayed. There are three main steps: "Train", "Learn & Test", and "Make". The "Train" step has a sub-instruction: "Collect examples of what you want the computer to recognise." The "Learn & Test" step has a sub-instruction: "Use the examples to train the computer to recognise text." The "Make" step has a sub-instruction: "Use the machine learning model you've trained to make a game or app, in Scratch or in Python." A large blue arrow points from the "Learn & Test" step to the "Make" step.

27. Click on the “Train new machine learning model” button

This will take a minute or two to train. While you’re waiting, you could try the multi-choice quiz at the bottom of the page.

The screenshot shows the 'Machine learning models' page. On the left, a box titled 'What have you done?' lists collected examples: 12 likes, 12 dislikes, and 12 neither. On the right, a box titled 'What's next?' has a blue arrow pointing to the 'Train new machine learning model' button. Below these boxes is a text area labeled 'Info from training computer:' containing placeholder text like 'Ready to start the computer's training? Click the button below to start training a machine learning model using the examples you have collected so far...'. At the bottom of the page is a navigation bar with links for 'About', 'Projects', 'Worksheets', 'News', 'Help', 'Log Out', and 'Language'.

28. Click on the “< Back to project” link

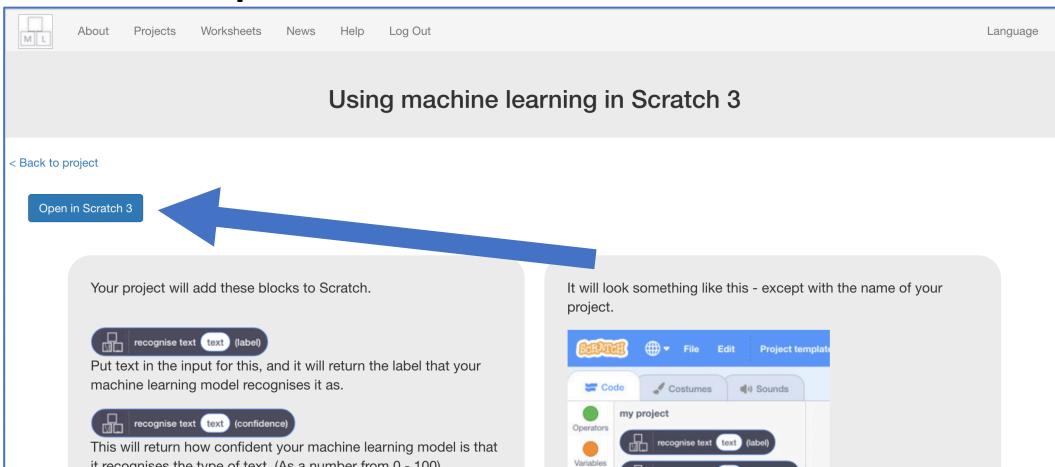
29. Next, we’ll use Scratch to analyze tweets. Click “Make”

The screenshot shows the 'What does twitter think?' page. It features three main sections: 'Train', 'Learn & Test', and 'Make'. A blue arrow points to the 'Make' button. The 'Train' section has a 'Train' button. The 'Learn & Test' section has a 'Learn & Test' button. The 'Make' section has a 'Make' button. The page also includes a title 'What does twitter think?' and a navigation bar at the top with links for 'About', 'Projects', 'Worksheets', 'News', 'Help', 'Log Out', and 'Language'.

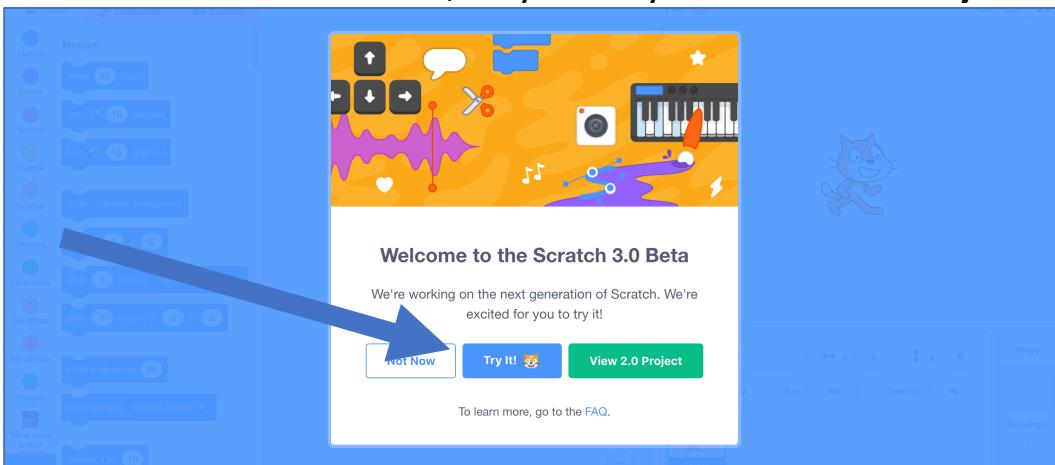
30. Click “Scratch 3”

The screenshot shows the 'Make something with your machine learning model' page. It offers three options: 'Scratch', 'Scratch 3', and 'Python'. A blue arrow points to the 'Scratch 3' button. The 'Scratch' section has a 'Scratch' button. The 'Scratch 3' section has a 'Scratch 3' button. The 'Python' section has a 'Python' button. The page also includes a title 'Make something with your machine learning model' and a 'Back to project' link. At the bottom, there is a footer with links for 'About', 'Projects', 'Worksheets', 'News', 'Help', 'Log Out', and 'Language'.

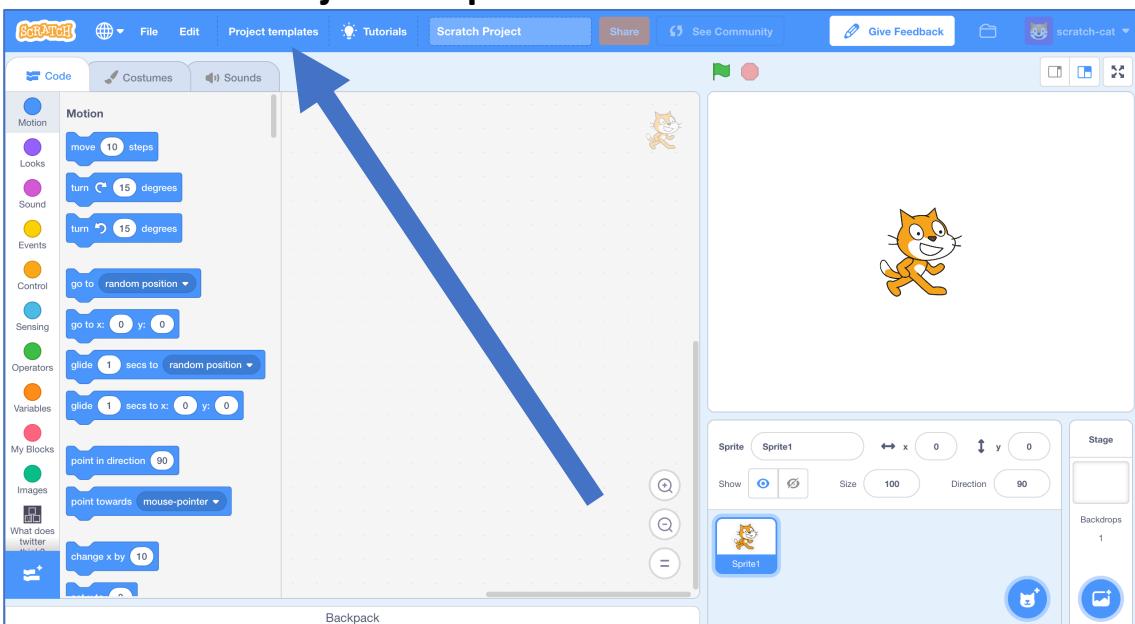
31. Click “Open in Scratch 3”



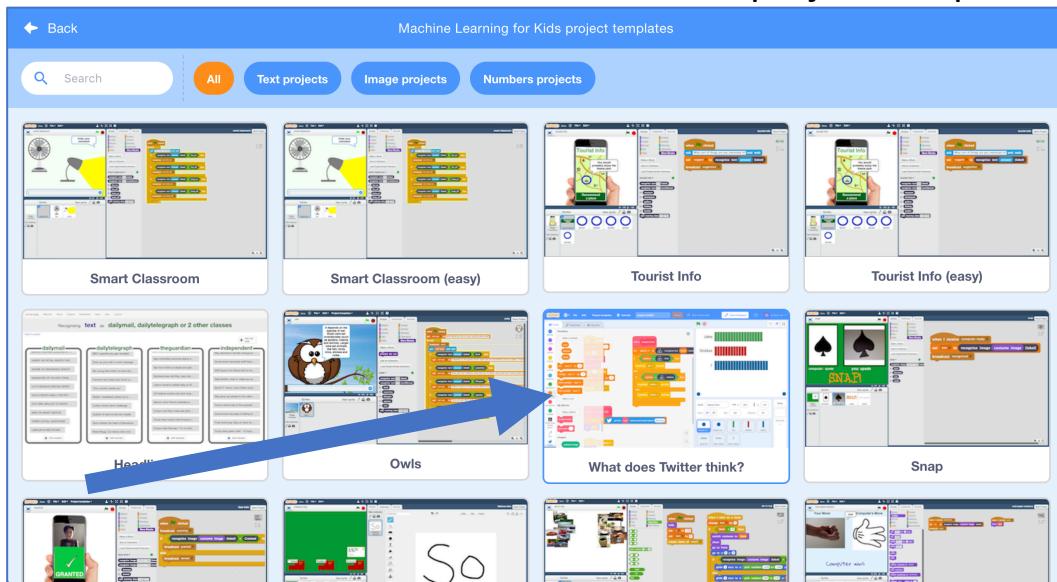
32. Scratch 3 is still new, so you may need to click “Try it!”



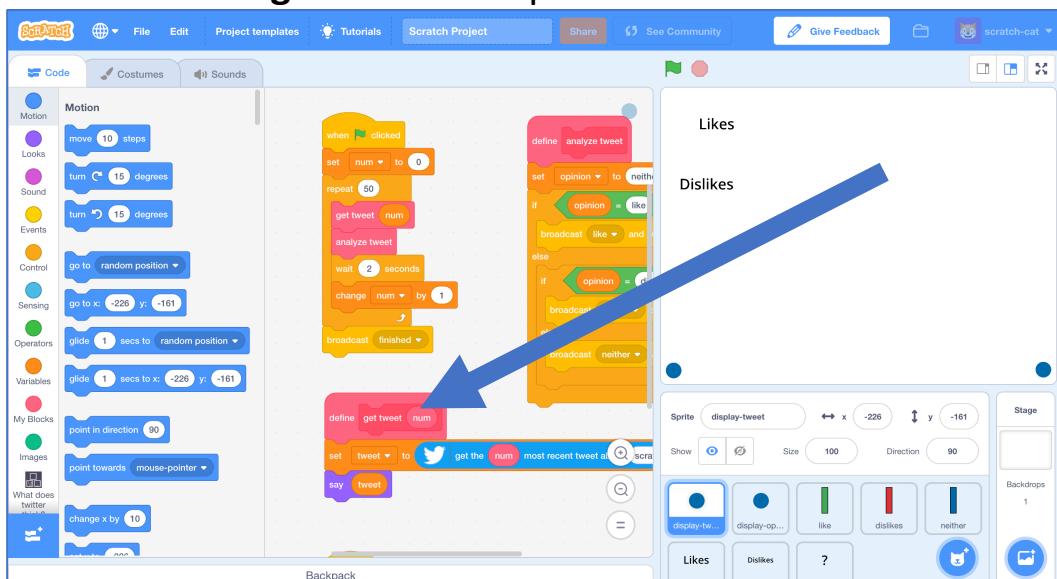
33. Click on “Project templates”



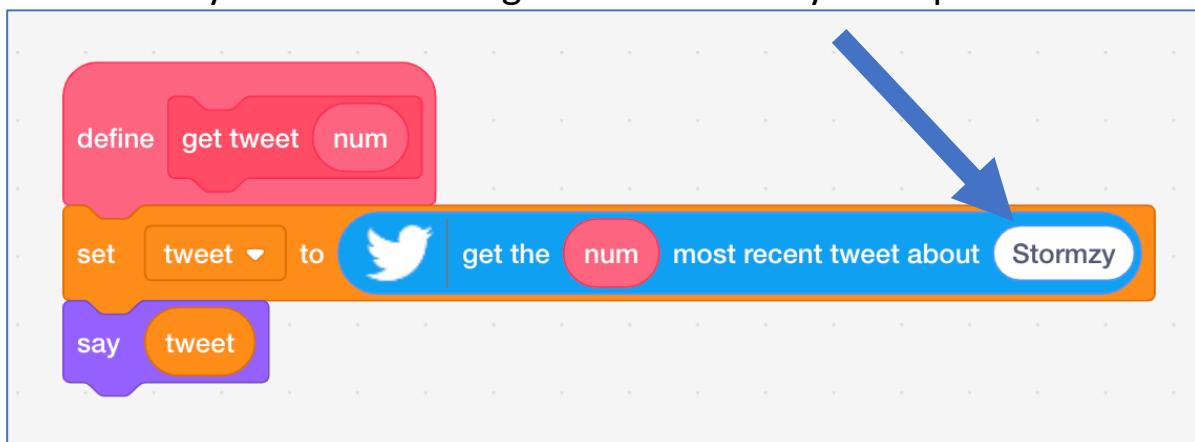
34. Find the “What does Twitter think?” project template and click on it



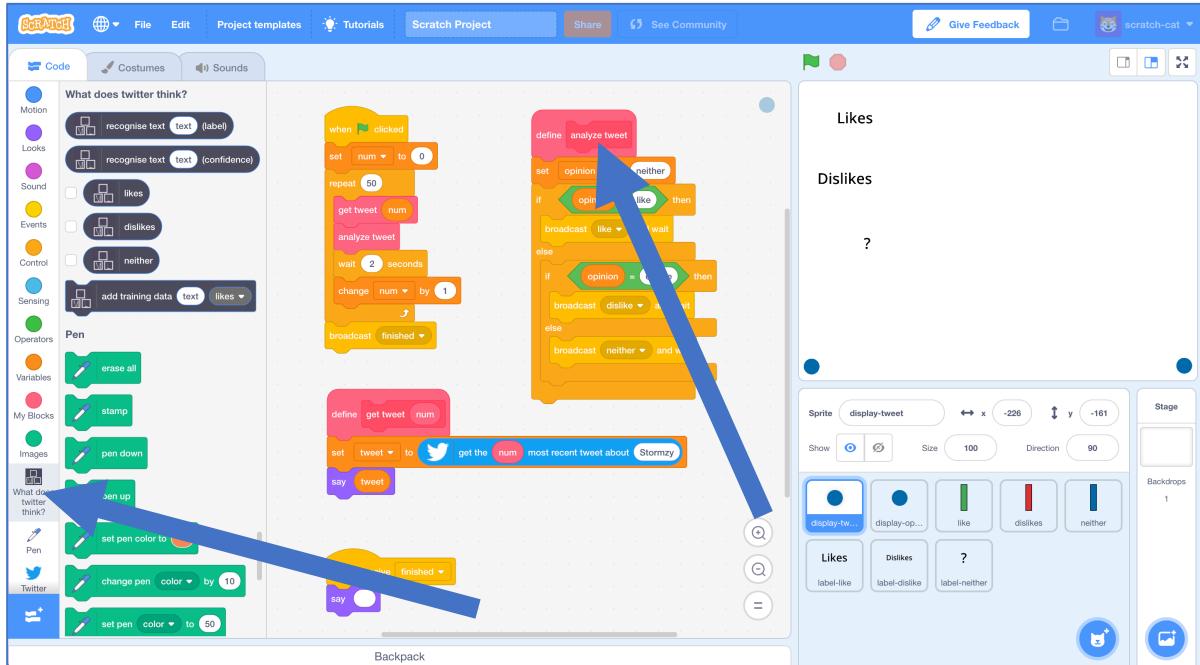
35. Find the “get tweet” script



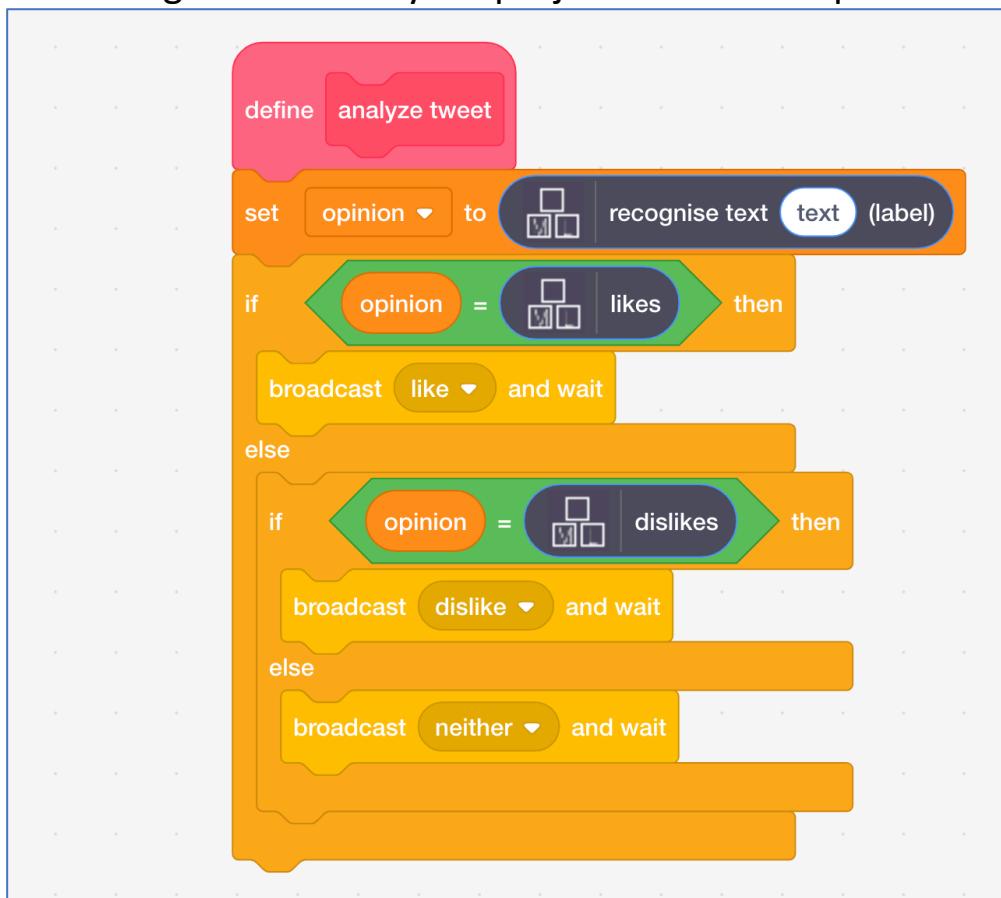
36. Modify it so that it will get tweets about your topic



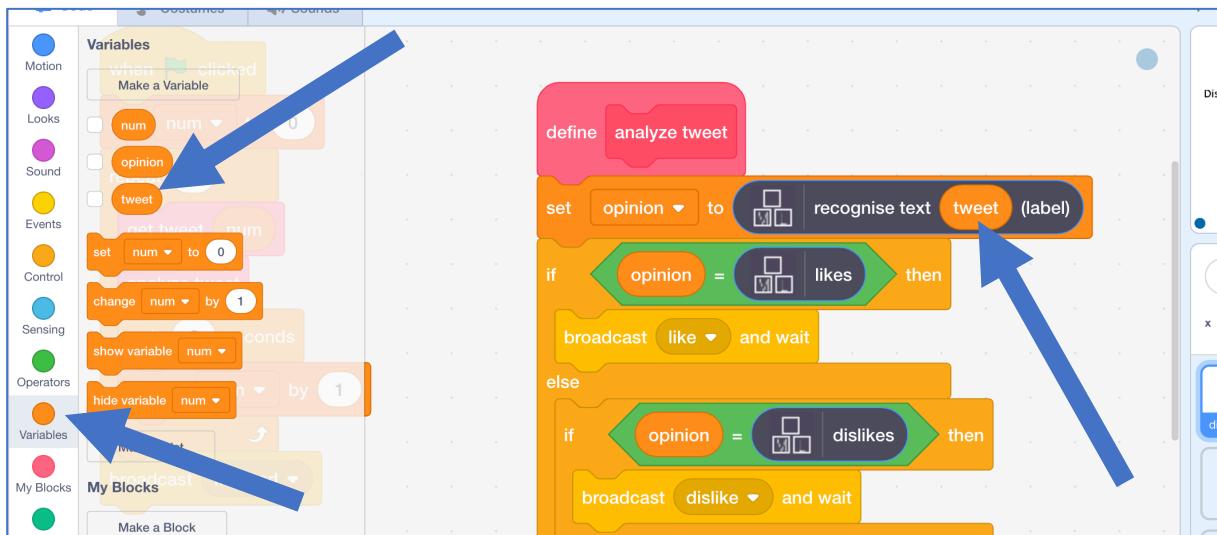
- 37.** Find the “analyze tweet” script and the blocks from your project
Clicking on your project name in the left-hand side will scroll to your project blocks in the toolbox



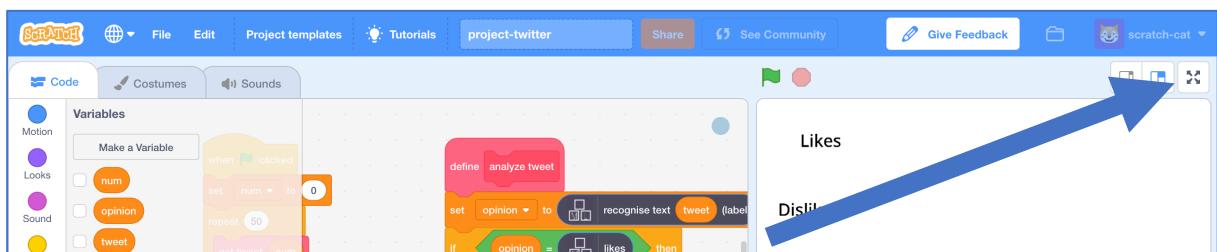
- 38.** Drag blocks from your project into the script



39. Click on “Variables” in the left-hand side, and drag “tweet” into the “recognise text” block so that your machine learning model will analyze the next tweet

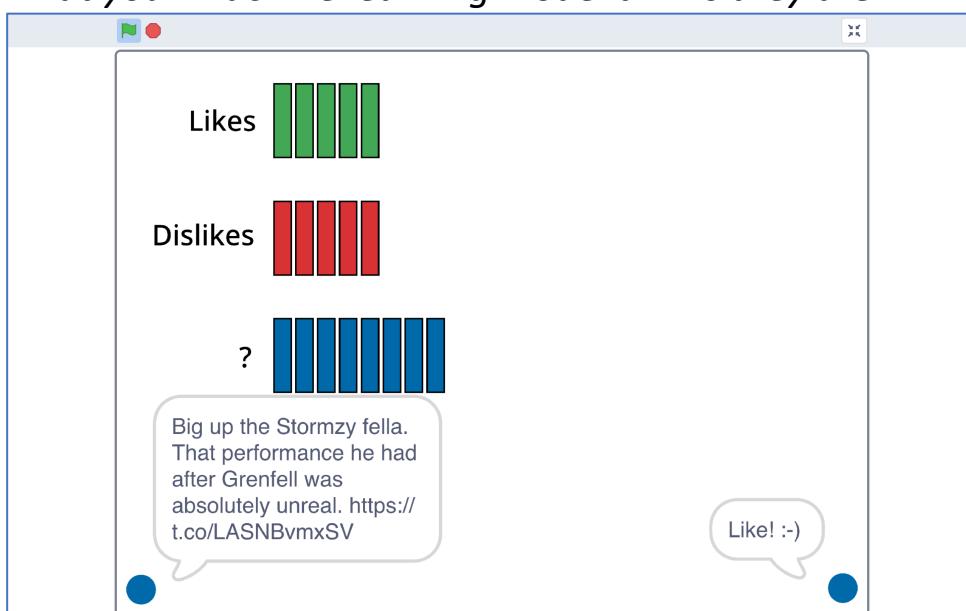


40. Time to test! Click the full-screen button.

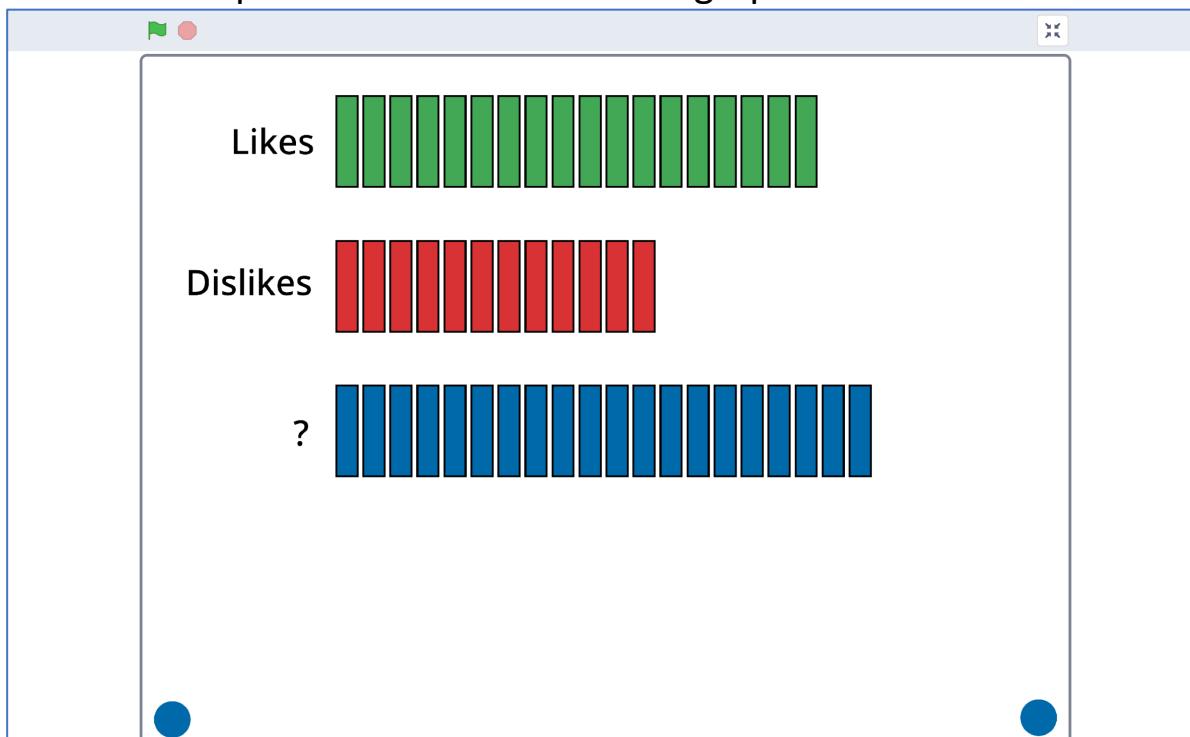


41. Click the green flag

The script will fetch 50 tweets about the topic, and draw a graph based on what your machine learning model thinks they are



42. The script will finish with the final graph



43. Save your project.

*Click **File** -> **Download to your computer***

What have you done?

You're using a type of natural language processing called sentiment analysis to measure the discussion about a topic on social media.

This is a very common usage of machine learning, to analyze what people think about everything from companies, retail products, and world issues.

With a small number of examples, your project will get a lot wrong, but the more examples you give it, the better it should get.

Even then, it will still make mistakes, but by making it easier to measure a very large number of messages quickly, this technique is still useful to give a quick estimate of the public mood.

Ideas and Extensions

Now that you've finished, why not give one of these ideas a try?

Or come up with one of your own?

Make your model more accurate

As the Scratch script plays, it displays what your machine learning model thought of each tweet. You'll probably disagree with some decisions your model makes.

Try to improve this by adding more examples in the “**Train**” page. Make sure you click the “**Train new machine learning model**” button again, to use those new examples. Then run your Scratch script again to see what difference it makes.

Write a Scratch script to train your model

Copying examples from another web browser is slow. Can you write a Scratch project to make this easier?

Use the “**get tweets**” block and the “**add training data**” block to make a project that will show you tweets, and if you press the “L” add them to the “likes” bucket and if you press the “D” add them to the “dislikes” bucket.

This will make it easier for you to collect training examples.

Use confidence scores

The confidence score block will tell you how sure your machine learning model is that it has correctly measured a tweet. You could use this so that the graph isn't updated unless the model is very confident.