

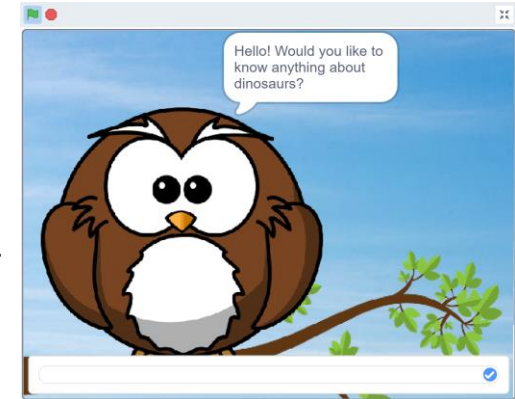
## 01 Getting started

- Go to “<https://machinelearningforkids.co.uk/>” in a web browser.
- Click on “**Get started**”.
- Click on “**Try it now**”.
- Click the “**+ Add a new project**” button.



## Challenge

In this project you will make a chatbot that can answer questions about a topic of your choice.



## 02 Decide on a topic

Choose something that you know well enough to be able to answer questions about:

- It could be an animal (e.g. Owls, Dinosaurs etc.)
- It could be something from history (e.g. Vikings, Romans etc.)
- For this example, we will explore Dinosaurs.

## 03 Think of five questions

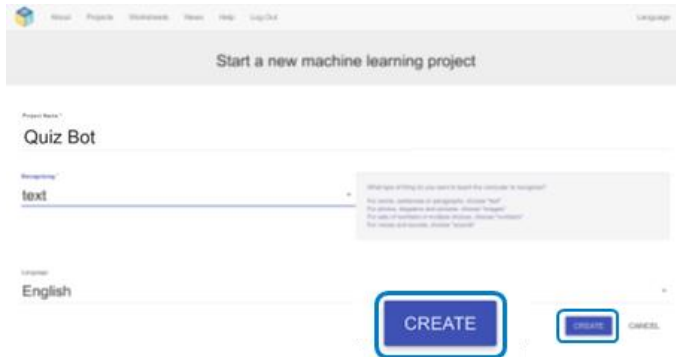
Think of five questions someone might ask about your topic

e.g. for Dinosaurs, this could be:

- \* What did Dinosaurs eat?
- \* When did Dinosaurs become extinct?
- \* How long did Dinosaurs live for?
- \* What types of Dinosaurs are there?
- \* How big were Dinosaurs?



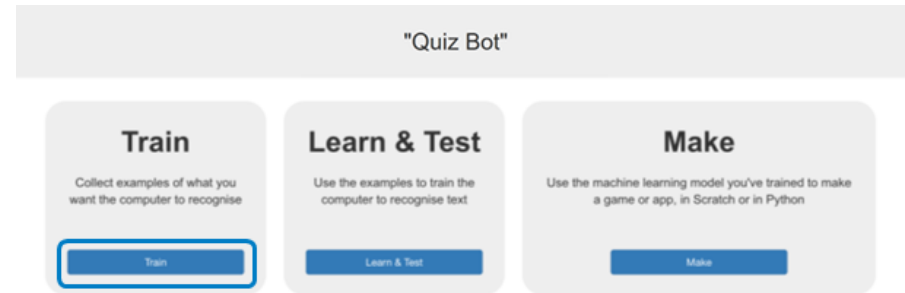
04



- Name your project **“Quiz Bot”** and set it to learn how to recognise **“text”**.
- Click the **“Create”** button

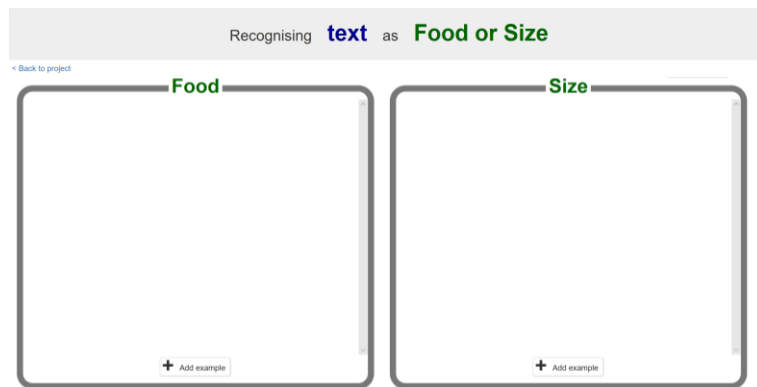
05

You should now see **“Quiz Bot”** in the list of your projects. Click on it.  
You need examples to train the computer. Click the **“Train”** button.



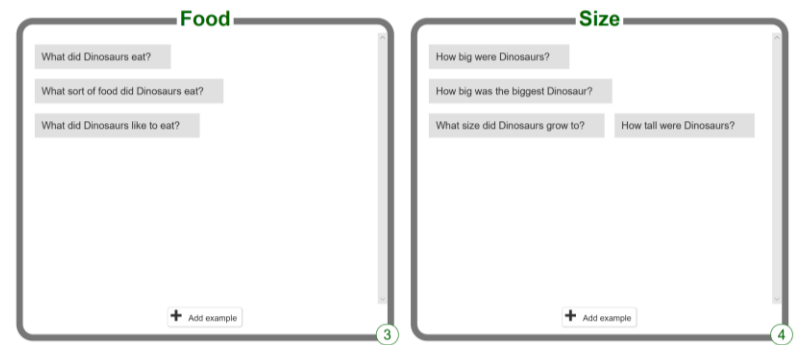
06

- Click on **“+ Add new label”**.
- Create categories for each of the questions you thought of in step 3.



07

- Click the **“Add example”** button in the **first category** bucket, and type in different examples of how someone might ask the first questions you thought of.
- Repeat this for **all 5 categories** (Buckets)





08

- Click on the “< Back to project” link.
- Click on the “Learn & Test” button.
- Click on the “Train new machine learning model” button.

*As long as you’ve collected enough examples, the computer should start to learn how to recognise messages from the examples you’ve given it.*

Info from training computer:

Train new machine learning model

09

- Wait for the training to complete. This might take a few minutes.
- Once the training has completed, a Test box will be displayed.

What did dinosaurs eat?

- Try testing your machine learning model to see what the computer has learned. For example, “What did dinosaurs eat?” etc.
- Test it with examples that you haven’t shown the computer before.
- If you’re not happy with how the computer recognises the messages, go back to **step 05**, and add some more examples.

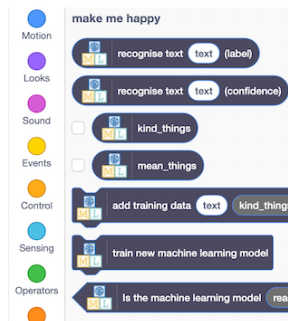
10

## Testing your model in Scratch

You’ve started to train a computer to recognise text as being kind or mean. This type of learning is called “**Supervised Learning**” because of the way you are supervising the computer’s training.

- Click the “< Back to project” link.
- Click the “Make” button.
- Click the “Scratch 3” button.
- Click the “Open in Scratch” button.

*You should see new blocks from your project at the bottom of the list.*



11

- Click on “Project templates”.
- Select “Owls”.





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- Create this little snippet of script but don't attach it to anything yet.
- Make sure you choose "owl says" for the orange block.

```

if [ML] recognise text [answer] (label) = [ ] then
  set owl says to [ ]
  
```

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- Duplicate the previous block (once for each category) and join them all together.
- *Right-click on it and click "Duplicate".*

```

if [ML] recognise text [answer] (label) = [ ] then
  set owl says to [ ]
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  set owl says to [ ]
  
```

14

(1) Drag the label for one of your questions into the top space and (2) type the answer to the question into the bottom space.

```

if [ML] recognise text [answer] (label) = [Food] then
  set owl says to Some were carnivores, like T-rex, whilst others were herbivores such as
if [ML] recognise text [answer] (label) = [Size] then
  set owl says to Some Dinosaurs were the size of a chicken whilst others grew to the siz
  
```

15

- Drag this new block into the Green Flag block prepared for you.
- *Remove the "Sorry. I haven't been taught anything yet."* block and
- *replace it with your new code.*

```

when green flag clicked
  set owl says to Hello! What would you like to know?
  forever
    broadcast speak
    ask owl says and wait
    if [ML] recognise text [answer] (label) = [Food] then
      set owl says to Some Dinosaurs were carnivores, like T-Rex, whilst others
    if [ML] recognise text [answer] (label) = [Size] then
      set owl says to Some Dinosaurs were the size of a chicken whilst other gre
  
```



- Test your code

The image shows a Scratch project titled "NLP Chat Bot". On the left, the code editor contains the following blocks:

- when green flag clicked
- set owl says to Hello! What would you like to know?
- forever loop:
  - broadcast speak
  - ask owl says and wait
  - if recognise text answer (label) = Food then:
    - set owl says to Some Dinosaurs were carnivores, like T-Rex, whilst others v
  - if recognise text answer (label) = Size then:
    - set owl says to Some Dinosaurs were the size of a chicken whilst other gre

On the right, the chat window shows an owl sprite with a speech bubble saying "Hello! Would you like to know anything about dinosaurs?". Below the owl is a text input field containing "How big were dinosaurs?". The bottom right of the interface shows the sprite control panel for "owl-1" with coordinates x: -85, y: -30, size: 75, and direction: 90.