CSEdbotswana Hour of Code 2026

Botswana Tourism Digital Assistant

A first-hour machine learning activity using Machine Learning for Kids and Scratch

Activity overview

In this activity, participants build a simple Botswana tourist travel recommender. The project asks a visitor what kind of trip they want, sends the typed answer to a trained text machine learning model, stores the predicted label in a variable called suggest, and uses if statements to recommend one place.

Learning goals

- Understand that machine learning uses examples rather than fixed rules.
- Create labels for four different kinds of tourist interests.
- Add varied training examples in English, Setswana, and mixed language.
- Test a trained text recognition model with examples it has not seen before.
- Connect the model to Scratch using answer, suggest, and if statements.
- Reflect on why training examples affect model predictions.

Simple introduction script for the video

The video which explains concepts can be found here: https://www.youtube.com/watch?v=STbjxiC9K8I

Hello everyone. In this activity, we are going to build a Botswana travel recommender. The recommender will ask a visitor what kind of trip they are interested in, and then it will suggest a place in Botswana.

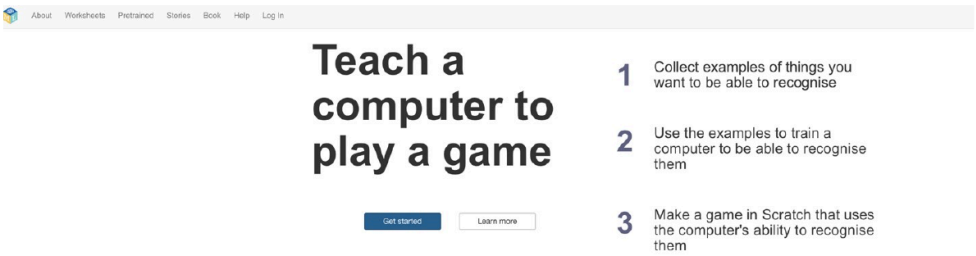
We will use machine learning. Machine learning is a way of teaching a computer with examples. Instead of writing rules for every possible sentence, we give the computer examples for each category a tourist can visit. The computer looks for patterns and then makes a prediction when it sees a new sentence about a tourist interest.

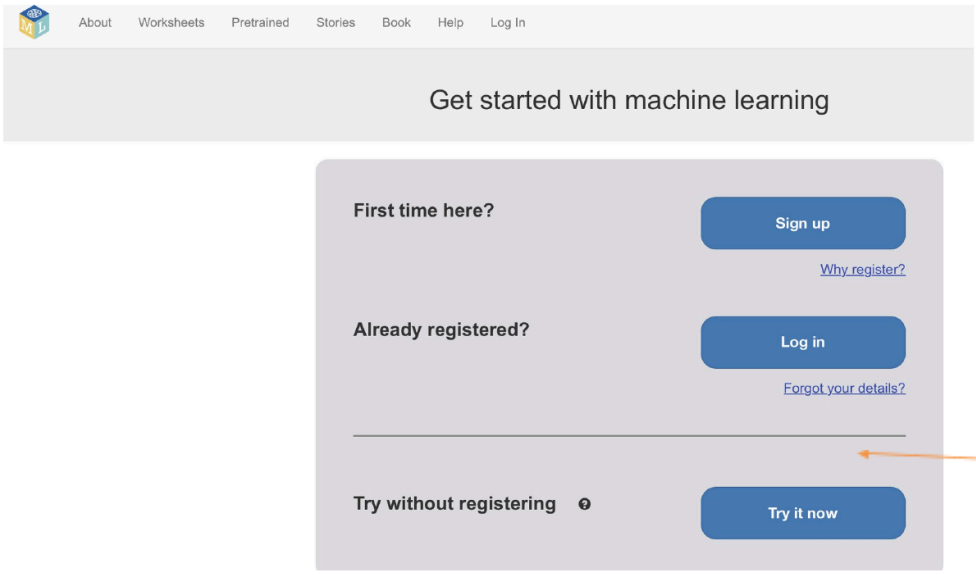
Our four categories for training the machine learning model are Three Dikgosi, Debswana, the Okavango Delta, and Makgadikgadi Pans. Each one represents a different kind of interest: history and leadership, diamonds and mining, water and wildlife, and desert adventure.

First, we will train the model with examples. Then we will test it with new sentences. Finally, we will connect the model to Scratch so the digital assistant can recommend a place.

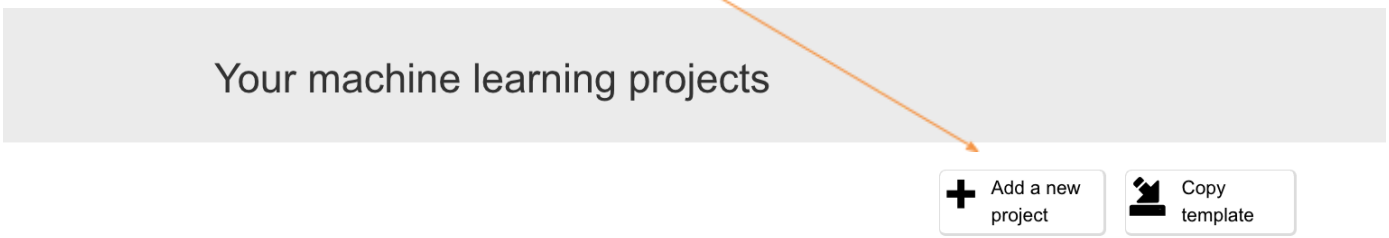
Getting started

Open Machine Learning For Kids: https://machinelearningforkids.co.uk/

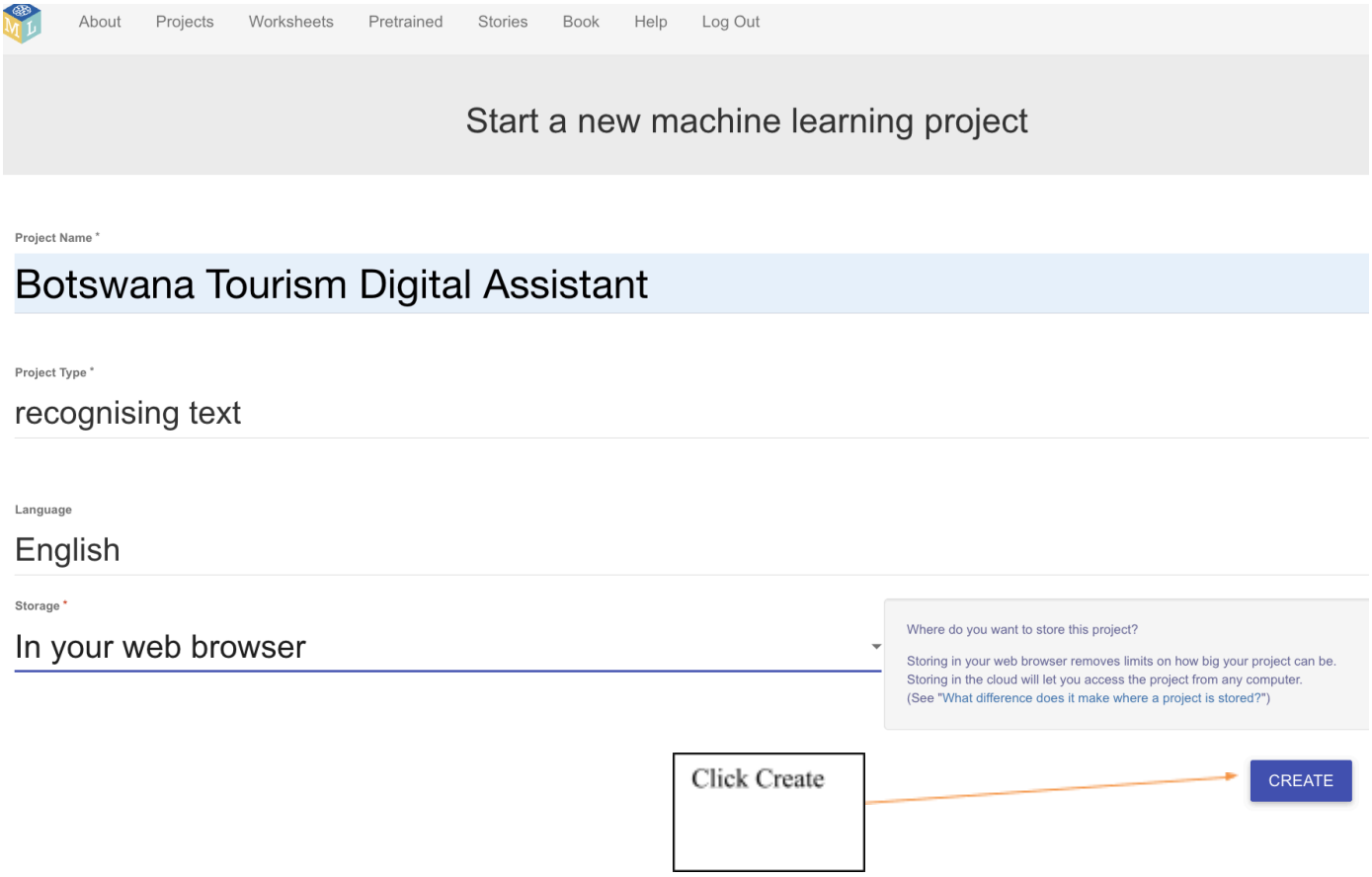




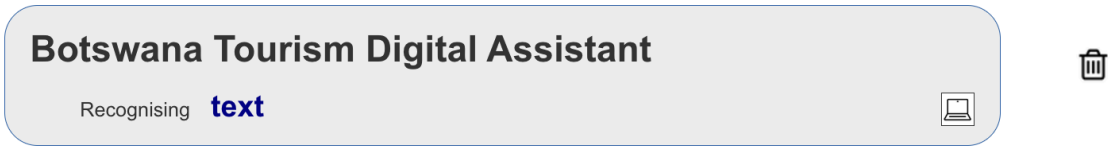
Click on Add a new Project

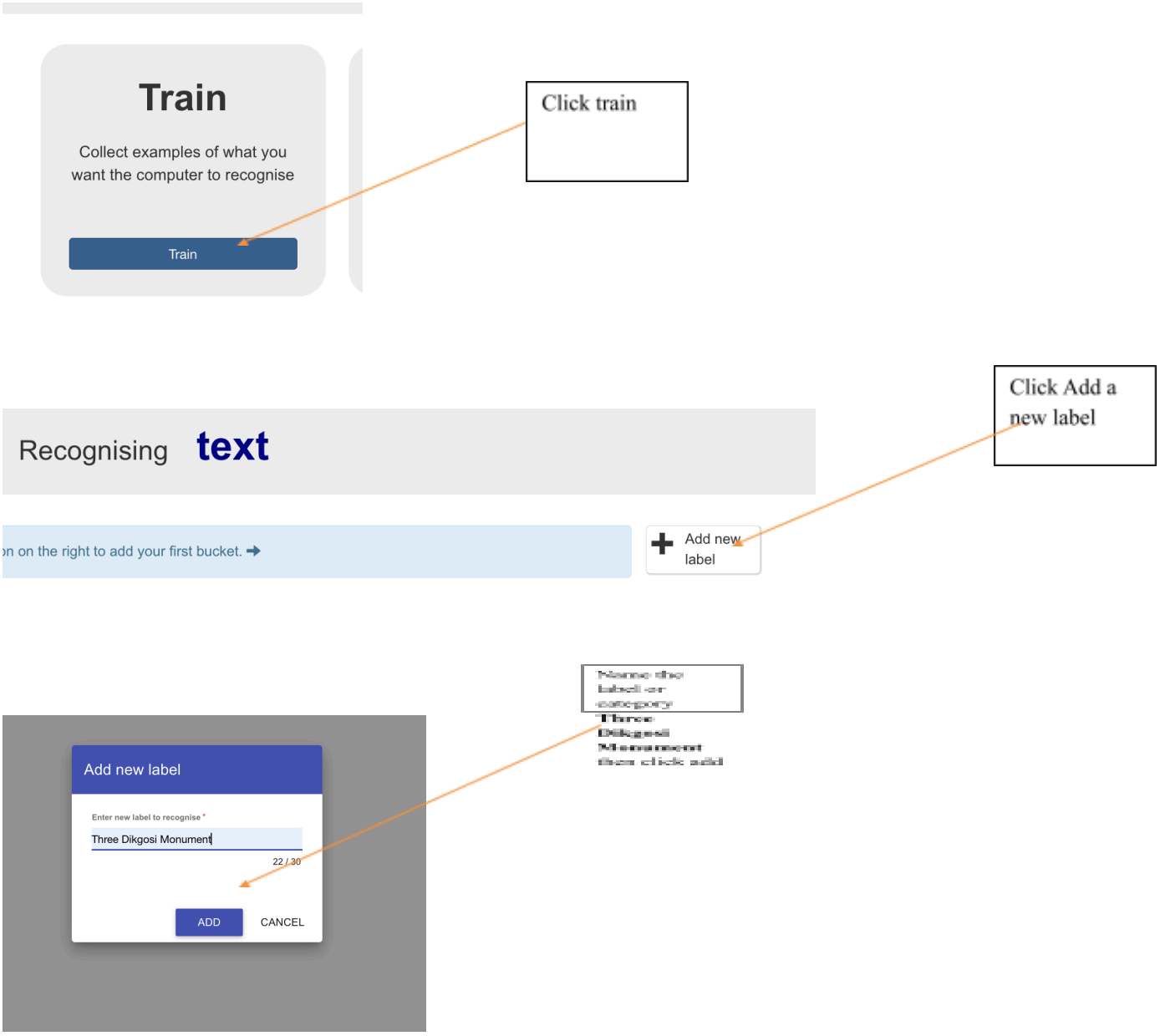


Add the following parameters then click Create

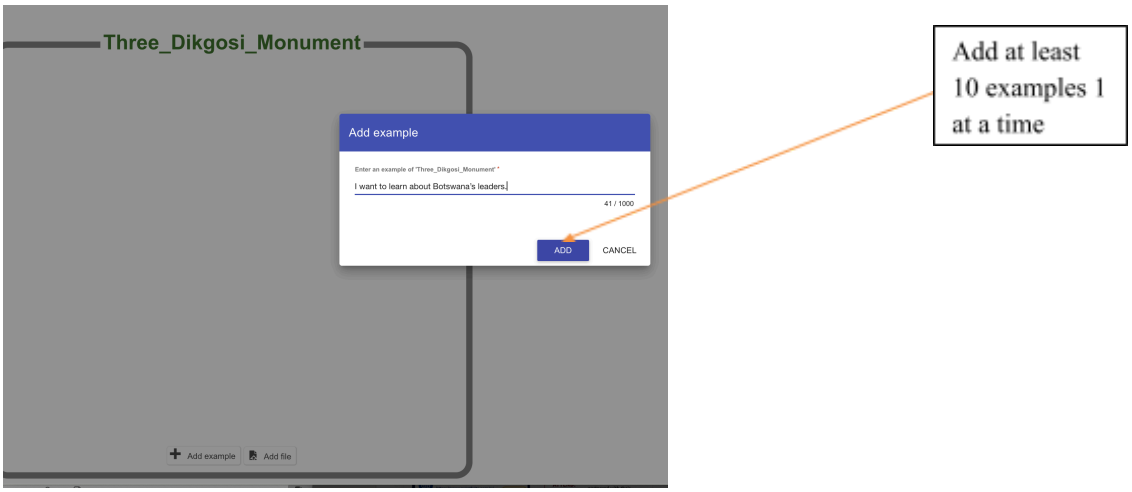


Open the created project or machine model by clicking on it



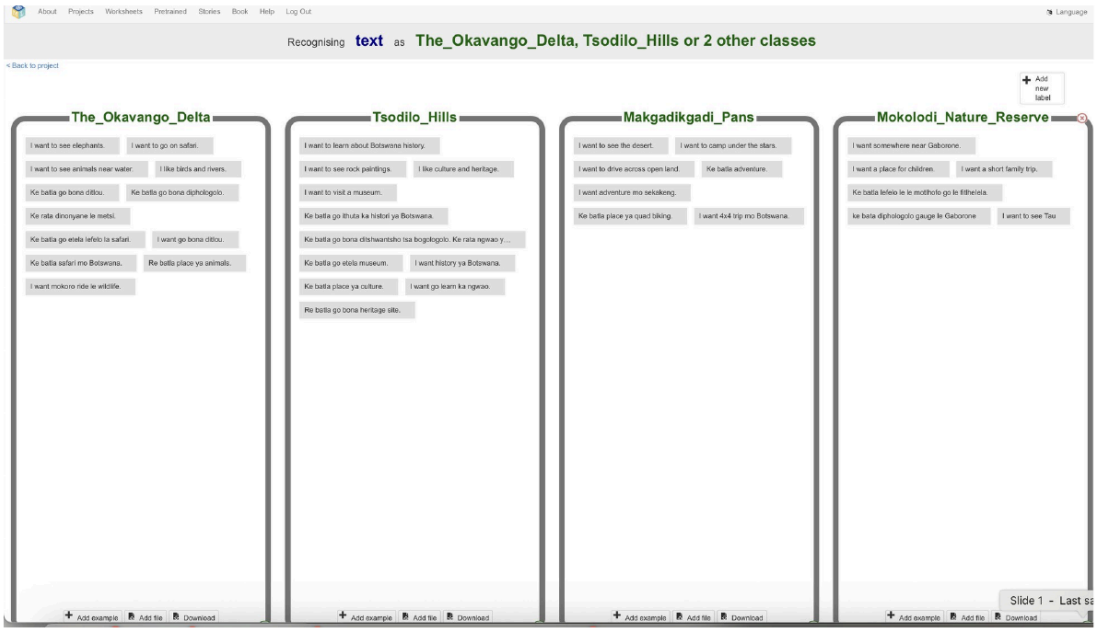


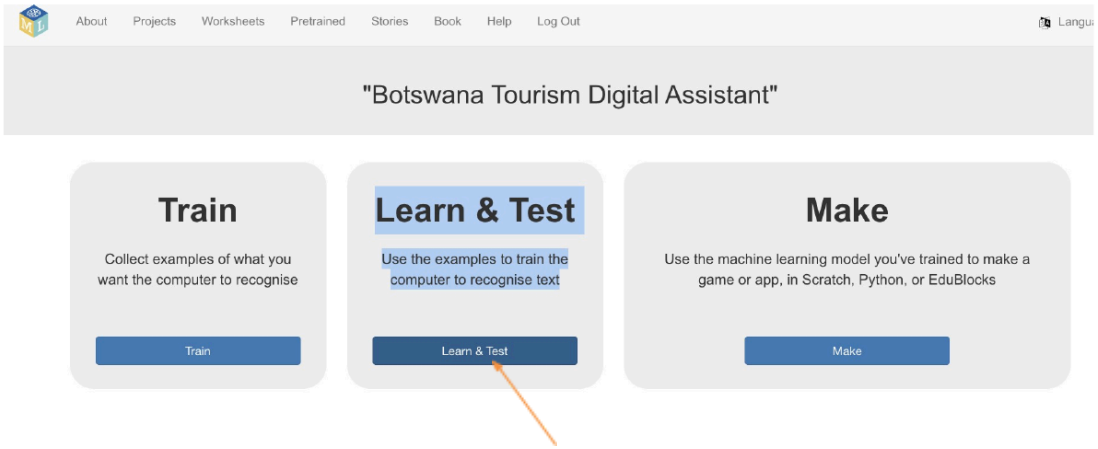
Add many examples under the three dikgosi monument to train the machine model to recognize words when a tourist wants to visit a place like the three dikgosi. Labels are the categories the model can predict. Avoid spaces in labels; underscores are easier to manage. Add the examples in the three dikgosi monument label as follows:



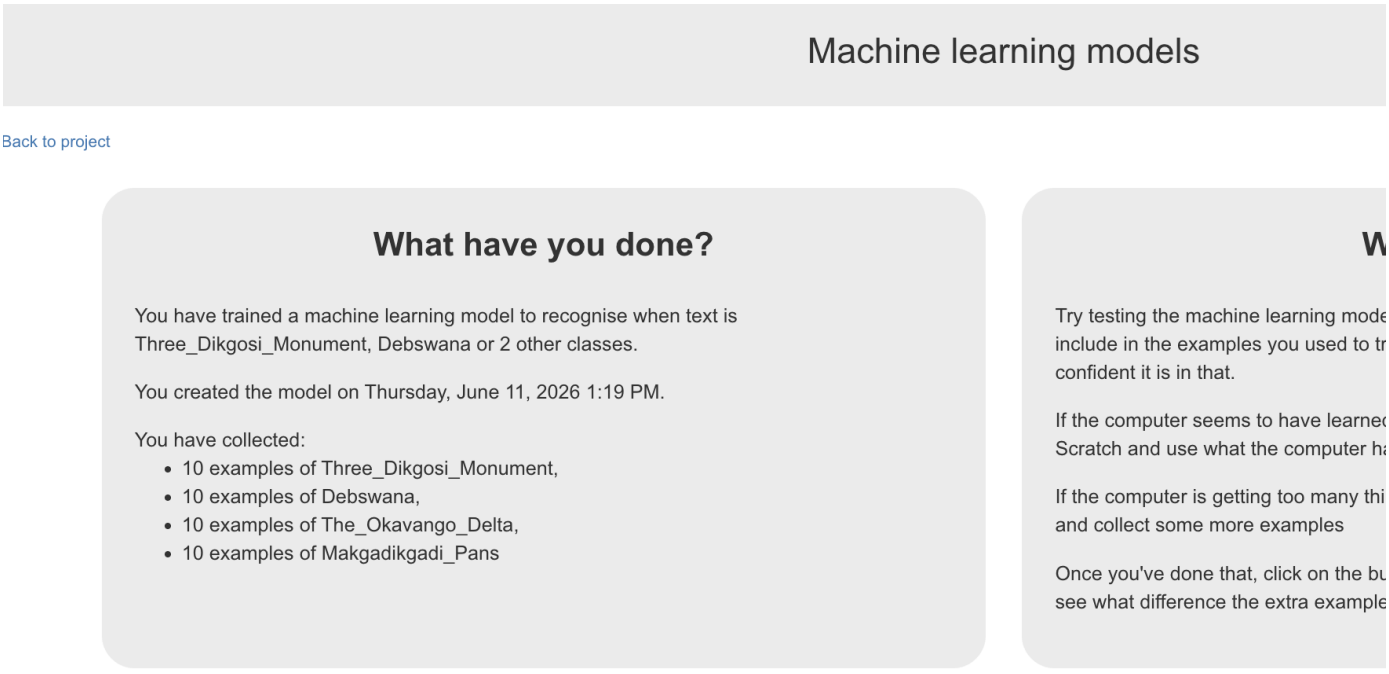
You can copy examples from this document: https://docs.google.com/document/d/1T9mP-gzOZVsnCxEQuceLAW39f1kXMTjA/edit?usp=sharing&ouid=114521299221642404544&rtpof=true&sd=true

Create three more labels or categories and add 10 examples of each as below:





After Train, **click Back** to project and click Learn and Test. This is where you train the model to recognize the examples you gave it in the four categories above. Click train, then wait for about a minute. After that write any example words as if you are a tourist and see which recommendation the model will select for you to see in Botswana. In the example below we chose **Ï want to see animals** and the model recommended **The Okavango delta.**



Sample examples that can be added per category:

also more can be found here:
https://docs.google.com/document/d/1T9mP-gzOZVsnCxEQuceLAW39f1kXMTjA/edit?usp=sharing&ouid=114521299221642404544&rtpof=true&sd=true

Three_Dikgosi_Monument

Use this when: the visitor is interested in civic history, leaders, national identity, independence, monuments, public landmarks, or Gaborone city history.

Training example
I want to learn about Botswana leaders.

Can we see an important monument in Gaborone?
I like places that tell the story of a country.
Where can I learn about the three chiefs?
Ke batla go bona sefikantswe.
Re batla go ithuta ka dikgosi.
Let us visit a landmark mo city.
I want history ya boeteledipele jwa Botswana.

Scratch recommendation text: You should visit Three Dikgosi Monument.

Debswana

Use this when: the visitor is interested in diamonds, mining, Botswana economy, jobs, engineering, machines, industry, business, or national development.

Training example
I want to learn about diamonds.
How does mining help Botswana?
I am interested in business and the economy.
Can we learn about mining technology?
I like engineering and machines.
Ke batla go ithuta ka diteemane.
Ke kgatlhegela mining le business.
I want to know ka ditiro, mining, le development.

Scratch recommendation text: You should learn about Debswana and Botswana's diamond story.

The_Okavango_Delta

Use this when: the visitor wants wetlands, rivers, mokoro rides, water landscapes, birds, elephants, animals, safari, peaceful nature, or wildlife near water.

Training example
I want to ride in a mokoro.
Can we visit a place with water and birds?
I want to see elephants crossing water.
Take me somewhere with reeds, boats, and wildlife.
I want nature but also rivers.
Ke batla mokoro.
Ke rata metsi, dinonyane, le diphologolo.
I want wetlands, not desert.

Scratch recommendation text: You should visit the Okavango Delta.

Makgadikgadi_Pans

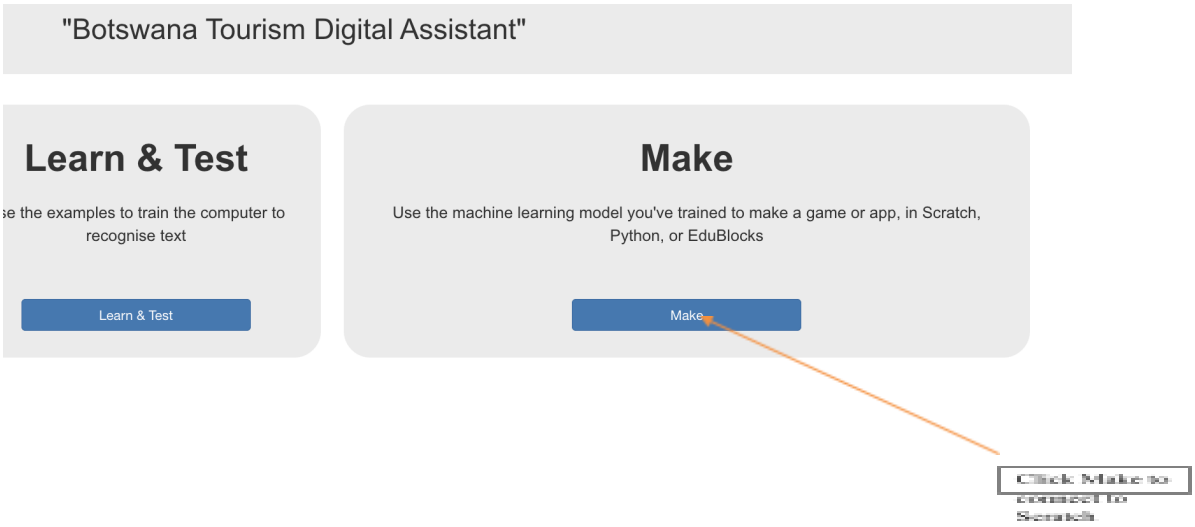
Use this when: the visitor wants salt pans, desert, open space, stars, camping, quad biking, unusual landscapes, silence, sunsets, or adventure.

Training example
I want to see the salt pans.
Can we camp under the stars?
I want somewhere dry and unusual.
Take me somewhere quiet with beautiful sunsets.
I want quad biking or a 4x4 trip.
Ke rata sekaka.
Re batla go robala ka fa tlase ga dinaledi.
I want desert adventure, not animals.

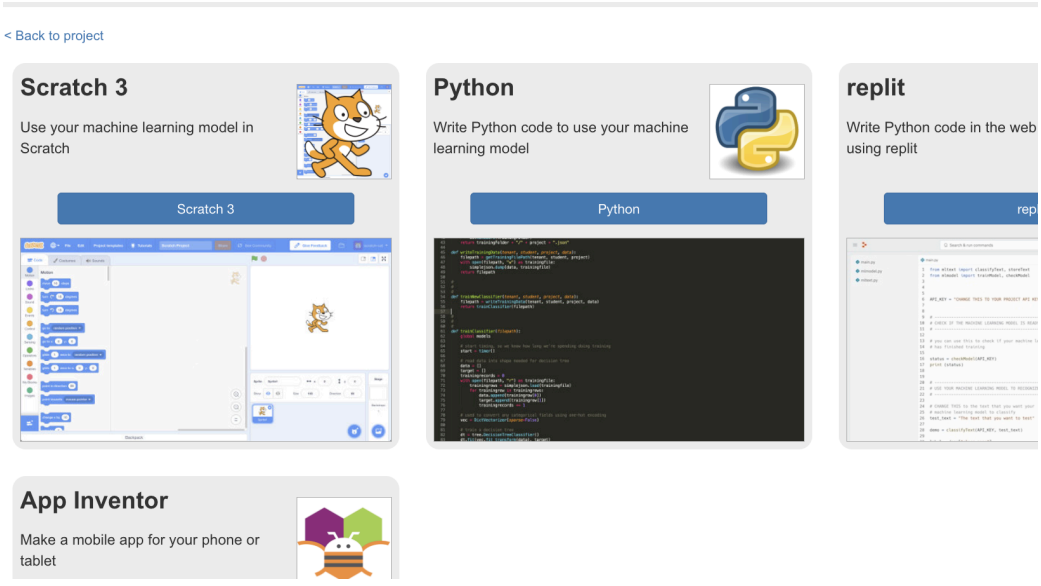
Scratch recommendation text: You should visit Makgadikgadi Pans.

Connecting the model to Scratch Programming Environment

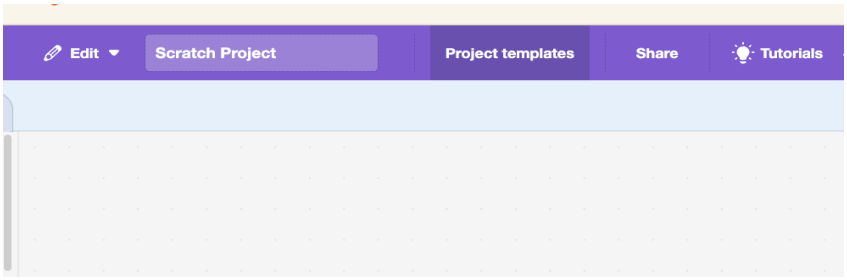
Go back to projects and click:



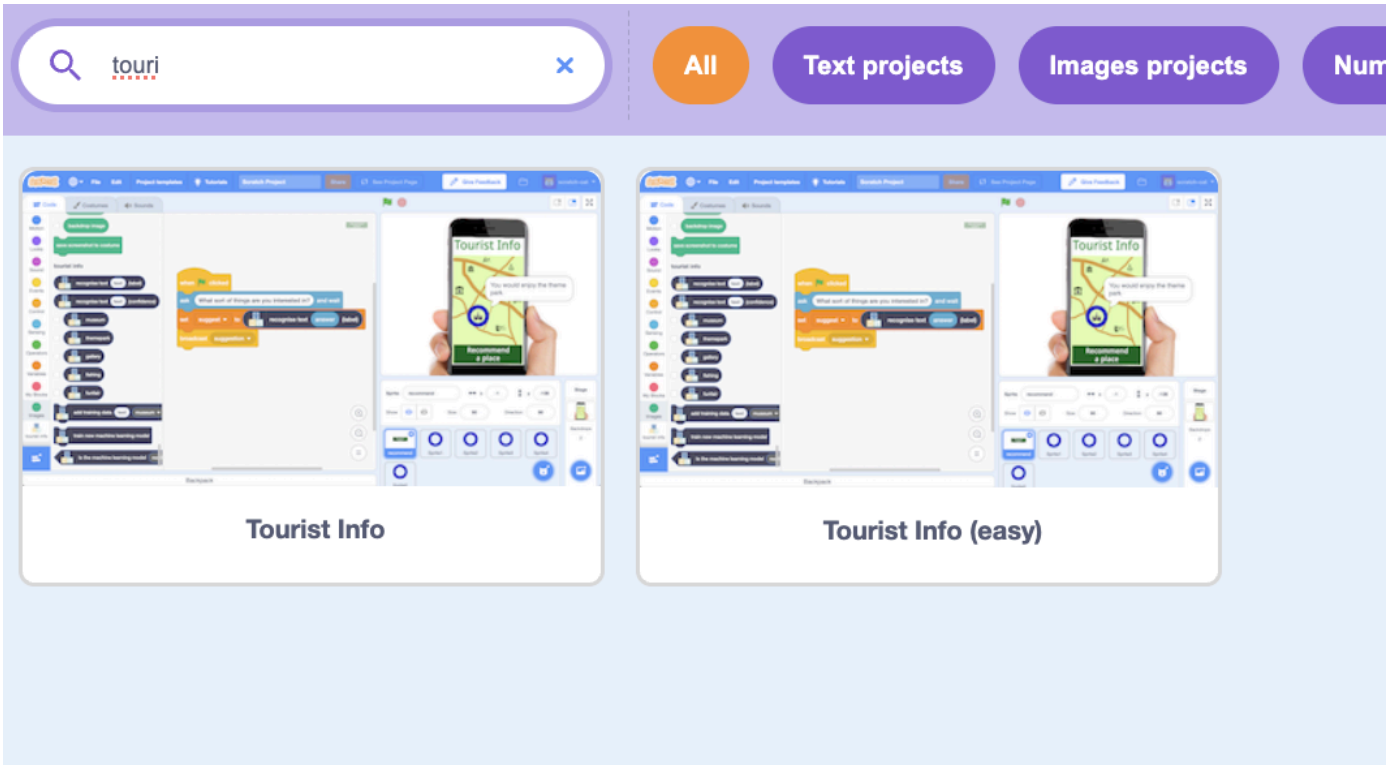
Select Scratch 3 and open Scratch 3



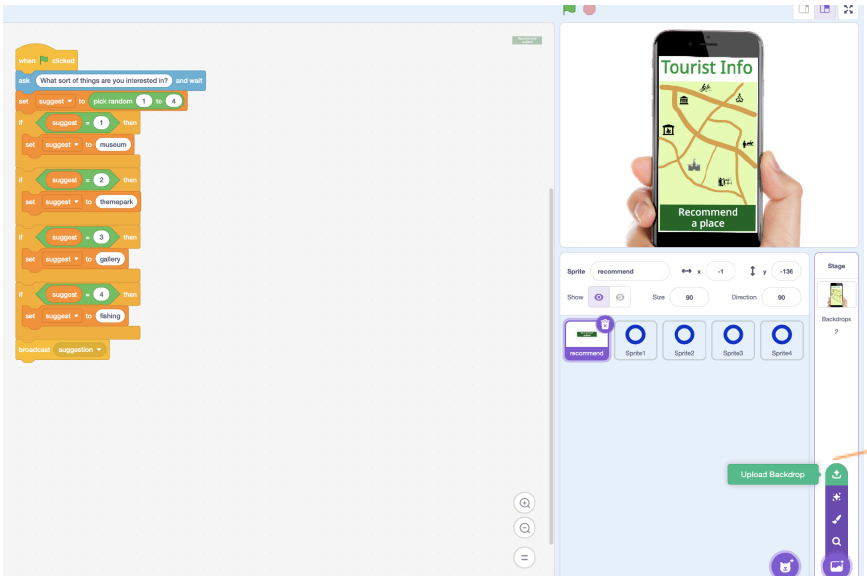
Go to project templates



Select **tourist Info (easy).** You ca search for it

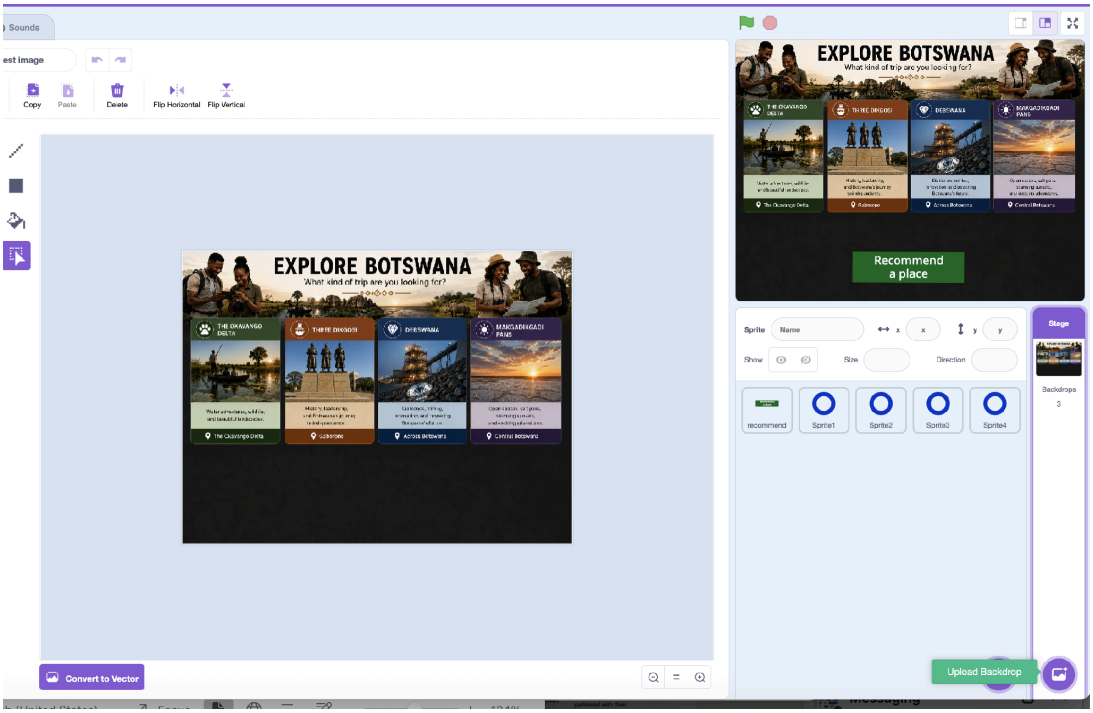


Click

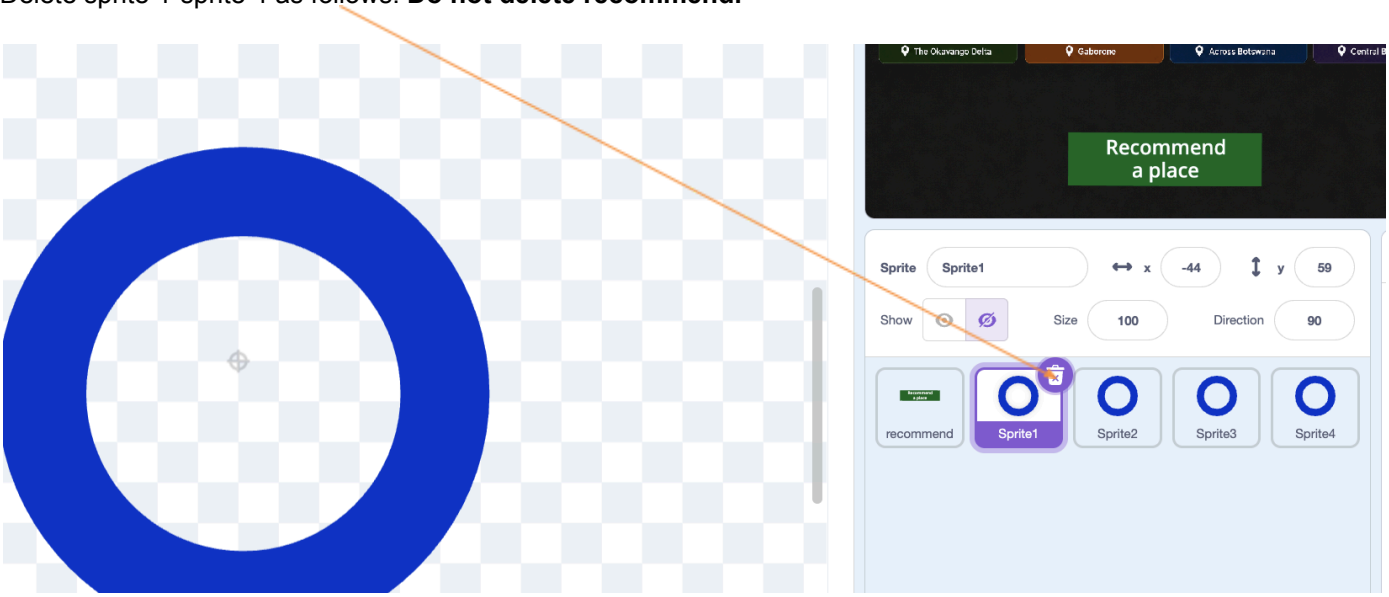


Click on upload Backdrop so you can change it to Botswana context

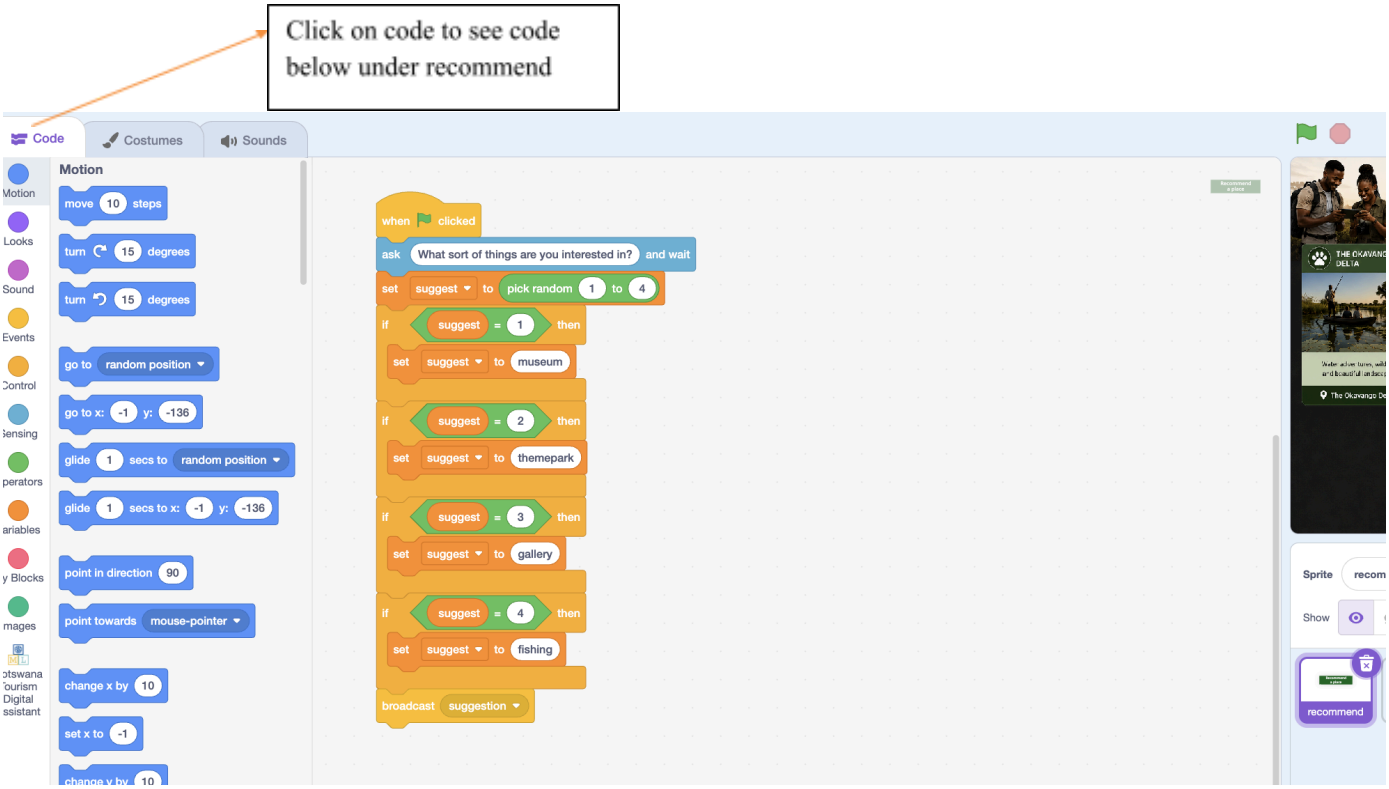
Once added it looks like this



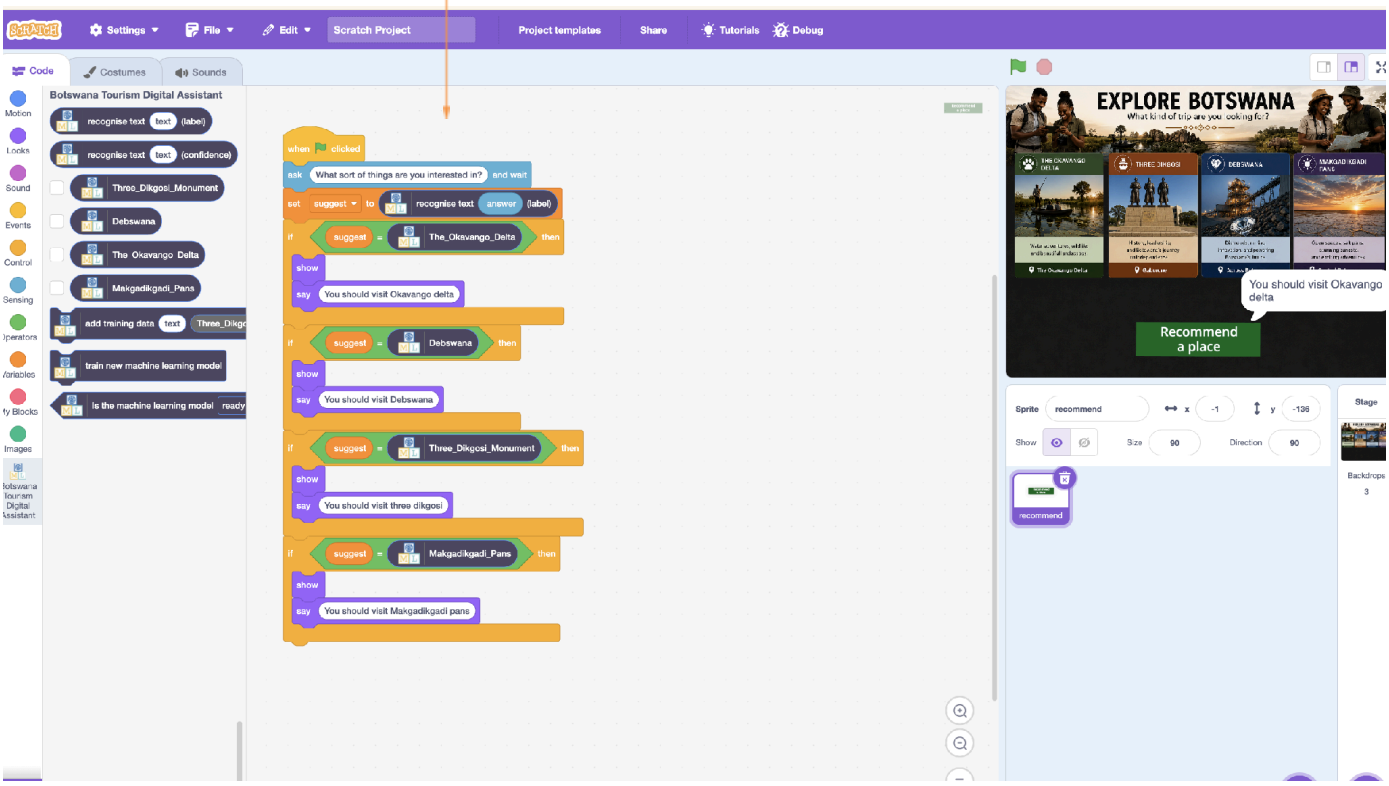
Delete sprite 1-sprite 4 as follows. **Do not delete recommend.**



Click on recommend



Modify all the above code to look like this. Watch the video as it explains concepts better for the code: https://www.youtube.com/watch?v=STbjxiC9K8I



Explaining the Scratch Code

1. **`when green flag clicked`**

This starts the program when the user clicks the green flag.

2. `ask "What sort of things are you interested in?" and wait`
The program asks the user to type what kind of trip or activity they are interested in.

3. `set suggest to recognise text answer (label)`
This is where the code connects to the machine learning model you just trained.
The model reads the user's answer and predicts which category it belongs to, such as **Okavango Delta**, **Debswana**, **Three Dikgosi Monument**, or **Makgadikgadi Pans**.

4. `if suggest = The_Okavango_Delta then`
The program checks whether the model predicted **The Okavango Delta**.

5. `show` **and** `say "You should visit Okavango delta"`
If the model chose Okavango Delta, the assistant appears and recommends it.

6. `if suggest = Debswana then`
The program checks whether the model predicted **Debswana**.

7. `show` **and** `say "You should visit Debswana"`
If the model chose Debswana, the assistant recommends Debswana.

8. `if suggest = Three_Dikgosi_Monument then`
The program checks whether the model predicted **Three Dikgosi Monument**.

9. `show` **and** `say "You should visit three dikgosi"`
If the model chose Three Dikgosi Monument, the assistant recommends it.

10. `if suggest = Makgadikgadi_Pans then`
The program checks whether the model predicted **Makgadikgadi Pans**.

11. `show` **and** `say "You should visit Makgadikgadi pans"`
If the model chose Makgadikgadi Pans, the assistant recommends it.

Main idea

The model is like the "brain" of the assistant.
The Scratch code asks the question, sends the user's answer to the trained model, receives the model's prediction, and then gives a recommendation based on that prediction.

Why this matters

Use the machine learning block once: set suggest to recognise text answer (label). After that, the if statements should compare suggest to the label names.

Common problems and quick fixes

Problem	Facilitator response
No recommendation appears	Check that the if statements compare suggest to a label. Do not use the recognise text block inside each if statement.
The model predicts the wrong category	Add more varied examples to the correct label and retrain the model. Test again with a new sentence.
The Scratch question is hidden behind the answer box	Shorten the ask question to "What do you like?" and move the recommend sprite higher on the stage using the sprite y position box.
A label works in Machine Learning for Kids but not Scratch	Check that the label name in Scratch matches the label name in the model exactly, including underscores and capitalization.

Examples are too similar	Ask learners to vary sentence starters, length, language, and keywords. Include short phrases, full sentences, questions, and mixed-language examples.

Closing message

A machine learning model is not magic. It learns from the examples we choose. Clear, varied, fair examples help the model make better predictions.