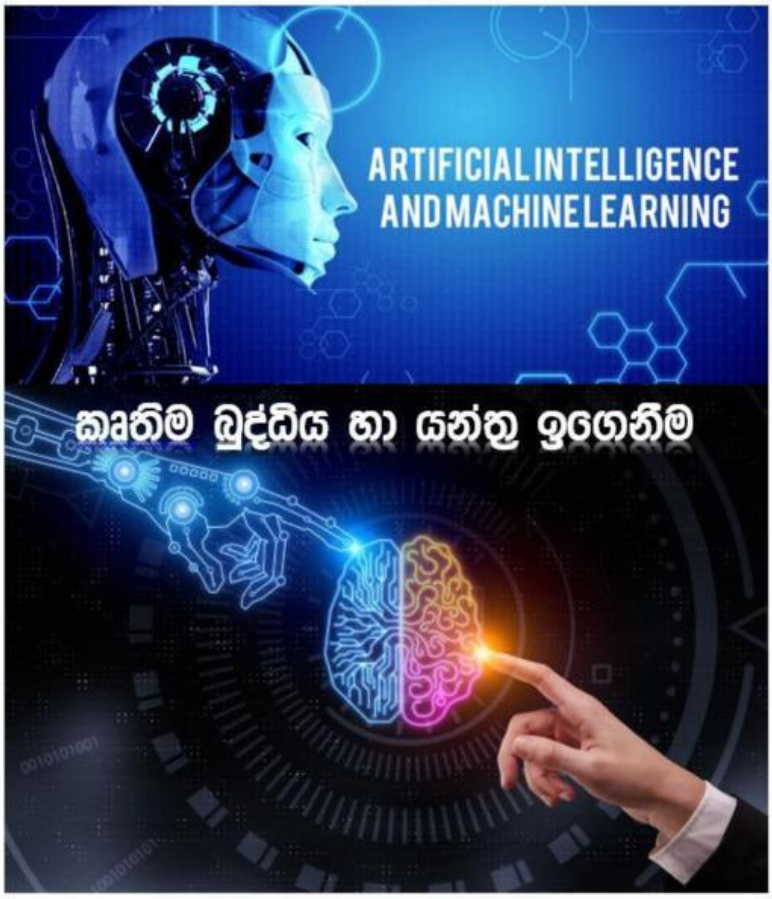
Project 160

DP EDUCATION

Coding School

AI and Machine Learning



See the web page

Start here

- Let's create a mobile app to predict animal classification using AI lab and app lab.
- Here we use the first part of lesson 10 of the AI and machine learning course on Code.org.

  https://studio.code.org/s/aiml-2023/lessons/10/levels/1?section_id=4741330

- First study the following data set.

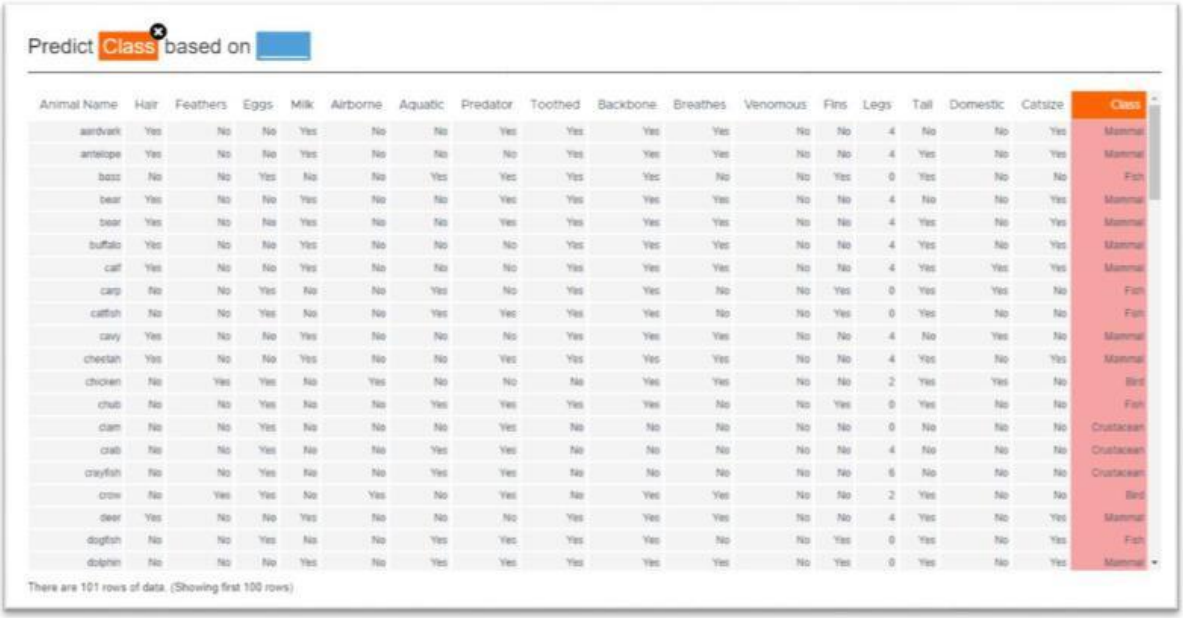
Predict [ ] based on [ ]

Animal Name	Hair	Feathers	Eggs	Milk	Airborne	Aquatic	Predator	Toothed	Backbone	Breathes	Venomous	Fins	Legs	Tail	Domestic	Catsize	Class
aardvark	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
antelope	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
bass	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
bear	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
boar	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
buffalo	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
calf	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	Yes	Yes	Mammal
carp	No	No	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	0	Yes	Yes	No	Fish
catfish	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
cavy	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	No	Yes	No	Mammal
cheetah	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
chicken	No	Yes	Yes	No	Yes	No	No	No	Yes	Yes	No	No	2	Yes	Yes	No	Bird
chub	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
clam	No	No	Yes	No	No	No	Yes	No	No	No	No	No	0	No	No	No	Crustacean
crab	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	4	No	No	No	Crustacean
crayfish	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	6	No	No	No	Crustacean
crow	No	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No	2	Yes	No	No	Bird
deer	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
dogfish	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	Yes	Fish
dolphin	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	0	Yes	No	Yes	Mammal

There are 101 rows of data. (Showing first 100 rows)

- This data set has been prepared according to the characteristics of each animal in this data set, according to the characteristics of the body, according to the reproductive cycle and the animal classification of those animals.
- Based on this data set, each animal has been classified into two allocations.
- That is, Quantity data and Qualitative data.

- Quantity data is the characteristic that can be labeled by numerical numbers, i.e. by a positive sign. An example is the number of legs of these animals.
- Qualitative data is the characteristic that is labeled is the quality characteristics of that animal. For example, animal classification of those animals.
- First of all, in this exercise, we must select the column we want to predict or the label we want to predict.
- Here we are creating an app to predict animal classification, so select the class label.

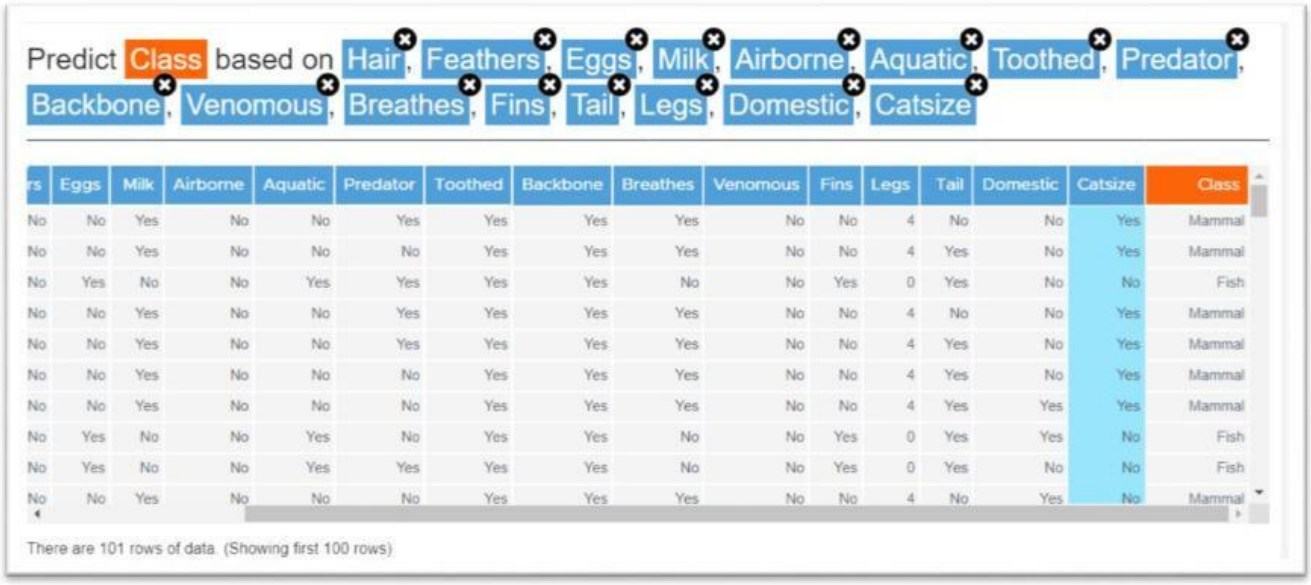


Animal Name	Hair	Feathers	Eggs	Milk	Airborne	Aquatic	Predator	Toothed	Backbone	Breathes	Venomous	Fins	Legs	Tail	Domestic	Catsize	Class
aardvark	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
antelope	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
bass	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
bear	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
bear	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
buffalo	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
calf	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	Yes	Yes	Mammal
carp	No	No	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	0	Yes	Yes	No	Fish
catfish	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
cavy	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	No	Yes	No	Mammal
cheetah	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
chicken	No	Yes	Yes	No	Yes	No	No	No	Yes	Yes	No	No	2	Yes	Yes	No	Bird
chub	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
clam	No	No	Yes	No	No	No	Yes	No	No	No	No	No	0	No	No	No	Crustacean
crab	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	4	No	No	No	Crustacean
crayfish	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	6	No	No	No	Crustacean
crow	No	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No	2	Yes	No	No	Bird
deer	Yes	No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
dogfish	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	Yes	Fish
dolphin	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	0	Yes	No	Yes	Mammal

There are 101 rows of data. (Showing first 100 rows)

- □ Now click the continue button.
- □ Now let's select other labels needed to prepare the machine learning model to predict the class.

- Let's select all other labels here first.



Predict Class based on Hair, Feathers, Eggs, Milk, Airborne, Aquatic, Toothed, Predator, Backbone, Venomous, Breathes, Fins, Tail, Legs, Domestic, Catsize

rs	Eggs	Milk	Airborne	Aquatic	Predator	Toothed	Backbone	Breathes	Venomous	Fins	Legs	Tail	Domestic	Catsize	Class
No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	No	No	Yes	Mammal
No	No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	No	Yes	Mammal
No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	Yes	Yes	Yes	Mammal
No	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	0	Yes	Yes	No	Fish
No	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	0	Yes	No	No	Fish
No	No	Yes	No	No	No	Yes	Yes	Yes	No	No	4	No	Yes	No	Mammal

There are 101 rows of data. (Showing first 100 rows)

- Now train that model.

Result

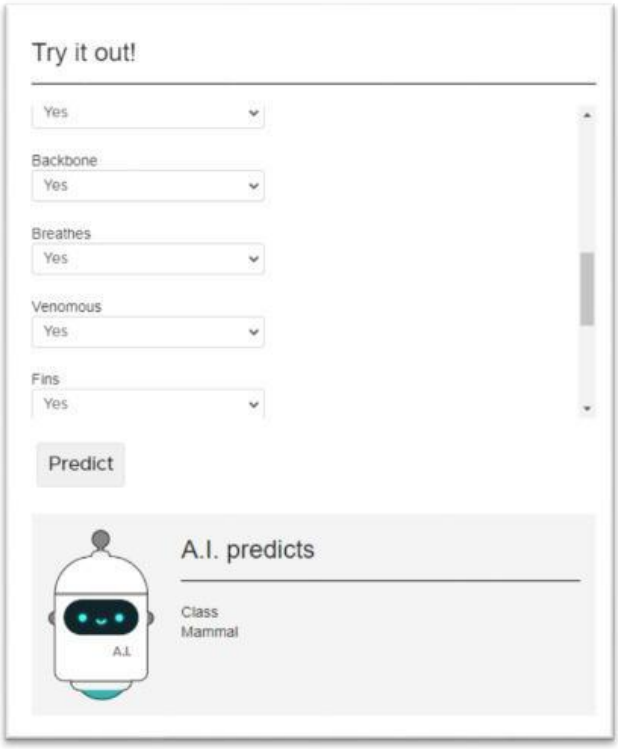
Accuracy

Predict Class based on Hair, Feathers, Eggs, Milk, Airborne, Aquatic, Toothed, Predator, Backbone, Venomous, Breathes, Fins, Tail, Legs, Domestic, Catsize

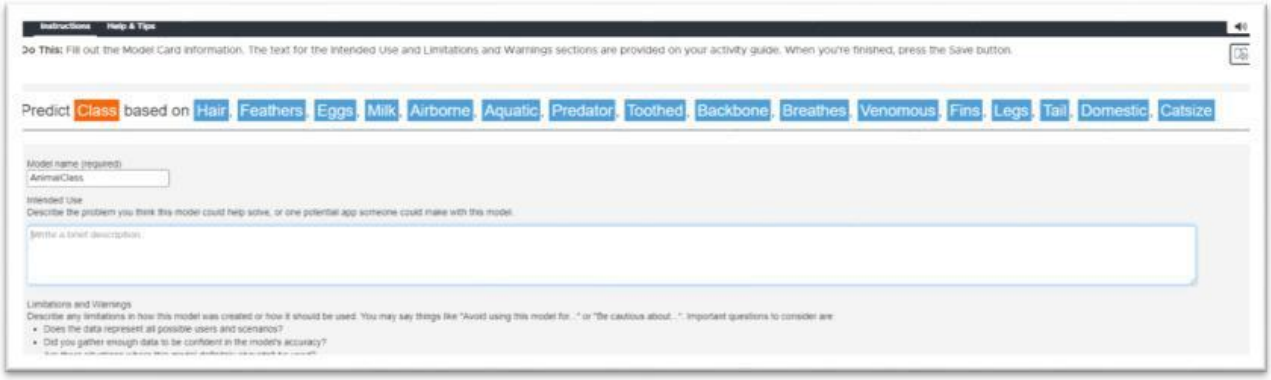
100.00%

Details

- Then it was possible to train a modal with 100% accuracy.
- Now select values from drop down and try to predict.



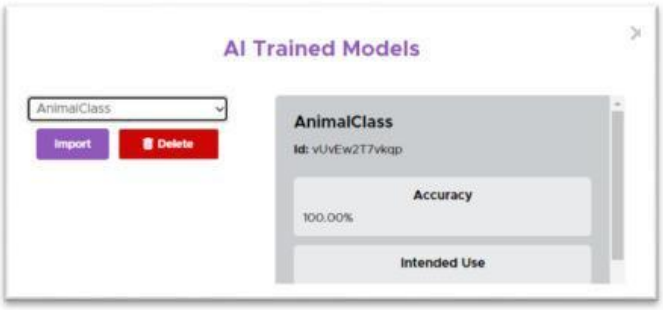
- Now save the model.

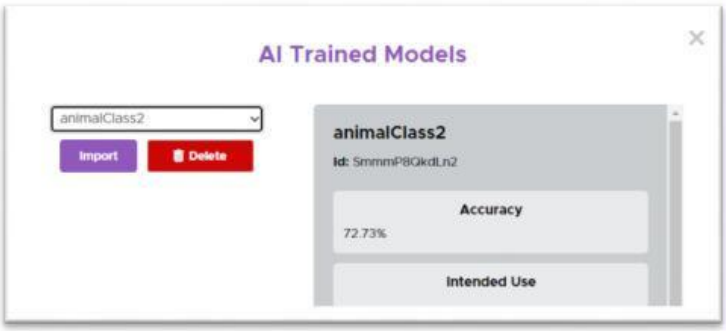


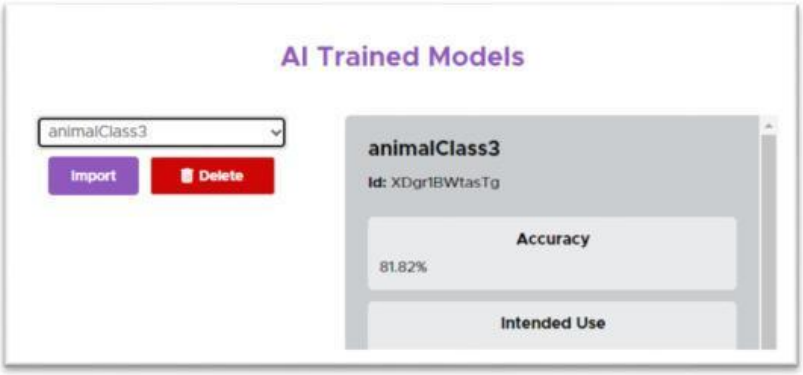
- Then click Finish button and go to the second part.
- In the second and third parts, change the number of labels in the model again and train the model.
- Let's import the created model in the 4th part of the lesson and create a mobile app. Use the most accurate model among the models you have created here.

❖ Click on the setting icon in the Toolbox and click on Manage Al Models there and import the Al model.

❖ Let's import the modal whose accuracy is more than 70%.





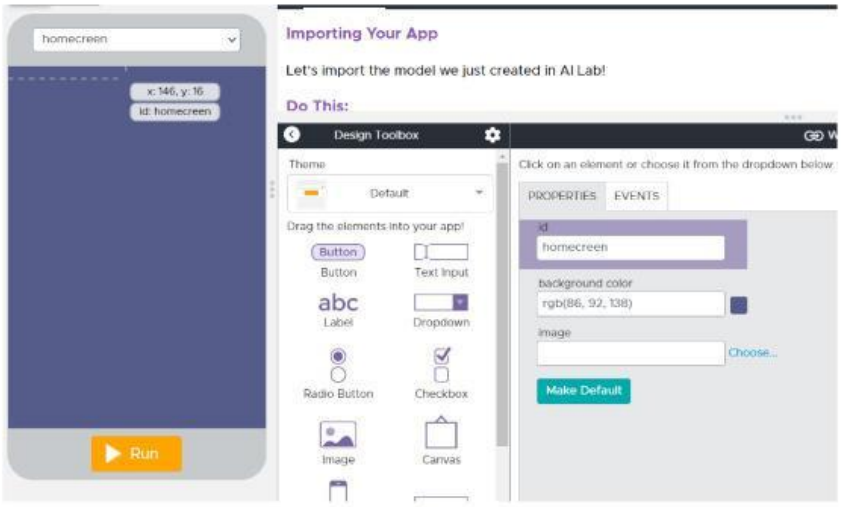


❖ AnimalClass3 model is used among these models.

❖ Select the model you want from the drop down and click the import button.

❖ Then it will be displayed as below.

- Now run the app.
- Now let's further develop this app.
- For that first let's add a screen for the home.
- Add a new screen and give its id as homeScreen. And change its background color as follows.



- Now create a button as start for that screen. Style the button as follows.

❖ When the button is clicked, set it to go to screen1.

❖ Now, when the start button is clicked, code as follows to go to screen1.

```
onEvent("buttonStart", "click", function() {
  setScreen("screen1");
});
```

❖ Now give background for screen1.