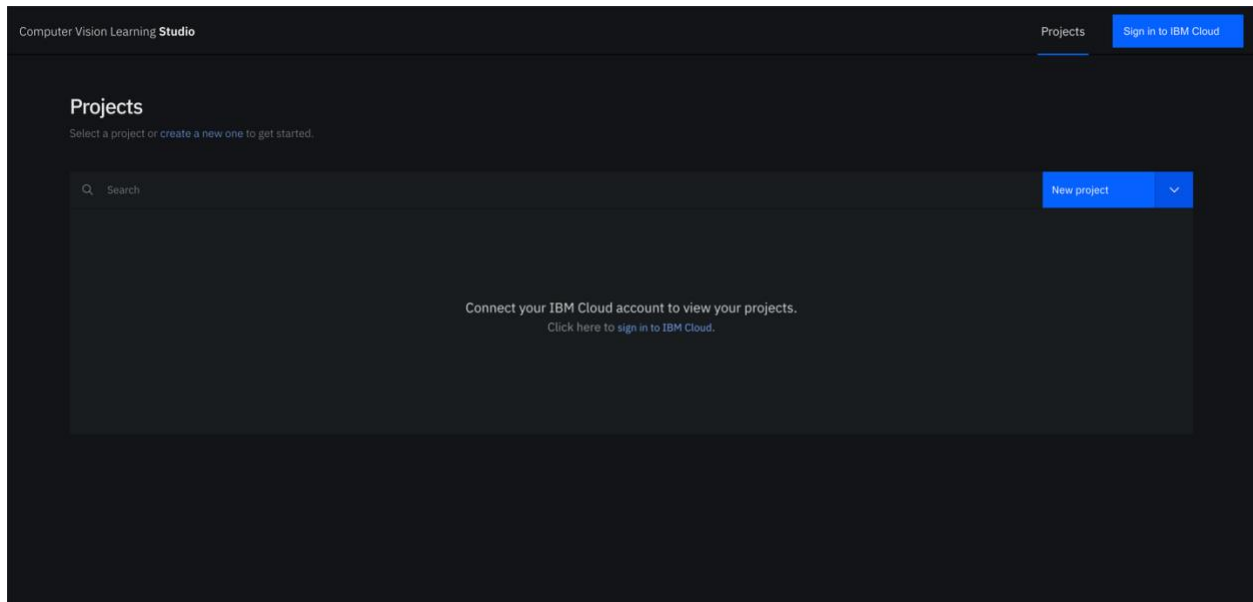


**California State University, Long Beach**  
**Department of Computer Engineering and Computer Science**  
**CECS 553 Sec 02 11792 (Machine Vision) – Fall 2022**  
**Assignment 05 – Tuesday, 10/04/2022**

## **Connect CV Studio to your IBM Cloud account**

1. Go to [CVStudio](#)  
(Email: **benyamin.ahmadnia@csulb.edu** – Password: **Cecs55302**)
2. Click on **My Projects** in the top right corner
3. Click **Sign into IBM Cloud** at the top right corner.



**You are all set!**

Your learning environment is all set with access to storage, compute, and application infrastructure.

## Getting started with CV Studio

CV Studio is a Computer Vision learning tool made for you which makes building your Computer Vision application fun and interactive. We are continuing to expand our learning modules and we currently have applications for Image Classification and Object Detection.

Each of the learning modules are standalone with instructions and resources about each algorithm. To build, train and deploy your Computer Vision model, here are some quick simple steps:

1. **Start a New Project:**

After logging into [CV Studio](#), you can create a **New Project**. You will see a box like this. Choose a **Name**, the **Type** has been chosen for you based on the algorithm you will be using.

## Create a new project

×

In this lab, you will use K-Nearest-Neighbor (K-NN) to classify dogs and cats.


Name

Training\_an\_image\_classifier\_with\_KNN


Type

Classification

### Training Runs

 **Notebook**  
k-nearest neighbors algorithm (k-NN)

### Applications

 **Notebook**  
k-nearest neighbors algorithm (k-NN)

---

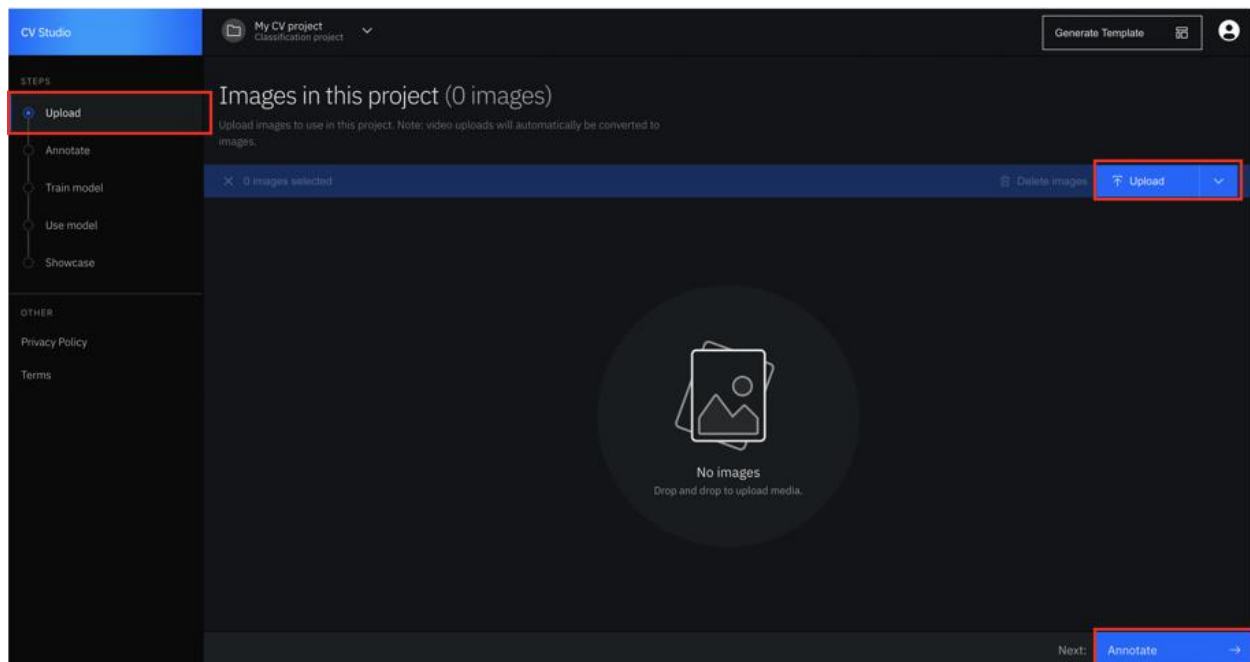
+ Advanced settings

Cancel

Create project

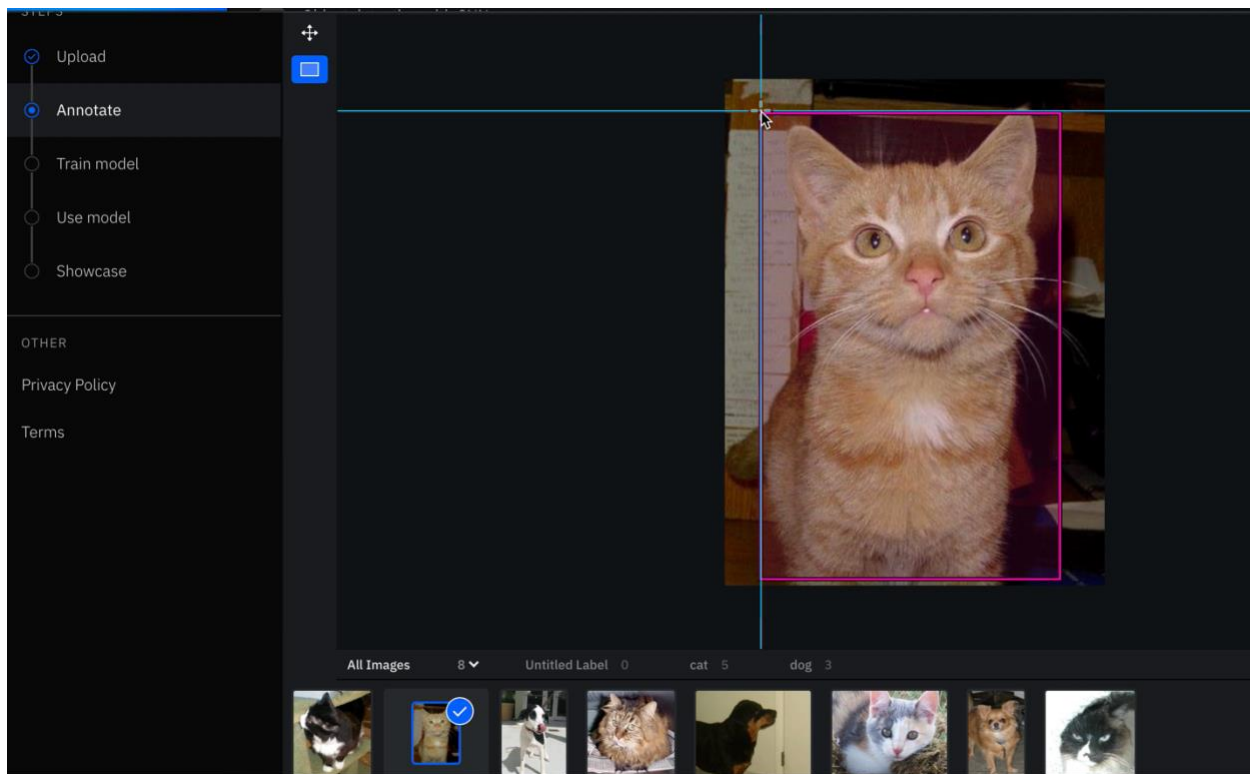
## 2. Upload Images:

Once you create your project you will land on the **Upload** page. Here you will upload your images for training, you can do this by using the **Upload** button at the right or dragging and dropping your files or folders. The current accepted formats are **.jpg**, **.png**, and **.zip** files and folders containing **jpg** and **png** files.

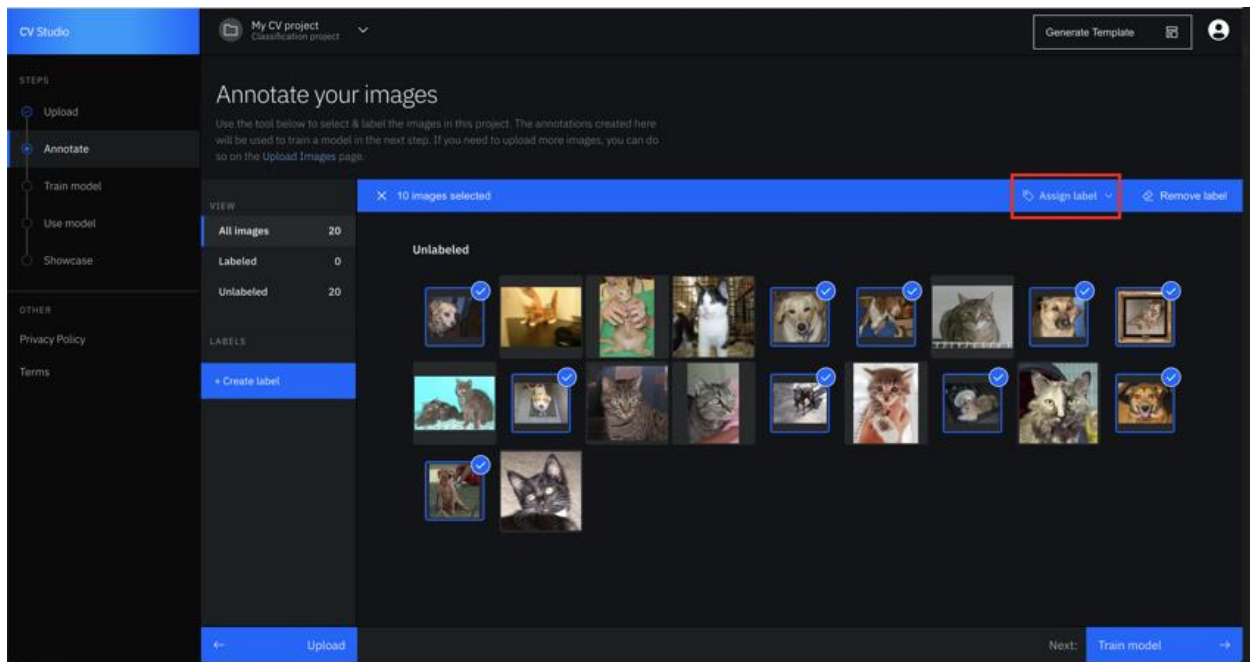


### 3. Annotate your images:

For object detection, use the integrated tool to highlight target elements in your images.



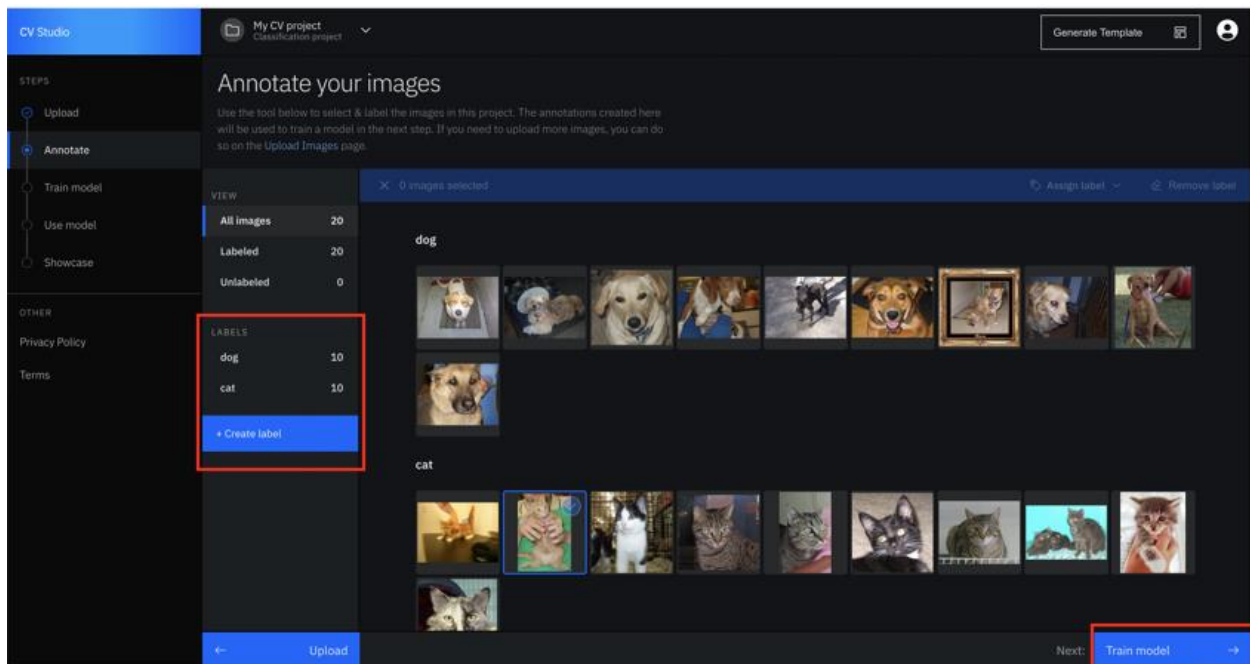
For image classification, you can annotate within the tool by clicking on the images and adding them to a label. You can add them to a new label or a label you already created.



If you name your folder with the respective classes, the annotation will happen automatically when you upload your images.

Name	Date Modified	Size	Kind
▶ cat	Today at 8:29 PM	--	Folder
▶ dog	Today at 8:27 PM	--	Folder

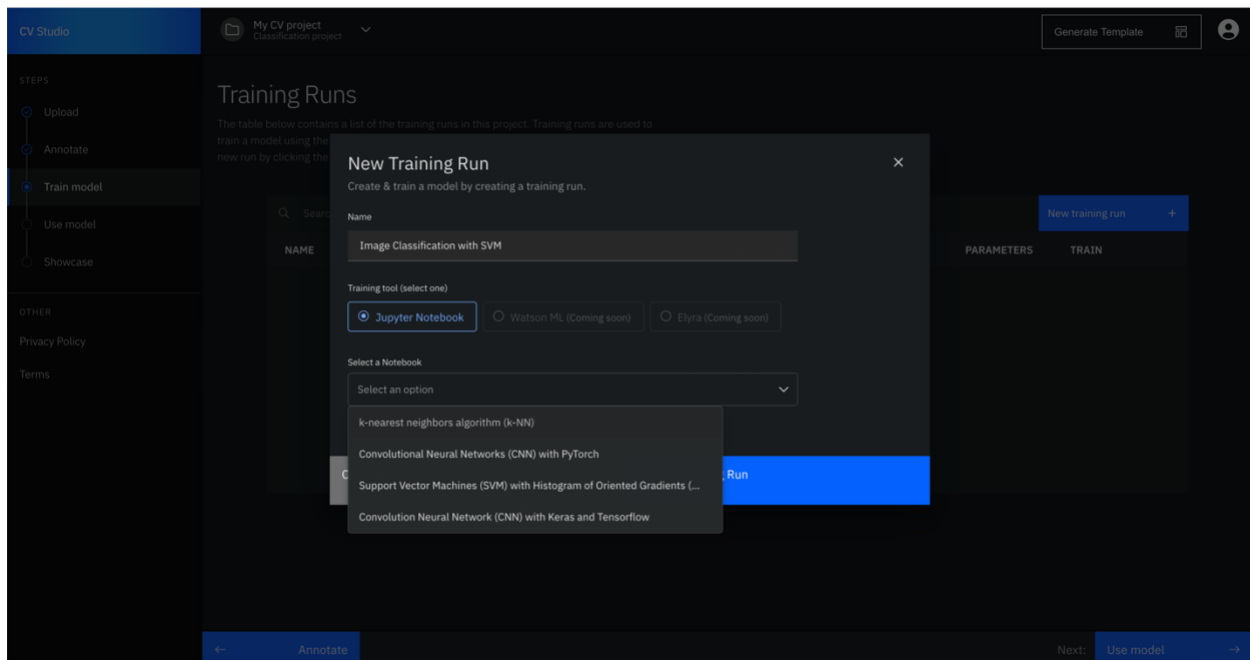
We will see the classes cat and dog.



Next, we go to **Train Model** on the bottom right.

#### 4. **Train Model:**

You will be able to train your model using the image annotations from the previous step. You will be required to enter a name, pick a tool, and select the training algorithm.



Once you fill this in, you can now open the tool and run your model. Once the model is done running, you will come back to this interface and create an application.

CV Studio

My CV project  
Classification project

Generate Template

STEPS

- Upload
- Annotate
- Train model**
- Use model
- Showcase

OTHER

- Privacy Policy
- Terms

### Training Runs

The table below contains a list of the training runs in this project. Training runs are used to train a model using the images & annotations you created in the previous steps. Create a new run by clicking the New training run button.

Search

New training run +

NAME	TOOL	ALGORITHM	TAGS	CREATED	LAST RUN	LENGTH OF RUN	ACCURACY OF RUN	PARAMETERS	TRAIN
Image Classification with SVM	Notebook	Support Vector Machines (SVM) with Histogram of Oriented Gradients (HOG)	CV OpenCV HOG HOG	25-Apr-2021	Never	NA	NA	C: 10 kernel: linear	<b>Open Notebook</b>

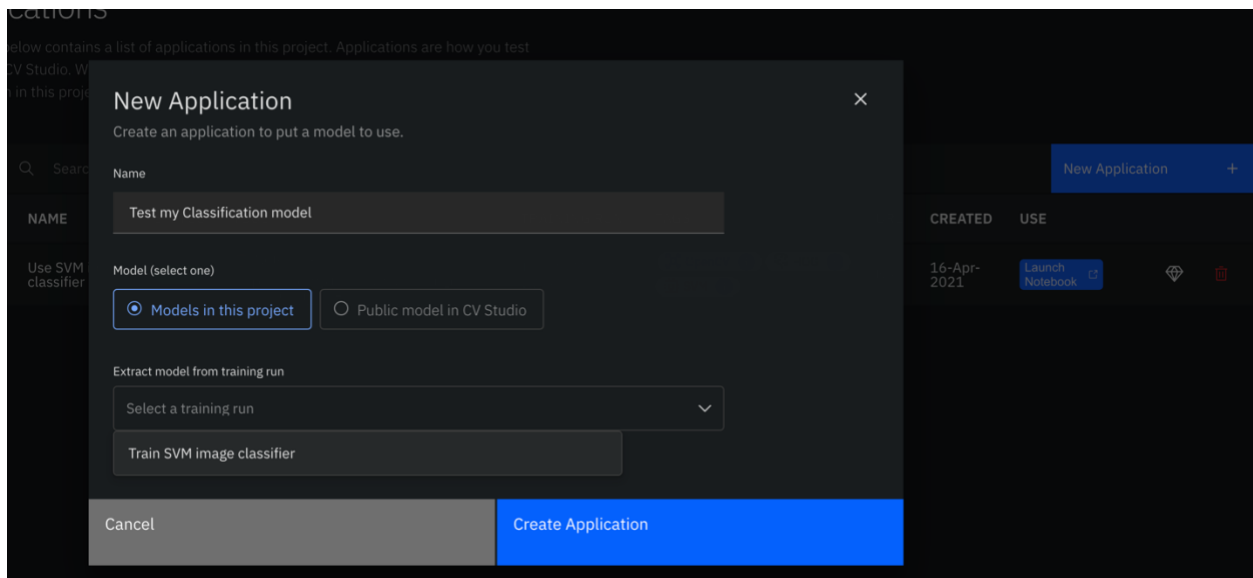
← Annotate

Next: **Use model** →

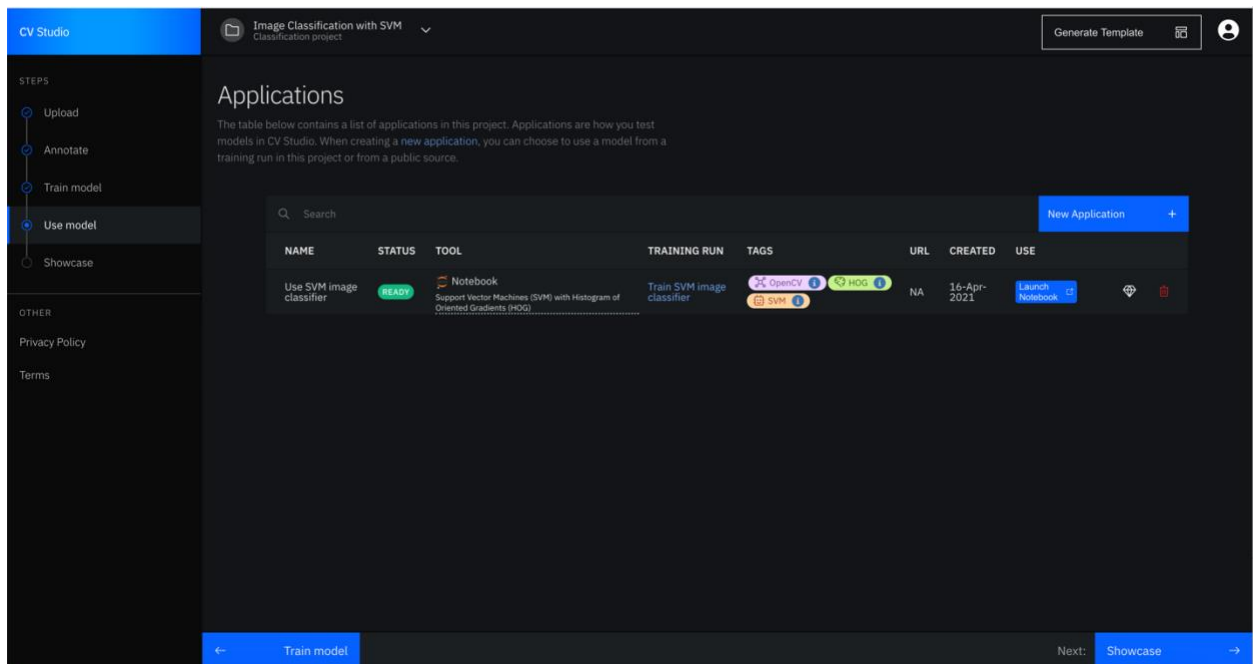
## 5. Use Model:

You will come back into this interface and create a **New Application** to test the model.

- Choose a name for your application
- Choose a Model
- Choose the appropriate Training Run



Once you are done, you will now launch a tool to test the app.



## 6. Showcase your app:

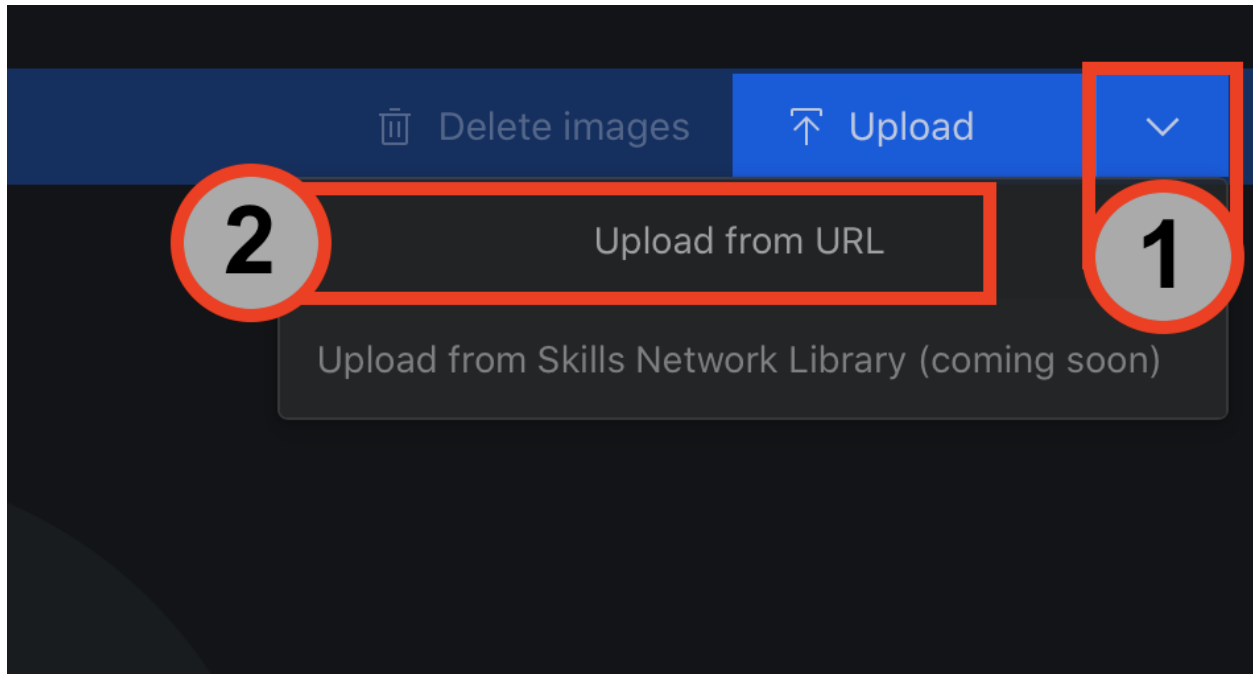
If you are using a learning module that supports deployment to the web, you will be able to click on the showcase tab to deploy your web app to code engine.



## Label your Data and Perform Image Classification with KNN

In this lab, you will use a K-Nearest-Neighbor (K-NN) classifier to classify dogs and cats with the provided dataset.

[Opening the tool](#) will direct you to CV Studio. I have already created a project template for you, so you can get right to the action! To upload the dataset, open the drop-down menu at the top right of the page and click "Upload from URL".



Then copy and paste the following URL of the dataset into the appropriate box and click OK:

```
https://cv-studio-accessible.s3.us-south.cloud-object-storage.appdomain.cloud/cats_dogs_images_.zip
```

*Note: if your internet connection is slow some images may fail to upload, don't worry, your lab will still run.*