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CMPE-258

HW 2 Part1

Image Classification AutoML

Creating an image classification model that will tell you what flower a picture is. The data is in a csv and you upload a csv which contains filename and image url. All the images are stored in google storage

adept-portal-305205-vmc

OBJECTS CONFIGURATION PERMISSIONS RETENTION LIFECYC

Buckets > adept-portal-305205-vmc

UPLOAD FILES UPLOAD FOLDER CREATE FOLDER MANAGE HOLDS DOWNLOAD

Filter by name prefix only Filter objects and folders

<input type="checkbox"/>	Name	Size	Type	Created time
<input type="checkbox"/>	csv/	—	Folder	—
<input type="checkbox"/>	img/	—	Folder	—

Google storage bucket after uploading the csv and images

Select a data type and objective

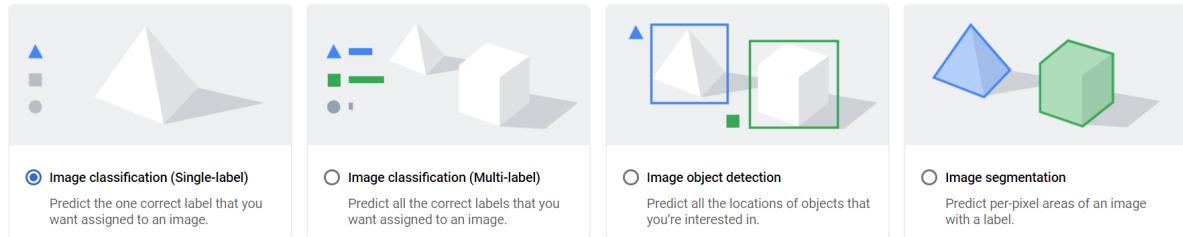
First select the type of data your dataset will contain. Then select an objective, which is the outcome that you want to achieve with the trained model. [Learn more about model types](#)

IMAGE

TABULAR

TEXT

VIDEO



Region
us-central1 (Iowa) ?

ADVANCED OPTIONS

You can use this dataset for other image-based objectives later by creating an annotation set. [Learn more about annotation sets](#)

CREATE

CANCEL

Create the model and we are doing a image classification with single label. We have 5 different labels for our flowers which are sunflower, rose, daisy, dandelions, and tulips.

IMPORT BROWSE ANALYZE

Add images to your dataset

Before you begin, read the [data guide](#) to learn how to prepare your data. Then choose an import method.

Select an import method

- Upload images:** Recommended if you don't have labels yet
- Import files:** Recommended if you already have labels. An import file is a list of Cloud Storage URLs to your images and optional data, like labels. [Learn how to create an import file](#)

- Upload images from your computer
- Upload import files from your computer
- Select import files from Cloud Storage

Select import files from Cloud Storage

Images referenced in the import files will be preprocessed and stored in a new Cloud Storage bucket ([charges apply](#))

Import file path * gs:// adept-portal-305205-vmc/csv/all_data.csv BROWSE ? Data split Automatic ?

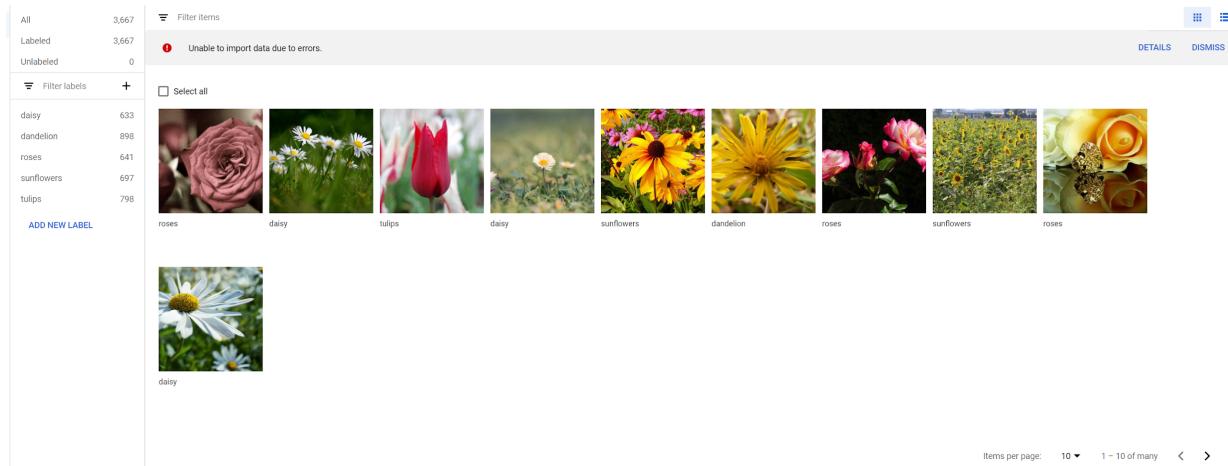
ADD ANOTHER FILE

What happens next?

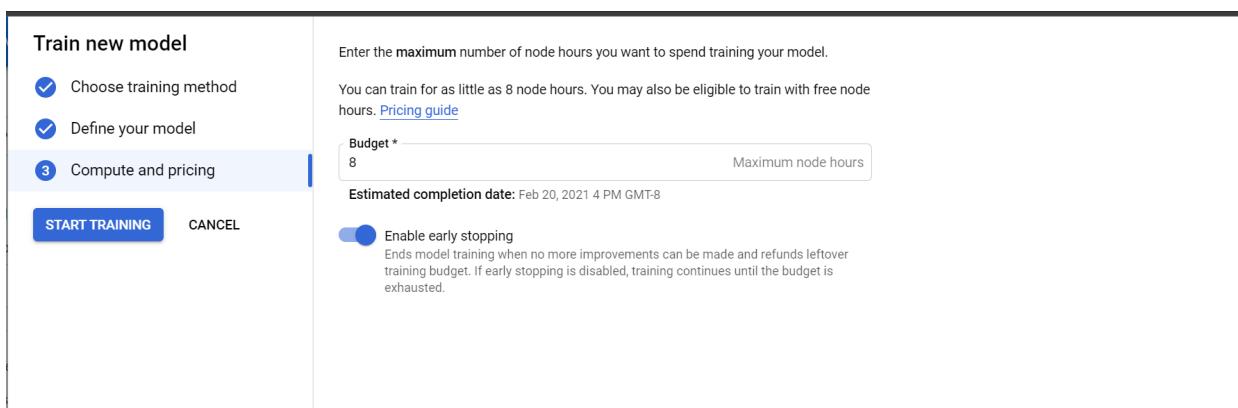
You'll be emailed after the images are imported and your dataset is ready

CONTINUE

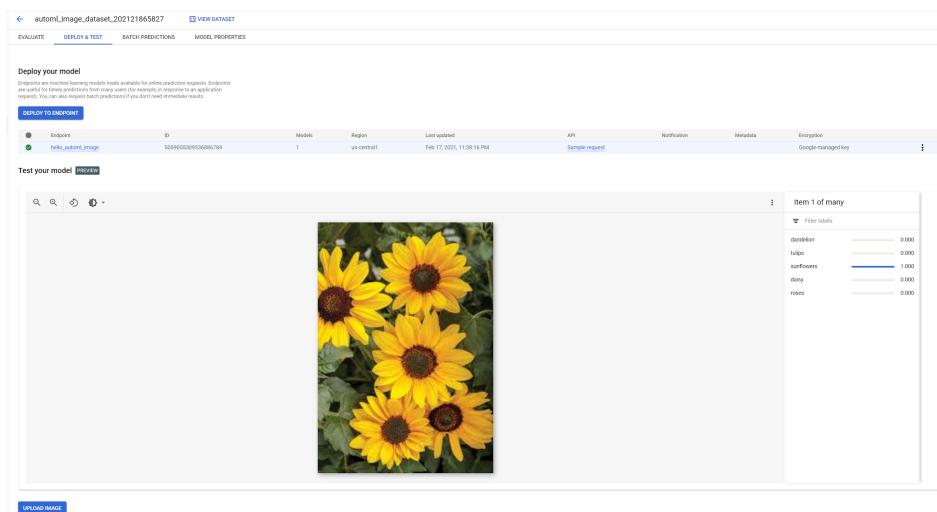
Importing the dataset for our model. We provide the google storage bucket url to pull load the dataset.



After loading the dataset we can see all the images that are there.



Now we train the model with our dataset. Training took around 1 hour to create the model. Once the model is created I deployed and testing with different pictures.



I uploaded a picture of a sunflower and the model was able to classify it correctly.

Text Data AutoML

The screenshot shows the Google Cloud Platform Storage interface. On the left, a sidebar has 'Storage' selected. The main area is titled 'Bucket details' for 'adept-portal-305205-lcm'. Below the title are tabs for 'OBJECTS', 'CONFIGURATION', 'PERMISSIONS', 'RETENTION', and 'LIFECYCLE'. Under 'OBJECTS', there's a breadcrumb 'Buckets > adept-portal-305205-lcm'. Below the breadcrumb are buttons for 'UPLOAD FILES', 'UPLOAD FOLDER', 'CREATE FOLDER', 'MANAGE HOLDS', 'DOWNLOAD', and 'DELETE'. A search bar says 'Filter by name prefix only' and a filter icon says 'Filter objects and folders'. A table lists one object: 'text/' which is a folder. The table columns are 'Name', 'Size', 'Type', 'Created time', and 'Storage class'.

Uploading our text data to google storage bucket.

Select a data type and objective
First select the type of data your dataset will contain. Then select an objective, which is the outcome that you want to achieve with the trained model. [Learn more about model types](#)

The screenshot shows the 'Select a data type and objective' step in the AutoML Text dataset creation process. At the top, tabs for 'IMAGE', 'TABULAR', 'TEXT' (which is selected), and 'VIDEO' are shown. Below the tabs are four options: 'Text classification (Single-label)', 'Text classification (Multi-label)', 'Text entity extraction', and 'Text sentiment analysis'. The 'Text classification (Single-label)' option is selected, with a description: 'Predict the one correct label that you want assigned to a document.' Below this is a 'Region' dropdown set to 'us-central1 (Iowa)'. A 'CREATE' button is at the bottom.

Selecting our AutoML model which is text classification with a single label.

untitled_1613631991417		untitled_1613631991417...	?
IMPORT	BROWSE	ANALYZE	
All	11,947	Filter items Unable to import data due to errors.	
Labeled	11,947		
Unlabeled	0		
Filter labels	+	<input type="checkbox"/> Text <input type="checkbox"/> <input checked="" type="checkbox"/> My eldest son who is 27 just got word he has a new job after finishing his bache... achievement <input type="checkbox"/> <input checked="" type="checkbox"/> I visited my best friend at her school on St. Patrick's day. bonding <input type="checkbox"/> <input checked="" type="checkbox"/> My mom cooked some delicious rice for me with curd. affection <input type="checkbox"/> <input checked="" type="checkbox"/> Today I make Eye contact with my crush. She Also look into my Eyes For a Seco... affection <input type="checkbox"/> <input checked="" type="checkbox"/> I was dropping off my son for a sleepover. He was really excited to go. I droppe... affection <input type="checkbox"/> <input checked="" type="checkbox"/> Dinner tonight was really good. leisure <input type="checkbox"/> <input checked="" type="checkbox"/> I WENT TO MENAKSHI AMMAN TEMPLE WITH MY FAMILY MEMBERS. affection <input type="checkbox"/> <input checked="" type="checkbox"/> I got the test results back from my father's echo and neck arteries taken at the ... affection <input type="checkbox"/> <input checked="" type="checkbox"/> I was selected as the winner for a random lottery drawing from an mturk hit. It ... achievement <input type="checkbox"/> <input checked="" type="checkbox"/> My brother told me he got into med school! affection	
ADD NEW LABEL			

Uploading the data for model training. Our data has the following labels: achievement, affection, bonding, enjoy_the_moment, exercise, leisure, and nature. Once we train our model we can deploy and test it out by provide a random sentence.

[text-analysis-model](#) [VIEW DATASET](#)

EVALUATE [DEPLOY & TEST](#) BATCH PREDICTIONS MODEL PROPERTIES

Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

[DEPLOY TO ENDPOINT](#)

Endpoint	ID	Models	Region	Last updated	API
hello_automl_text	1921735219119915008	1	us-central1	Feb 20, 2021, 3:05:15 PM	Sample request

Test your model [PREVIEW](#)

Your model must be successfully deployed to an endpoint before you can test it.

[PREDICT](#)

[text-analysis-model](#) [VIEW DATASET](#)

EVALUATE [DEPLOY & TEST](#) BATCH PREDICTIONS MODEL PROPERTIES

Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

[DEPLOY TO ENDPOINT](#)

Endpoint	ID	Models	Region	Last updated	API	Notification	Metadata	Encryption
hello_automl_text	1921735219119915008	1	us-central1	Feb 20, 2021, 3:12:24 PM	Sample request			Google-managed key

Test your model [PREVIEW](#)

Do you want to play a game?

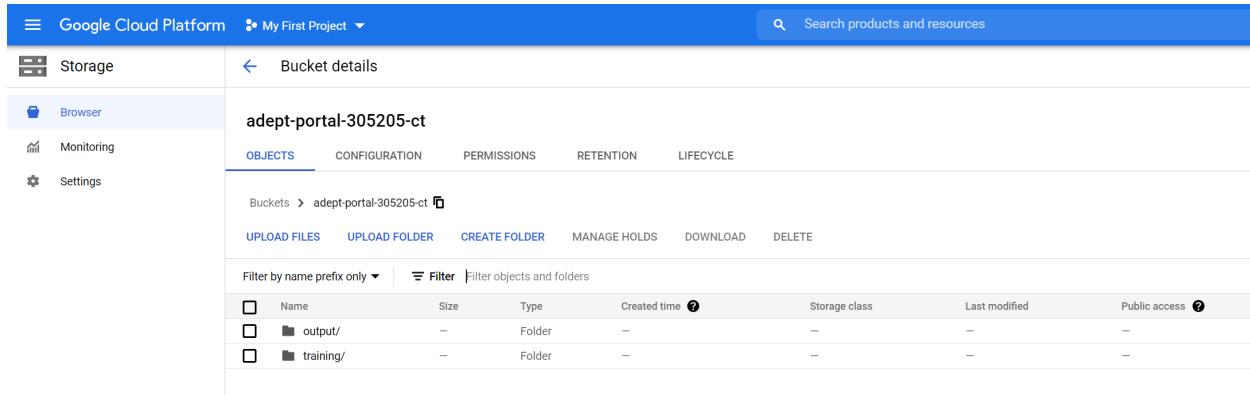
[PREDICT](#)

Filter labels

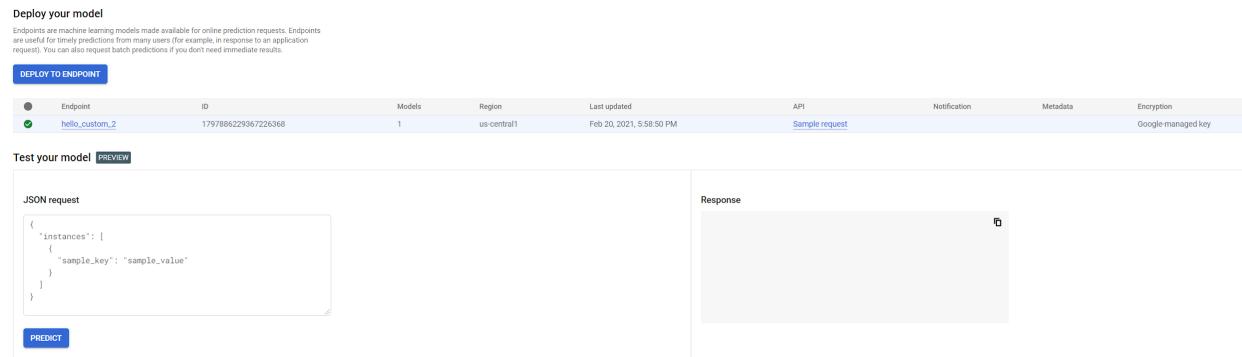
affection	0.001
achievement	0.002
enjoy_the_moment	0.003
bonding	0.000
leisure	0.994
nature	0.000
exercise	0.000

We use the following sentence as our test “Do you want to play a game” and our prediction is “leisure”. This is the correct label so our model is working.

Custom Data AutoML

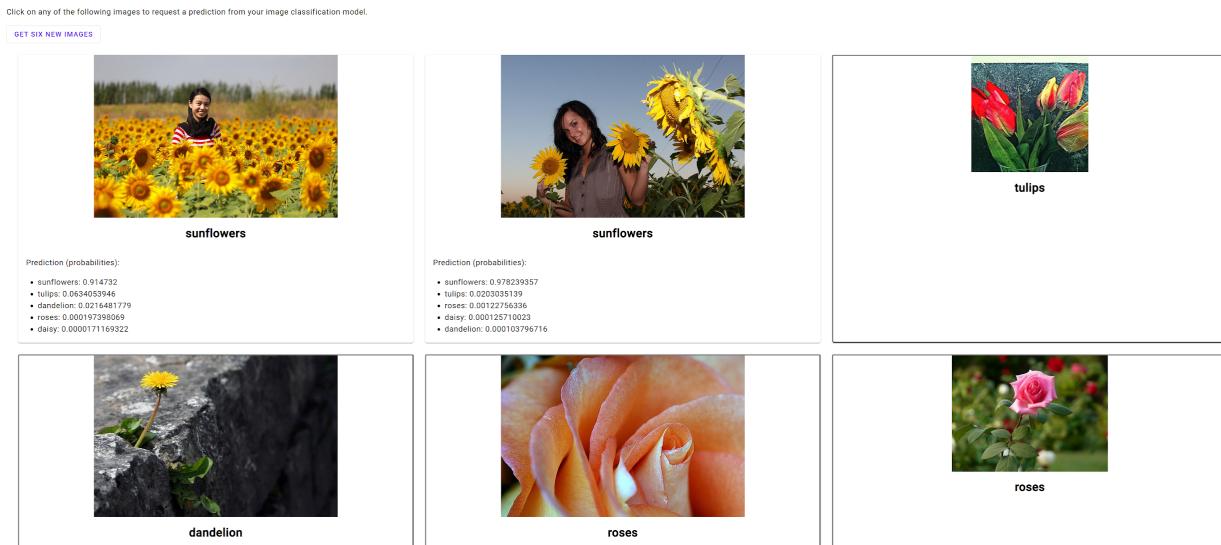


Loading the custom data into google storage bucket and the custom model.



Once the model was loaded in we deployed the and were able to test the model for predictions.

Hello custom training



Video Data AutoML

Creating a video classification model that shows what action is taking place in a video. All the data are stored in google storage

Select a data type and objective

First select the type of data your dataset will contain. Then select an objective, which is the outcome that you want to achieve with the trained model. [Learn more](#)

IMAGE TABULAR TEXT VIDEO

Video action recognition
Identify the action moments in your videos.

Video classification
Get label predictions for entire videos, shots, and frames.

Video object tracking
Get labels, tracks, and timestamps for objects you want to track in a video.

Region us-central1 (Iowa) [?](#)

[▼ ADVANCED OPTIONS](#)

You can use this dataset for other video-based objectives later by creating an annotation set. [Learn more about annotation sets](#)

[CREATE](#) [CANCEL](#)

After loading the data, we can see the data in the picture below.

video-demo- video-demo-vn

IMPORT BROWSE ANALYZE

All 500
Labeled 500
Unlabeled 0

Filter labels +

Videos
cartwheel 100
golf 100
kick_ball 100
pullup 100
ride_horse 100

ADD NEW LABEL

Items per page: 10 1 - 10 of many < >



Train new model

Choose training method

② Define your model

START TRAINING

Dataset
video-demo-?

Annotation set
video-demo_vcn?

Objective
Video classification?

Please refer to the pricing guide for more details (and available deployment options) for each method.

Node hours will be calculated when training begins. You will receive an email with node hours estimation. You can choose to cancel training at any time.

AutoML
Train high-quality models with minimal effort and machine learning expertise. AutoML training automatically ends when your model stop improving. [Learn more](#)

Training the model. Once the model is trained I am deploying the model and I am able to make predictions.

[←](#) video-demo_-202120222847 [VIEW DATASET](#)

EVALUATE TEST **BATCH PREDICTIONS** MODEL PROPERTIES

Batch predictions

Batch prediction intakes a group of prediction requests and outputs the results to a specified location. Use batch prediction when you don't require an immediate response and want to process accumulated data with a single request. Batch prediction can be used with [AutoML models](#) and [custom-trained models](#).

[CREATE BATCH PREDICTION](#)

Filter batch predictions

Batch prediction	Last updated
test-prediction	February 20, 2021

gs://automl-video-demo-data/hmdb51/How_to_Shoot_Penalty_Kicks_kick_ball_f_cm_np1_ba_bad_4.mp4 [0-1.366667] ▾



0:00:00 / 0:00:00

Confidence threshold Predict on: SHOT SEGMENT INTERVAL

Activity	Confidence
cartwheel	0.00
golf	0.00
kick_ball 0.305	0.305
pullup	0.00
ride_horse	0.00

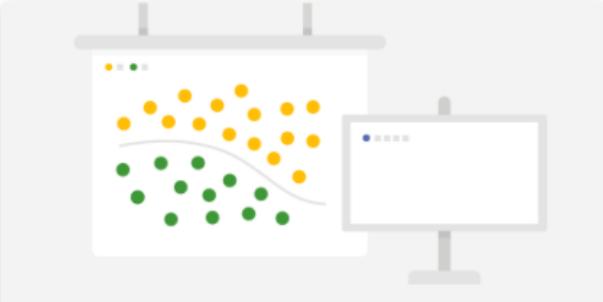
Tabular Data

Selecting a tabular model to and choosing the objective to be a regression/classification

Select a data type and objective

First select the type of data your dataset will contain. Then select an objective, which is the outcome you want to predict.

IMAGE TABULAR TEXT VIDEO



Regression/classification

Predict a target column's value.
Supports tables with hundreds of columns and millions of rows.

Once the data is loaded we can explore it in the ui and start training the model.

Training the model and once the training is done we deploy the model and start to make some predictions.

After deploying the model, we are able to make predictions.

