

# UC San Diego Extension Cloud Services for Machine Learning

Summer 2020

Homework#4

Date Given: July 20, 2020

Due Date: July 26, 2020

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## Problem#1:

In this assignment we will use GCP Vision API to use a 'pre-trained' model to identify objects in images and generate labels for those objects.

Using your own GCP account create a project and enable the Cloud Vision API service for this project. Next, generate a Vision API Key file in JSON format for this project. Download this file on your personal computer. This file will be used in the next problem.

Copy screenshot of your GCP account to your submission document which shows that you have generated a Vision API key file.

## Problem#2:

Using the Vision API key file generated in the previous problem, write Python code using Colab to analyze the images described on the next page by using GCP 'pre-trained' Vision API model.

Your submission document should include the following features of the images.

1. If an image has human faces, it should recognize the faces and describe the emotions on the faces. It should draw a bounding box around all the faces in that image.
2. If an image has famous Landmarks or Logo, it should recognize those landmarks/logos and provide information about them.
3. It should identify the objects in an image and create a bounding box around those objects. It should also generate labels that describe those objects.
4. It should generate the text for the portion of the image that contains text using OCR (Optical Character Recognition) service provided by Vision API.
5. It should show the colors used in the image.
6. It should be able to tell if the content of the image contains adult material (sexual in nature).

## Images to Analyze

### Category#1: Faces with emotions

- 01 happy faces.jpg
- 02 sad face.jpg
- 03 angry face.jpg
- 04 surprise face.jpg



### Category#2: Landmarks

- 01 Colosseum Rome.jpg
- 02 Pyramids.jpg
- 03 TajMahal.jpg



### Category#3: Objects

- 01 traffic image Autonomous Cars.jpg



### Category#4: Images with Text

- 01 Image Text1.jpg
- 02 Image Text2.jpg

