



Auto Category Detection and Items Prohibited Detection

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Project Background



Project Goal

Find an auto and fast detection system to monitor and avoid prohibited items through product images and titles in marketplaces.



Personal Motivation

During developing my marketplace application, I had the idea to make a good experience for both sides (Customers & Company).

Project Plan



1. Review the previous experiences of the leading companies in this field.

2. Get the right and easier way to implement this approach from scratch.

3. Select machine learning models can fit with this project.

4. Deliver the project as a very light version, then improve it in the future during data expanding.

Project Steps

A quick headlines review of project steps from start to end.

Data Gathering

Since I created my own datasets.

Create image classification model

As a best option, I have used CNN model.

Create text classification model

I selected KNN model.

Deployment

I used Flask API as backend to deliver this project.



Data Sources

CIFAR 10

Consists of 60000
32x32 color images in
10 classes.

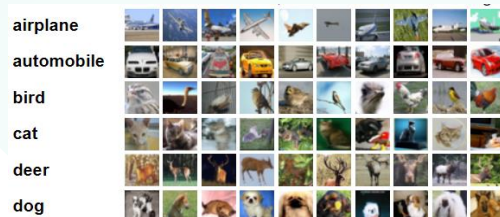


Image Classification

My Own Image data

I collected ~ 600 60x80
color images.

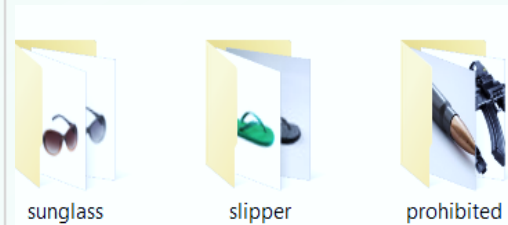


Image Classification

My Own Text data

I collected ~ 2800
words.



Text Classification

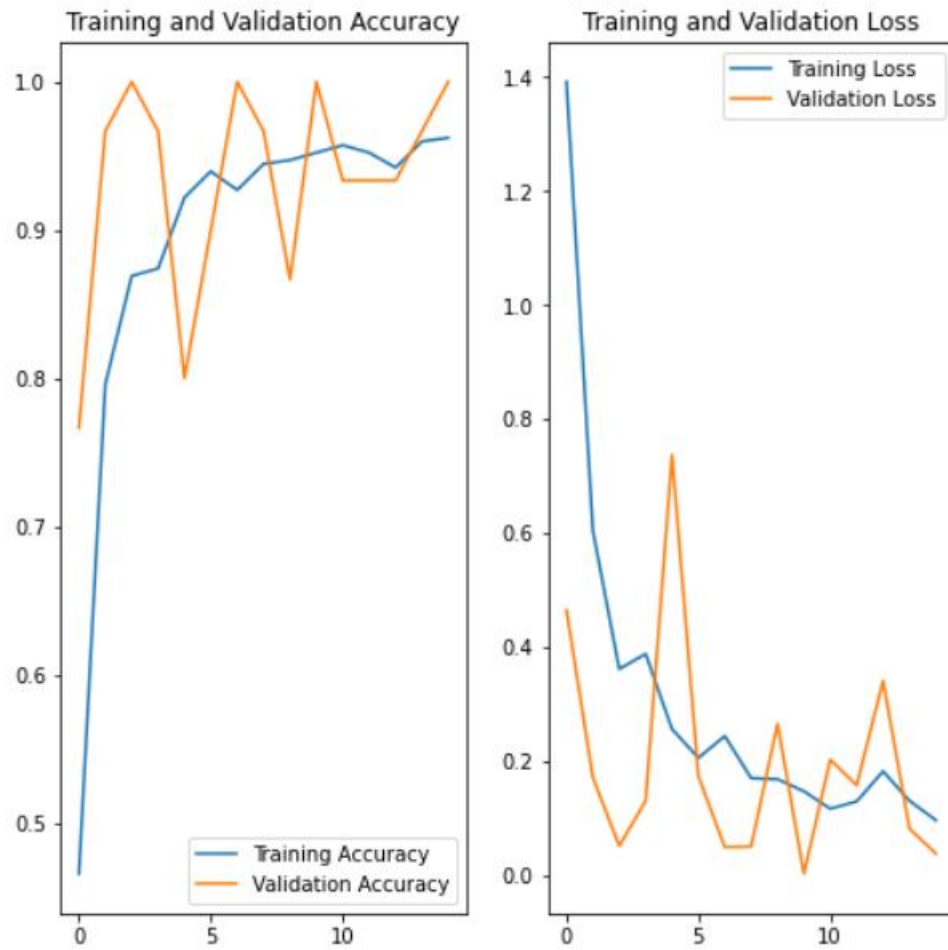
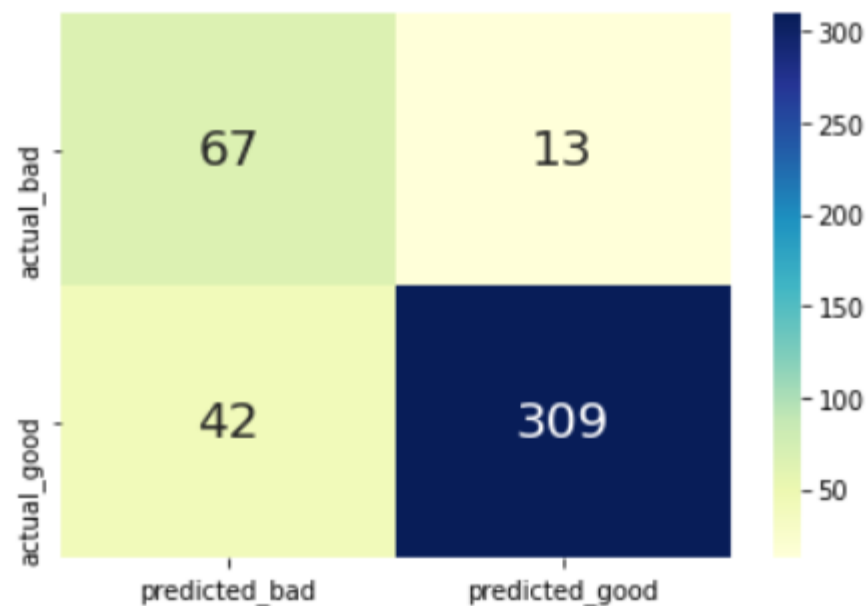


Image Classification using CNN

Image Classification Training and Validation



Text Classification Test

	precision	recall	f1-score	support
bad	0.61	0.84	0.71	80
good	0.96	0.88	0.92	351
accuracy			0.87	431
macro avg	0.79	0.86	0.81	431
weighted avg	0.90	0.87	0.88	431

Project Deployment




In this figure, I am displaying an example of models predicting in deployed project, using Flask.


This is a good example I implemented it in the deployment. As we can see the models predicted (Text as **Bad** and Image as **Prohibited item**)

http://localhost:5000

Product form

Product image




[Upload a file](#)
Upload an image

Product Title

gun for sale as new

[Predict](#)

Title prediction result: **bad**
Image prediction result: **prohibited**

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A graphic consisting of three concentric circles. The innermost circle is a solid teal color. The middle ring is a lighter shade of teal. The outermost ring is a very light, almost white, shade of teal. The text "Thank You!" is centered within the innermost teal circle.

**Thank
You!**