

# Project Report

## Introduction

In the real world, there are many duplicate products being created by companies other than the original company. People get scammed everywhere they go to buy a product. this results in the downfall of the original company, and also bad investment by the customers. This world corruption needs to stop and people need to be more aware of what they are investing into.

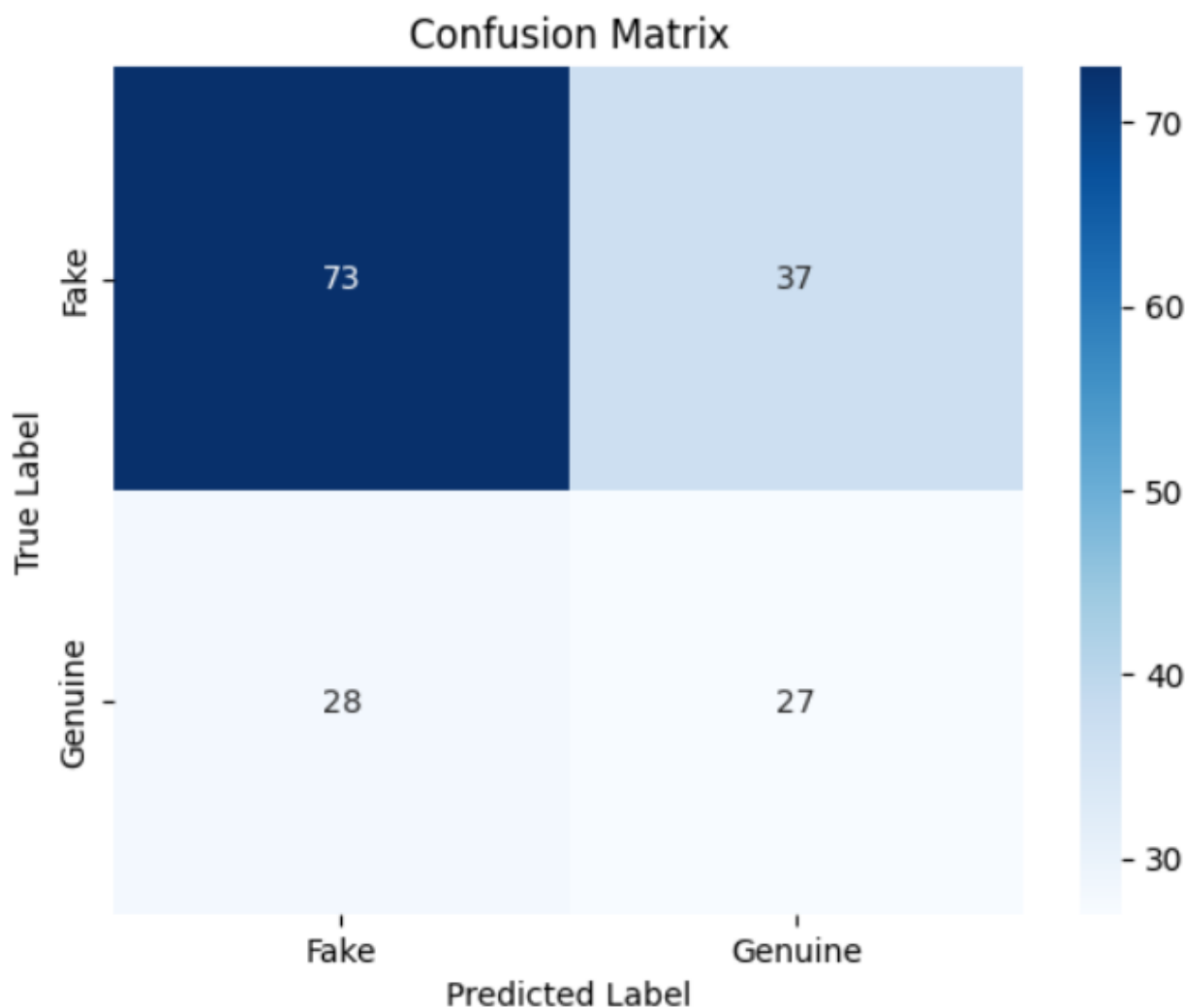
## Problem Statement

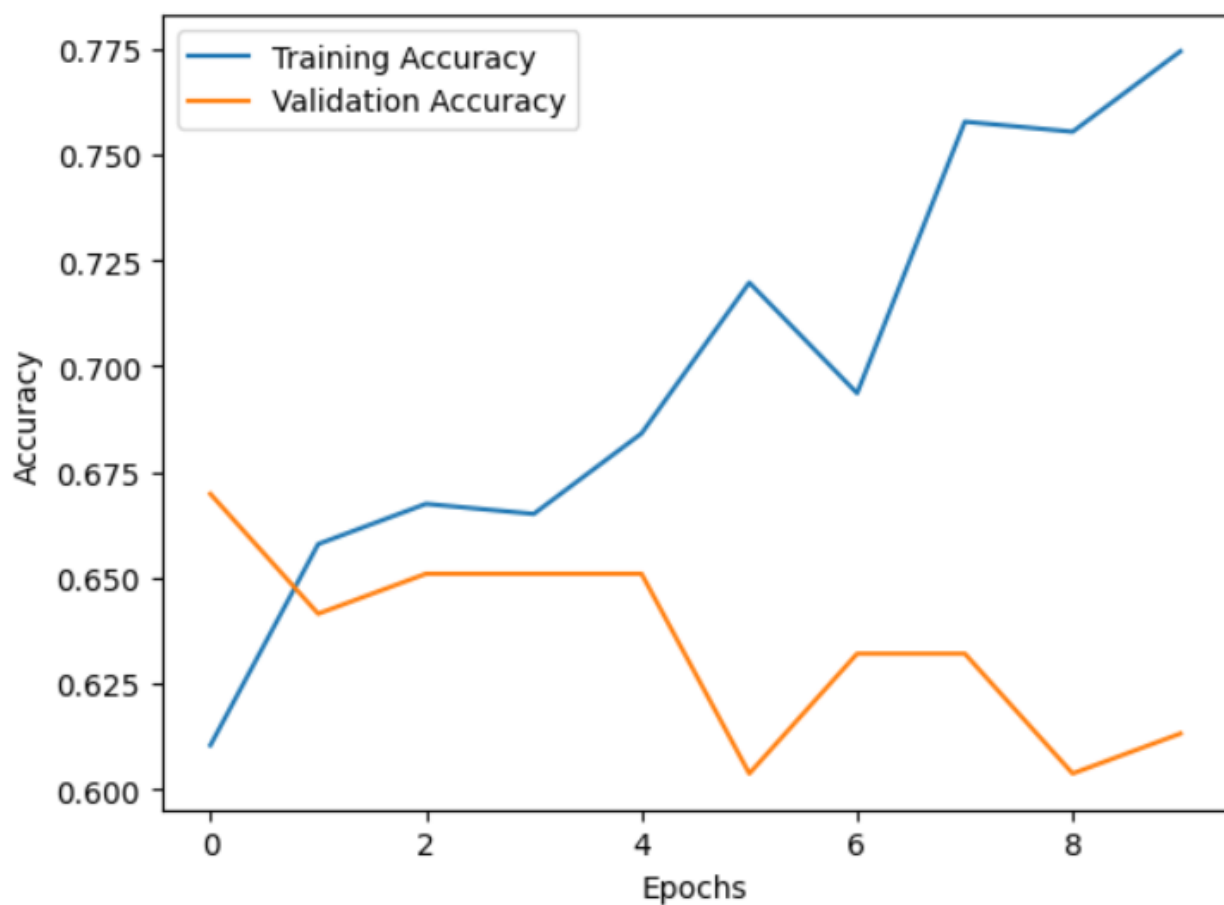
There has been an increment in the number of fake companies. They are so similar to the real products that the customers believe them to be the real ones and buy them. When the product turns out to be of bad quality, the customers trust is broken from the real company and the company goes through loss. Not just that, even the customer spent a huge money just to find out that he wasted all of it.

**Code and Phase-wise files have been uploaded in the same GitHub repository as this Report. Outputs and Metrics have been shown in the following pages.**

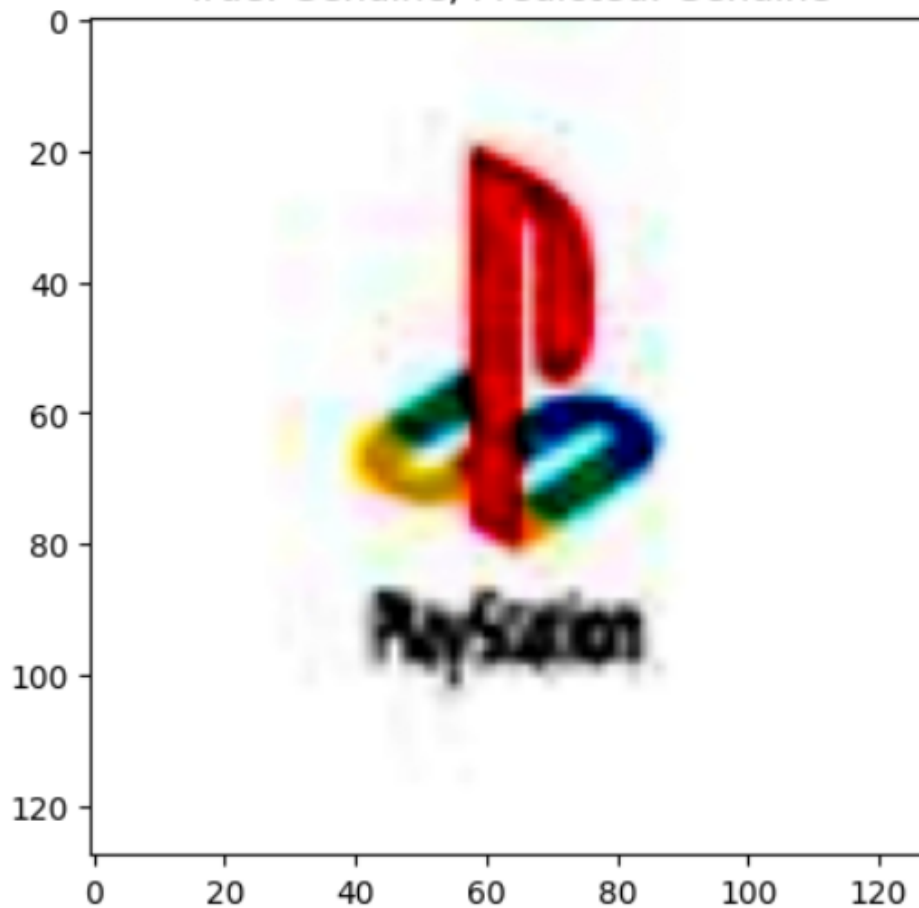
## Metrics and Output of the Solution Model Code

```
Epoch 1/10
14/14 [=====] - 5s 310ms/step - loss: 0.8671 - accuracy: 0.6105 - val_loss: 0.7423 - val_accuracy: 0.6698
Epoch 2/10
14/14 [=====] - 4s 277ms/step - loss: 0.6171 - accuracy: 0.6580 - val_loss: 0.5217 - val_accuracy: 0.6415
Epoch 3/10
14/14 [=====] - 4s 260ms/step - loss: 0.5254 - accuracy: 0.6675 - val_loss: 0.5385 - val_accuracy: 0.6509
Epoch 4/10
14/14 [=====] - 4s 262ms/step - loss: 0.5410 - accuracy: 0.6651 - val_loss: 0.5168 - val_accuracy: 0.6509
Epoch 5/10
14/14 [=====] - 4s 271ms/step - loss: 0.5118 - accuracy: 0.6841 - val_loss: 0.5263 - val_accuracy: 0.6509
Epoch 6/10
14/14 [=====] - 4s 271ms/step - loss: 0.5032 - accuracy: 0.7197 - val_loss: 0.5278 - val_accuracy: 0.6038
Epoch 7/10
14/14 [=====] - 4s 270ms/step - loss: 0.5060 - accuracy: 0.6936 - val_loss: 0.5464 - val_accuracy: 0.6321
Epoch 8/10
14/14 [=====] - 4s 270ms/step - loss: 0.4658 - accuracy: 0.7577 - val_loss: 0.5802 - val_accuracy: 0.6321
Epoch 9/10
14/14 [=====] - 4s 271ms/step - loss: 0.4586 - accuracy: 0.7553 - val_loss: 0.5829 - val_accuracy: 0.6038
Epoch 10/10
14/14 [=====] - 4s 269ms/step - loss: 0.4374 - accuracy: 0.7743 - val_loss: 0.5864 - val_accuracy: 0.6132
6/6 [=====] - 0s 57ms/step
Accuracy: 0.6060606060606061
Confusion Matrix:
[[73  37]
 [ 28  27]]
```





True: Genuine, Predicted: Genuine



## **Conclusion**

Our Real/Fake logo detection model predicts whether the provided logo is genuine or fake with great accuracy even with blurry images.

With this model available, any customer can validate the logo of the company of the product which they wish to invest on, to reduce the risk of buying a fake one. This will help in sustaining of the original company and the customer's trust on the brand and retailer.

## **GitHub Repository link**

<https://github.com/smartinternz02/SI-GuidedProject-612634-1698813791>