```
[8] #Required for Deploying Model to Local Tensorflow Server

!echo "deb http://storage.googleapis.com/tensorflow-serving-apt stable tensorflow-model-server tensorflow-model-server-universal" | tee /etc/apt/sources.list.d/tensorflow-serving.list && \
curl https://storage.googleapis.com/tensorflow-serving-apt/tensorflow-serving.release.pub.gpg | apt-key add -
!apt update
```

```
deb http://storage.googleapis.com/tensorflow-serving-apt stable tensorflow-model-server tensorflow-model-server-universal
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  2943  100  2943    0     0  46714      0 --:--:-- --:--:-- --:--:-- 47467
OK
Get:1 http://storage.googleapis.com/tensorflow-serving-apt stable InRelease [3,012 B]
Get:2 https://cloud.r-project.org/bin/linux/ubuntu bionic-cran40/ InRelease [3,626 B]
Get:3 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Ign:4 https://developer.download.nvidia.com/compute/cuda/repos/ubuntu1804/x86_64  InRelease
Hit:5 http://ppa.launchpad.net/c2d4u.team/c2d4u4.0+/ubuntu bionic InRelease
Hit:6 http://archive.ubuntu.com/ubuntu bionic InRelease
Ign:7 https://developer.download.nvidia.com/compute/machine-learning/repos/ubuntu1804/x86_64  InRelease
Hit:8 https://developer.download.nvidia.com/compute/cuda/repos/ubuntu1804/x86_64  Release
Hit:9 https://developer.download.nvidia.com/compute/machine-learning/repos/ubuntu1804/x86_64  Release
Get:10 http://archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Hit:11 http://ppa.launchpad.net/cran/libgit2/ubuntu bionic InRelease
Get:12 http://storage.googleapis.com/tensorflow-serving-apt stable/tensorflow-model-server-universal amd64 Packages [349 B]
Get:13 http://storage.googleapis.com/tensorflow-serving-apt stable/tensorflow-model-server amd64 Packages [341 B]
Hit:14 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu bionic InRelease
Get:15 http://archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Hit:16 http://ppa.launchpad.net/graphics-drivers/ppa/ubuntu bionic InRelease
Get:17 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [2,628 kB]
Get:18 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1,478 kB]
Get:21 http://archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [2,256 kB]
Get:22 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [3,067 kB]
Fetched 9,689 kB in 7s (1,413 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
41 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

```
#Installing Tensorflow Model Server
!apt-get install tensorflow-model-server
```

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  tensorflow-model-server
0 upgraded, 1 newly installed, 0 to remove and 41 not upgraded.
Need to get 340 MB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://storage.googleapis.com/tensorflow-serving-apt stable/tensorflow-model-server amd64 tensorflow-model-server all 2.8.0 [340 MB]
Fetched 340 MB in 5s (71.3 MB/s)
Selecting previously unselected package tensorflow-model-server.
(Reading database ... 155335 files and directories currently installed.)
Preparing to unpack .../tensorflow-model-server_2.8.0_all.deb ...
Unpacking tensorflow-model-server (2.8.0) ...
Setting up tensorflow-model-server (2.8.0) ...
```

```
s3 = boto3.resource("s3", aws_access_key_id=aws_access_key,
    aws_secret_access_key=aws_secret_key)

model_path = "./"

#Downloading the Training Images
bucket = s3.Bucket('511004593648-msds436')
for obj in bucket.objects.filter(Prefix = 'mask_model.zip'):
    print(obj.key)
    file_name = obj.key.split("/")[-1]
    file_path = os.path.join(model_path, file_name)
    print("Downloading to {}".format(file_path))
    bucket.download_file(obj.key, file_path)

!unzip mask_model.zip
```

```
mask_model.zip
Downloading to ./mask_model.zip
Archive:  mask_model.zip
   creating: saved_model/
   creating: saved_model/mask_model/
   creating: saved_model/mask_model/variables/
  inflating: saved_model/mask_model/variables/variables.data-00000-of-00001
  inflating: saved_model/mask_model/variables/variables.index
  inflating: saved_model/mask_model/keras_metadata.pb
   creating: saved_model/mask_model/assets/
  inflating: saved_model/mask_model/saved_model.pb
```

```
[16] new_model = tf.keras.models.load_model('saved_model/mask_model')
     new_model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 vgg16 (Functional)          (None, 8, 8, 512)         14714688

 flatten (Flatten)           (None, 32768)             0

 dense (Dense)               (None, 50)                1638450

 dense_1 (Dense)             (None, 1)                 51

=================================================================
Total params: 16,353,189
Trainable params: 1,638,501
Non-trainable params: 14,714,688
_________________________________________________________________
```

```
if os.path.isdir(export_path):
    print('\nAlready saved a model, cleaning up\n')
    !rm -r {export_path}


new_model.save(export_path, save_format="tf")
```

```
INFO:tensorflow:Assets written to: ./DEPLOY/1/assets
```

```
[18] os.environ["MODEL_DIR"] = "/content/DEPLOY"
```

```
[19] %pwd ./DEPLOY
```

```
'/content'
```

```
[20] %%bash --bg
nohup tensorflow_model_server \
  --rest_api_port=8571 \
  --model_name=helloworld \
  --model_base_path="${MODEL_DIR}" >server.log 2>&1
```

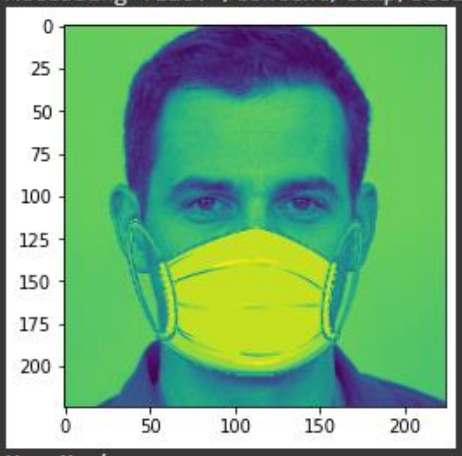
```
Starting job # 0 in a separate thread.
```

```
[21] !tail server.log
```

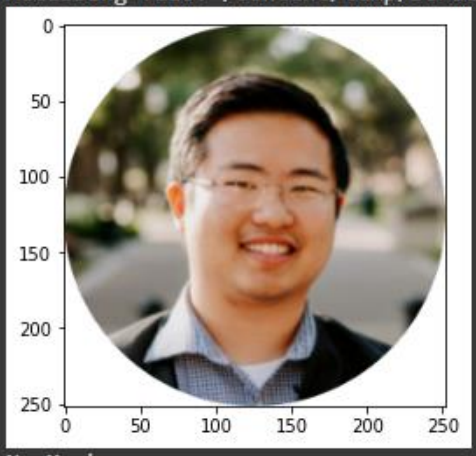
```
[warn] getaddrinfo: address family for nodename not supported
[evhttp_server.cc : 245] NET_LOG: Entering the event loop ...
```

```
[68] predict_off_folder("/content/temp")
```

```
Accessing file: /content/temp/seed0815.png
```




```
Has Mask
Accessing file: /content/temp/Screenshot 2022-01-20 200158-modified.png
```




```
No Mask
```