Project Development Phase Sprint-3

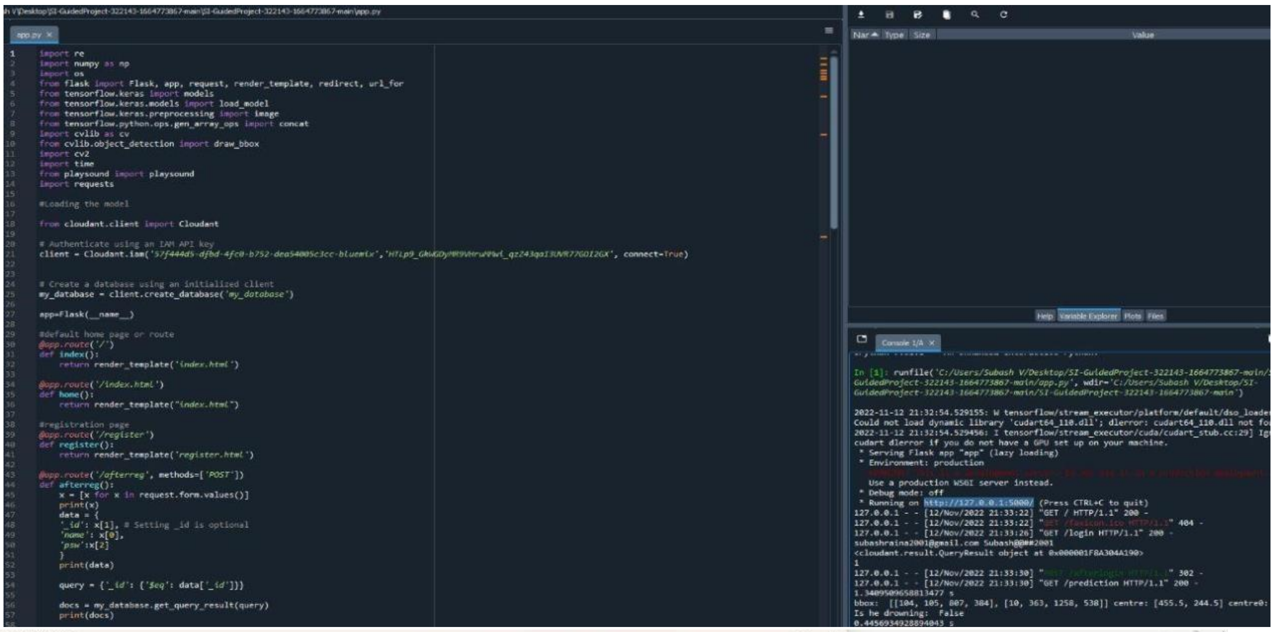
Date	12 November 2022
Team ID	PNT2022TMID51401
Project Name	Virtual Eye - Life Guard for Swimming Pools toDetect Active Drowning
Maximum Marks	4 Marks

```
import re import
numpy as np import
os
from flask import Flask, app, request, render_template, redirect, url_for
from tensorflow.keras import models from tensorflow.keras.models
import load_model from tensorflow.keras.preprocessing import image
from tensorflow.python.ops.gen_array_ops import concat import cvlib
as cv
from cvlib.object_detection import draw_bbox
import cv2 import time
from playsound import playsound

import requests #Loading the model

from cloudant.client import Cloudant

# Authenticate using an IAM API key
client = Cloudant.iam('57f444d5-dfbd-4fc0-b752-dea54005c3cc-
bluemix','HTLp9_GkWGDyMR9VHruMMwi_qzZ43qaI3UVR77GOI2GX', connect=True)


# Create a database using an initialized client

my_database = client.create_database('my_database')

app=Flask(__name__)

#default home page or route @app.route('/')
def index(): return
render_template('index.html')

@app.route('/index.html') def home(): return
render_template("index.html")
#registration page
@app.route('/register') def register(): return
render_template('register.html')
```

```
@app.route('/afterreg', methods=['POST'])
def afterreg(): x = [x for x in
request.form.values()]
    print(x)
    data = {
    '_id': x[1], # Setting _id is optional
    'name': x[0],
    'psw':x[2]
    }
    print(data) query = {'_id': {'$eq':

    data['_id']}}

    docs = my_database.get_query_result(query)

    print(docs) print(len(docs.all()))

    if(len(docs.all())==0):
        url = my_database.create_document(data)
        #response = requests.get(url)
        return render_template('register.html', pred="Registration Successful, please
login using your details") else:
        return render_template('register.html', pred="You are already a member,
please login using your details")

#login page @app.route('/login') def login():
return render_template('login.html')

@app.route('/afterlogin',methods=['POST'])
def afterlogin(): user = request.form['_id']
passw = request.form['psw']
print(user,passw) query = {'_id': {'$eq': user}}

    docs = my_database.get_query_result(query)
    print(docs)
    print(len(docs.all()))

    if(len(docs.all())==0):
        return render_template('login.html', pred="The username is not found.")
    else:
        if((user==docs[0][0]['_id'] and passw==docs[0][0]['psw'])):
            return redirect(url_for('prediction'))
        else: print('Invalid
            User')
```

```
@app.route('/logout') def logout(): return
render_template('logout.html')

@app.route('/prediction') def prediction(): return
render_template('prediction.html')

@app.route('/result',methods=["GET","POST"]) def
      res():   webcam        =
cv2.VideoCapture('drowning.mp4')

  if not webcam.isOpened():
    print("Could not open webcam")
    exit() t0 = time.time() #gives time in seconds

  after 1970

  #variable dcount stands for how many seconds the person has been standing still
for
  centre0 = np.zeros(2)
  isDrowning = False

  #this loop happens approximately every 1 second, so if a person doesn't move, #or
  moves very little for 10seconds, we can say they are drowning

  #loop through frames while
  webcam.isOpened(): # read frame
  from webcam status, frame =
  webcam.read()
    #print(frame) if not status:
    print("Could not read frame") exit()
    # apply object detection
    bbox, label, conf = cv.detect_common_objects(frame)
    #simplifying for only 1 person
    #print('bbox',bbox)
    #print('label',label) #print('conf',conf)

    #s = (len(bbox), 2)
    if(len(bbox)>0): bbox0
    = bbox[0] #centre =
    np.zeros(s) centre =
    [0,0]
      #for i in range(0, len(bbox)):
        #centre[i] =[(bbox[i][0]+bbox[i][2])/2,(bbox[i][1]+bbox[i][3])/2 ]

      centre =[(bbox0[0]+bbox0[2])/2,(bbox0[1]+bbox0[3])/2 ]

      #make vertical and horizontal movement variables
      hmov = abs(centre[0]-centre0[0]) vmov = abs(centre[1]-
      centre0[1])

      #there is still need to tweek the threshold
      #this threshold is for checking how much the centre has moved

      x=time.time()

      threshold = 10 if(hmov>threshold or
      vmov>threshold): print(x-t0, 's') t0 = time.time()
      isDrowning = False

      else: print(x-t0, 's') if((time.time()
        - t0) > 10):
          isDrowning = True

      #print('bounding box: ', bbox, 'label: ' label ,'confidence: ' conf[0], 'centre: ',
centre)
      #print(bbox,label ,conf, centre) print('bbox: ', bbox,
      'centre:', centre, 'centre0:', centre0)
      print('Is he drowning: ', isDrowning)

      centre0 = centre
      # draw bounding box over detected objects
    #print('came here')
    out = draw_bbox(frame, bbox, label, conf,colors=None,write_conf=isDrowning)

    #print('Seconds since last epoch: ', time.time()-t0)
    # display output cv2.imshow("Real-time object
    detection", out) if(isDrowning == True):
    playsound('alarm.mp3') webcam.release()
    cv2.destroyAllWindows()
      #return render_template('prediction.html',prediction="Emergency !!! The
Person is drowining")
      #return render_template('base.html')

    # press "Q" to stop if
    cv2.waitKey(1) & 0xFF == ord('q'):
    break
```

```
    # release resources webcam.release()
    cv2.destroyAllWindows()
    return render_template('prediction.html',prediction="Emergency !!! The Person is
drowining")

""" Running our application """
if __name__ == "__main__":
app.run(debug=False)
```



```
h V\Desktop\SI-GuidedProject-322143-1664773867-main\SI-GuidedProject-322143-1664773867-main\app.py
```

```python
import re
import numpy as np
import os
from flask import Flask, app, request, render_template, redirect, url_for
from tensorflow.keras import models
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
from tensorflow.python.ops.gen_array_ops import concat
import cvlib as cv
from cvlib.object_detection import draw_bbox
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import requests

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def afterreg():
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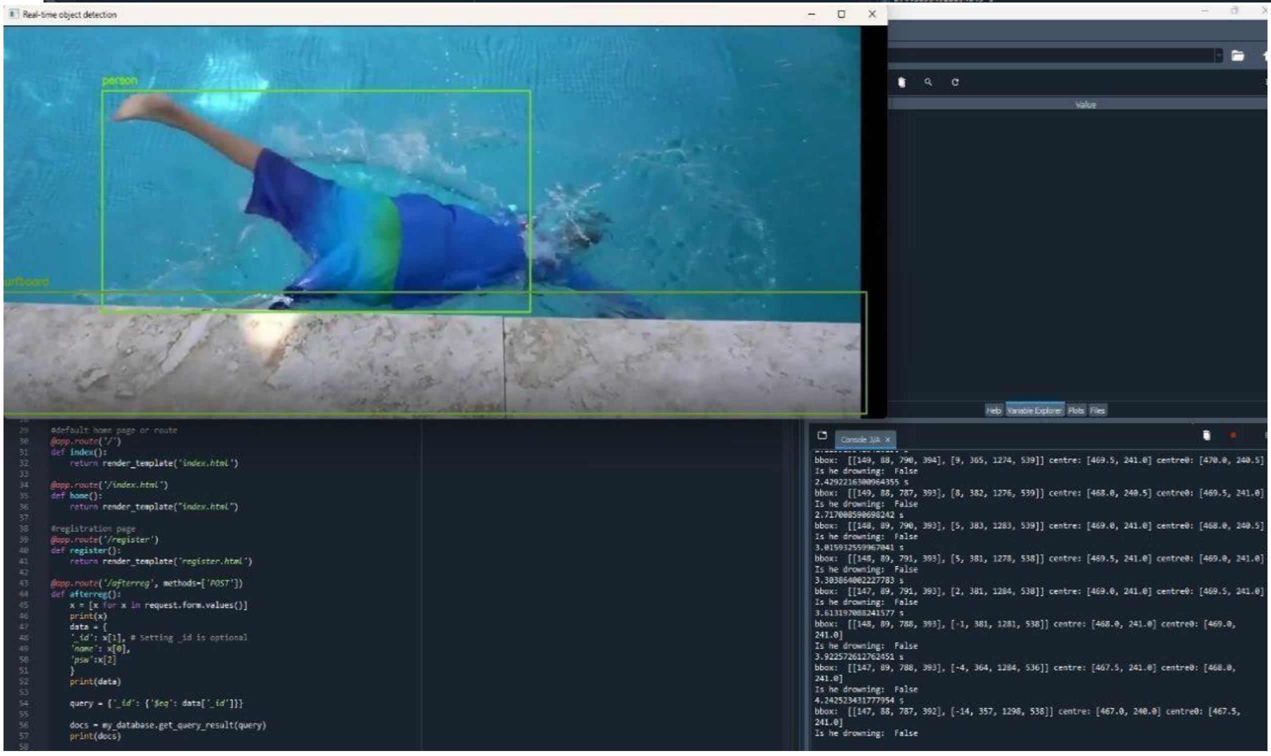
    print(x)
    data = {
    '_id': x[1], # Setting _id is optional
    'name': x[0],
    'psw':x[2]
    }
    print(data)

    query = {'_id': {'$eq': data['_id']}}

    docs = my_database.get_query_result(query)
    print(docs)
```

```
In [1]: runfile('C:/Users/Subash V/Desktop/SI-GuidedProject-322143-1664773867-main/SI-
GuidedProject-322143-1664773867-main/app.py', wdir='C:/Users/Subash V/Desktop/SI-
GuidedProject-322143-1664773867-main/SI-GuidedProject-322143-1664773867-main')

2022-11-12 21:32:54.529155: W tensorflow/stream_executor/platform/default/dso_loade
Could not load dynamic library 'cudart64_110.dll'; dlerror: cudart64_110.dll not fo
2022-11-12 21:32:54.529456: I tensorflow/stream_executor/cuda/cudart_stub.cc:29] Ig
cudart dlerror if you do not have a GPU set up on your machine.
 * Serving Flask app "app" (lazy loading)
 * Environment: production
   [illegible]
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [12/Nov/2022 21:33:22] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [12/Nov/2022 21:33:22] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [12/Nov/2022 21:33:26] "GET /login HTTP/1.1" 200 -
subashraina2001@gmail.com Subash@@##2001
<cloudant.result.QueryResult object at 0x000001F8A304A190>
1
127.0.0.1 - - [12/Nov/2022 21:33:30] "POST /afterlogin HTTP/1.1" 302 -
127.0.0.1 - - [12/Nov/2022 21:33:30] "GET /prediction HTTP/1.1" 200 -
1.3409509658813477 s
bbox:  [[104, 105, 807, 384], [10, 363, 1258, 538]] centre: [455.5, 244.5] centre0:
Is he drowning:  False
0.4456934928894043 s
```



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    query = {'_id': {'$eq': data['_id']}}

    docs = my_database.get_query_result(query)
    print(docs)
```

```
bbox:  [[149, 88, 790, 394], [9, 365, 1274, 539]] centre: [469.5, 241.0] centre0: [470.0, 240.5]
Is he drowning:  False
2.4292216300964355 s
bbox:  [[149, 88, 787, 393], [8, 382, 1276, 539]] centre: [468.0, 240.5] centre0: [469.5, 241.0]
Is he drowning:  False
2.717008590698242 s
bbox:  [[148, 89, 790, 393], [5, 383, 1283, 539]] centre: [469.0, 241.0] centre0: [468.0, 240.5]
Is he drowning:  False
3.015932559967041 s
bbox:  [[148, 89, 791, 393], [5, 381, 1278, 538]] centre: [469.5, 241.0] centre0: [469.0, 241.0]
Is he drowning:  False
3.3038640022277783 s
bbox:  [[147, 89, 791, 393], [2, 381, 1284, 538]] centre: [469.0, 241.0] centre0: [469.5, 241.0]
Is he drowning:  False
3.613197088241577 s
bbox:  [[148, 89, 788, 393], [-1, 381, 1281, 538]] centre: [468.0, 241.0] centre0: [469.0,
241.0]
Is he drowning:  False
3.922572612762451 s
bbox:  [[147, 89, 788, 393], [-4, 364, 1284, 536]] centre: [467.5, 241.0] centre0: [468.0,
241.0]
Is he drowning:  False
4.242523431777954 s
bbox:  [[147, 88, 787, 392], [-14, 357, 1298, 538]] centre: [467.0, 240.0] centre0: [467.5,
241.0]
Is he drowning:  False
```