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Batch Code: LISUM16

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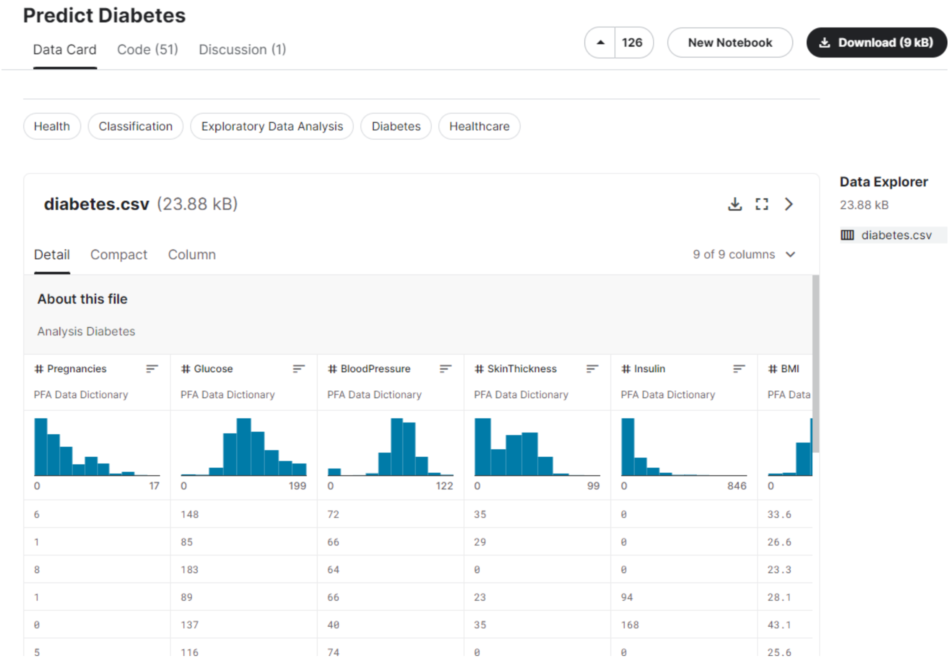
Submitted To: Data Glacier

Deployment on Flask

Task 1: Go out and find simple data for modeling

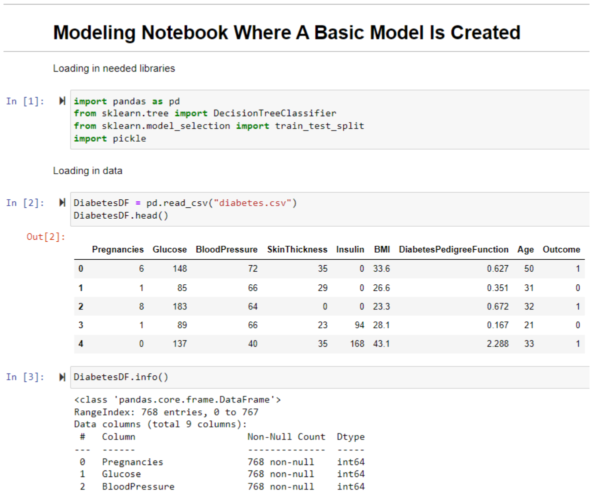


About this file

Analysis Diabetes

# Pregnancies	# Glucose	# BloodPressure	# SkinThickness	# Insulin	# BMI
PFA Data Dictionary	PFA Data Dictionary	PFA Data Dictionary	PFA Data Dictionary	PFA Data Dictionary	PFA Data
6	148	72	35	0	33.6
1	85	66	29	0	26.6
8	183	64	0	0	23.3
1	89	66	23	94	28.1
0	137	40	35	168	43.1
5	116	74	0	0	25.6

Task 2: Creating a predictive model using a machine learning algorithm. Data at hand is predictive whether someone is diabetic or not. A Decision Tree Classifier Algorithm will be used. Save model in pickle file



Modeling Notebook Where A Basic Model Is Created

Loading in needed libraries

```
In [1]:  import pandas as pd
         from sklearn.tree import DecisionTreeClassifier
         from sklearn.model_selection import train_test_split
         import pickle
```

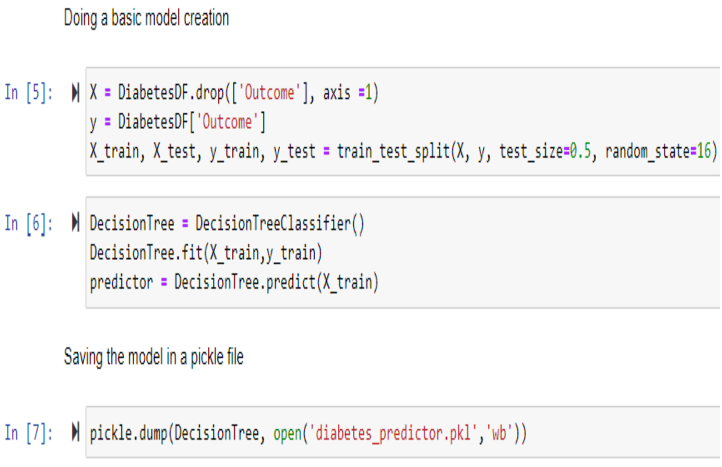
Loading in data

```
In [2]:  DiabetesDF = pd.read_csv("diabetes.csv")
         DiabetesDF.head()
```

Out[2]:

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DiabetesPedigreeFunction	Age	Outcome
0	6	148	72	35	0	33.6	0.627	50	1
1	1	85	66	29	0	26.6	0.351	31	0
2	8	183	64	0	0	23.3	0.672	32	1
3	1	89	66	23	94	28.1	0.167	21	0
4	0	137	40	35	168	43.1	2.288	33	1

```
In [3]:  DiabetesDF.info()

         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 768 entries, 0 to 767
         Data columns (total 9 columns):
          #   Column                    Non-Null Count  Dtype
         ---  ------                    --------------  -----
          0   Pregnancies               768 non-null    int64
          1   Glucose                   768 non-null    int64
          2   BloodPressure             768 non-null    int64
```



Doing a basic model creation

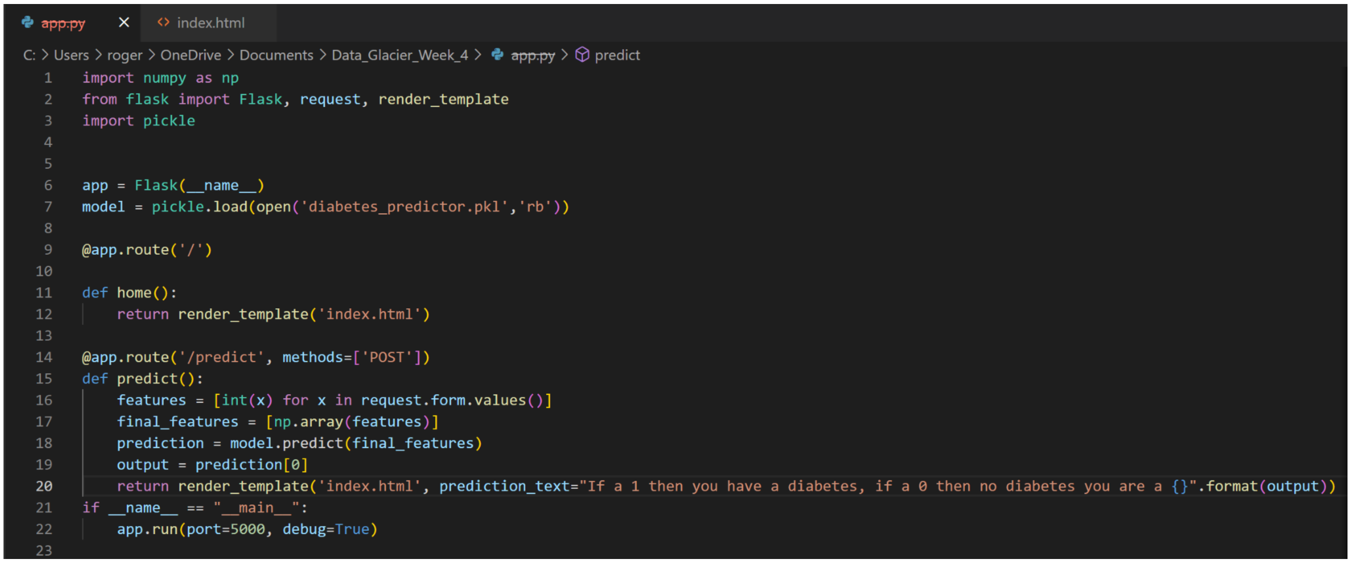
```
In [5]:  X = DiabetesDF.drop(['Outcome'], axis =1)
         y = DiabetesDF['Outcome']
         X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.5, random_state=16)
```

```
In [6]:  DecisionTree = DecisionTreeClassifier()
         DecisionTree.fit(X_train,y_train)
         predictor = DecisionTree.predict(X_train)
```

Saving the model in a pickle file

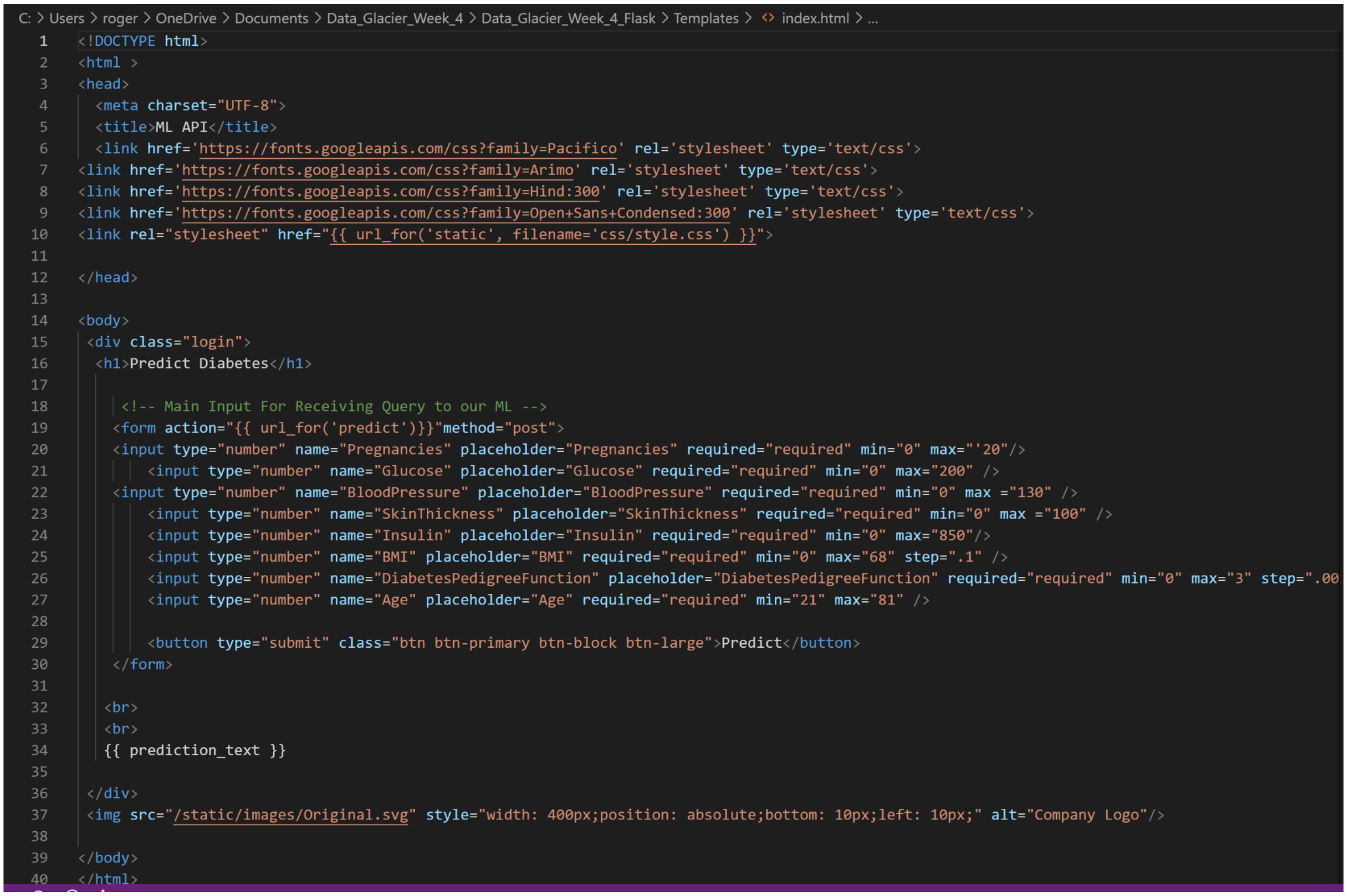
```
In [7]:  pickle.dump(DecisionTree, open('diabetes_predictor.pkl','wb'))
```

Task 3: Deploying the model using Flask(Using VS Code). It is routed using a local host at port number 5000.


app.py
index.html
C: > Users > roger > OneDrive > Documents > Data_Glacier_Week_4 > app.py > predict

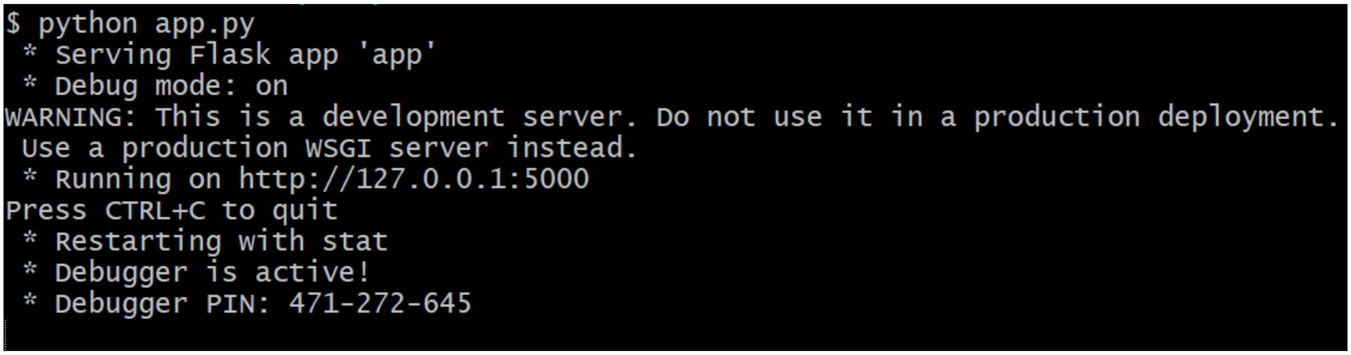
```python
import numpy as np
from flask import Flask, request, render_template
import pickle


app = Flask(__name__)
model = pickle.load(open('diabetes_predictor.pkl','rb'))

@app.route('/')

def home():
    return render_template('index.html')

@app.route('/predict', methods=['POST'])
def predict():
    features = [int(x) for x in request.form.values()]
    final_features = [np.array(features)]
    prediction = model.predict(final_features)
    output = prediction[0]
    return render_template('index.html', prediction_text="If a 1 then you have a diabetes, if a 0 then no diabetes you are a {}".format(output))
if __name__ == "__main__":
    app.run(port=5000, debug=True)

```

Task 3.1: Generating an html template for Web App. The index.html file is implemented in the app.py file in the home function.


C: > Users > roger > OneDrive > Documents > Data_Glacier_Week_4 > Data_Glacier_Week_4_Flask > Templates > index.html > ...

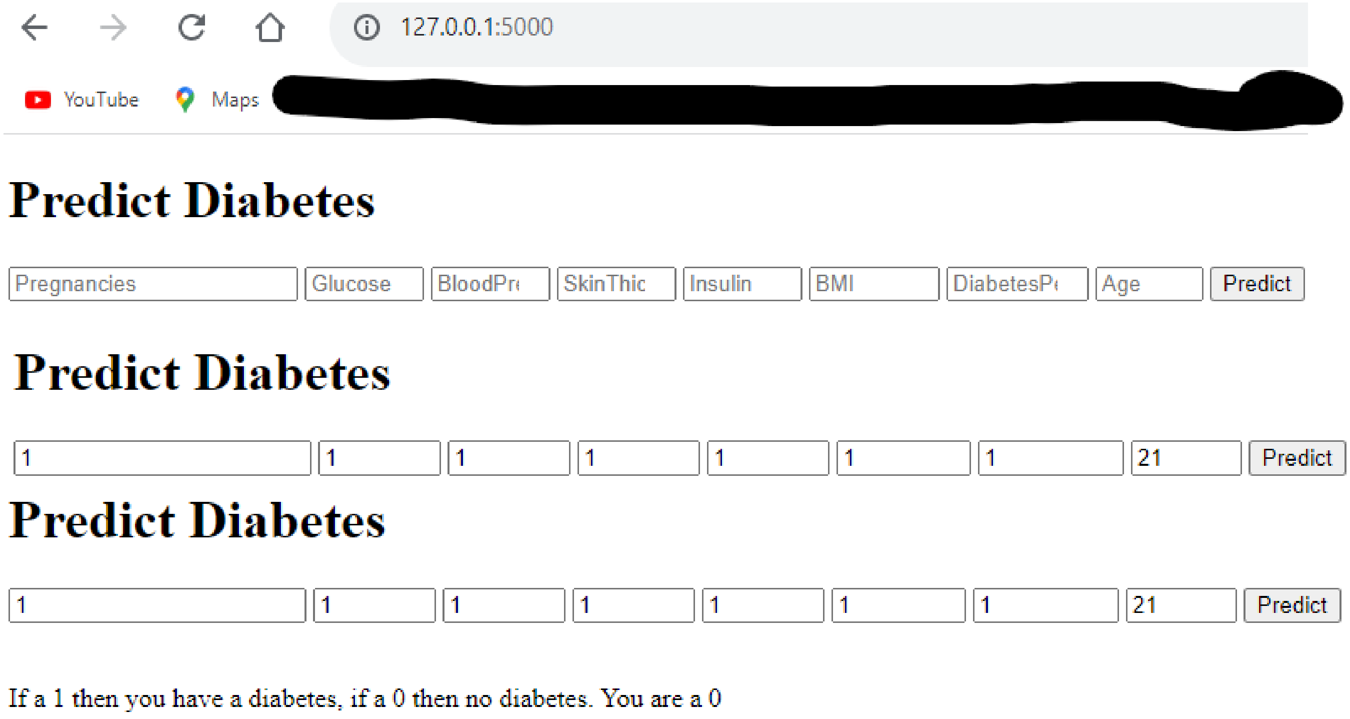
```html
<!DOCTYPE html>
<html >
<head>
  <meta charset="UTF-8">
  <title>ML API</title>
  <link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300' rel='stylesheet' type='text/css'>
<link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">

</head>

<body>
 <div class="login">
  <h1>Predict Diabetes</h1>

    <!-- Main Input For Receiving Query to our ML -->
    <form action="{{ url_for('predict')}}"method="post">
    <input type="number" name="Pregnancies" placeholder="Pregnancies" required="required" min="0" max="'20"/>
        <input type="number" name="Glucose" placeholder="Glucose" required="required" min="0" max="200" />
    <input type="number" name="BloodPressure" placeholder="BloodPressure" required="required" min="0" max ="130" />
        <input type="number" name="SkinThickness" placeholder="SkinThickness" required="required" min="0" max ="100" />
        <input type="number" name="Insulin" placeholder="Insulin" required="required" min="0" max="850"/>
        <input type="number" name="BMI" placeholder="BMI" required="required" min="0" max="68" step=".1" />
        <input type="number" name="DiabetesPedigreeFunction" placeholder="DiabetesPedigreeFunction" required="required" min="0" max="3" step=".00
        <input type="number" name="Age" placeholder="Age" required="required" min="21" max="81" />

        <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
    </form>

   <br>
   <br>
   {{ prediction_text }}

 </div>
 <img src="/static/images/Original.svg" style="width: 400px;position: absolute;bottom: 10px;left: 10px;" alt="Company Logo"/>

</body>
</html>
```

Task 4: Open the App



```
$ python app.py
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment.
 Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 471-272-645
```

Task 5: Generating Predictions



127.0.0.1:5000

[redacted]

Predict Diabetes

Pregnancies | Glucose | BloodPr | SkinThic | Insulin | BMI | DiabetesP | Age | Predict

Predict Diabetes

1 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | Predict

Predict Diabetes

1 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | Predict

If a 1 then you have a diabetes, if a 0 then no diabetes. You are a 0