Data Intake Report

Name: <Week 5 Cloud and API Deployment>
Report date: <…./07/21>
Internship Batch:<LSUM01>
Version:<1.0>
Data intake by:<H. Melis Tekin Akcin>
Data intake reviewer:<Data Glacier>
Data storage location: <…… >

Tabular data details:

Total number of observations	<768>
Total number of files	<1>
Total number of features	<9>
Base format of the file	<.csv>
Size of the data	<54.1 KB>

1. **Modeling the dataset 'Diabetes' :** The model that I have created on Week 4.

Modelling

Creating the dependent and independent variables to apply Logistic regression model.

In [6]:
```
df["Outcome"].value_counts()
```

Out[6]:
```
0    500
1    268
Name: Outcome, dtype: int64
```

In [7]:
```
X= df.iloc[:, :8]
y=df["Outcome"]
```

In [8]:
```
#check the partition X.
X.head()
```

Out[8]:

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

Splitting the data set as train and test set. And training the model.

```
In [9]: #splitting the dataset as train set and test set by using sklearn.

        X_train, X_test, y_train, y_test = train_test_split(X, y, test_size= 0.30, random_state = 101)
        loj=LogisticRegression(solver="liblinear")

In [10]: #fitting the model with training set.
         loj_model= loj.fit(X_train,y_train)
         loj_model

Out[10]: LogisticRegression(solver='liblinear')

In [11]: pickle.dump(loj, open('model.pickle','wb'))
```

2. Converting the notebook to python file and saving the model on our disk:

```
(base) C:\Users\hmeli\DataGlacier_Week5_API_Cloud_Deployment>jupyter nbconvert --to python model.ipynb
[NbConvertApp] Converting notebook model.ipynb to python
[NbConvertApp] Writing 1178 bytes to model.py

(base) C:\Users\hmeli\DataGlacier_Week5_API_Cloud_Deployment>python model.py
<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
 3   SkinThickness             768 non-null    int64
 4   Insulin                   768 non-null    int64
 5   BMI                       768 non-null    float64
 6   DiabetesPedigreeFunction  768 non-null    float64
 7   Age                       768 non-null    int64
 8   Outcome                   768 non-null    int64
dtypes: float64(2), int64(7)
memory usage: 54.1 KB
```

3. app file

```
In [1]: #importing necessary libraries
        import pandas as pd
        import flask
        from flask import Flask, jsonify, request
        import pickle
```

```
In [2]: #creating flask app
        app= Flask(__name__)
```

```
In [3]: @app.route('/', methods=['GET', 'POST'])
        def home():
            if (request.method=='GET'):
                data= "Enter your test results!"
                return jsonify({'data': data})
```

```
In [4]: @app.route('/predict/', endpoint='Diabetes_prediction')
        def Diabetes_prediction():
            model= pickle.load(open('model.pickle', 'rb'))
            Pregnancies= request.args.get('Pregnancies')
            Glucose=request.args.get('Glucose')
            BloodPressure=request.args.get('BloodPressure')
            SkinThickness=request.args.get('SkinThickness')
            Insulin=request.args.get('Insulin')
            BMI=request.args.get('BMI')
            DiabetesPedigreeFunction=request.args.get('DiabetesPedigreeFunction')
            Age=request.args.get('Age')

            test_df= pd.DataFrame({' Pregnancies': [Pregnancies], 'Glucose': [Glucose],
                                   'BloodPressure': [BloodPressure], 'SkinThickness': [SkinThickness],
                                   'Insulin': [Insulin], 'BMI': [BMI],
                                   'DiabetesPedigreeFunction': [DiabetesPedigreeFunction], 'Age': [Age]})
            pred_diabetes= model.predict(test_df)
            return jsonify({'Diabetes Predicted': str(pred_diabetes)})
```

```
In [*]: if __name__=='__main__':
            app.run(debug=True, use_reloader=False)
```

```
 * Serving Flask app "__main__" (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on

 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

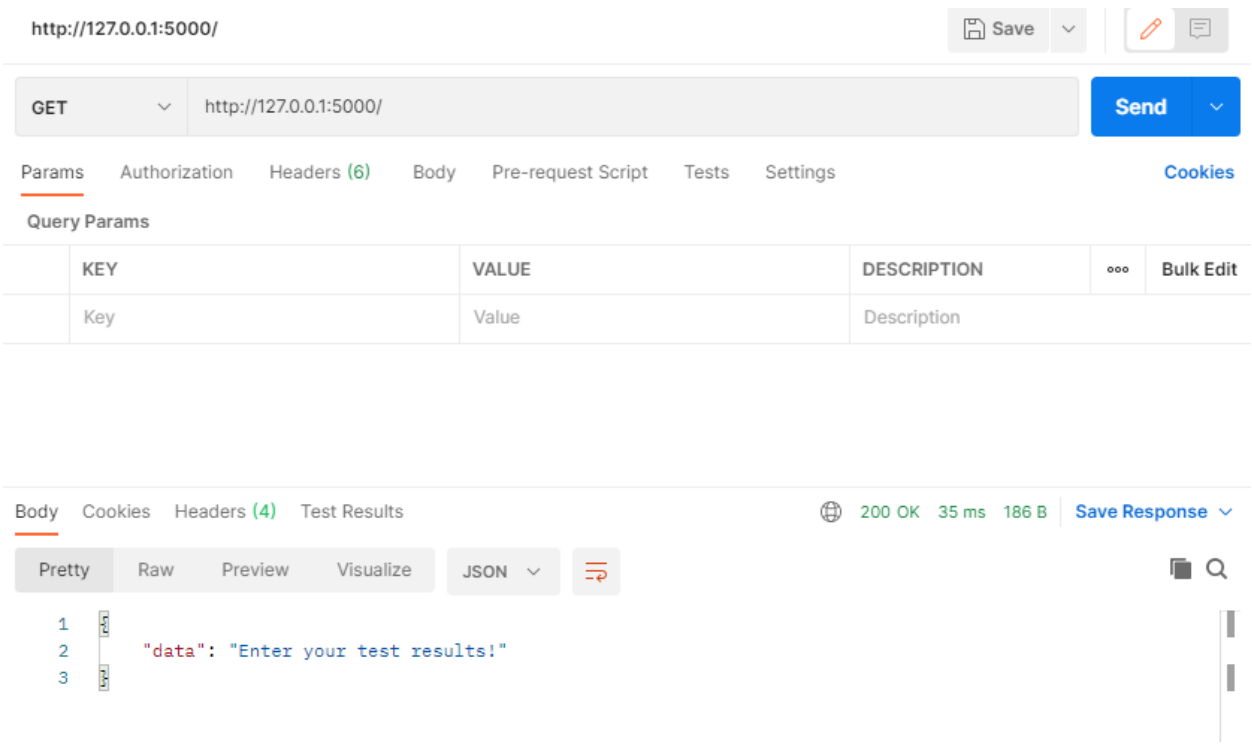
4. Running app.py on computer.

Firstly, I run in my computer.

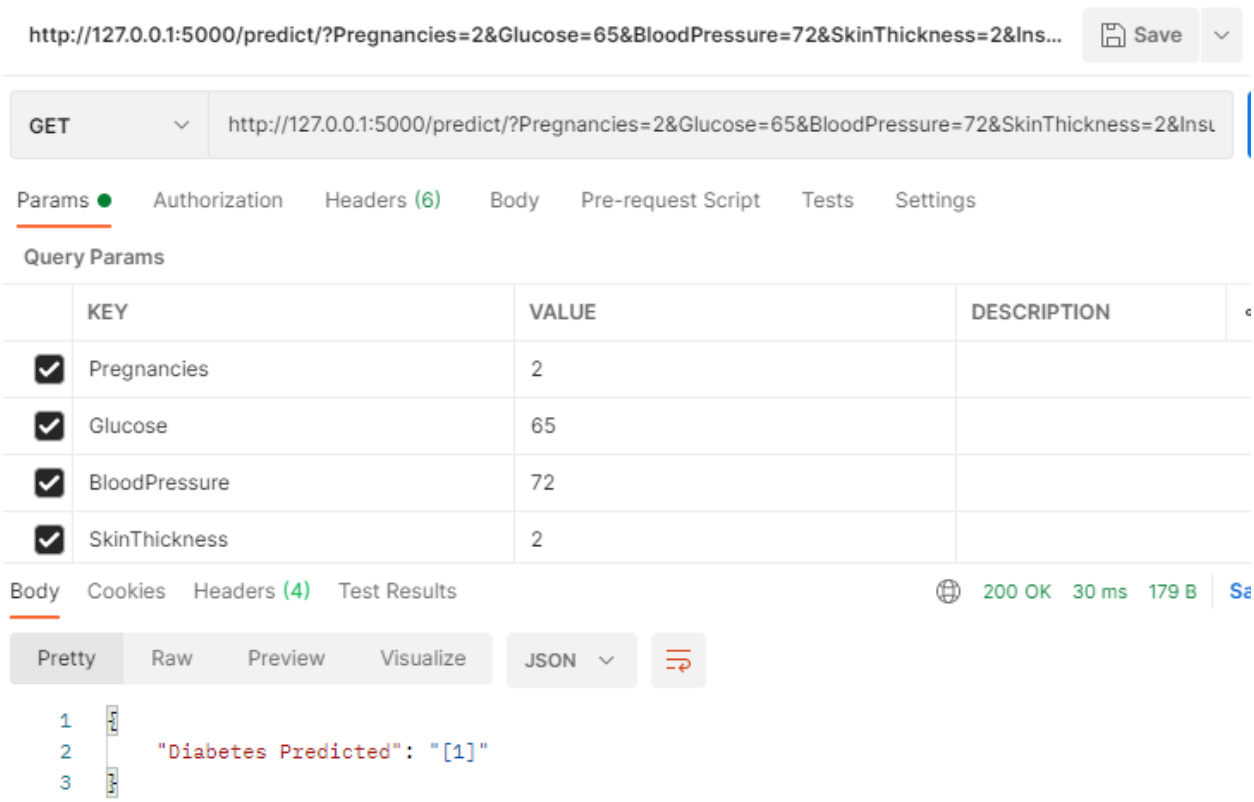
```
Microsoft Windows [Version 10.0.19041.1083]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hmeli>cd DataGlacier_Week5_API_Cloud_Deployment

C:\Users\hmeli\DataGlacier_Week5_API_Cloud_Deployment>jupyter nbconvert --to python app.ipynb
[NbConvertApp] Converting notebook app.ipynb to python
[NbConvertApp] Writing 883 bytes to app.py

C:\Users\hmeli\DataGlacier_Week5_API_Cloud_Deployment>python app.py
C:\Users\hmeli\Python\Python39\lib\site-packages\sklearn\base.py:310: UserWarning: Trying to unpickle estimator Logistic
Regression from version 0.24.1 when using version 0.24.2. This might lead to breaking code or invalid results. Use at yo
ur own risk.
  warnings.warn(
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

5. Applying Postman:

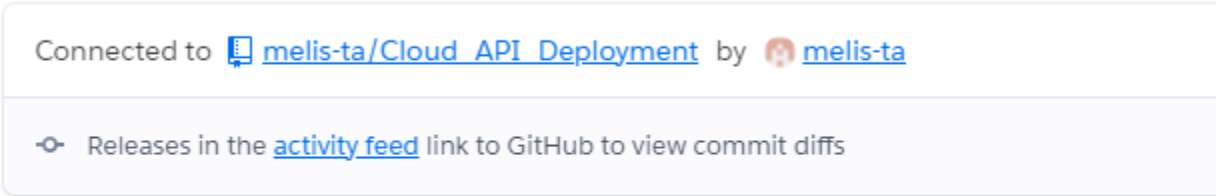
Get:



Predicted:



6. **Connecting HEROKU with my GITHUB Account**



Prepared requirements.txt and procfile files and uploaded to github. Connected via my github account and deployed by model in HEROKU.

```
       Installing collected packages: click, Werkzeug, itsdangerous, MarkupSafe, Jinja2, Flask, gunicorn, numpy, six, python-
dateutil, pytz, pandas, joblib, threadpoolctl, scipy, scikit-learn, idna, chardet, certifi, urllib3, requests
       Successfully installed Flask-1.1.2 Jinja2-3.0.1 MarkupSafe-2.0.1 Werkzeug-2.0.1 certifi-2021.5.30 chardet-4.0.0 click-
8.0.1 gunicorn-20.1.0 idna-2.10 itsdangerous-2.0.1 joblib-1.0.1 numpy-1.20.1 pandas-1.2.4 python-dateutil-2.8.1 pytz-2021.1
requests-2.25.1 scikit-learn-0.24.1 scipy-1.7.0 six-1.16.0 threadpoolctl-2.1.0 urllib3-1.26.6
-----> Discovering process types
       Procfile declares types -> web
-----> Compressing...
```

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Build **main** c983644d

```
-----> Installing requirements with pip
-----> Discovering process types
       Procfile declares types -> web
-----> Compressing...
       Done: 139.8M
-----> Launching...
       Released v27
       https://diabetesprediction-cloud-api.herokuapp.com/ deployed to Heroku
```

☑ Autoscroll with output View build log

Release phase

diabetesprediction-cloud-api.herokuapp.com

Apps Web of Science MR: Search Authors... data glacier Oxfo

```
{"data":"Enter your test results!"}
```