

User Acceptance Testing (UAT)

Date	18 November 2022
Team ID	PNT2022TMID52957
Project Name	Visualizing and Predicting Heart Diseases with an Interactive Dashboard
Maximum Marks	10 Marks

Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the (Visualizing and Predicting Heart Diseases) project at the time of the release to User Acceptance Testing (UAT).

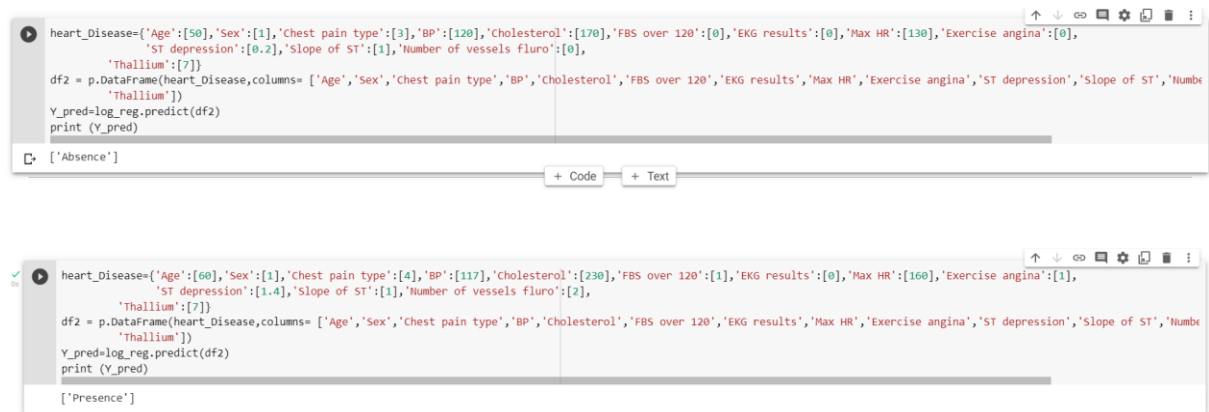
1.Using ML model predicting whether the person having heart disease or not

Total Number of Test cases tested: 20

Total Number of Test cases passed:18

Total Number of Test cases failed:2

Sample Result:



```
heart_Disease={'Age':[50], 'Sex':[1], 'Chest pain type':[3], 'BP':[120], 'Cholesterol':[170], 'FBS over 120':[0], 'EKG results':[0], 'Max HR':[130], 'Exercise angina':[0], 'ST depression':[0.2], 'Slope of ST':[1], 'Number of vessels fluoro':[0], 'Thallium':[7]}
df2 = p.DataFrame(heart_Disease, columns= ['Age', 'Sex', 'Chest pain type', 'BP', 'Cholesterol', 'FBS over 120', 'EKG results', 'Max HR', 'Exercise angina', 'ST depression', 'Slope of ST', 'Number of vessels fluoro', 'Thallium'])
y_pred=log_reg.predict(df2)
print (y_pred)

['Absence']
```

```
heart_Disease={'Age':[60], 'Sex':[1], 'Chest pain type':[4], 'BP':[117], 'Cholesterol':[230], 'FBS over 120':[1], 'EKG results':[0], 'Max HR':[160], 'Exercise angina':[1], 'ST depression':[1.4], 'Slope of ST':[1], 'Number of vessels fluoro':[2], 'Thallium':[7]}
df2 = p.DataFrame(heart_Disease, columns= ['Age', 'Sex', 'Chest pain type', 'BP', 'Cholesterol', 'FBS over 120', 'EKG results', 'Max HR', 'Exercise angina', 'ST depression', 'Slope of ST', 'Number of vessels fluoro', 'Thallium'])
y_pred=log_reg.predict(df2)
print (y_pred)

['Presence']
```

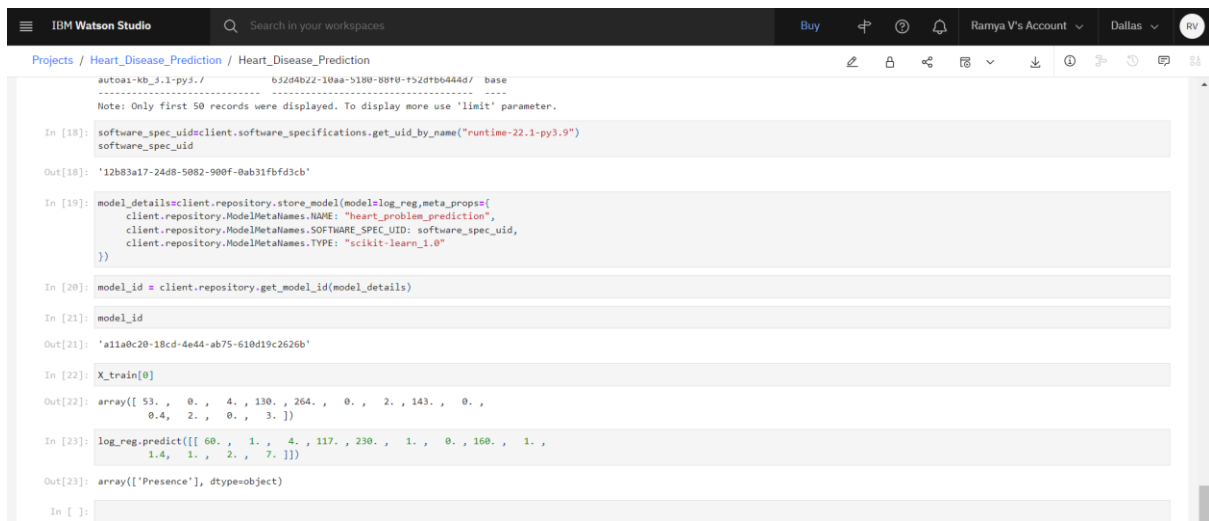
2.Using ML Deployed model in IBM Cloud predicting whether the person having heart disease or not

Total Number of Test cases tested: 15

Total Number of Test cases passed:15

Total Number of Test cases failed:0

Sample Result:



```
autox-kb_5.1-py3.7/ 65264b22-18aa-5180-88f9-f52d7bb444d/ base
Note: Only first 50 records were displayed. To display more use 'limit' parameter.

In [18]: software_spec_uid=client.software_specifications.get_uid_by_name("runtime-22.1-py3.9")
software_spec_uid

Out[18]: '12b83a17-24d8-5082-900f-0ab31fbfd3cb'

In [19]: model_details=client.repository.store_model(model=log_reg,meta_propss={
client.repository.ModelMetaNames.NAME: "heart_problem_prediction",
client.repository.ModelMetaNames.SOFTWARE_SPEC_UID: software_spec_uid,
client.repository.ModelMetaNames.TYPE: "scikit-learn_1.0"
})

In [20]: model_id = client.repository.get_model_id(model_details)

In [21]: model_id

Out[21]: 'a11a0c20-18cd-4e44-ab75-610d19c2626b'

In [22]: X_train[0]

Out[22]: array([ 53. ,  0. ,  4. , 130. , 264. ,  0. ,  2. , 143. ,  0. ,
 0.4 ,  2. ,  0. ,  3. ])

In [23]: log_reg.predict([[ 60. ,  1. ,  4. , 117. , 230. ,  1. ,  0. , 160. ,  1. ,
 1.4 ,  1. ,  2. ,  7. ]])

Out[23]: array(['Presence'], dtype=object)

In [ ]:
```

3.Using python predicting whether the person having heart disease or not with an help of Deployment of ML Model in IBM Cloud

Total Number of Test cases tested: 20

Total Number of Test cases passed:20

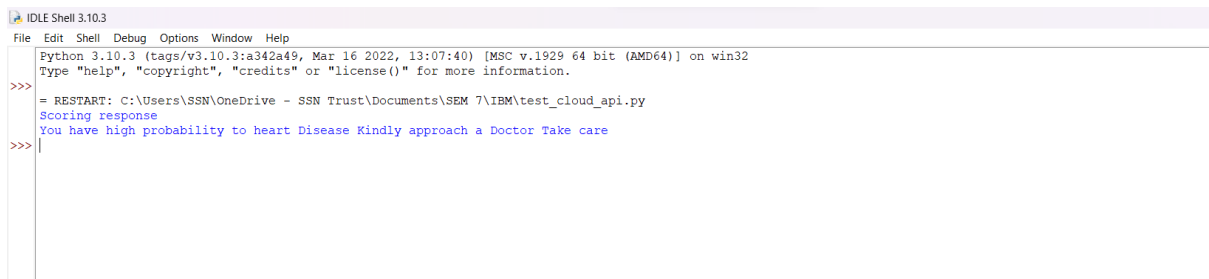
Total Number of Test cases failed:0

Sample Input:

```
# NOTE: manually define and pass the array(s) of values to be scored in the next line
payload_scoring = {"input_data": [{"field": ['Age','Sex','Chest pain type','BP','Cholesterol','FBS over 120','EKG results','Max HR','Exercise angina','ST depression',
                                             'Slope of ST','Number of vessels fluoro',
                                             'Thallium'], "values": [[ 60, 1, 4, 117, 230, 1, 0, 160, 1, 1.4, 1, 2, 7]]}]

response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/2102715e-0bc9-42dd-9036-6a7eaf97aed5/predictions?version=2022-11-18', json=payload_scoring,
headers={'Authorization': 'Bearer ' + mltoken})
print("Scoring response")
predictions=response_scoring.json()
pred=predictions['predictions'][0]['values'][0][0]
if(pred=="Presence"):
    print("You have high probability to heart Disease Kindly approach a Doctor Take care")
else:
    print("Hey! Your Normal Take care")
```

Sample Outputs:



```
IDLE Shell 3.10.3
File Edit Shell Debug Options Window Help
Python 3.10.3 (tags/v3.10.3:a342a49, Mar 16 2022, 13:07:40) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\SSN\OneDrive - SSN Trust\Documents\SEM 7\IBM\test_cloud_api.py
Scoring response
You have high probability to heart Disease Kindly approach a Doctor Take care
>>>
```

```
IDLE Shell 3.10.3
File Edit Shell Debug Options Window Help
Python 3.10.3 (tags/v3.10.3:a342a49, Mar 16 2022, 13:07:40) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\SSN\OneDrive - SSN Trust\Documents\SEM 7\IBM\test_cloud_api.py
Scoring response
Hey! Your Normal Take care
>>>
```

4.Created Webpage For Prediction And Visualization

Webpage

Visualizing and Predicting Heart Disease

Predicted Value

Visualizing and Predicting Heart Disease: ((result))

Male

Typical angina

No

Normal

No

Unslowing

Zero

Normal

Age 44

BP 120

Cholesterol 235

Max HR 180

ST depression 0.2

Predict

Sample Result for prediction By clicking Predict Button

Visualizing and Predicting Heart Disease

Predicted Value

Visualizing and Predicting Heart Disease: Hey! Your Normal Take care

Male

Typical angina

No

Normal

No

Unslowing

Zero

Normal

Age Enter the value

BP Enter the value

Cholesterol Enter the value

Max HR Enter the value

ST depression Enter the value

Predict

Sample Result for Dashboard By click the link click this to visualize Dashboard

