

## Sprint 4

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

### Source Code for HTML

```
index.html - IBM - Visual Studio Code
index.html x app.py
index.html > html > style > body
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <meta name="viewport" content="width=device-width, initial-scale=1.0">
6 <meta http-equiv="X-UA-Compatible" content="ie=edge">
7 <title>Visualizing and Predicting Heart Disease</title>
8 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-gH2yIJqKdNHPEq0n4Mqa/HGKIhSkIHeL5AyhkYV815"
9 </head>
10 <style>
11 body {
12 background-image: url(https://images.nursinganswers.net/collections/heart-disease.jpg);
13 background-repeat: no-repeat;
14 background-attachment: fixed;
15 background-size: cover;
16 }
17 </style>
18 <body>
19 <!-- Navbar -->
20 <nav class="navbar bg-light">
21 <div class="container-fluid">
22 <span class="navbar-brand mb-0 h1">Visualizing and Predicting Heart Disease</span>
23 </div>
24 </nav>
25 <div class="container" style="margin-top: 7.5%;">
26 <div class="row">
27 <div class="col-lg-8 col-12" style="margin-bottom: 2.5%;">
28 <p class="display-6" style="color: white;"><b>Visualizing and Predicting Heart Disease</b></p>
29 <form method="POST">
30 <div class="input-group mb-3">
31 <select name="Sex">
32 <span class="input-group-text" id="param0">Sex</span>
33 <option value="Male">Male</option>
34 <option value="Female">Female</option>
35 </select>
36 </div>
37 <div class="input-group mb-3">
```

```
index.html - IBM - Visual Studio Code
index.html x app.py
index.html > html > style > body
37 <div class="input-group mb-3">
38 <select name="Chest pain type">
39 <option value="1">Typical angina</option>
40 <option value="2">Atypical angina</option>
41 <option value="3">Non-anginal pain</option>
42 <option value="4">Asymptomatic</option>
43 </select>
44 </div>
45 <div class="input-group mb-3">
46 <select name="FBS over 120">
47 <option value="0">No</option>
48 <option value="1">Yes</option>
49 </select>
50 </div>
51 <div class="input-group mb-3">
52 <select name="EKG results">
53 <option value="0">Normal</option>
54 <option value="1">Abnormal</option>
55 <option value="2">left ventricular hypertrophy</option>
56 </select>
57 </div>
58 <div class="input-group mb-3">
59 <select name="Exercise angina">
60 <option value="0">No</option>
61 <option value="1">Yes</option>
62 </select>
63 </div>
64 <div class="input-group mb-3">
65 <select name="Slope of ST">
66 <option value="1">Unslowing</option>
67 <option value="2">Flat</option>
68 <option value="3">Downsloping</option>
69 </select>
70 </div>
71 <div class="input-group mb-3">
72 <select name="Number of vessels fluro">
73 <option value="0">Zero</option>
```

```
File Edit Selection View Go Run Terminal Help index.html - IBM - Visual Studio Code
index.html x app.py
index.html > html > style > body
72 <select name="Number of vessels fluro">
73 <option value="0">Zero</option>
74 <option value="1">One</option>
75 <option value="2">Two</option>
76 <option value="3">Three</option>
77 </select>
78 </div>
79 <div class="input-group mb-3">
80 <select name="Thallium">
81 <option value="3">Normal</option>
82 <option value="6">fixed defect</option>
83 <option value="7">reversibe defect</option>
84 </select>
85 </div>
86 <div class="input-group mb-3">
87 <span class="input-group-text" id="Age">Age</span>
88 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="Age" >
89 </div>
90 <div class="input-group mb-3">
91 <span class="input-group-text" id="BP">BP</span>
92 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="BP">
93 </div>
94 <div class="input-group mb-3">
95 <span class="input-group-text" id="cholesterol">cholesterol</span>
96 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="cholesterol">
97 </div>
98 <div class="input-group mb-3">
99 <span class="input-group-text" id="Max HR">Max HR</span>
100 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="Max HR">
101 </div>
102 <div class="input-group mb-3">
103 <span class="input-group-text" id="ST depression">ST depression</span>
104 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="ST depression">
105 </div>
106
107
108
```

```
File Edit Selection View Go Run Terminal Help index.html - IBM - Visual Studio Code
index.html x app.py
index.html > html > style > body
99 <div class="input-group mb-3">
100 <span class="input-group-text" id="Max HR">Max HR</span>
101 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="Max HR">
102 </div>
103 <div class="input-group mb-3">
104 <span class="input-group-text" id="ST depression">ST depression</span>
105 <input type="number" step="any" class="form-control" placeholder="Enter the value" name="ST depression">
106 </div>
107
108
109 <button type="submit" class="btn btn-primary">Predict</button>
110 </form>
111 </div>
112 <div class="col-lg-4 col-12">
113 <p class="display-6" style="color: white;"><b>Predicted Values</b></p>
114 <ul class="list-group">
115 <li class="list-group-item">Visualizing and Predicting Heart Disease:{{result}}</li>
116 </ul>
117 </div>
118 </div>
119
120 </div>
121 <a href="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FVisualizing%2Band%2BPredicting%2BHeart%2BDisease&action=view&mode=dashbo
122 </a>
123 </body>
124
```

## Source code for APP.py

```
File Edit Selection View Go Run Terminal Help app.py - IBM - Visual Studio Code
index.html app.py x
app.py
1 import numpy as np
2 from flask import Flask,request,jsonfy,render_template
3 import requests
4 import json
5 import requests
6 import json
7 # NOTE: you must manually set API_KEY below using information retrieved from your IBM Cloud account.
8 API_KEY = "YgTKlJaXfW0Buhk6_FCGdcAATzLw0NBznlerI9fj-KB"
9 token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
10 API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'})
11 mltoken = token_response.json()["access_token"]
12
13 header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}
14
15
16 @app.route('/')
17 def home():
18     return render_template('index.html')
19 @app.route('/y_predict',methods=['POST'])
20 def y_predict():
21     Sex=request.from("Sex")
22     Chestpaintype=request.from("Chest pain type")
23     FBSover120=request.from("FBS over 120")
24     EKGresults=request.from("EKG results")
25     Exerciseangina=request.from("Exercise angina")
26     SlopeofST=request.from("Slope of ST")
27     Numberofvesselsfluro=request.from("Number of vessels fluro")
28     Thallium=request.from("Thallium")
29     Age=request.from("Age")
30     BP=request.from("BP")
31     Cholesterol=request.from("cholesterol")
32     MaxHR=request.from("Max HR")
33     STdepression=request.from("ST depression")
34
35     if(Sex=="Male"):
36         Sex=1
37     if(Sex=="Female"):
```

```
File Edit Selection View Go Run Terminal Help app.py - IBM - Visual Studio Code
index.html app.py x
app.py
34
35     if(Sex=="Male"):
36         Sex=1
37     if(Sex=="Female"):
38         Sex=0
39
40     if(Chestpaintype=="typical angina"):
41         Chestpaintype=0
42     if(Chestpaintype=="Atypical angina"):
43         Chestpaintype=1
44     if(Chestpaintype=="Non-anginal pain"):
45         Chestpaintype=2
46     if(Chestpaintype=="Asymptomatic"):
47         Chestpaintype=3
48
49     if(FBSover120=="No"):
50         FBSover120=0
51     if(FBSover120=="Yes"):
52         FBSover120=1
53
54     if(EKGresults=="Normal"):
55         EKGresults=0
56     if(EKGresults=="Abnormal"):
57         EKGresults=1
58
59     if(Exerciseangina=="No"):
60         EKGresults=0
61     if(Exerciseangina=="Yes"):
62         EKGresults=1
63
64     if(SlopeofST=="Unslping"):
65         SlopeofST=1
66     if(SlopeofST=="Flat"):
67         SlopeofST=2
68     if(SlopeofST=="Downsloping"):
69         SlopeofST=3
70
```

```
File Edit Selection View Go Run Terminal Help app.py - IBM - Visual Studio Code
index.html app.py x
71 if(NumberOfvesselsfluro=="Zero"):
72     NumberOfvesselsfluro=0
73     if(NumberOfvesselsfluro=="One"):
74         NumberOfvesselsfluro=1
75         if(NumberOfvesselsfluro=="Two"):
76             NumberOfvesselsfluro=2
77             if(NumberOfvesselsfluro=="Three"):
78                 NumberOfvesselsfluro=3
79
80 if(Thallium=="Normal"):
81     Thallium=3
82     if(Thallium=="fixed defect"):
83         Thallium=6
84     if(Thallium=="reversibe defect"):
85         Thallium=7
86
87 t=[int(Sex),int(Chestpaintype),int(FBSover120),
88    int(EKGresults),int(Exerciseangina),
89    int(SlopeofST),int(NumberOfvesselsfluro),
90    int(Thallium),int(Age),int(BP),
91    int(cholesterol),int(MaxHR),int(STdepression)]
92 print(t)
93 payload_scoring={"input_data":[{"field":["Sex","Chestpaintype","FBSover120","EKGresults","Exerciseangina","SlopeofST","NumberOfvesselsfluro",
94    "Thallium","Age","BP","cholesterol","MaxHR","STdepression"],values:t}]}
95
96 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)
97 headers={"Authorization": 'Bearer ' + mltoken}
98 print("Scoring response")
99 predictions_response=response_scoring.json()
100 pred=predictions['predictions'][0]['values'][0][0]
101 if(pred == 'presence'):
102     print("You have high probability to heart Disease Kindly approach a Doctor Take care")
103 else:
104     print("Hey! Your Normal Take care")
105 return render_template('index.html',prediction_text=output)
106 if __name__ == "__main__":
107
```

## Output Webpage:

Visualizing and Predicting Heart Disease

Male

Typical angina

No

Normal

No

Unslipping

Zero

Normal

Age 44

BP 120

Cholesterol 235

Max HR 180

ST depression 0.2

Predict

Predicted Value

Visualizing and Predicting Heart Disease: {(result)}

30°C Haze

Search

ENG IN

12:16 19-11-2022

## 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

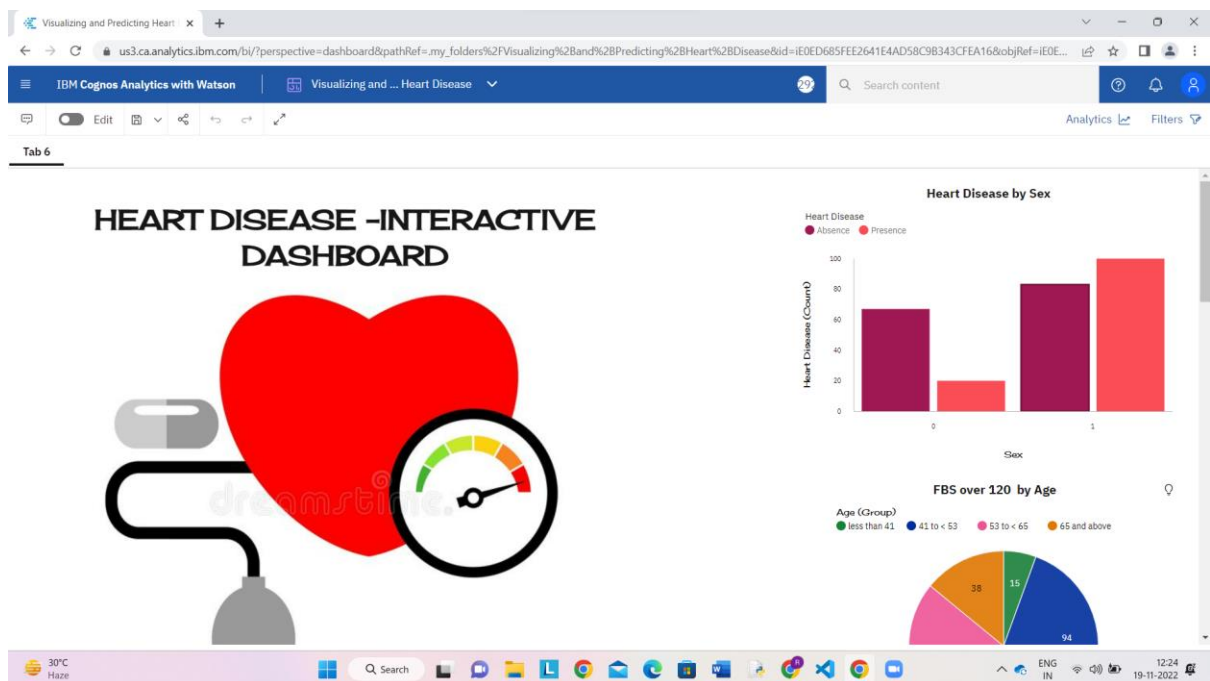
Cholesterol Enter the value

Max HR Enter the value

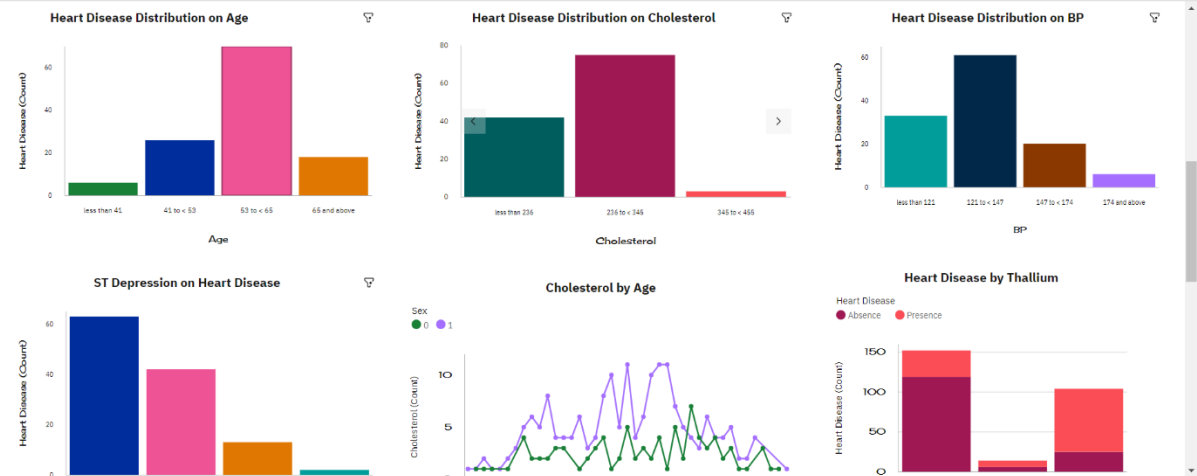
ST depression Enter the value

Predict

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



Tab 6



Tab 6

