SPRINT 4: Classification of Arrhythmia by Using Deep Learning With2-D ECG Spectral Image Representation

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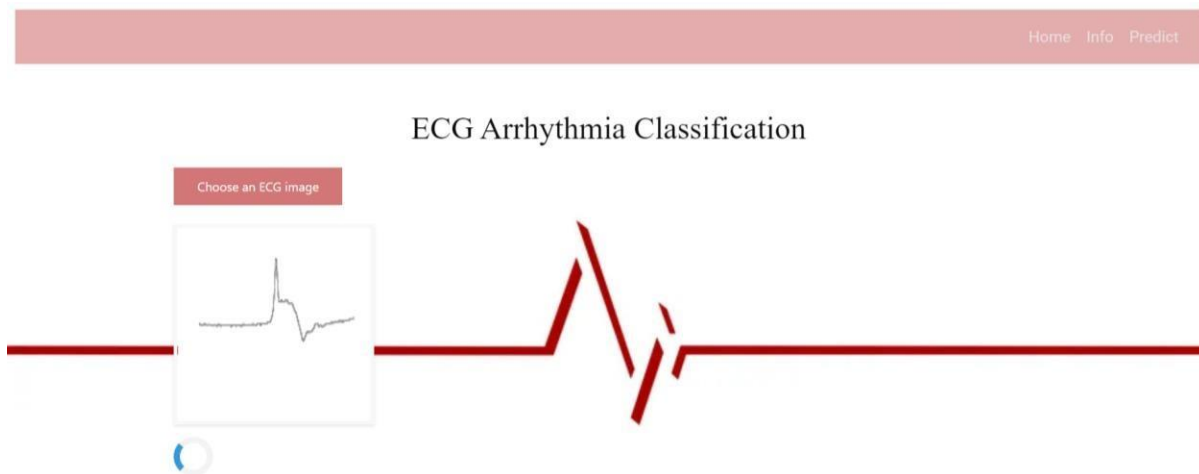
Code: Updated in GitHub in the Deliverables section in Sprint 4 folder.
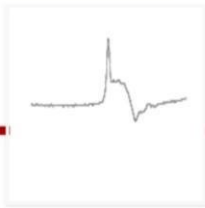
Description of USN and Screenshots:

USN-6:

As a user, I can upload an ECG image and view the result. The type of Arrhythmia such as Left Bundle Branch Block, Normal, Premature Atrial Contraction, Premature Ventricular Contractions, Right Bundle Branch Block and Ventricular Fibrillation is displayed.

Screenshot:

Result:
Premature Atrial Contraction

USN-7:

As a user, I can upload any ECG image and view the result. The algorithm is designed to denote the type of Arrhythmia such as Left Bundle Branch Block, Normal, Premature Atrial Contraction, Premature Ventricular Contractions, Right Bundle Branch Block and Ventricular Fibrillation.
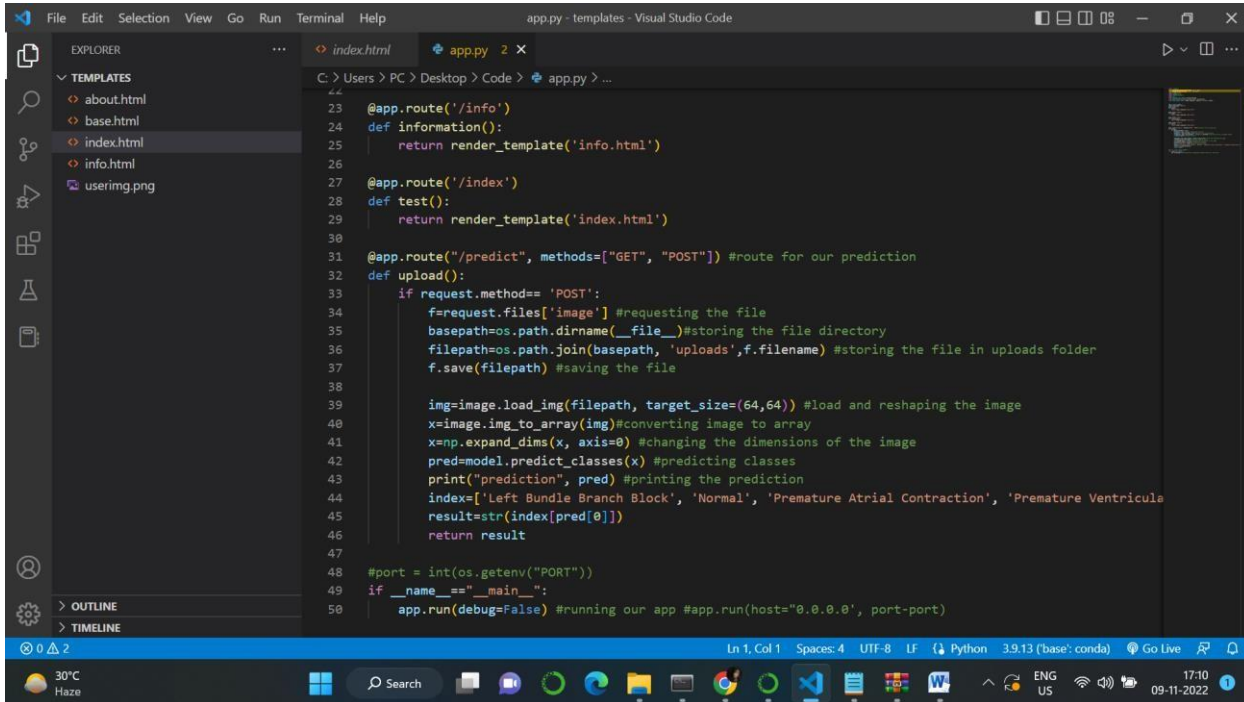
The HTML file used to build the Info page includes:

The Python code behind classification of Arrhythmia :

```python
23    @app.route('/info')
24    def information():
25        return render_template('info.html')
26
27    @app.route('/index')
28    def test():
29        return render_template('index.html')
30
31    @app.route("/predict", methods=["GET", "POST"]) #route for our prediction
32    def upload():
33        if request.method== 'POST':
34            f=request.files['image'] #requesting the file
35            basepath=os.path.dirname(__file__)#storing the file directory
36            filepath=os.path.join(basepath, 'uploads',f.filename) #storing the file in uploads folder
37            f.save(filepath) #saving the file
38
39            img=image.load_img(filepath, target_size=(64,64)) #load and reshaping the image
40            x=image.img_to_array(img)#converting image to array
41            x=np.expand_dims(x, axis=0) #changing the dimensions of the image
42            pred=model.predict_classes(x) #predicting classes
43            print("prediction", pred) #printing the prediction
44            index=['Left Bundle Branch Block', 'Normal', 'Premature Atrial Contraction', 'Premature Ventricula
45            result=str(index[pred[0]])
46            return result
47
48    #port = int(os.getenv("PORT"))
49    if __name__=="__main__":
50        app.run(debug=False) #running our app #app.run(host="0.0.0.0', port-port)
```