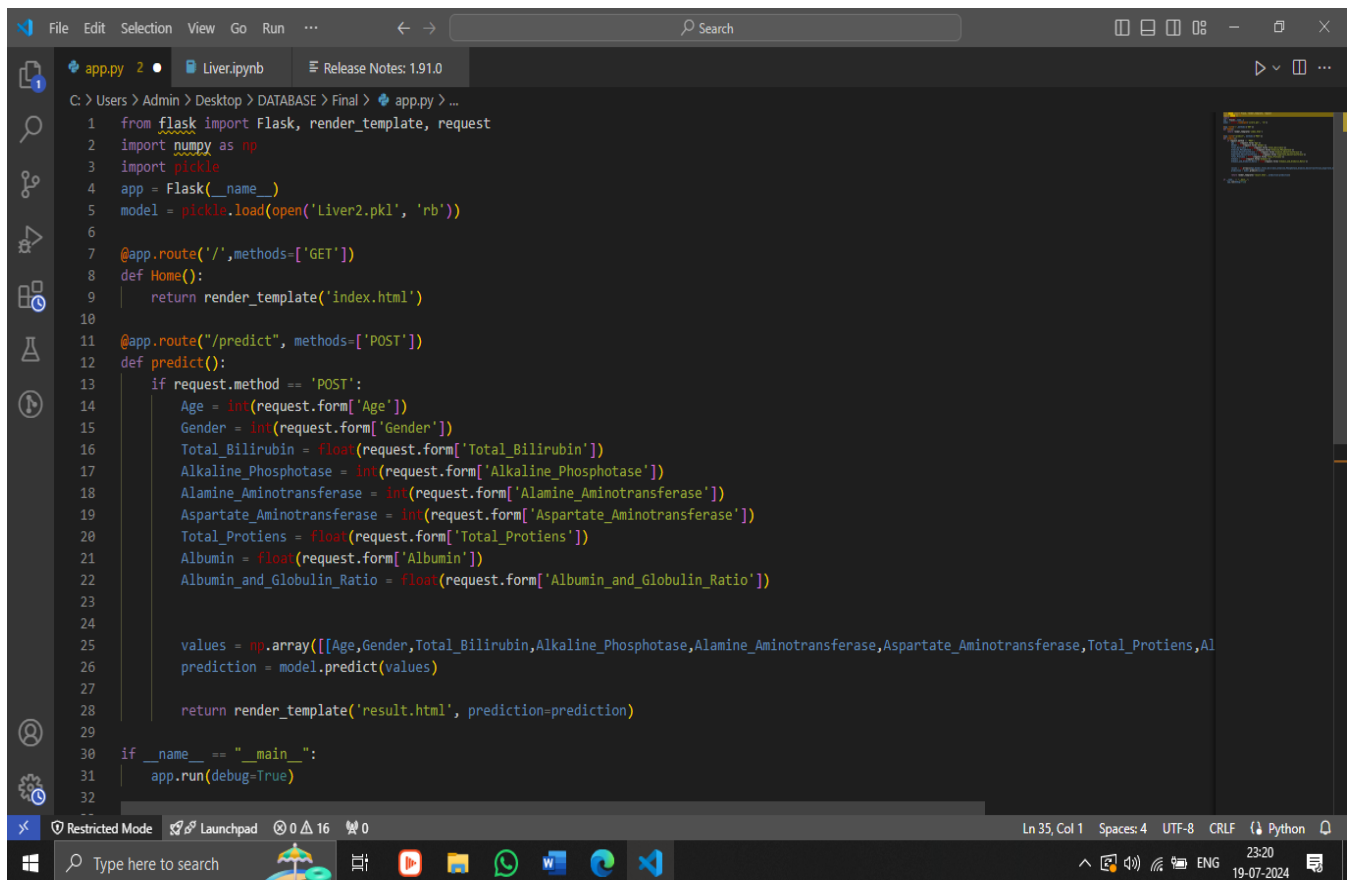


Model Development Phase Template

Date	16 July 2024
Team ID	SWTID1720074204
Project Title	Prediction and Analysis of Liver Patient Data Using Machine Learning
Maximum Marks	4 Marks

Initial Model Training Code:



```

1  from flask import Flask, render_template, request
2  import numpy as np
3  import pickle
4  app = Flask(__name__)
5  model = pickle.load(open('Liver2.pkl', 'rb'))
6
7  @app.route('/', methods=['GET'])
8  def Home():
9      return render_template("index.html")
10
11 @app.route("/predict", methods=['POST'])
12 def predict():
13     if request.method == 'POST':
14         Age = int(request.form['Age'])
15         Gender = int(request.form['Gender'])
16         Total_Bilirubin = float(request.form['Total_Bilirubin'])
17         Alkaline_Phosphotase = int(request.form['Alkaline_Phosphotase'])
18         Alamine_Aminotransferase = int(request.form['Alamine_Aminotransferase'])
19         Aspartate_Aminotransferase = int(request.form['Aspartate_Aminotransferase'])
20         Total_Protiens = float(request.form['Total_Protiens'])
21         Albumin = float(request.form['Albumin'])
22         Albumin_and_Globulin_Ratio = float(request.form['Albumin_and_Globulin_Ratio'])
23
24
25     values = np.array([[Age, Gender, Total_Bilirubin, Alkaline_Phosphotase, Alamine_Aminotransferase, Aspartate_Aminotransferase, Total_Protiens, Albumin, Albumin_and_Globulin_Ratio]])
26     prediction = model.predict(values)
27
28     return render_template("result.html", prediction=prediction)
29
30 if __name__ == "__main__":
31     app.run(debug=True)
32

```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix																														
Logistic Regression	<div>Classification Report:</div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.80</td><td>0.75</td><td>0.77</td><td>100</td></tr><tr><td>1</td><td>0.76</td><td>0.81</td><td>0.78</td><td>100</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.78</td><td>200</td></tr><tr><td>macro avg</td><td>0.78</td><td>0.78</td><td>0.78</td><td>200</td></tr><tr><td>weighted avg</td><td>0.78</td><td>0.78</td><td>0.78</td><td>200</td></tr></tbody></table>		precision	recall	f1-score	support	0	0.80	0.75	0.77	100	1	0.76	0.81	0.78	100	accuracy			0.78	200	macro avg	0.78	0.78	0.78	200	weighted avg	0.78	0.78	0.78	200	78%	<div>Confusion Matrix:</div> <div>[[75 25] [19 81]]</div>
	precision	recall	f1-score	support																													
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1	0.76	0.81	0.78	100																													
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Decision Tree	<div>Classification Report:</div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.74</td><td>0.76</td><td>0.75</td><td>100</td></tr><tr><td>1</td><td>0.76</td><td>0.74</td><td>0.75</td><td>100</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.75</td><td>200</td></tr><tr><td>macro avg</td><td>0.75</td><td>0.75</td><td>0.75</td><td>200</td></tr><tr><td>weighted avg</td><td>0.75</td><td>0.75</td><td>0.75</td><td>200</td></tr></tbody></table>		precision	recall	f1-score	support	0	0.74	0.76	0.75	100	1	0.76	0.74	0.75	100	accuracy			0.75	200	macro avg	0.75	0.75	0.75	200	weighted avg	0.75	0.75	0.75	200	75%	<div>Confusion Matrix:</div> <div>[[76 24] [26 74]]</div>
	precision	recall	f1-score	support																													
0	0.74	0.76	0.75	100																													
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	precision	recall	f1-score	support																													
0	0.83	0.80	0.81	100																													
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	precision	recall	f1-score	support																													
0	0.81	0.78	0.79	100																													
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K-Nearest Neighbors (KNN)	<div>Classification Report:</div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.75</td><td>0.72</td><td>0.73</td><td>100</td></tr><tr><td>1</td><td>0.73</td><td>0.76</td><td>0.74</td><td>100</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.74</td><td>200</td></tr><tr><td>macro avg</td><td>0.74</td><td>0.74</td><td>0.74</td><td>200</td></tr><tr><td>weighted avg</td><td>0.74</td><td>0.74</td><td>0.74</td><td>200</td></tr></tbody></table>		precision	recall	f1-score	support	0	0.75	0.72	0.73	100	1	0.73	0.76	0.74	100	accuracy			0.74	200	macro avg	0.74	0.74	0.74	200	weighted avg	0.74	0.74	0.74	200	74%	<div>Confusion Matrix:</div> <div>[[72 28] [24 76]]</div>
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0	0.85	0.82	0.83	100																													
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