National College of Ireland

Configuration Manual

MSc Research Project
MSc in Data Analytics

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MSc Project Submission Sheet

School of Computing

Student Name:	Melbin Biju
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Programme:	MSc in Data Analytics **Year:** 2024
Module:	Research Project
Lecturer:	Dr. David Hamill
Submission Due Date:	12th December 2024
Project Title:	Optimising Heart Attack Prediction: Comparing Deep Learning and Traditional Machine Learning Techniques
Word Count: 378	**Page Count:** 5

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Date: 12th December 2024

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Configuration Manual

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1 Introduction

This configuration manual helps to set up, run the code, and troubleshoot it successfully for the project 'Optimising Heart Attack Prediction: Comparing Deep Learning and Traditional Machine Learning Techniques'. This manual includes system and software requirements, libraries required, project directory structure, step by step process of running the code, and troubleshooting suggestions.

2 System Requirements

The following is the recommended system requirements:

- Processor: 12th Gen Intel(R) Core (TM) i5-12450H, 2000 Mhz, 8 Core(s), 12 Logical Processor(s)
- RAM: 16 GB
- Operating System: Microsoft Windows 11

3 Software Requirements

- Programming Language: Python 3.13.0
- Integrated Development Environment (IDE): Jupyter Notebook, VS Code
- Additional Software: Anaconda

4 Libraries and Dependencies

This project uses the following specific versions of libraries.

Library	**Version**
pandas	2.2.3
numpy	2.1.3
Flask	1.1.2
scikit-learn	1.5.2
scipy	1.14.1
setuptools	75.6.0
Jinja2	2.11.2
statsmodels	0.14.4
click	8.1.7
colorama	0.4.6
gunicorn	20.1.0
joblib	1.3.2

MarkupSafe	1.1.1
ifaddr	0.1.7
threadpoolctl	3.5.0
Werkzeug	1.0.1
wheel	0.45.1
itsdangerous	1.1.0
zeroconf	0.28.0
packaging	24.2
patsy	1.0.1
python-dateutil	2.9.0.post0
pytz	2024.2
six	1.16.0
tzdata	2024.2

It is needed to install all the dependencies using the following code:

```
pip install -r requirements.txt
```

5 Dataset Information

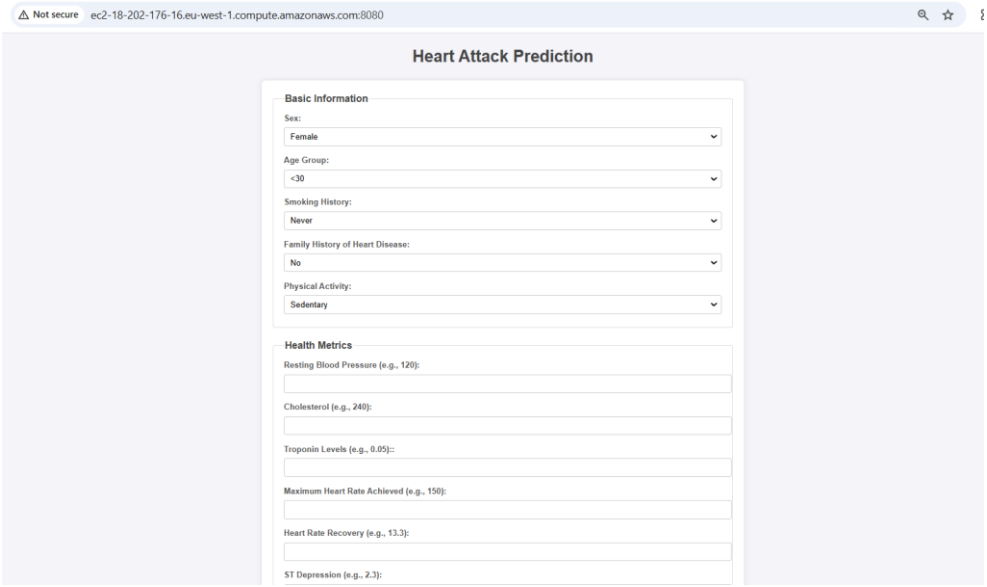
The dataset 'heart.csv' file is available in the notebook directory. It contains all the relevant information for the prediction of heart diseases.

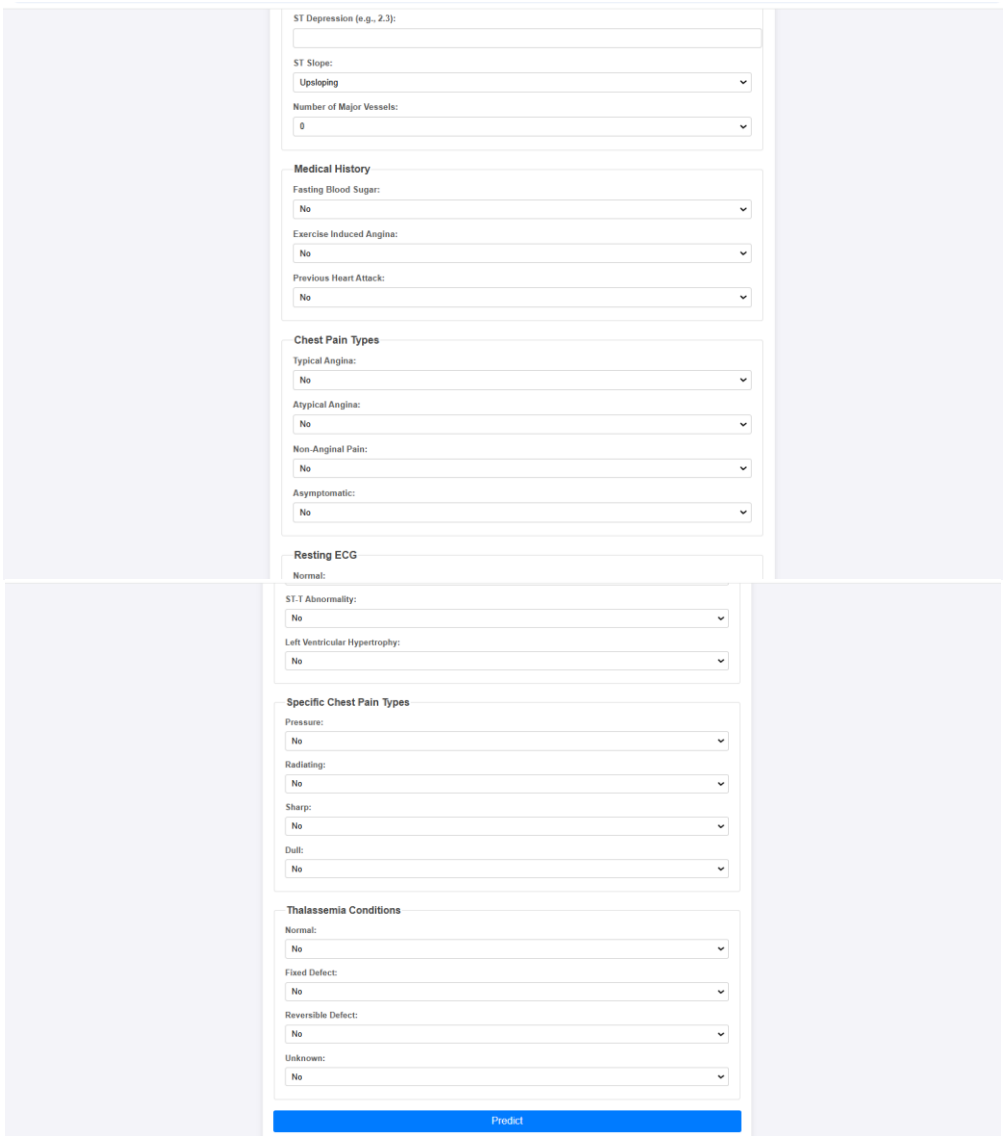
6 Project Directory Structure

```
Heart-Attack-Prediction-Project/
│
├── notebook/
│   ├── Heart-Attack-Prediction-Code.ipynb
│   ├── heart.csv (Dataset)
│   ├── additional-features.png
│   ├── box-plots-3-columns.png
│   ├── cat_plots.png
│   ├── model_comparison_metrics.png
│   ├── model_comparison_metrics_after_hp.png
│   ├── roc_curves_after_hp.png
│   ├── roc_curves_comparison.png
│   └── target-variable.png
├── static/
│   ├── results.css
│   └── style.css
├── templates/
│   ├── index.html
│   └── results.html
├── app.py
├── best_model_mlp_model.pkl
├── HeartAttackModelTest.pem
├── HeartAttackModelTest.ppk
├── requirements.txt
└── scaler.pkl
```

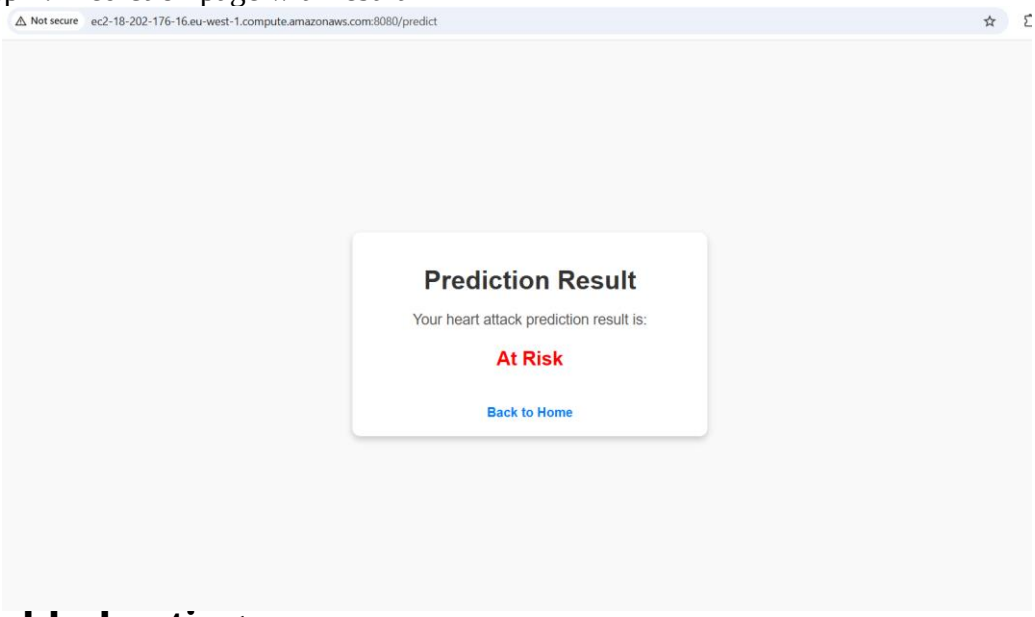
7 Running the Project

- Step 1: Create a virtual environment
```
conda create --name my_env_name
```
- Step 2: Activate the created virtual environment
```
conda activate my_env_name
```
- Step 3: Install the required libraries to run the project
```
pip install -r requirements.txt
```
- Step 4: Uncomment the following code in ‘app.py’ file for local run
```
# if __name__ == "__main__":
#     app.run(debug=True)
```
OR
- Step 4: Uncomment the following code in ‘app.py’ file for deployment run
```
# if __name__ == '__main__':
#     app.run(host="0.0.0.0", port=8080)
```
- Step 5: Run the following command to run the server
```
python app.py
```
- Step 6: Home page access using the deployment link
Deployment Link:
ec2-18-202-176-16.eu-west-1.compute.amazonaws.com:8080





- Step 7: Prediction page with result



8 Troubleshooting

Issue	Solution
ModuleNotFoundError	Check dependencies are correctly installed
Version Compatibility Issues	Use specified library versions in the requirements.txt file and use python version 3.13.0