

# **A Summer Internship Report**

On

## **PERSONALITY PREDICTION**

Submitted for partial fulfillment of the requirements for the award of the degree of

## **BACHELOR OF ENGINEERING**

in

## **INFORMATION TECHNOLOGY**

by

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Carried a Virtual Internship

from

**AICTE Eduskills - AWS Academy**



**MATURI VENKATA SUBBA RAO (M.V.S.R) ENGINEERING  
COLLEGE**

**(An Autonomous Institution)**

Department of Information Technology

(Affiliated to Osmania University & Recognized by AICTE)

Nadergul, SaroorNagar Mandal, Hyderabad – 501 510

AY: 2023-24



### **CERTIFICATE**

*This is to certify that the Summer Internship entitled “**Personality Prediction**” is a bonafide work carried out by Ms.Uppara Nagamani (2451-21-737-152), Ms.Chinthakuntla Vineesha (2451-21-737-130), Ms.Arrabothu Jhansi (2451-21-737-184), Ms.Anandeshi Vaishnavi (2451-21-737-183) in partial fulfilment of the requirements for the award of degree of Bachelor of Engineering in Information Technology from Maturi Venkata Subba Rao (M.V.S.R.) Engineering College, an Autonomous Institution, affiliated to Osmania University Hyderabad, during the Academic Year 2023-24 through virtual mode from AICTE EduSkills – AWS Academy.*

*The results embodied in this report have not been submitted to any other university or institute for the award of any degree or diploma.*

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# Certificate of Virtual Internship

This is to certify that

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**AI-ML Virtual Internship**

during May - July 2023

Supported By **aws** academy

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## DECLARATION

This is to certify that the work reported in the present Summer Internship report entitled “**Personality Prediction**” is a record of bonafide work done by us in the Department of Information Technology, Maturi Venkata Subba Rao (M.V.S.R.) Engineering College, an Autonomous Institution, affiliated to Osmania University. The reports are based on the case study done entirely by us and not copied from any other source. The results embodied in this report have not been submitted to any other University or Institute for the award of any degree or diploma to the best of our knowledge and belief.

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Finally, we would like to take this opportunity to thank our family for their support through the work. We sincerely acknowledge and thank all those who gave directly or indirectly their support in completion of this work.

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## **VISION & MISSION**

### **PEO'S OF THE DEPARTMENT**

#### **Vision of the Department:**

To impart technical education producing competent and socially responsible engineering professionals in the field of Information Technology.

#### **Mission of the Department:**

M1. To make teaching learning process effective and stimulating.

M2. To provide adequate fundamental knowledge of sciences and Information Technology with positive attitude.

M3. To create an environment that enhances skills and technologies required for industry.

M4. To encourage creativity and innovation for solving real world problems.

M5. To cultivate professional ethics in students and inculcate a sense of responsibility towards society

#### **Program Educational Objectives:**

After 3 to 4 years of graduation, graduates of the Information Technology program will:

- I. Apply knowledge of mathematics and Information Technology to analyze, design and implement solutions for real world problems in core or in multidisciplinary areas.
- II. Communicate effectively, work in a team, practice professional ethics and apply knowledge of computing technologies for societal development.
- III. Engage in Professional development or postgraduate education to be a life-long learner.

### **PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES**

#### **PROGRAM OUTCOMES (POs)**

##### **Engineering Graduates will be able to:**

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## **PROGRAM SPECIFIC OUTCOMES (PSOs):**

**PSO1: Hardware design:** An ability to analyze, design, simulate and implement computer hardware / software and use basic analog / digital circuits, VLSI design for various computing and communication system applications.

**PSO2: Software design:** An ability to analyze a problem, design algorithm, identify and define the computing requirements appropriate to its solution and implement the same.

## **COURSE OBJECTIVES & COURSE OUTCOMES**

### **COURSE OBJECTIVES**

- To gain practical experience and develop skills relevant to their field of study or career aspirations.
- To explore the work experience and dynamics of the industry they are interested in, helping them gain insights into professional practices and expectations.
- To apply theoretical knowledge gained from their academic studies to real-world projects and challenges, enhancing their understanding and competence in their chosen field.
- To build professional networks by interacting with professionals, mentors and fellow interns in their field, which can lead to future career opportunities.

### **COURSE OUTCOMES**

CO1: Demonstrate improved technical skills, problem-solving abilities, critical thinking and other relevant skills to specific to their field.

CO2: Demonstrate hands-on experience in executing tasks, working on projects, and utilizing tools and technologies relevant to their field.

CO3: Exhibit enhanced professionalism in areas such as communication, teamwork, time management and work ethics.

CO4: Display increased self-confidence in their abilities, having successfully completed tasks, projects and assignments during their internships.

CO5: Expand their professional network through interactions with colleagues, mentors and industry professionals, creating valuable connections for future career opportunities.

## Overview of Internship Activity

Details of the Internship: AICTE EduSkills – AWS Academy
Mode of the internship: Virtual Internship
Duration of the internship: May-July 2023
Technology Explored through internship:
Domain Knowledge Explored through internship: Artificial Intelligence and Machine Learning.

## Weekly Report of Internship Activity

Week No.	Activity carried out
1	
2	
3	
4	
5	
6	
7	
8	

## **ABSTRACT**

Personality traits play a significant role in understanding human behaviour, preferences, and decision-making processes. Predicting personality traits can have applications in various fields, including psychology, marketing, and personalized content recommendation. The project aims to develop a robust machine learning model for personality prediction based on user data and behaviour. Machine Learning algorithms are applied to this dataset to create a predictive model capable of determining personality traits, including the Big Five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism). Key components of the project include data preprocessing, feature engineering, and the selection of suitable machine learning algorithms. In conclusion this machine learning project aims to develop a powerful tool for personality prediction, with broad applications in understanding and catering to individual needs and preferences in today's data driven world.

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# CHAPTER 1

## INTRODUCTION

In the realm of artificial intelligence and data science, the exploration of human personality through machine learning has emerged as a fascinating and valuable endeavor. The Personality Prediction Project aims to leverage advanced computational techniques to analyze and predict individual personality traits based on diverse data sources.

The primary objective of this project is to develop a predictive model capable of accurately determining personality traits by analyzing relevant data points. Personality traits, often classified using well-established frameworks like the Big Five Personality Traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), provide a comprehensive understanding of an individual's behavioral tendencies, preferences, and emotional disposition.

The big five personality traits, often mentioned as OCEAN, and sometimes CANOE, are Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism. These five personality traits represent broad domains of human behaviour and account for differences in both personality and decision making. Today, the model is employed by HR practitioners to measure potential employees and marketers to understand the audiences of their products We are deploying OCEAN Model in this project for developing the algorithm.

**Openness to experience:** Also called as intellect or imagination, this personality trait represents the willingness to try new things and think out of the box. This trait includes insightfulness, originality, and curiosity.

- **Conscientiousness:** The desire to be careful, diligent and regulate immediate gratification with self discipline. This trait includes ambition, discipline, consistency and reliability.

- **Extroversion:** A state where an individual draw energy from others and seek social connections or interaction, as opposed to being alone. This trait includes being outgoing, energetic, and confident.

- **Agreeableness:** The measure of how an individual interacts with other individuals, characterized by the degree of compassion and cooperation. This trait includes tactfulness, kindness, and loyalty.

- **Neuroticism:** A tendency for negative personality traits, emotional instability, and self-destructive thinking. This trait includes pessimism, anxiety, insecurity, and fearfulness.



## **1.1 PROBLEM STATEMENT**

In contemporary times, understanding personality traits has become crucial in various domains, such as psychology, human resources, and even in personalization algorithms for online platforms. Identifying personality traits accurately can lead to better user experiences and more effective decision-making processes

## **1.2 EXISTING SYSTEM**

Traditionally, personality assessments were often conducted through subjective methods, surveys, or interviews. These methods are time-consuming, and the results may be prone to biases.

## **1.3 PROPOSED SYSTEM**

The proposed system aims to leverage machine learning techniques to predict personality traits based on objective data. It aims to overcome the limitations of traditional approaches by utilizing machine learning models to make data-driven predictions, offering a more accurate and personalized analysis of personality traits. By analyzing user data, the system intends to provide more efficient and automated personality predictions.

## **1.4 SCOPE**

The scope of this project is to develop a machine learning model that predicts personality traits based on certain input features. The model will be trained on a dataset containing labelled personality data. The scope of the Personality Prediction Project extends beyond the development of a prediction model; it involves creating a versatile and impactful tool that can be applied across various domains to enhance understanding and decision-making based on personality traits.

## CHAPTER 2

### SYSTEM REQUIREMENTS & SPECIFICATIONS

#### 2.1 SOFTWARE REQUIREMENTS

i. Programming Language – Python

Python is a high-level, versatile programming language used for developing various applications. In this project, Python is the primary language for implementing the machine learning model, web server, and other functionalities.

ii. Web Framework – Flask

Flask is a lightweight and easy-to-use web framework for Python. It simplifies the process of building web applications. In this project, Flask is used to create the web application, handle HTTP requests, and render HTML templates.

iii. Machine Learning Library – Scikit-learn

Scikit-learn is a machine learning library for Python that provides simple and efficient tools for data analysis and modelling. In this project, Scikit-learn is used for training and deploying the machine learning model for personality prediction.

iv. Data Manipulation Libraries – Pandas, Numpy

- Pandas - Pandas is a data manipulation and analysis library for Python. It provides data structures like data frames for easy handling and manipulation of structured data. In this project, Pandas is used to manage and preprocess the dataset.
- NumPy - NumPy is a library for numerical operations in Python. It provides support for large, multi-dimensional arrays and matrices, along with mathematical functions. NumPy is used for numerical operations in the data preprocessing phase.

v. Front-end Technologies – HTML, CSS

- HTML (Hyper text markup language) - HTML is the standard markup language for creating web pages. It structures the content of a web page using tags. In this project, HTML is used to create the structure of the user interface, including input forms and result display.
- CSS (Cascading style sheets) - CSS is used to style and layout HTML elements. It enhances the visual presentation of web pages by defining colors, fonts, spacing, and more. In this project, CSS is employed to style the HTML templates and improve the user interface.

## **2.2HARDWARE REQUIREMENTS**

- i.      Personal Laptop  
         Intel Core i5 – 11<sup>th</sup> gen  
         8 Gb RAM  
         Stable internet connection
- ii.     Operating System  
         Windows 11

## 2.3 SYSTEM ARCHITECTURE

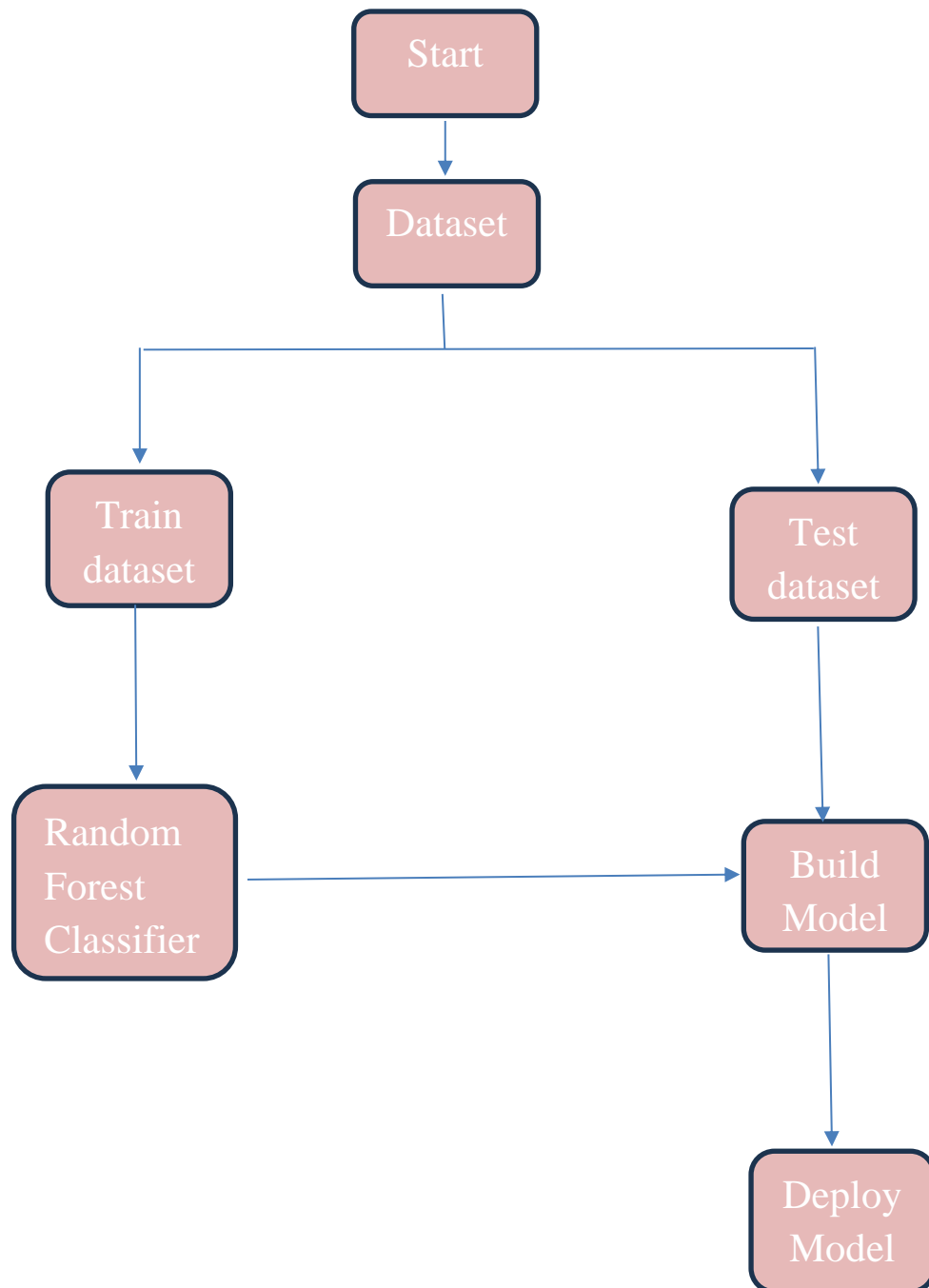


Fig – 2.1 Flow chart of proposed system

## CHAPTER 3

### DESIGN & IMPLEMENTATION

#### 3.1 FEATURES

- **Multifaceted Personality Trait Prediction**  
The system predicts multiple personality traits, including openness, conscientiousness, extraversion, agreeableness, and neuroticism. It offers a comprehensive analysis of an individual's personality by considering various dimensions.
- **Interactive User Interface**  
The project provides an interactive and user-friendly interface for users to input their personal information easily. The interface ensures a seamless experience, allowing users to receive predictions about their personality traits effortlessly.

#### **Implementation:**

##### **System Perspective:**

**1.Data Collection:** Gather a diverse dataset containing labeled personality traits for model training.

- Acquire a dataset with a sufficient number of samples.
- Preprocess the data to handle missing values, outliers and ensure consistency.

**2.Model Training:** Train machine learning models to predict personality traits.

- Select appropriate models such as Random Forest Classifier.
- Split the dataset into training and testing sets.
- Train each model using the training set.
- Evaluate models using the testing set and fine-tune hyperparameters.

**3.Web Application Development:** Build a user-friendly web interface for personality prediction.

- Use Flask, a python web framework, to create the application.
- Design HTML and CSS templates for the front-end.
- Implement routes for home, prediction, and result pages.
- Incorporate form elements to capture user input.

**4.Standardization and Prediction:** Standardize user input and use trained models for predictions.

- Load pre-trained machine learning models using joblib.
- Use the standardized input to predict personality traits.

**5.Personalized Interpretation:** Provide customized interpretation based on predicted personality traits.

- Develop algorithms to generate personalized insights for each predicted trait.
- Ensure explanations are user-friendly and easy to understand.

### **User Perspective:**

**1.Access the Web Application:** Users can access the personality prediction system through a web interface.

- Open a web browser and navigate to the provided URL.

**2.Input Personal Information:** Users enter their personal information for personality prediction.

- Fill out the form on the homepage with details such as personality trait scores.

**3.Submit and Receive Predictions:** Users submit the form and receive real-time predictions.

- Click the predict button to submit the form.
- Wait for real-time predictions to appear on the result page.

**4.Interpretation and Feedback:** Users receive customized interpretation and feedback on predicted personality traits.

- View the personalized interpretation provided on the result page.
- Gain insights into the significance of each predicted trait.

## **3.2 ENVIRONMENTAL SETUP**

### **1.Install Python**

Make sure Python is installed on your system. You can download Python from the official website: <https://www.python.org/downloads/>

### **2.Create a Virtual Environment**

Using virtual environments helps isolate project dependencies. Open a terminal or command prompt and run the following commands:

```
# Install virtualenv
pip install virtualenv

# Create a virtual environment
python -m virtualenv venv

# Activate the virtual environment
# On Windows
venv\Scripts\activate
# On Unix or MacOS
source venv/bin/activate
```

Fig - 3.1 Virtual environment setup

### 3.Install required python libraries

Install the necessary Python libraries using the following command:

```
pip install flask scikit-learn pandas numpy joblib
```


Fig – 3.2 Python library installation

### 4.Setup of Flask

Flask is a lightweight and extensible web framework for Python. It is designed to be simple, easy to use, and suitable for building web applications and APIs. Setting up a Flask project involves several steps, including installing Flask, organizing your project structure, and creating the necessary files.

---

Project Links  
[Donate](#)  
[PyPI Releases](#)  
[Source Code](#)  
[Issue Tracker](#)  
[Chat](#)



# Flask

#### Contents

[Welcome to Flask](#)  
[User's Guide](#)  
[API Reference](#)  
[Additional Notes](#)

#### Quick search

Welcome to Flask's documentation. Get started with [Installation](#) and then get an overview with the [Quickstart](#). There is also a more detailed [Tutorial](#) that shows how to create a small but complete application with Flask. Common patterns are described in the [Patterns for Flask](#) section. The rest of the docs describe each component of Flask in detail, with a full reference in the [API](#) section.

Flask depends on the [Werkzeug](#) WSGI toolkit, the [Jinja](#) template engine, and the [Click](#) CLI toolkit. Be sure to check their documentation as well as Flask's when looking for information.

## User's Guide

Flask provides configuration and conventions, with sensible defaults, to get started. This section of the documentation explains


 v: 3.0.x

Fig – 3.3 Flask setup

## Install Flask

To install Flask, you can use the following steps:

1. Open a terminal or command prompt.
2. Run the following command to install Flask using pip.

```
pip install Flask
```

Fig – 3.4 Flask installation

After running this command, Flask and its dependencies will be installed in your Python environment. If you encounter any issues, ensure that you have Python and pip installed correctly, and that your environment variables are set up properly.

## 5. Create project structure

Organize your project files. For example:

```
project_folder/  
|  
├─ App.py  
├─ Train_model.py  
├─ personality_model.joblib  
├─ personality_dataset.csv  
└─ templates/  
    ├─ index.html  
    └─ result.html
```

Fig – 3.5 Project Structure

## 6. Code the Flask Application (app.py)

Create the main Flask application file (**app.py**) with routes for home, prediction, and result.

## 7. HTML Templates

Create HTML templates (**index.html** and **result.html**) in the **/templates** directory for the user interface.

## 8. Load the trained model

Place your trained model file (personality\_model.joblib) in the project directory.

## 9. Run the Flask Application to generate the link

Run the Flask application using the following commands:



```
# Activate the virtual environment if using one
# On Windows
venv\Scripts\activate
# On Unix or MacOS
source venv/bin/activate

# Run the Flask app
python app.py
```

Fig – 3.6 Running the application

## 10. Open the generated link in a web browser

Open a web browser and go to <http://127.0.0.1:5000/> to access the application.

```
PS C:\Users\vinee\OneDrive\Desktop\New pp> & C:/Users/vinee/AppData/Local/Programs/Python/Python312/python.exe "c:/Users/vinee/OneDrive/Desktop/New pp/app2.py"
* Serving Flask app 'app2'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 695-925-752
```

Fig – 3.7 Link generation

# CHAPTER 4

## RESULTS & DISCUSSIONS

### 4.1 Results

#### Home Page



A screenshot of a web browser showing the 'Personality Prediction' homepage. The browser's address bar displays '10.97.66.211:5000'. The page title is 'Personality Prediction'. Below the title, there are five input fields for personality traits: 'Openness:', 'Conscientiousness:', 'Extraversion:', 'Agreeableness:', and 'Neuroticism:'. Each field is followed by a text input box. Below these fields is a 'Predict' button.

Fig – 4.1 Homepage

#### Input:



A screenshot of the 'Personality Prediction' input page. The browser's address bar shows '10.97.66.211:5000'. The page title is 'Personality Prediction'. Below the title, there are five input fields for personality traits: 'Openness:', 'Conscientiousness:', 'Extraversion:', 'Agreeableness:', and 'Neuroticism:'. Each field is followed by a text input box. Below these fields is a 'Predict' button.

Fig – 4.2 Input page

## Output:



Fig – 4.3 Output page

## **CHAPTER 5**

### **CONCLUSION AND FUTURE ENHANCEMENTS**

#### **5.1 CONCLUSION**

In conclusion, the Personality Prediction Project, employing machine learning techniques, has successfully demonstrated its ability to predict individual personality traits based on certain input features. By analyzing specific attributes, such as gender, age, and behavioral traits, the project aims to provide users with insights into their personalities and enhance their self-awareness. The project has the potential for a positive societal impact by promoting self-awareness and personal growth. It can be utilized as a tool for individuals seeking to better understand themselves, fostering a culture of continuous improvement and self-discovery.

#### **5.2 FUTURE ENHANCEMENTS**

Future enhancements for the Personality Prediction Project using machine learning could involve the Enhancements in the machine learning models for better accuracy. The project can be extended to provide personalized insights and recommendations based on the predicted personality traits, fostering personal and professional development. The project can also be implemented with robust security and privacy features to ensure the confidentiality and integrity of user data, promoting trust and compliance with privacy regulations. The system can also be enhanced to support multiple input modalities, such as text, voice, and images, for a more holistic personality assessment.

## REFERENCES

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- [2] “Personality Prediction Via CV Analysis using Machine Learning” Atharva Kulkarni, Tanuj Shankarwar, Siddharth Thorat.
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- [4] “Predicting personality from patterns of behavior collected with smartphones”, Clemens Stachl, Quey Au, Ramona Schoedel, Markus Buhner.
- [5] Enjoy Algorithm:
- [6] <https://www.enjoyalgorithms.com/blog/personality-prediction-using-ml>

## APPENDIX

### A: Source/Pseudo Code

#### Train\_model.py

```
# Importing Libraries
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score
from joblib import dump

# Load your dataset
# Assuming your dataset has columns like 'Openness',
# 'Conscientiousness', 'Extraversion', 'Agreeableness', 'Neuroticism',
# and 'Personality'
df = pd.read_csv(r'C:\Users\vinee\OneDrive\Desktop\New
pp\personality_dataset.csv')

# Split the data into features (X) and target (y)
X = df.drop('Personality', axis=1)
y = df['Personality']

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Train a Random Forest Classifier
model = RandomForestClassifier()
model.fit(X_train, y_train)

# Make predictions on the test set
y_pred = model.predict(X_test)

# Evaluate the model
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy: {accuracy}")

dump(model, 'personality_model1.joblib')
```

#### App.py

```
from flask import Flask, render_template, request
import joblib
from joblib import load
```

```
import pandas as pd

app = Flask(__name__)

# Load the trained model
model = load('personality_model1.joblib')

# Define a route for the home page
@app.route('/')
def home():
    return render_template('index.html')

# Define a route for handling predictions
@app.route('/predict', methods=['POST'])
def predict():
    # Get user input from the form
    input_data = request.form.to_dict()

    # Assuming the form has input fields corresponding to personality traits
    input_features = [float(input_data['Openness']),
                      float(input_data['Conscientiousness']),
                      float(input_data['Extraversion']),
                      float(input_data['Agreeableness']),
                      float(input_data['Neuroticism'])]

    # Make a prediction using the trained model
    prediction = model.predict([input_features])

    # Render the result page with the prediction
    return render_template('result.html', prediction=prediction[0])

# Run the app
if __name__ == '__main__':
    app.run(host='0.0.0.0', port=5000, debug=False)
```