Project Proposal

PersonaFlow

Group: 4

Members:

Muhammad Ahmad Butt	(23L-3059)
Muhammad Annus Shahzad	(23L-3004)
Abd ur Rehman	(23L-3105)
Zohaib Hussain	(23L-3087)
Ali Ahmed	(23L-3067)

Submitted to: Ms. Seemab Ayub
Team Lead: Muhammad Ahmad Butt
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Research Problem and Motivation

Human personality does not stay the same throughout life. It changes slowly over time based on emotions, stress, environment, relationships, and daily experiences. But most people never notice how their personality is evolving, because these changes are subtle and spread across months or years.

Today, a large part of human communication happens through text messages, especially on platforms like WhatsApp. These chats contain real expressions of behavior such as tone, choice of words, emotional patterns, communication style, and writing habits. This makes chat data a valuable source for understanding long-term personality shifts throughout conversations across different people.

The research problem we aim to address is:

> *"Can we track how a person's personality changes over time*
> *by analyzing their WhatsApp chat history?"*

Our motivation is to build a system that helps users understand:

- **Who they used to be?**
- **Who are they now?**
- **How has their personality changed with time?**

This can support self-awareness, personal growth, emotional understanding, and behavioral reflection. Instead of a single static personality test, our system shows a **chronological personality trend**, giving users an insight into their psychological journey using real conversations from everyday life.

NLP Techniques

Most of the text processing, feature extraction, and contextual understanding are handled automatically by the transformer models, minimizing the need for extensive manual preprocessing.

- Pre-processing
  - Tokenization
  - Classification
- Transformer-based Models (BERT / RoBERTa / GPT)

Datasets and Tools

Datasets

1. **WhatsApp Chat Dataset (Testing)**
   - Collected manually through WhatsApp export feature
2. **Hugging Face and Kaggle MBTI Personality Dataset (Training)**
   - *kl08/myers-briggs-type-indicator*
   - *datasnaek/mbti-type*

Tools & Libraries

- Python
- NumPy
- Pandas
- Matplotlib
- Hugging Face Transformers
- Hugging Face Datasets
- Google Colab
- Flask
- React
- Scikit-Learn

Evaluation metrics:

- Precision
- Recall
- F1 Score
- Bleu
- Meteor