**Introduction**

Mental health has become one of the most pressing issues worldwide, with the World Health Organization listing mental health issues as the leading cause of global disease burden. Whether it is depression, anxiety or other mood disorders, these issues have a profound impact on individuals' daily lives, work productivity and interpersonal relationships. As people's awareness of the importance of mental health continues to increase, more and more technological solutions are being used to help individuals better manage and monitor their emotional health. According to the Global Mental Health Market Study, the demand for digital mental health solutions is expected to grow rapidly in the next few years, driving further development of mental health interventions around the world.

The combination of technology and mental health interventions provides individuals and clinicians with unprecedented opportunities to obtain real-time, personalized feedback and use data-driven approaches to improve treatment outcomes. However, there is still a lack of research on how personality affects treatment response. Although some studies have shown that patients' personality or temperament may affect their response to treatment, more specific evidence is needed to support this claim. Therefore, our team is committed to further verifying this hypothesis through this project - taking patients' personality traits into account can help develop more targeted treatment plans, thereby improving treatment effectiveness.

We aim to enhance the user experience by further developing and integrating two existing applications. The first is a web survey based on Qualtrics that generates personalized psychological assessment feedback for users. The second is a mobile application that allows users to self-monitor emotional events. Our goal is to optimize these apps so that they not only provide clear and timely feedback, but also improve the contextual recommendation capabilities of self-monitoring apps through more sophisticated algorithms. Ultimately, our team aims to integrate these two systems into a more comprehensive mental health support platform that helps users better manage their emotions and behaviors while providing clinicians with deeper insights. We are creating this project for the Washington State University (WSU) Psychology Clinic with the help of our primary contacts Dr. Walter Scott and Belinda Lin who have helped provide guidance on our project. Potential future clients include the Portland Psychology Clinic and other psychotherapy institutions. For future clients, the application would need to ensure easy integration and use processes so that the future patients and doctors can easily integrate the system into their operations.

This document aims to be a summary of our project’s current progress and technical details of how we have constructed the project with examples of our use cases, testing methods, and project architecture.

**Future work**

For this next semester, we will be focusing on the phone app part of the project. We will be enhancing the clustering algorithm of the app and working on integrating the PICA results into the phone app. For the clustering algorithm, the client is looking to use a more sophisticated algorithm to cluster emotionally similar events that happen to the user. At the moment, if two events have over 50% similar thoughts, feelings, or actions then they are clustered as similar. The client would like us to look into either using a more mathematically complex algorithm or potentially using an LLM such as Chat GPT to cluster them. To integrate the PICA, the client would like us to have the clinician be able to upload the patient’s PICA results so that the user can easily access their assessment results through the phone app. As well, the client would like the phone app daily questionnaire to be able to have the questions be tailored to the patient based upon their PICA and their resulting temperament. The questions would be different to be able to dig deeper into the client’s thoughts, feelings, and actions based upon their temperament and allow the clinician to be able to diagnose the patient better.

**Team Member Bio**

Shaylin Smith is a Senior at Washington State University and will graduate with a degree in Computer Science and a minor in Math in the Spring 2025. Shaylin has an interest in data science and analytics as well as maintaining databases. She has experience with Python, C++, HTML, and CSS as well as strong leadership and communication skills. She plans on using this skill set to learn more and grow to succeed in the future.