Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	27 October 2023
Team ID	Team-593201
Project Name	Project - Predicting Mental Health Illness Of Working Professionals Using Machine Learning
Maximum Marks	4 Marks

Technical Architecture:

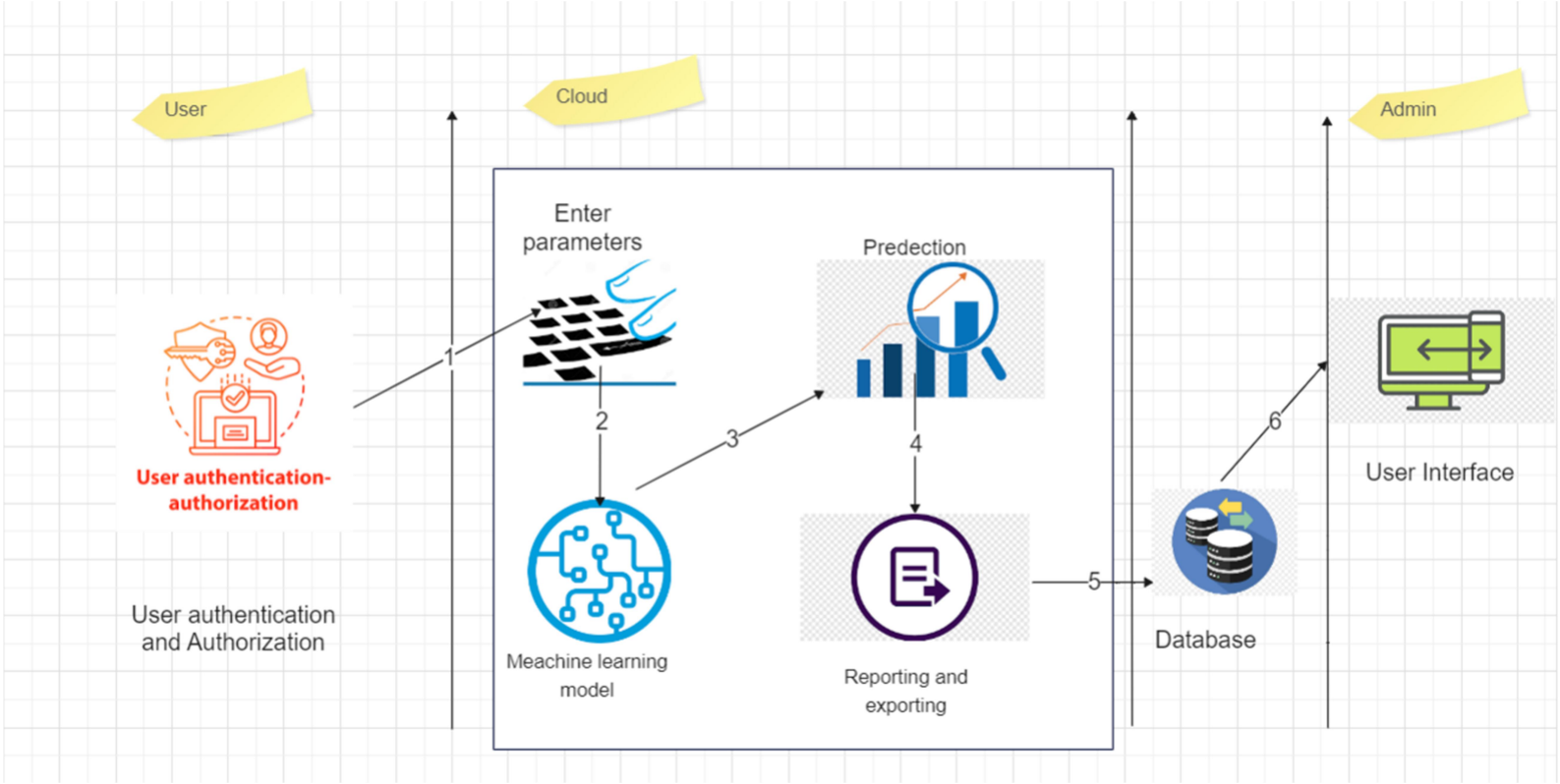

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	Data Collection and Preprocessing	Handling data volume, quality issues and ethical concerns can be challenging during Data Collection and Preprocessing.	SQL, Python, Pandas
2	Feature Engineering	Feature selection complexity, uncertainty about relevant features, and performance improvement pressure can be challenging in the Feature Engineering Phase.	Python, Pandas, TensorFlow
3	Machine Learning Model Development	The Machine Learning Model Development Phase can be mentally demanding due to high accuracy expectation, training time frustration, and imposter syndrome.	Python, Scikit-Learn, TensorFlow
4	Model Evaluation and Selection	Model evaluation and selection can be emotionally challenging due to performance anxiety, fear of making wrong choice, and the urge to compare with peer's models	Python, Scikit-Learn, Matplotlib
5	Web User Interface Development	User interface design complexities, and the delicate balance between user requirements and technical limitations.	HTML, CSS, Flask/Streamlit
6	User Authentication and Authorization	User data security entails risk of breaches, privacy violations, and legal compliance issues.	Python, Flask/Streamlit
7	Monitoring and Feedback Mechanism	Balancing real-time system performance, user feedback, and uptime maintenance under pressure.	Python, Flask/Streamlit
8	Reporting and Data Export	Juggling report stress, ad-hoc data export, and data accuracy.	Python, Pandas, Flask/Streamlit
9	User Account and System Configuration	User account management challenges include scalability and technology stack configuration issues.	Python, Flask/Streamlit
10	Documentation and Reporting	Achieving rigorous project documentation, ongoing updates, and effective stakeholder communication.	Markdown, Word Processors, Confluence

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Resource Prediction	Predicting the resources (e.g., counseling, support services) needed based on the assessed mental health conditions of working professionals.	Machine Learning (ML) algorithms, Data Analysis Tools
2	Reporting and Analysis	Providing detailed reports and analysis of mental health assessments for individuals and organizations.	Data Analysis Software, Reporting Tools
3	Security and Privacy	Ensuring data privacy and security to protect sensitive mental health information.	Data Encryption, Access Control, Compliance Standards
4	Scalability	Designing the system to handle a growing volume of data and users as the application expands.	Load Balancing, Cloud services, Distributed Databases
5	Fault Tolerance	Implementing measures to ensure system resilience and reliability, with backup mechanisms in place.	Redundancy, Automated, Failover, Monitoring
6	Data Visualization	Creating interactive and informative visualizations of mental health data for better insights and understanding.	Data Visualization Tools, Chart Libraries
7	Mobile Compatibility	Ensuring that the application is accessible and functional on mobile devices for ease of use.	Mobile App Development, Responsive Web Design
8	Data Analytics	Applying advanced analytics techniques to gain deeper insights into mental health trends and patterns.	Advanced Analytics Tools, Predictive Analytics Models