Project Design Phase-I
Solution Architecture

Date	23 October 2023
Team ID	Team-592795
Project Name	Predicting Mental Health Illness Of Working Professionals Using Machine Learning
Maximum Marks	4 Marks

Solution Architecture:

Data Collection:

Collect data from various sources, such as employee self-assessments, surveys, HR records, and external sources (if applicable). Ensure data privacy and security, following relevant regulations and best practices.

Data Preprocessing:

Clean the data by handling missing values, outliers, and data quality issues. Anonymize and aggregate data to protect individual privacy.Feature engineering: Extract relevant features from the data, including psychological assessments, work-related factors, life events, etc.

Data Storage:

Store processed data in a secure and scalable data repository or database for easy access.

Machine Learning Model Development:

Select and develop appropriate machine learning algorithms for prediction. This may include classification algorithms like logistic regression, decision trees, or more advanced models like neural networks. Train the model on historical data to learn patterns associated with mental health concerns. Fine-tune the model to achieve optimal performance.

Model Evaluation:

Split the dataset into training, validation, and test sets. Use appropriate evaluation metrics (e.g., accuracy, precision, recall, F1-score) to assess the model's performance. Perform cross-validation to ensure the model's robustness.

Model Deployment:

Deploy the trained model within a secure and scalable cloud environment or on-premises infrastructure. Implement an API to allow real-time predictions and interactions with the model. Ensure the model is capable of handling data input in a variety of formats, including structured employee assessments and unstructured text data.

User Interface:

Develop a user-friendly web or mobile interface for employees to provide input and receive feedback. Ensure the interface respects privacy and allows for anonymous submissions.

Alerts and Notifications:

Implement an alert system to notify individuals, managers, and HR when the model detects potential mental health concerns. Alerts should be sensitive and supportive, encouraging individuals to seek help rather than punitive.