

**Project Design Phase**  
**Solution Architecture**

Date	23 October 2023
Team ID	Team-593201
Project Name	Predicting Mental Health Illness Of Working Professionals Using Machine Learning
Maximum Marks	5 Marks

**Solution Architecture:**

The proposed solution architecture for predicting mental health illness of working professionals using machine learning, we can consider the following components:

**Data Collection:** Gather relevant data on working professionals, including demographic information, employment details, and mental health indicators. This data can be collected through surveys, interviews, or existing datasets.

**Data Preprocessing:** Clean and preprocess the collected data to ensure its quality and suitability for machine learning algorithms. This may involve handling missing values, removing outliers, and normalizing the data.

**Feature Engineering:** Extract meaningful features from the preprocessed data that can effectively capture patterns related to mental health illness. These features can include variables such as work hours, job satisfaction, stress levels, social support, and previous mental health history.

**Model Selection:** Choose an appropriate machine learning model that can effectively predict mental health illness based on the available features. Popular models for classification tasks include logistic regression, decision trees, random forests, and support vector machines.

**Model Training:** Split the preprocessed data into training and testing sets. Use the training set to train the selected machine learning model on the labeled data, where the labels indicate the presence or absence of mental health illness.

**Model Evaluation:** Evaluate the performance of the trained model using appropriate evaluation metrics such as accuracy, precision, recall, and F1 score. This step helps assess how well the model predicts mental health illness in working professionals.

**Deployment and Integration:** Once the model performs satisfactorily, deploy it in a production environment where it can receive new data and make predictions in real-time. Integration with existing systems or platforms may be necessary for seamless operation.

**Monitoring and Improvement:** Continuously monitor the performance of the deployed model and collect feedback from users. Incorporate user feedback and periodically retrain the model to improve its accuracy and effectiveness.

