Mental Health Risk Prediction

Web Application

Shanel Fernandez – J057 ,Shivane Singh– J058

Content

About the Dataset

Source : *Mental Health in Tech Survey* - *Kaggle*

What's in the Dataset?

This dataset contains 1,259 responses from a 2014 survey that measures attitudes towards mental health and frequency of mental health disorders in the tech workplace.

Key Features:

Age, gender, work environment, family history, previous diagnosis, willingness to seek help, etc.

Target:

treatment requirement

Understanding the Problem

Mental health issues are prevalent but often go unnoticed, especially in high-stress environments like tech industries. Due to :

- Lack of awareness & early intervention.
- Employees hesitate to seek help due to stigma.
- Limited access to personalized resources.

Through an interactive application, we aim to predict mental health risks based on survey responses and provide personalized feedback.

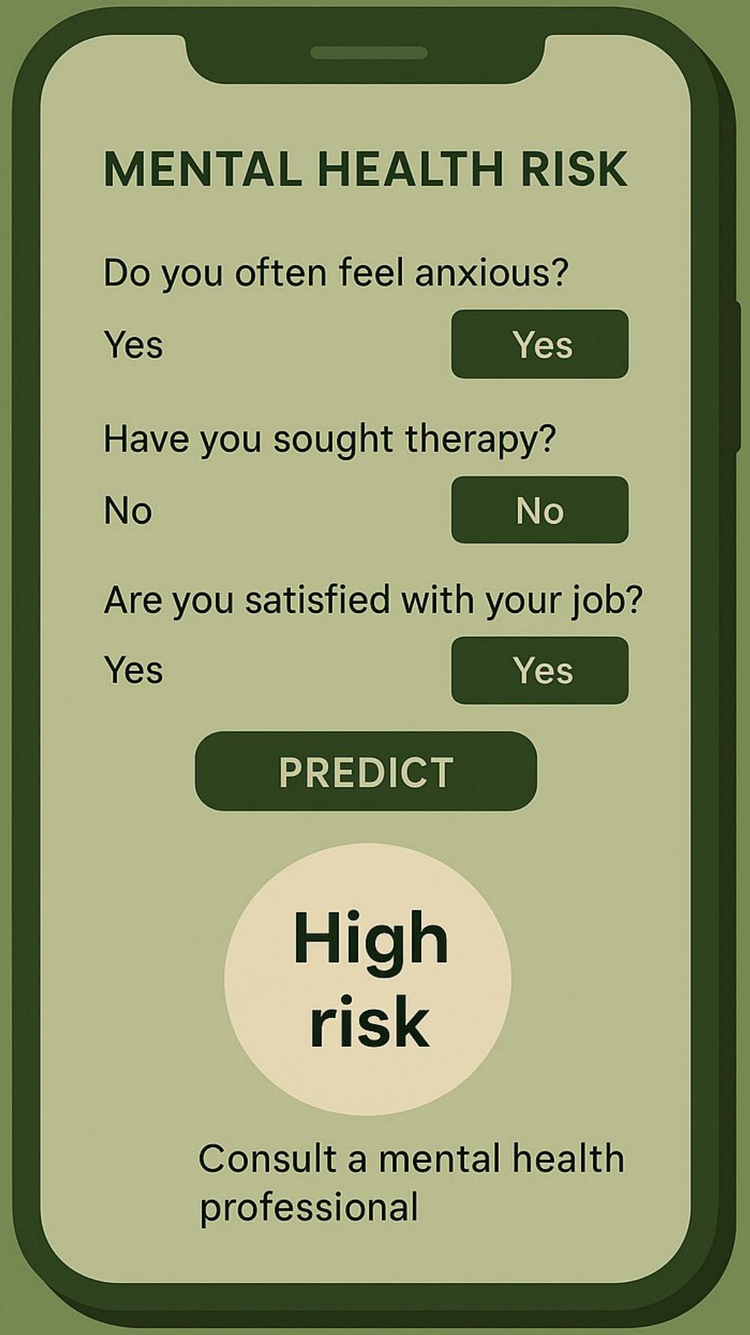
Our Solution

What We Built:

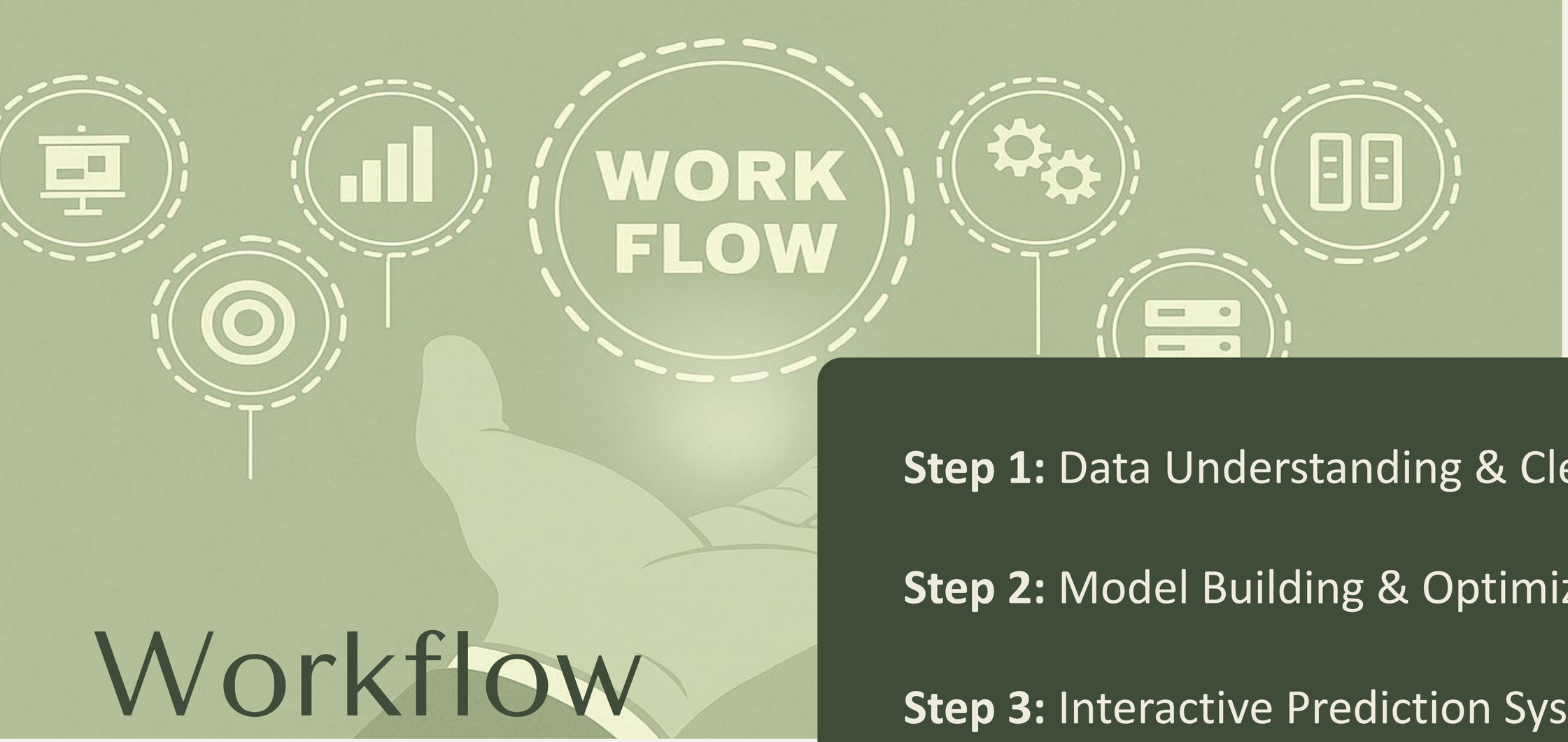
- A Machine Learning-based Web Application to predict mental health risk.
- Real-time, interactive user interface for data input.
- Mental health risk detection report.

Core Components:

- **Data Preprocessing:** Cleaned & encoded survey responses.
- **Model Building:** Trained models like Logistic Regression, Random Forest, and XGBoost.
- **UI & Customer Feedback:** Built using Streamlit and connected to the model.




Model Performance Comparison
Accuracy
Precision
Recall
F1-score
Scores
1.00
0.95
0.90
0.85
0.80
0.75
0.70
Logistic Regression
Random Forest
XGBoost



Workflow Overview

Step 1: Data Understanding & Cleaning

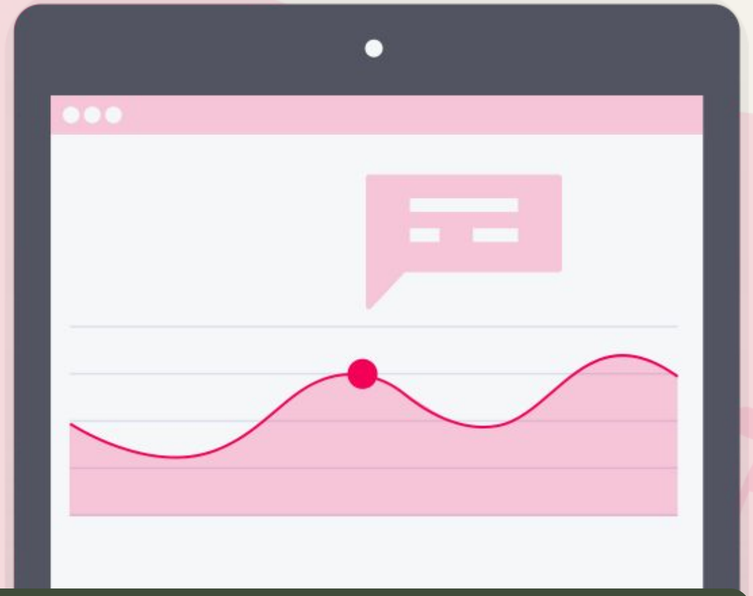
Step 2: Model Building & Optimization

Step 3: Interactive Prediction System

Step 4: Personalized Review System

Step 5: Deployment & Hosting

User Friendly UI



Key Features:

1. *Form-Based UI:* Users answer basic mental health-related questions about their workplace.
2. *Real-Time Prediction:* Model predicts mental health risk and displays results instantly along with a report for them to save.
3. *Audio & Visual Feedback:* Audio feedback and risk classification.
4. *Result Interpretation*: Provides clear insights and actionable recommendations.

Future Scope

NLP-Based Feedback: Incorporate a system to analyse user responses and provide personalized suggestions.

Chatbot Integration: Enable real-time mental health guidance through an AI-powered chatbot.

Expanded Model Coverage: Broaden the model to identify and predict a wider range of mental health conditions.

User Engagement Analytics: Track user interaction data to continuously improve the system.

Conclusion

Our ***Mental Health Risk Prediction & Support System*** combines machine learning and user interaction to predict mental health risks and provide personalized suggestions.

Beyond accurate predictions, it fosters a supportive environment where users gain valuable insights and receive actionable guidance.

By encouraging informed decisions and self-care, the system empowers users to take control of their mental well-being.

Thank You !