# WellBot – Global Wellness Assistant Chatbot

## Abstract

People today struggle to maintain a balanced lifestyle across various dimensions physical Individuals nowadays find it difficult to balance a healthy lifestyle in multiple areas : physical health, nutrition, rest, water intake, and mental well-being. Current wellness apps are siloed, targeting just one area at a time. WellBot is an artificial intelligence-based wellness chatbot that integrates all these areas into one smart system. It interprets user information from fitness devices and wellness questionnaires to suggest recommendations on a daily basis. With machine learning and NLP, WellBot provides emotion-sensitive suggestions to assist users in enhancing their overall well-being.

## Problem Statement

It is hard for most people to be consistent across different aspects of wellness like diet, exercise, rest, and mental wellness. Most of the current apps monitor one aspect (e.g., steps taken or calories burned), thus offering incomplete advice. Hence, there is a requirement for a single smart assistant that combines information from various sources and offers overall, individualized wellness recommendations.

## Objectives

- Design and implement an AI chatbot with the ability to offer comprehensive wellness advice.  
- Gather and preprocess fitness and mental health data for model training.  
- Develop a recommendation engine based on machine learning for daily wellness information.  
- Implement wearable device data integration for real-time user tracking.  
- Allow continuous learning from user feedback and behavior trends.

## Datasets Used

a) Fitness and Activity Dataset  
Source: Kaggle – FitLife Health and Fitness Tracking Dataset  
Description: Holds participants' fitness information such as steps, heart rate, calories, BMI, stress, and sleep hours.  
  
b) Mental Health and Lifestyle Dataset  
Source: Kaggle – Mental Health and Lifestyle Habits (2019–2024)  
Description: Holds people's mental health and lifestyle habits like diet, sleep hours, stress, anxiety, and happiness.  
  
  
  
c) Combined Dataset  
Both the datasets are combined to form a single dataset of physical and mental well-being indicators for training and analysis purposes. Final dataset has ~31 columns and rows equal to the sum of total entries in both the datasets.

## Methodology

1. Data Collection: Collected wellness-related data sets from Kaggle on physical fitness and mental health metrics..  
2. Data Preprocessing: Dealt with missing values, dropped duplicates, normalized numerical features, and standardized categorical information.  
3. Model Building: Trained machine learning and deep learning models to forecast stress level, happiness index, and fitness score.  
4. Deployment: Combined chat interface with ability to retrieve real-time data from wearables and deployed model via a web or mobile interface.

## Project Modules

1. Module 1 – Data Collection and Cleaning  
Fetch datasets from Kaggle and preprocess them to handle missing or inconsistent data.  
2. Module 2 – Data Preprocessing  
Normalize, encode, and prepare datasets for model training.  
3. Module 3 – Model Building  
Train ML/DL models for fitness, stress, and happiness predictions.  
4. Module 4 – Chatbot Integration and Deployment  
Integrate NLP model to interact with users and deploy on a web-based interface linked to wearable data.

## Advantages

- All-in-one wellness platform (diet, fitness, sleep, mental health).  
- Personalized, data-driven recommendations.  
- Real-time monitoring through wearables.  
- Emotion and stress-aware suggestions.  
- Continuous feedback learning to improve recommendations.

## Expected Results

- An operational wellness chatbot that engages with users and offers daily plans for wellness.  
- A trained machine learning model that can make predictions of user stress, mood, or activity level.  
- User-data-driven personalized suggestions to enhance health and happiness.

Conclusion

## WellBot offers a revolutionary holistic well-being approach by combining fitness, nutrition, and mental health information into a single smart chatbot. It uses machine learning, NLP, and wearable data incorporation to provide customized advice and encourage healthier lifestyles. Future Scope

- Wearable device integration (smartwatches, fitness bands).  
- Inclusion of voice-based inputs and emotion tone recognition.