**# 🧠 EEG-Based Depression Detection using Machine Learning**

**This project demonstrates a simple machine learning pipeline for detecting signs of depression using EEG (Electroencephalogram) signal features. It is designed as a practical, entry-level application to showcase the process of preprocessing EEG data, extracting meaningful features (band powers), and training a classifier.**

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**## 🎯 Objective**

**To build a basic model that can classify EEG signals as either \*healthy\* or \*depressed\* based on power spectral features (Delta, Theta, Alpha, Beta bands).**

**This is a demo/prototype intended for academic learning and collaboration with neuroscience or mental health professionals.**

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**## 📂 Project Structure**

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**## ⚙️ Technologies Used**

**- Python**

**- scikit-learn**

**- NumPy**

**- MNE (for EEG processing)**

**- Matplotlib**

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**## 🧪 Features Extracted**

**- Delta Band Power**

**- Theta Band Power**

**- Alpha Band Power**

**- Beta Band Power**

**These features were either extracted from sample EEG or simulated data. In real-world use, data should be recorded from clinical EEG devices and include appropriate diagnostic labels.**

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**## 🚀 How to Run**

**1. Clone the repository:**

**```bash**

**git clone https://github.com/YourUsername/EEG-Depression-Detection.git**

**cd EEG-Depression-Detection**

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