**Study Buddy AI**

**1. Project Overview**

**Study Buddy AI** is a voice-based desktop application designed to assist students during their study sessions by detecting their mood through voice input. Based on the detected mood, it plays suitable background music and displays motivational quotes to help improve focus, motivation, and emotional well-being.

**2. Features**

* **Voice Mood Detection:** Uses speech recognition to detect moods like happy, sad, stressed, neutral, tired, and emotional.
* **Music Playback:** Plays mood-based instrumental music to enhance concentration or relaxation.
* **Motivational Quotes:** Displays relevant quotes to encourage and uplift students during breaks.
* **User-friendly GUI:** Simple and attractive interface built using Tkinter.
* **Break Timer Reminder:** Reminds students to take breaks at regular intervals to maintain productivity and health.

**3. Technologies Used**

* **Python:** Core programming language.
* **Tkinter:** For GUI development.
* **Speech Recognition:** For converting speech to text (mood detection).
* **Pygame:** For playing music files.
* **Text Files:** To store motivational quotes.
* **MP3 Files:** Mood-based music tracks stored locally.

**4. How It Works**

1. The user clicks the "Speak Your Mood" button in the GUI.
2. The app listens to the user’s voice input and converts it to text using Google’s speech recognition API.
3. The detected mood is analyzed and matched with predefined mood categories.
4. Depending on the mood, the app plays suitable instrumental music and displays a motivational quote.
5. The app reminds the user to take breaks with a pop-up notification at set intervals.

**5. Installation and Setup**

1. Install Python 3.x on your system.
2. Install required Python packages using pip:
3. pip install pygame Speech Recognition pyaudio
4. Download and place the project files (studybuddy.py, quotes.txt, music folders) in a single directory.
5. Run the script:
6. python studybuddy.py

**6. Usage**

* Click "Speak Your Mood" and say how you feel (e.g., happy, stressed, sad, tired).
* The app detects your mood and plays matching music.
* Motivational quotes are displayed during breaks or emotional moods.
* The app reminds you to take breaks after a certain study duration.

**7. Future Improvements**

* Add more moods and personalized music playlists.
* Integrate with calendar apps to schedule study sessions and breaks.
* Add voice responses for better interaction.
* Make it a mobile app for on-the-go study assistance.

**8. Challenges Faced**

* Accurate mood detection from voice input requires clear speech and minimal background noise.
* Managing dependencies and package installations for audio playback and speech recognition.
* Designing an intuitive GUI that balances functionality and aesthetics.

**9. Conclusion**

Study Buddy AI is a helpful tool that combines AI and user interaction to improve study habits and mental well-being. It offers a personalized experience to support students during their learning journey.