Image Recognition with IBM Cloud Visual Recognition

PHASE-1

Problem Definition:

The "Facial Emotion Detection for Mental Health Apps" project aims to develop a system for mental health to provide support to users by tracking their emotional well-being. Create an emotion detection module that analyzes users' facial expressions during therapy sessions. This tool will assist therapists and users in monitoring emotional progress and adjusting therapy as needed.

Design Thinking:

- Data Collection: Gather a dataset of facial images or video clips showing various emotions relevant to mental health (e.g., happy, sad, anxious). Label each data point with the corresponding emotion.
- Model Training: Train a deep learning model (e.g., a convolutional neural network or CNN) using the collected dataset to recognize facial expressions.
- Real-time Emotion Analysis: Implement real-time facial expression analysis within the mental health app using computer vision libraries like OpenCV. Continuously capture video frames from the user's webcam during therapy sessions.
- Emotion Tracking: Develop an algorithm that tracks the user's emotional state throughout the therapy session by analyzing their facial expressions. Therapist and User Feedback: Provide therapists with real-time feedback on the user's emotional state during the session. Offer insights on emotional progress and potential areas for focus.
- User Privacy and Data Handling: Ensure strict privacy measures and obtain informed consent from users regarding data collection and processing. Implement data encryption and secure storage to protect sensitive information.
- Integration: Integrate the real-time emotion detection system seamlessly into the mental health app, making it user-friendly for both therapists and users.
- Testing and Validation: Thoroughly test the system to ensure it accurately tracks emotions during therapy sessions. Validate the system's effectiveness by involving mental health professionals in testing.
- User Education: Educate users about the purpose of emotion tracking and how it benefits their mental health journey. Explain how their data is used and the privacy safeguards in place.
- Monitoring and Improvement: Continuously monitor the system's performance and gather user feedback to make improvements over time. Fine-tune the model if necessary to enhance accuracy and responsiveness.