Project Title	Mood-based Music Recommendation using Physiological Signals
Skills take away From This Project	• Supervised Machine Learning (Classification) • Exploratory Data Analysis (EDA) • Feature Engineering (handling physiological data) • Data Cleaning (handling nulls and outliers) • Model Evaluation (classification metrics) • Mapping predictions to recommendations (Mood → Music) • Real-world ML workflow from raw data to solution
Domain	Affective Computing, Health-Tech, and Media Recommendation

Problem Statement:

Design a machine learning model that classifies a user's mood based on physiological signals such as heart rate, skin temperature, and eye-blink rate. Once classified, recommend a suitable music genre (e.g., Happy → Pop, Stressed → Lo-fi) to enhance the user's emotional state.

Business Use Cases:

- **Smart Music Apps:** Apps like Spotify/YouTube Music can personalize playlists using real-time sensor data.
- **Mental Health Platforms:** Tools that recommend calming music during stress.
- **Wearable Devices:** Smartwatches that adapt entertainment based on physiological readings.
- **Productivity Tools:** Office music systems adjusting background music based on collective team mood.

Approach:

Data Ingestion: Load and understand the CSV dataset.

Exploratory Data Analysis (EDA): Visualize feature distributions, detect nulls/outliers.

Preprocessing:

- Impute missing values
- Handle outliers
- Encode time of day

Modeling:

- Use classification algorithms (Logistic Regression, Decision Tree, Random Forest, etc.)
- Tune hyperparameters

Evaluation:

- Use appropriate metrics (accuracy, precision, recall)
- Confusion matrix and classification report

Results:

- A trained classification model with high accuracy (>80%) on mood prediction.
- A complete end-to-end system that takes raw inputs and recommends music genres.
- Visualizations showing decision boundaries or model behavior.
- A clear mapping of moods to music.

Project Evaluation metrics:

- **Accuracy**
- **F1-score**
- **Confusion Matrix**
- **Precision/Recall for each mood category**
- **Code quality and EDA depth**
- **Business logic implementation (mood → music mapping)**

Technical Tags:

Machine Learning, Classification, EDA, Pandas, Scikit-learn, Data Cleaning, Mood Detection, Music Recommendation, Affective Computing

Data Set:

https://drive.google.com/file/d/1pIfKl6ekIyaTMzCuUyl59AFtkKrRrHLI/view?usp=sharing

Data Set Explanation:

The dataset simulates real-world physiological patterns associated with different moods:

- Heart Rate increases under stress, decreases during relaxation.
- Blink Rate varies with mood intensity and focus.
- Time of Day is included as a contextual feature.
- **Preprocessing Steps Required:**
    - Handle null values and outliers
    - Convert categorical variables using one-hot encoding
    - Normalize continuous features if needed

Project Deliverables:

Cleaned Dataset (after preprocessing)

Jupyter Notebook / Python Script containing:

- EDA
- Preprocessing
- Classification model building and evaluation
- Music recommendation logic

Presentation/Report summarizing:

- Business problem, methodology, results, insights
- Screenshots of key visualizations

Project Guidelines:

Follow clean coding practices (PEP8, modular code, reusable functions)

Use GitHub for version control and collaboration

Document assumptions, missing value treatments, and modeling choices

Write README with:

- Project overview
- Setup instructions
- Key results

Use meaningful variable names and include code comments

Keep the notebook clean with titles/markdown cells

Timeline:

2 weeks

PROJECT DOUBT CLARIFICATION SESSION (PROJECT AND CLASS DOUBTS)
About Session: The Project Doubt Clarification Session is a helpful resource for resolving questions and concerns about projects and class topics. It provides support in understanding project requirements, addressing code issues, and clarifying class concepts. The session aims to enhance comprehension and provide guidance to overcome challenges effectively.
Note: Book the slot at least before 12:00 Pm on the same day

Timing: Saturday (5:00PM to 7:00PM)
Booking link :https://forms.gle/NtkQ4UV9cBV7Ac3C8
LIVE EVALUATION SESSION (CAPSTONE AND FINAL PROJECT)
About Session: The Live Evaluation Session for Capstone and Final Projects allows participants to showcase their projects and receive real-time feedback for improvement. It assesses project quality and provides an opportunity for discussion and evaluation.
Note: This form will Open on Saturday and Sunday Only on Every Week
Timing: Monday-Saturday (11:30PM to 12:30PM)
Booking link : https://forms.gle/1m2Gsro41fLtZurRA