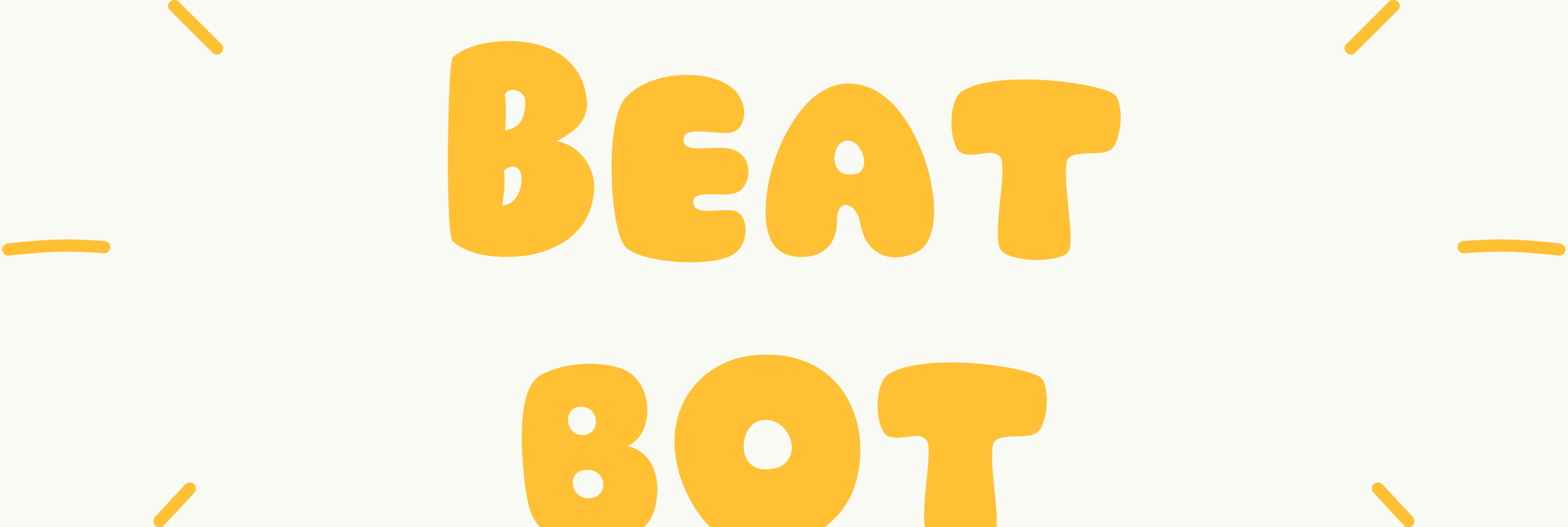





# BEAT BOT



Find the Beat!



# PRESENTED

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# PROJECT DESCRIPTION

## MACHINE LEARNING MODEL

The backend of BeatBot uses:

KNN Model: A pre-trained K-Nearest Neighbors model (knn\_model.pkl) that classifies music genres based on extracted audio features.

## SONG STATISTICS

Additional statistics are calculated using librosa:

Tempo: Beats per minute (BPM), representing the rhythmic pace.  
Spectral Centroid: Indicates the "brightness" of the sound.  
Spectral Rolloff: The frequency below which most spectral energy is concentrated.

## CUSTOM STYLING

The app is styled with:

Background: Black theme (#000000).  
Primary Buttons and Highlights: Blue (#4260f5).  
Font and Layout: Custom CSS for a modern, sleek look.  
Title: "BeatBot" branding with a bold style.

## FEATURE EXTRACTION

The application uses librosa to extract:

MFCCs (Mel-Frequency Cepstral Coefficients):  
Capture timbral texture.  
Chroma Features: Reflect harmonic content.  
Mel Spectrogram: Represents frequency and time-based energy.

## GRADIO INTERFACE

The user interface leverages Gradio for interactive capabilities:

Inputs: Users upload .wav files via a drag-and-drop or file selector.  
Outputs: Displays:  
Predicted genre.  
Extracted song statistics in a user-friendly text format.



**LET'S TAKE A  
LOOK!**

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