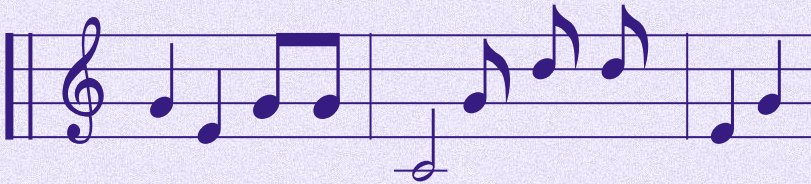
Shri Ramdeobaba College of Engineering and Management
Department of Computer Science and Engineering(AIML)
Session 2023-2024

Seminar On:

# DeepBeat: Music Genre Classification



**Presented By:**
*(Group No. 17)*
E-29 Anant Agarwal
E-16 Rama Labhe
E-22 Aryaman Pandey

**Guided By:**
Prof. Sushmit Santra
Prof. Priya Parkhi

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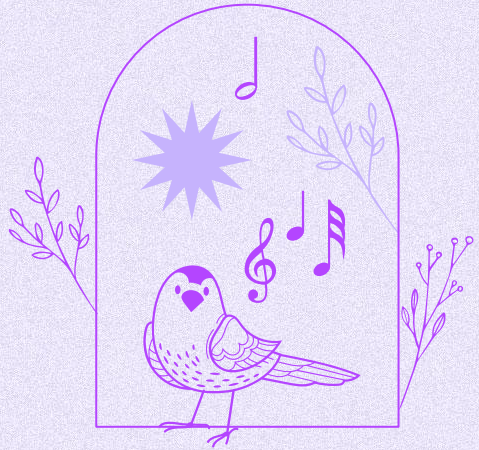
# Introduction

- Music genre classification is a fundamental task involving the categorization of audio tracks into predefined genres based on their acoustic features.
- This project aims to develop a robust music genre classification system capable of accurately identifying genres from audio signals.
- Our system seeks to improve music organization, recommendation systems, and content discovery, catering to the needs of music enthusiasts, researchers, and industry professionals.

# Motivation

- Discovering new music is challenging amidst vast collections.
- Existing music organization lacks efficiency.
- Accurate genre labeling is crucial for music analysis.
- Music education and research benefit from categorization.

# Objective

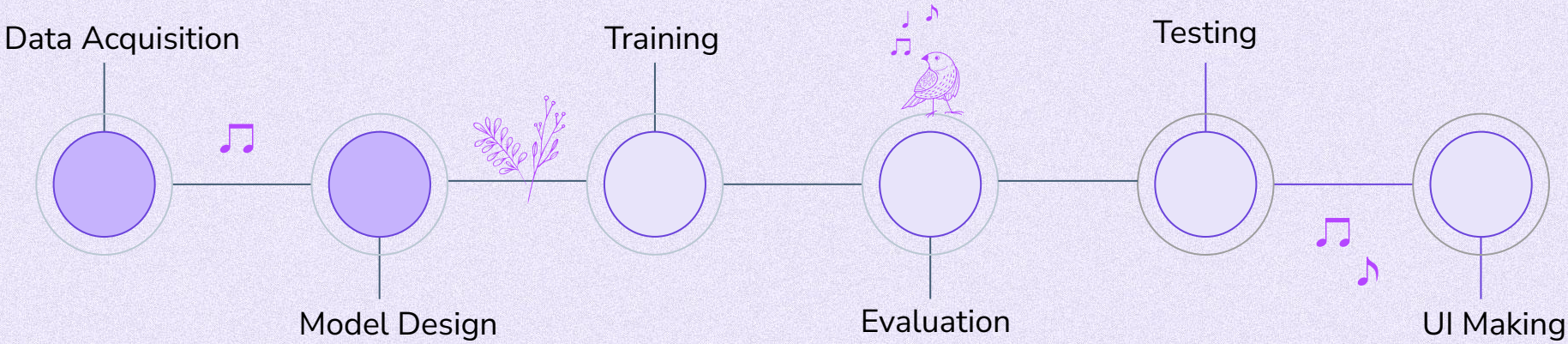


- **Curate your music taste:** Discover new music through personalized genre-based recommendations.
- **Content Organization and Discovery:** Improve music content organization and discovery within large databases for efficient browsing and exploration.
- **Enhanced Music Analysis:** Provide valuable insights for music analysis, including mood detection and trend analysis, through accurate genre labeling.
- **Applications in Music Education and Research:** Enable categorization and analysis of musical compositions for research insights and educational resources.

# Literature Survey

- Pelchat and Craig M. utilized the GTZAN dataset, categorizing songs into seven genres. They converted music data into spectrograms and used them as inputs, achieving training accuracy of 97% but faced overfitting with a test accuracy of 47%.
- Nirmal M R employed spectrograms for music genre classification, comparing user-defined CNN models and pre-trained ConvNets like MobileNet. MobileNet outperformed the user-defined CNN, achieving a classification accuracy of 67%.
- Researchers have explored various approaches to music genre classification, including deep learning methods like convolutional networks (CNNs), which have shown promising results due to their success in computer vision and speech recognition tasks.
- The GTZAN dataset remains a widely-used benchmark for music genre classification tasks, offering a diverse collection of song snippets across ten genres, facilitating model training and evaluation.
- TensorFlow implementation of convolutional neural networks (CNNs) allows for efficient processing of spectrogram inputs, enabling accurate music genre classification with appropriate model architecture and optimization techniques.

# Methodology



# Technology

- ➔ Programming Languages: Python, JavaScript
- ➔ Deep Learning Frameworks: TensorFlow, PyTorch
- ➔ Deep learning models: Convolutional Neural Networks (CNNs)
- ➔ Audio Processing Libraries: Librosa, PyAudio
- ➔ Web Development Frameworks: Flask, Django, HTML, CSS

# Plan of Work

Input will be given as an Audio through GTZAN.

DL model will predict according to the Dataset.

It will check the frequency, variations for 30 sec audio.

Output will be given from the 10 Genre.

# Project Scope

Exploring deeper musical features

Developing dynamic fusion techniques

Unveiling emotions and trends

Creating the future of music

# References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# *Thank you*