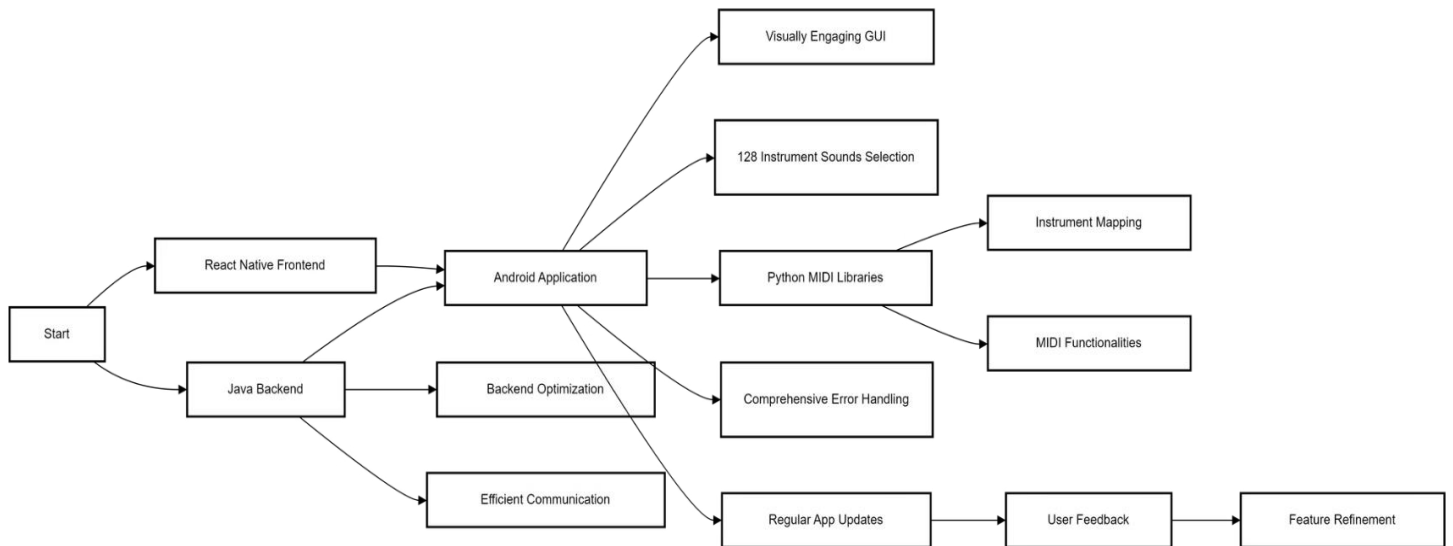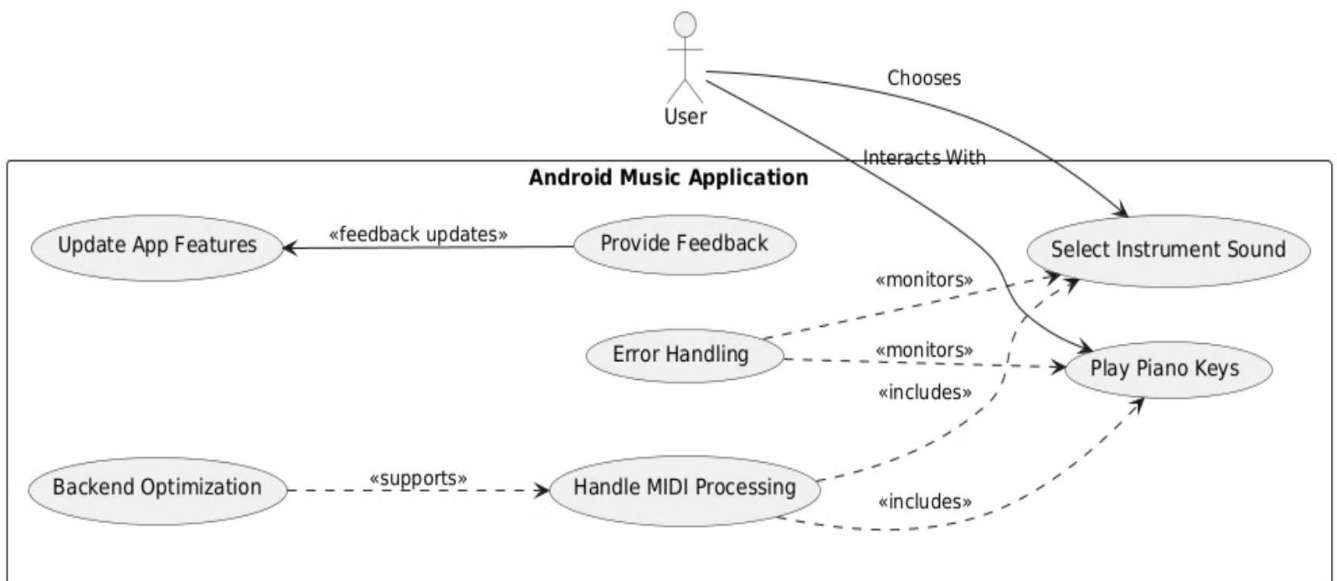# DESIGN DIAGRAMS
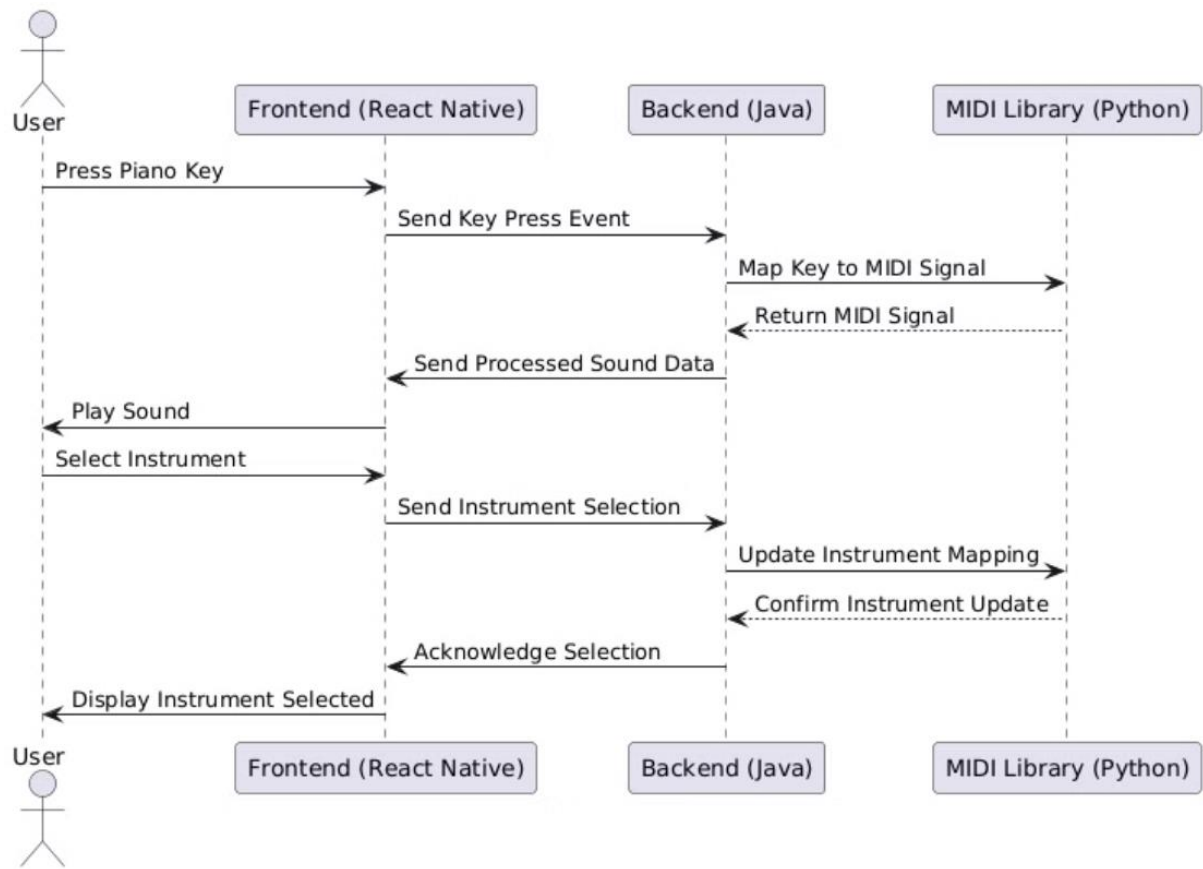
1. ARCHITECTURE DIAGRAM
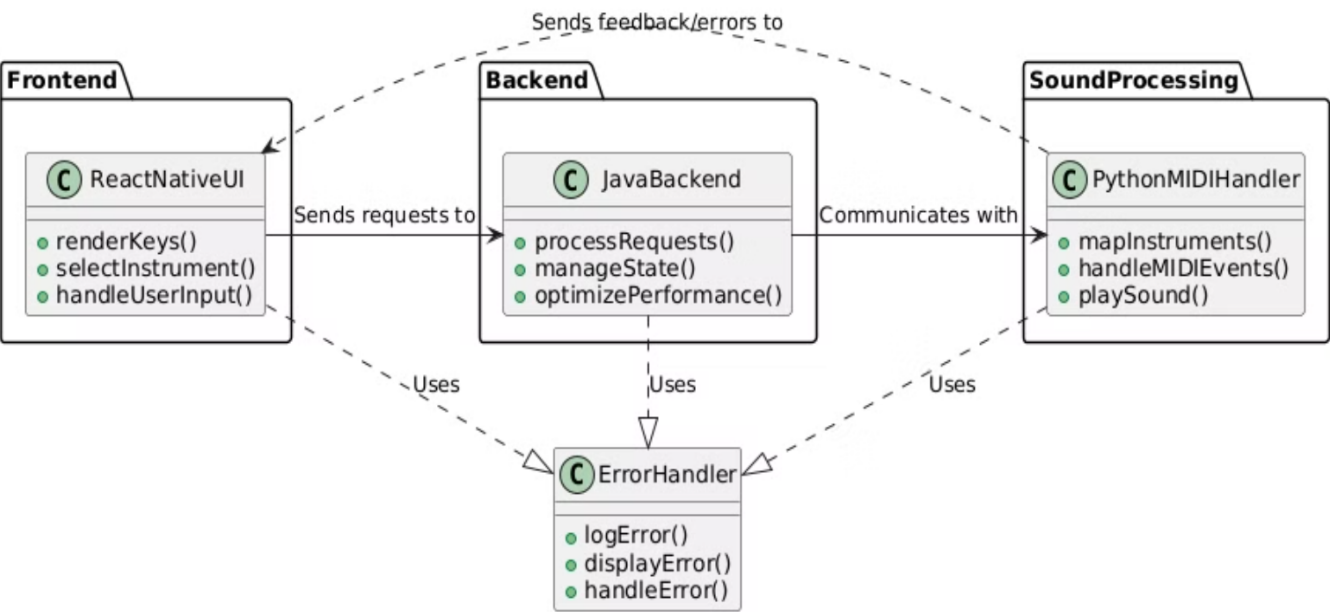

2. USE CASE DIAGRAM

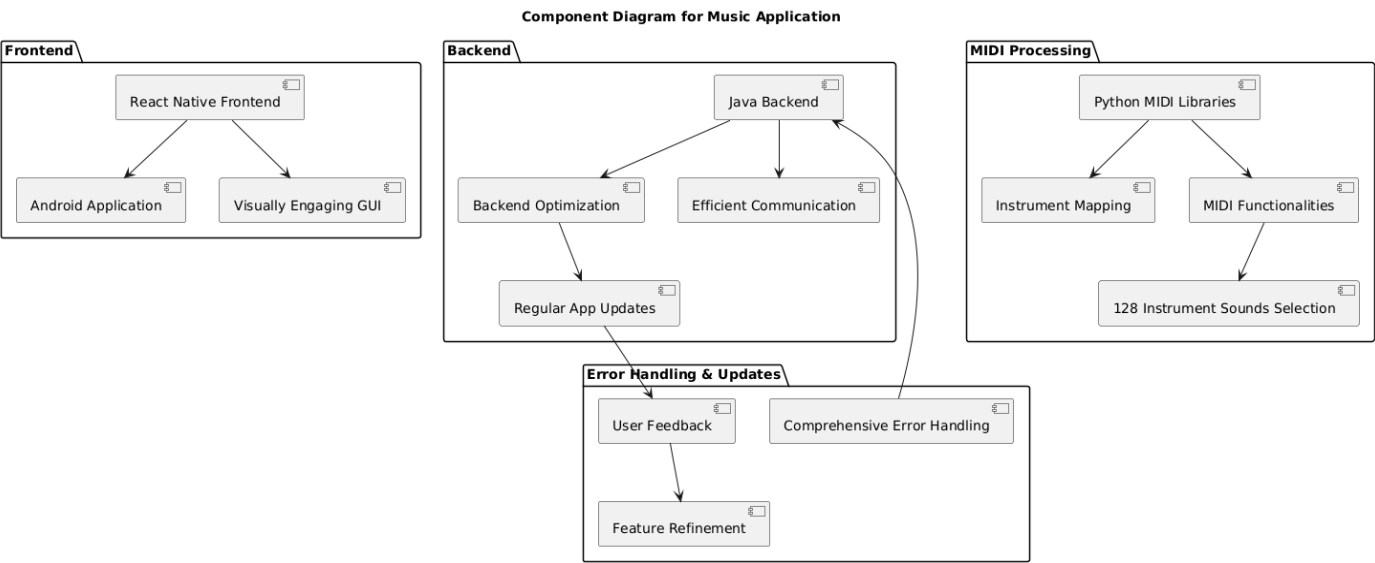## 3. SEQUENCE DIAGRAM

4. CLASS DIAGRAM

5. COMPONENT DIAGRAM

Component Diagram for Music Application

Frontend
- React Native Frontend
  - Android Application
  - Visually Engaging GUI

Backend
- Java Backend
  - Backend Optimization
  - Efficient Communication
  - Regular App Updates

MIDI Processing
- Python MIDI Libraries
  - Instrument Mapping
  - MIDI Functionalities
  - 128 Instrument Sounds Selection

Error Handling & Updates
- User Feedback
- Comprehensive Error Handling
- Feature Refinement

6. DEPLOYMENT DIAGRAM

Deployment Diagram for Music Application

User Device (Mobile)
- Visually Engaging GUI
- React Native Frontend
- 128 Instrument Sounds Selection
- Android Application

Database
- Regular App Updates
- User Feedback
- Feature Refinement

Server
- Java Backend
  - Backend Optimization
  - Efficient Communication
  - Python MIDI Libraries

7. ACTIVITY DIAGRAM

Activity Diagram for Music Application

- User Opens the Application
- Display Visually Engaging GUI
- User Selects Instrument
- Instrument Found?
  - Yes → Load MIDI Sound Library → Map Selected Instrument to MIDI → Enable User to Play Music
  - No → Show Error Message
- User Plays Notes via GUI
- Process MIDI Signals
- Generate Sound Output
- Error Occurs?
  - Yes → Trigger Error Handling → Log Issue
  - No → Continue Playing
- User Provides Feedback
- Send Feedback to Backend
- Feedback Received?
  - Yes → Analyze Feedback → Refine Features → Release App Updates