**Project Design Phase**

**Solution Architecture**

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| Date | 10 March 2025 |
| Team ID | SWTID1741256813147528 |
| Project Name | Rhythmic Tunes |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

### **1. Architecture Overview**

A scalable and cloud-based architecture for music streaming, recommendation, and user engagement.

### **2. Key Components**

* **Frontend:** Web & Mobile Apps (React, Flutter)
* **Backend:** Microservices-based (Node.js/Python, Express/FastAPI)
* **Database:** PostgreSQL (Users, Metadata), NoSQL (Music Library)
* **Cloud Storage:** AWS S3 / Google Cloud Storage (Audio Files)
* **Streaming:** HLS/DASH Streaming via CDN
* **AI/ML:** Personalized Recommendations (Collaborative Filtering, NLP)
* **Event Processing:** Kafka for real-time analytics
* **Authentication:** OAuth (Google, Apple), Firebase Auth
* **Deployment:** Docker, Kubernetes, CI/CD with GitHub Actions

**Example - Solution Architecture Diagram:**

