**Project Phase 2: App Architecture**

**Team Members:**

* Parika Singh
* Preetinder Singh
* Mohammed Al-Wadeai
* Jaskirat Singh
* Princejot Singh

**MP3 Maverick Architecture Decision Records (ADRs)**

**1. Decision Title: Development Framework Selection**

**Context:** Choosing the appropriate development framework for building the Crescendo Connect mobile app.

**Options Considered:**

1. React Native
2. Ionic
3. Cordova
4. Framework7
5. Native Script

**Decision:** React Native will be used as the development framework for Crescendo Connect.

**Rationale:**

* React Native provides a striking balance between performance and development speed.
* React Native allows for cross-platform development, which eliminates the requirement for distinct codebases for iOS and Android.
* React Native has a robust ecosystem, facilitating faster development and troubleshooting.

**Consequences:**

* Cross-platform framework can lead to specific bugs that are particular to either iOS or Android so extra testing and platform-specific resolutions are required.
* Custom implementations could be necessary for some advanced native functionalities.

**Follow-Up Actions:**

* Keeping all dependencies of React Native with the latest platform versions to minimize compatibility issues.
* Utilize platform-specific modules or native code when performance optimization calls for it.

**2. Decision Title: Navigation Strategy**

**Context:** Defining the navigation strategy to enhance user experience within the Crescendo Connect mobile app.

**Options Considered:**

1. Bottom tab navigation
2. Side menu navigation
3. Stack-based navigation.

**Decision:** Crescendo Connect will use bottom tab navigation.

**Rationale:**

* Bottom tab navigation provides easy access to the main sections of the app.
* It is a standard feature in music player apps, which guarantees user familiarity.
* The user interface remains clear and simple with bottom tab navigation.

**Consequences:**

* Bottom tab navigation may restrict the number of visible sections at once.
* Further navigation components can be needed to achieve a deeper navigation hierarchy.

**Follow-Up Actions:**

* Examine user comments frequently to improve navigation flow across iterations.
* As the app becomes more complicated, consider adding more navigational components.

**3. Decision Title: Hardware Utilization**

**Context:** Determining which hardware components will be utilized within the Crescendo Connect mobile app.

**Options Considered:**

1. GPS
2. Speaker
3. Fingerprint scanner.

**Decision:** Crescendo Connect will utilize GPS for location-based features and the device's speaker for audio playback.

**Rationale:**

* GPS leveraging makes location-based features possible, such as location-based personalized suggestions.
* Making use of the device's speaker improves audio playback capabilities, resulting in a flawless musical experience.
* The app's main functionality does not require the incorporation of a fingerprint scanner.

**Consequences:**

* On certain devices, GPS integration may influence battery life.
* It could be difficult to guarantee consistent volume control across various hardware and operating systems.

**Follow-Up Actions:**

* + Put power-saving measures in place that reduce battery drain from GPS use.
  + Test the app's calibration to create a baseline volume level that will ensure consistent audio playing on a range of hardware and operating systems.

**4. Decision Title: Database Storage**

**Context:** Determining the approach for storing data within the Crescendo Connect mobile app.

**Options Considered:**

1. Local storage (encrypted or unencrypted)
2. Remote storage
3. None

**Decision:** Remote database storage will be utilized for Crescendo Connect, specifically Firebase Firestore.

**Rationale:**

* Remote database storage enables real-time synchronization of user data across devices.
* Firebase Firestore offers scalability and reliability, essential for a growing user base.
* Collaborative features like shared playlists and social interactions are made easier with remote storage.

**Consequences:**

* Dependency on network connectivity for data access and synchronization.
* Possible security and privacy issues related to distant data storage.

**Follow-Up Actions:**

* Implement offline caching to ensure app functionality in low or no connectivity scenarios.
* Implement robust security measures to protect user data stored remotely.

# Progress Report: Crescendo Connect

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| --- | --- |
| Team Name: MP3 Maverick | Date: 11 February, 2024 |
| Team Members: Parika Singh, Preetinder Singh, Mohammed Al-Wadeai, Princejot Singh, Jaskirat Singh | Reporting Period: Phase 2 |

## Phase 2 – App Architecture

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| **Highlights and Accomplishments** | What major tasks have been completed in this phase of the project?   * Crescendo Connect's development framework, React Native, was chosen. * For improved user experience, a bottom tab navigation approach was designed. * Determined which hardware parts, such as the device's speaker and GPS, to use. * Decided to use Firebase Firestore for the app's remote database storage. |
| **Challenges and Issues** | What challenges, issues, or obstacles did you encounter and how did you overcome them?   * Examining the advantages and disadvantages of various development frameworks necessitated much investigation and discourse. * Concerns regarding energy consumption and performance optimization were brought up by the integration of hardware elements like GPS and speaker functions. * Scalability, data synchronization, and security were all important considerations for selecting the best database storage solution. |
| **Individual Contributions** | What did each member of the team work on in this phase of the project?   * Preetinder focused on user interface design and front-end development. * Princejot led backend development efforts and project management tasks. * Parika played a key role in app architecture decisions and code review. * Mohammed contributed to frontend development tasks and user testing activities. * Jaskirat provided expertise in system architecture and technical problem-solving. |
| **Team Plan for the Next Phase** | What do you plan on completing in the next phase of the project?   * Complete implementation of UI mock-ups and app architecture. * Start working on development chores to implement Crescendo Connect's essential features. * Make sure the app performs as expected and has adequate functionality by thoroughly testing it. * Start preparing for Crescendo Connect's beta release, to launch it by the conclusion of the following phase. |
| **Individual Plan for the Next Phase** | What do you plan on completing in the next phase of the project?   * Preetinder will continue refining UI mock-ups and start front-end development. * Princejot will supervise work related to backend development and make sure project deadlines are fulfilled. * Parika will concentrate on carrying out code reviews and improving the app's architecture. * Mohammed will take an active role in user testing and front-end development. * Jaskirat will oversee the implementation of the system design and handle any arising technical issues. |

**Attribution List**

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| **Team Member** | **Responsibilities** |
| Preetinder Singh | User interface design, Frontend development |
| Princejot Singh | Backend development, Project management |
| Parika Singh | App architecture, Code review |
| Mohammed Al-Wadeai | Frontend development, User testing |
| Jaskirat Singh | System architecture, Technical problem-solving |