

Software Requirements Specification for Software Engineering: subtitle describing software

Team 8 – Rhythm Rangers

Ansel Chen

Muhammad Jawad

Mohamad-Hassan Bahsoun

Matthew Baleanu

Ahmed Al-Hayali

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Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

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8.2 Product Use Case Table

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8.3 Individual Product Use Cases (PUC's)

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9 Functional Requirements

9.1 Functional Requirements

Requirement # 1**Requirement Type:** 9**Event/Use Case #:** 1**Description:** The system should respond to user actions (e.g. swipe, tap).**Rationale:** To allow users to interact with the system efficiently and intuitively.**Originator:** Requirement Analyst**Fit Criterion:** User performs an action (e.g. swipe, tap) and system responds within 2 seconds.**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 6, 2024**Requirement # 2****Requirement Type:** 9**Event/Use Case #:** 2**Description:** The system allows the users to select song features (e.g. tempo, genre), and it returns recommendations.**Rationale:** User wants song recommendations based on desired features.**Originator:** Requirement Analyst**Fit Criterion:** User can select features and does receive song recommendations.**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 6, 2024

Requirement # 3**Requirement Type:** 9**Event/Use Case #:** 3**Description:** The system generates a song based on reference song(s) or snippet(s) received from the user as input.**Rationale:** Users need an easy way to create music, without prior knowledge, that is similar to their input songs.**Originator:** Requirement Analyst**Fit Criterion:** Music is generated from the input reference song(s) or snippet(s).**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 6, 2024**Requirement # 4****Requirement Type:** 9**Event/Use Case #:** 4**Description:** The system will analyze a reference song or snippet, and provide its features.**Rationale:** Users, more particularly music producers and educators, need a way to break down songs for a more detailed analysis of their features.**Originator:** Requirement Analyst**Fit Criterion:** User is provided with various features and visualizations showing an accurate breakdown of their song or snippet.**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 11, 2024

Requirement # 5**Requirement Type:** 9**Event/Use Case #:** 4**Description:** The system will analyze a reference song or snippet, and provide its visualizations.**Rationale:** Users, more particularly music producers and educators, need a way to visualize the breakdown of songs for a better understanding and analysis.**Originator:** Requirement Analyst**Fit Criterion:** User is provided with various visualizations that accurately represent their song or snippet.**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 11, 2024**Requirement # 6****Requirement Type:** 9**Event/Use Case #:** 5**Description:** Users want recommendations based on reference song(s) and/or snippet(s).**Rationale:** Users want to discover new music or want music similar to the ones they are listening to.**Originator:** Requirement Analyst**Fit Criterion:** The system returns a list of recommendations.**Customer Satisfaction:** 5**Customer Dissatisfaction:** 0**Priority:** High**Conflicts:** None**Supporting Material:** None**History:** Created October 6, 2024

Requirement # 7
Requirement Type: 9
Event/Use Case #: 2,3,4,5
Description: The system will validate user inputs to ensure they are correct.
Rationale: Prevents errors and ensures the system processes valid data.
Originator: Requirement Analyst
Fit Criterion: The system will display an error message if the input is invalid, or will let the user proceed if the input is valid.
Customer Satisfaction: 5
Customer Dissatisfaction: 0
Priority: High
Conflicts: None
Supporting Material: None
History: Created October 6, 2024

10 Look and Feel Requirements

10.1 Appearance Requirements

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10.2 Style Requirements

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26 Ideas for Solution

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Appendix — Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Lifelong Learning. Please answer the following questions:

1. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.
2. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?

Music Analysis and Signal Processing: To acquire knowledge and skills in Music Analysis and Signal Processing, we can take on-line courses focused on audio signal processing and machine learning for music, building a solid theoretical foundation. We can also engage in discussions with university professors knowledgeable in this field. Additionally, we will take a look into analyzing audio data and implementing models using libraries like Librosa.

Frontend or Backend Development: For knowledge and skills in Frontend or Backend Development, we will look at documentation for backend frameworks like Django or Flask to learn how to build and manage the recommendation system. We will collaborate with teammates to share knowledge and enhance our skills.

UI/UX and Design: To acquire knowledge and skills in UI/UX and Design, we can read books and articles on UI/UX best practices to deepen our understanding of design principles. We can conduct user testing sessions with prototypes to gather feedback and iterate on the design.

Music Generation and AI: To acquire knowledge and skills in Music Generation and AI, we can will read research papers on generative models in music to understand their applications. Using Python libraries, we can test various algorithms to gain practical experience.

Team Management and Infrastructure: For Team Management and Infrastructure, the team will read books and articles on effective team leadership and management strategies, allowing us to understand different team dynamics and communication styles. We will also draw on our past experiences with team managers from co-op terms. Additionally, studying documentation on local server management and security best practices will help to establish a strong foundation for the project's infrastructure.