

# Requirements

## Functional Requirements

### Must have

- **Registration**
  - The system must provide a registration process for users to sign up and create their profiles.
  - The system must provide users with the possibility to log in to their accounts.
  - The system must allow users to create a profile for their account.
  - The system must let the user choose whether they want to create a student account or a teacher account.
- **Teacher profile**
  - The system must allow teachers to put their skills, qualifications and teaching experience on their profile.
- **Searching**
  - The system must allow users to search for teachers based on location.
  - The system must allow users to search for teachers based on musical skills.
  - The system must allow users to search for teachers based on experience level.
  - The system must allow users to search for teachers based on availability.
- **Lesson scheduling**
  - The system must allow students to schedule lessons with their chosen teachers.
- **Payment processing**
  - The system must have a secure payment gateway that receives payments from users (students).
  - The system must have a secure payment gateway that disburses payments to users (teachers).
- **Customer Support**
  - The system must allow the user to contact the platform administrators for assistance (email communication; list of contacts; live-support chat).

- **Navigation**

- The system must have a drop-down menu where users can switch between the different functionalities of the system such as the map, the lessons overview and their profile.

- **Review and ratings**

- The system must allow users to provide feedback on their experience with teachers and the platform.
- The system must allow users to provide ratings for teachers.

## **Should have**

- **Searching**

- The system should provide users with a visual map where each teacher's location will be associated with a bubble containing the instrument taught.
- The system should display the number of teachers in a given area on the visual map.

- **Lesson scheduling**

- The system should allow teachers to mark the days and times when they are available.

- **Customer Support**

- The system must provide a FAQ page for users that will aid in solving common problems.

## **Could have**

- **Teacher profiles**

- The system could allow teachers to put their videos showcasing their skills on their profiles.

- **Payment processing**

- The system could allow teachers to only receive their payment after the lesson has been ended by the teacher.

- **Notifications**

- The system could allow the users to receive notifications about their lesson booking, cancellations and other announcements.

- **Admin panel**
  - The system could have an admin dashboard for the administrators.
  - The system could allow administrators to manage user accounts and teacher profiles on the admin dashboard.
  - The system could allow administrators to manage different settings on the admin dashboard.
  
- **Analytics**
  - The admin dashboard should display metrics and data analysis of the system for example showing the amount of bookings and revenue generated..

## Quality Requirements

- **Functional suitability**

**NOTE: Functional completeness requirements are a summary of the system's general functionality.**

**NOTE: Add functional correctness requirements**

  - **Functional completeness:** Teachers should be able to create detailed profiles that highlight their skills, qualifications, teaching experience, and other relevant information to help users make informed decisions.
  - **Functional completeness:** The platform should offer a robust search system that allows users to find teachers based on criteria such as location, instrument, genre, experience level, and availability.
  - **Functional completeness:** Users should be able to easily schedule lessons with their chosen teachers, selecting suitable dates and times.
  - **Functional completeness:** The platform should integrate a secure payment gateway that allows users to make payments for lessons, ensuring the privacy of financial information.
  - **Functional completeness:** The platform should be able to withhold payment until the lesson and transaction credentials were validated.
  - **Functional completeness:** Users should have the ability to provide feedback and ratings on their experiences with teachers, promoting transparency and helping others make informed decisions.
  - **Functional completeness:** Automated notifications should be sent to users and teachers regarding lesson bookings, cancellations, reminders, and other important information to ensure effective communication.
  - **Functional completeness:** The platform should provide an admin panel/dashboard that enables the platform administrator to manage user accounts, teacher profiles, and system settings, and resolve any issues that may arise.
  - **Functional completeness:** The platform should incorporate analytics features that allow the administrator to track relevant metrics such as user engagement, revenue, teacher performance, and others to assess the platform's success.
  - **Functional completeness:** A customer support system should be in place to assist users with any issues or queries they may have, such as a comprehensive FAQ section, a contact page, or a pop-up live support chat.

- **Functional completeness:** The platform should include a map feature that displays icons representing musicians in different areas. Users should be able to click on the icons to view musician profiles and their available lesson times.
- **Performance efficiency**
  - **Time behaviour:** The average time for a payment transaction shall be less than 500 ms; 99% of the transactions shall be performed within 2000 ms.
  - **Time behaviour:** The average response time when students book lessons should be less than 1 second.
  - **Capacity:** The system shall service up to 10000 users in parallel without performance degradation.
- **Compatibility**
  - **Interoperability:** The system must be able to exchange transaction information with the payment gateway.
- **Usability**
  - **Appropriateness recognizability:** At least 95 % of the people using this platform will understand that it is used for offering and taking music lessons.
  - **Learnability:** The platform should have an intuitive and easy-to-use interface, allowing new users to navigate and access its features without confusion in the first 10 minutes of using the system.
  - **Operability:** If wrong credentials are introduced during login, an appropriate warning is displayed on the screen.
  - **User error protection:** The platform must ensure at all times that the same lesson cannot be booked multiple times by the same or different users. Also, make sure the user books the right lesson by asking for additional confirmation at the end of the process
  - **User interface aesthetics:** The platform's colour design will respect the 60-30-10 rule; 60% purple (#8A3EB7), 30% beige (#F2B84A), 10% light lavender (#F5F5F5).
  - **User interface aesthetics:** At least 98% of the users will find that the platform has a pleasing layout and to the stress of having to book a lesson.
- **Reliability**
  - **Availability:** The system must have maximum downtime of 1 hour every month.
  - **Recoverability:** In case of a system breakdown, all partially conducted payment transactions will be rolled back.
- **Security**
  - **Confidentiality:** Data handling should be GDPR-compliant.
  - **Confidentiality:** Account information, such as e-mails and passwords, must be stored securely in the database (hashing) to prevent data leaks. The hashing algorithm must be resistant to rainbow table attacks.
  - **Non-repudiation:** Permissions and privileges must be set to manage access to authorized users.
  - **Non-repudiation:** The system should log the lessons and the participating parties of the said lesson whenever it takes place. Payments should also be logged in the system.

- **Authenticity:** The platform must enforce strong password policies, including requirements for a minimum length of 8 characters, mandatory use of 1 lower case character, 1 upper case character, 1 number, and 1 special character.
- **Maintainability**
- **Modifiability:** Updating the design, contents, or functionality of one page of the platform should not affect other functionalities of the system.
- **Portability**
- **Installability:** At least 99% of users that own a smartphone should be able to access the platform from their phone's web browser.
- **Installability:** At least 99% of users that own a computer should be able to access the platform from their PC's web browser.

## User Stories

**User sign-up and registration: A registration process that allows users to sign up and create their profiles.**

- As a student, I want to be able to create a student account, so that I can use the system as a student and book lessons.
  - Test with existing login credentials (fail)
  - Test with non-existing login credentials (pass)
- As a teacher, I want to be able to create a teacher account, so that I can use the system as a teacher and offer lessons.
  - Test with existing login credentials (fail)
  - Test with non-existing login credentials (pass)
- As a user, I want to be able to sign in to a student account, so that I can use the system as a student and book lessons.
  - Test with valid login credentials (pass)
  - Test with wrong password (fail)
- As a user, I want to be able to sign in to a teacher account, so that I can use the system as a teacher and offer lessons.
  - Test with valid login credentials (pass)
  - Test with wrong password (fail)

**Teacher profiles: A way for teachers to create profiles that showcase their skills, qualifications, and teaching experience.**

- As a teacher, I want to be able to create a teaching profile, so that students can find my account.
-

- As a teacher, I want to be able to add my musical skills to my profile, so that I can showcase them.
  - Test with existing instrument (pass)
  - Test with non-existing instrument (fail)
- As a teacher, I want to be able to add my qualifications to my profile, so that I can showcase them.
- As a teacher, I want to be able to add my teaching experience to my profile, so that I can showcase my experience.
- As a teacher, I want to be able to add videos to my profile, so that I can showcase my skills.

**Search functionality: Users can search for teachers by location, skill, experience level, and availability.**

- As a user, I want to be able to search for teachers by location, so that I can find teachers in the same area.
- As a user, I want to be able to search for teachers by musical skill, so that I can find the teachers with the skill I am looking for.
- As a user, I want to be able to search for teachers by experience level, so that I can find a suitable teacher.
- As a user, I want to be able to search for teachers by availability, so that I can make sure I can book lessons with a teacher.
- As a user, I want to be able to search for teachers by name, so that I can easily find them.
- As a user, I want to be able to search for teachers using a visual map, so that I can see the teachers in my area.

**Lesson scheduling: A booking system that allows users to schedule lessons with their chosen teachers, but also to show the available time slots.**

- As a student, I want to be able to schedule lessons with my chosen teacher at a specific time and date, so that they can teach me.
  - Test scheduling on a specific unavailable time (fail)
  - Test scheduling on a specific available time (pass)
- As a teacher, I want to be able to indicate the time I am available for teaching so that students can choose the time slots convenient for them.
  - Test putting availability on empty slots (pass)
  - Test putting availability on non-empty slots (fail)

**Payment processing: A secure payment gateway that processes payments from users and distributes funds to teachers.**

- As a teacher, I want to be able to receive payments through a secure payment gateway, so that I can be certain transactions are trustworthy and my personal information is not leaked.
- As a user, I want to pay through a secure payment gateway, so that I can be sure the correct teacher receives my payment and my personal information is not leaked.
- As a student, I want the system to keep my payment until the teacher has confirmed that the lesson has taken place.
- As a teacher, I want to receive the payment from the student after I have confirmed that the lesson has ended.
  - Test getting payment before confirmation (fail)
  - Test getting payment after confirmation (pass)

**Customer support: A customer support system that allows users to contact the platform admin for assistance with any issues or queries they may have. For example, a chat pop-up icon on the bottom right or a FAQ.**

- As a customer, I want to be able to contact the admin, so that I can ask for assistance.
- As a customer, I want to be able to see a FAQ page, so that I can find answers to the most common questions.
- As a customer, I want to be able to access a chat pop-up, so that I can check for a common problem or contact the platform staff through email.
- As a customer, I want to be able to open a ticket, so that I can file a detailed description of an issue.
- As a customer support employee, I want to be able to respond to a submitted e-mail, so that I can solve the customer's issue.

**Reviews and ratings: A system that enables users to provide feedback and ratings on their experiences with the teachers.**

- As a user, I want to be able to provide feedback about my teacher so that the teacher and other users will be able to reflect on this feedback.
  - Test providing empty feedback (fail)
- As a user, I want to be able to provide a rating describing my experience with the teacher, so that I can contribute to the average rating.
  - Test giving rating between 0 and 5 (pass)
  - Test giving rating out of bounds (fail)
- As a teacher, I want to be able to have an average rating displayed on my profile so that other users can view my rating.
- As a teacher, I want to be able to have feedback from students displayed on my profile, so that I and other users can reflect on this information.

**A drop-down menu where users would be able to switch from for example the map, their profile, and the contact page to other functions**

- As a user, I want to be able to switch between the different functionalities such as the map and my system profile by using a drop-down menu, so that I can navigate through the system.

## Optional

**Notifications: Automated notifications are sent to users and teachers regarding lesson bookings, cancellations, and other important information.**

- **Schedule a booking**

- As a student, I want to be notified 48 hours (and maybe 24h, 3h, ...) before a lesson with a teacher, so that I can be reminded of the date and time of the lesson.
  - Test receiving a notification before a lesson (pass)
- As a teacher, I want to be notified when a student successfully schedules a lesson with me, so that I can prepare for the upcoming session.
  - Test receiving a notification before a lesson (pass)
- As a teacher, I want to be notified 48 (and maybe 24h, 3h, ...) hours before a session, so that I can be reminded of the date and time of the session.
  - Test receiving a notification before a lesson (pass)

- **Cancel a booking**

- As a student, I want to be notified when a lesson is cancelled by a teacher so that I can reschedule the lesson or book another one.
  - Test receiving notification after a cancellation (pass)
- As a teacher, I want to be notified when a lesson is cancelled by a student so that I can offer the time slot to another student.
  - Test receiving notification after a cancellation (pass)

- **Update a booking**

- As a student, I want to be notified if there is an update related to my lesson so that I can know what has been changed.
  - Test receiving notification after update (pass)
- As a teacher, I want to set up automated notifications about important announcements to the students, so that they can be prepared for the upcoming session.
  - Test receiving notification after update (pass)

- **Administrator**

- As an administrator, I want to keep track of notifications sent and received by both teachers and students, so that I can have a non-repudiation system.

**Admin panel: A dashboard for the platform admin to manage user accounts, teacher profiles, and other platform settings.**



- As an administrator, I want to create, manage and delete user accounts, so that I can manage user access and permissions.
  - Test creating a user with already used credentials (fail)
  - Test creating a non-existing user (pass)
  - Test deleting a non-existing user (fail)
  - Test deleting an existing user (pass)
- As an administrator, I want to see the bookings of users and the feedback they have given so that I can keep track of the user's activity.
- As an administrator, I want to see the bookings of teachers, so that I can keep track of the teacher's activity.
- As an administrator, I want to be able to edit platform settings (payments, commissions), in order to accomplish business and user goals.
- As an administrator, I want to be able to send notifications to users, so that I can notify them of upcoming changes and keep a good relationship with the platform's community.
  - Test sent notification is received by the user (pass)

**Analytics: Metrics and data analysis feature that enable the platform admin to track user engagement, revenue, and other performance indicators.**

- As an administrator, I want to be able to see the total users registered, so that I can keep track of the growth of the platform's community.
- As an administrator, I want to be able to see the total revenue generated for specified periods of time, so that I can keep track of the platform's income.
- As an administrator, I want to be able to see the number of lessons booked for specified instruments and teachers, so that I can identify the trends over time.
- As an administrator, I want to be able to see the number of lessons booked based on location, so that I can identify popular areas.
- As an administrator, I want to be able to see the ratings of the teachers, so that I can see whether the teachers are competent enough to continue offering services.
- As an administrator, I want to be able to see the most popular musical skill being booked, so that I can identify new marketing opportunities.

**Profile editing**

- As a teacher, I want to be able to switch my location, so that students can see my new location.
  - Test switching to the same location (pass)
  - Test switching to a non-existing location (fail)
  - Test switching to existing location (pass)
- As a user, I want to be able to change my profile attributes, so that others can see my new details.
  - Test changing profile attributes to valid attributes (pass)
  - Test changing profile attributes to invalid attributes (fail)

- As a user, I want to be able to change my contact information, so that others would be able to get in touch with me.
  - Test changing contact information (pass)