



# VIT<sup>®</sup>

**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)

# SkillSphere: Where Learning Meets Sharing

**CSI1007 – Software Engineering Principles  
Laboratory**

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# SkillSphere: Where Learning Meets Sharing



## **Description of the Project:**

SkillSphere is an online platform designed to replace traditional skill-sharing methods with a seamless digital ecosystem, facilitating mentorship and personal development through a community-driven approach.



**Scope of the Project:** The SkillSphere platform is designed to facilitate knowledge exchange through a time credit system instead of monetary transactions. The platform allows users to offer their skills, learn from others and build a collaborative learning community. It helps to connect with a community of like-minded learners and guiders.

# Impact of the developing Project:

## 1.Economic Impact:



- Cost-effective learning and skill development- It eliminates financial barrier to education by allowing users to exchange skills without monetary transactions.
- Encourages peer-to-peer learning, reducing reliance on paid courses.
- Encourages local and university level engagement-encourages entrepreneurial mindset by allowing students to promote their expertise

# Impact of the developing Project:

## 2.Social Impact:



- Promotes knowledge sharing and collaboration-creates a culture of shared learning and encourages collaborative problem-solving among diverse groups.
- Increases accessibility to Education-Anyone with expertise can become a guide. Beneficial for underprivileged communities who lack access to expensive courses.
- Helps students and professionals learn technical and non-technical skills at their own.

## Impact of the developing Project:

### 3. Technological Impact:



- Encourages adoption of e-learning platforms- Introduces students to online education and digital tools.
- Integrates with cloud computing for secure storage, ensuring scalability and accessibility.
- A time-credit based transaction system creates a virtual currency model for skills exchanges.
- The system includes an instant messaging feature to facilitate discussion between skill providers and seekers.

## Impact of the developing Project:

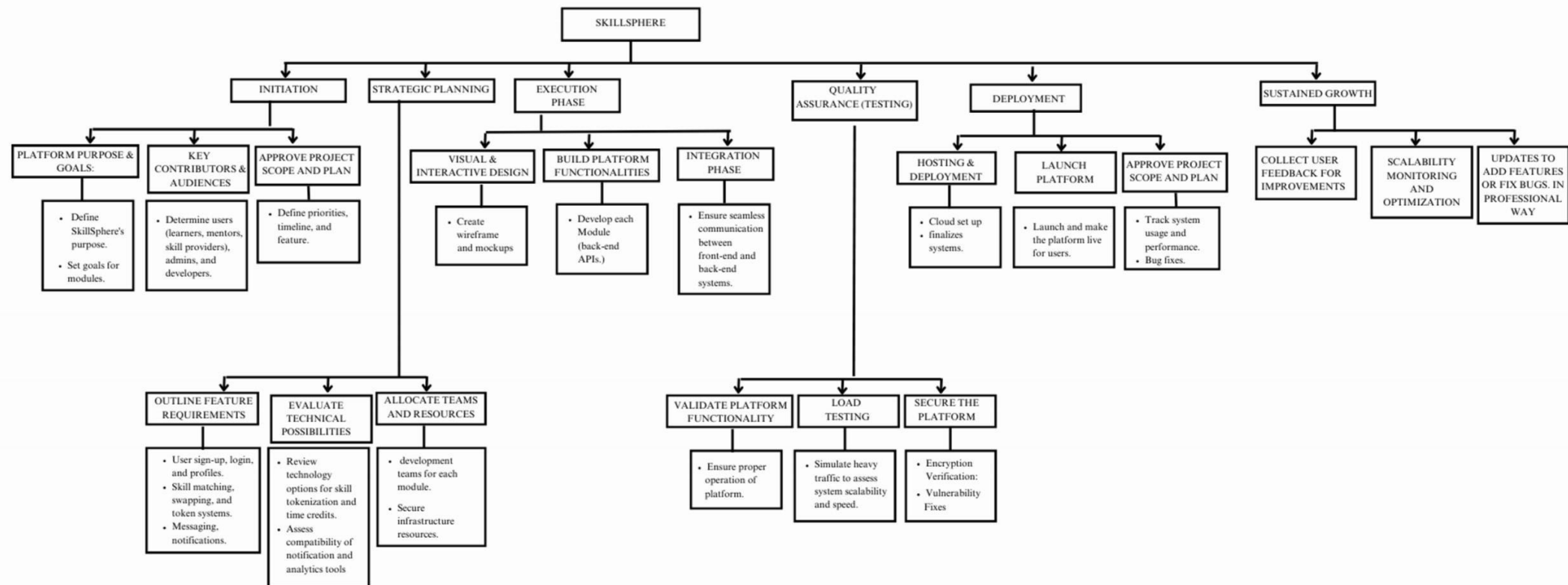
### 4.Environmental Impact:



- Reduces carbon footprint of traditional learning-eliminates the need of physical classrooms, reducing electricity and water consumptions in institutions.
- Promotes a remote learning culture, reducing transportation emissions.
- Future implementation of eco-friendly hosting solutions (eg.using green data centers-stores and processes data while using less electricity) will help to minimize e-waste.

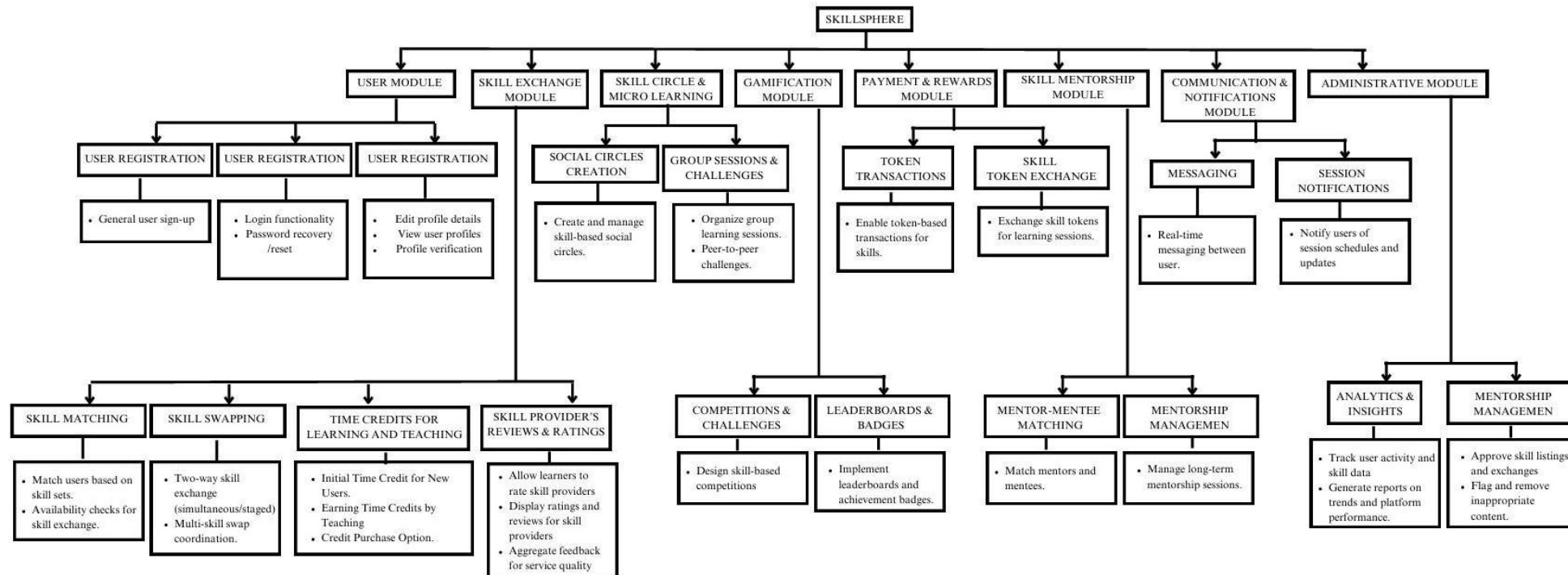
# Work Breakdown Structure

- Process-Based Work Breakdown Structure





- Product-Based Work Breakdown Structure



# SRS Document

- Functional Requirements

## **1. User Registration and Profile Management**

- Users are able to register with an email address, username, and password or through social login (e.g., Google, LinkedIn).
- Profiles must include personal details, skills offered, skills desired, bio, profile picture, and time credit balance.
- Users can edit their profile details at any time.

## 2.Skill Listing and Search

- Users are able to create skill listings with a description, category, and availability.
- Users can search for skills based on filters such as,
  - ✓Keywords which matches skill titles, tags, or descriptions.
  - ✓Skill Category (e.g., Technical, Creativity, Personal Development).
  - ✓User Ratings.
  - ✓Skill Providers Availability and their cost of Time Credits.
- The system provides recommendations for skills based on user interests

### 3. Time Credit Management

- Skill providers are able to set the time credit, cost per session or per hour, when creating a skill listing (e.g., 2 credits per 1-hour session).
- Providers have the ability to update their time credit rates at any time.
- Users spend time credits to book a session with a skill provider.
- Time credits are automatically credited to the provider's account after the session is marked as complete by the seeker.
- In case of a cancellation, credits are refunded based on cancellation policies (e.g., full refund of time credit if cancelled).

## 4. Scheduling and Communication

- Skill providers will define their availability (e.g., days and time slots).
- Seekers must view the provider's available time slots and select a suitable slot for booking a session.
- A shared calendar view will be available to both providers and seekers, showing all upcoming and past sessions.
- An in-app messaging system allow seekers to communicate securely for session details and clarification.

## **5. Feedback and Moderation**

- After completing a course, both the seeker and provider will be prompted to leave feedback about the experience.
- It includes star-rating and a text-based review.
- Users have the ability to report inappropriate behaviour, low-quality or any other violations.
- Admin gets notified automatically when receiving multiple reports.

- Non-Functional Requirements

- 1. Performance Requirements**

- The system is capable of supporting up to 10,000 concurrent active users.
- Ensure response times below 2 seconds for core features like user login, data retrieval, transactions, and others.
- The system is designed and tested to ensure it can handle this number of concurrent users without significant slowdown in response times.

## 2. Security Requirements

- Data encryption for sensitive user information.
- This includes personal information (e.g., name, contact details), authentication credentials, time credits, lesson history, and other sensitive data exchanged on the platform.
- All communications between users (such as login credentials, profile information, time credit transactions, lesson requests, and messaging) are encrypted using Transport Layer Security (TLS).
- Secure login with optimal two-factor authentication. (2FA)
- The platform requires 2FA for sensitive actions such as changing account settings, withdrawing time credits, or interacting with financial data.



### 3. Scalability Requirements

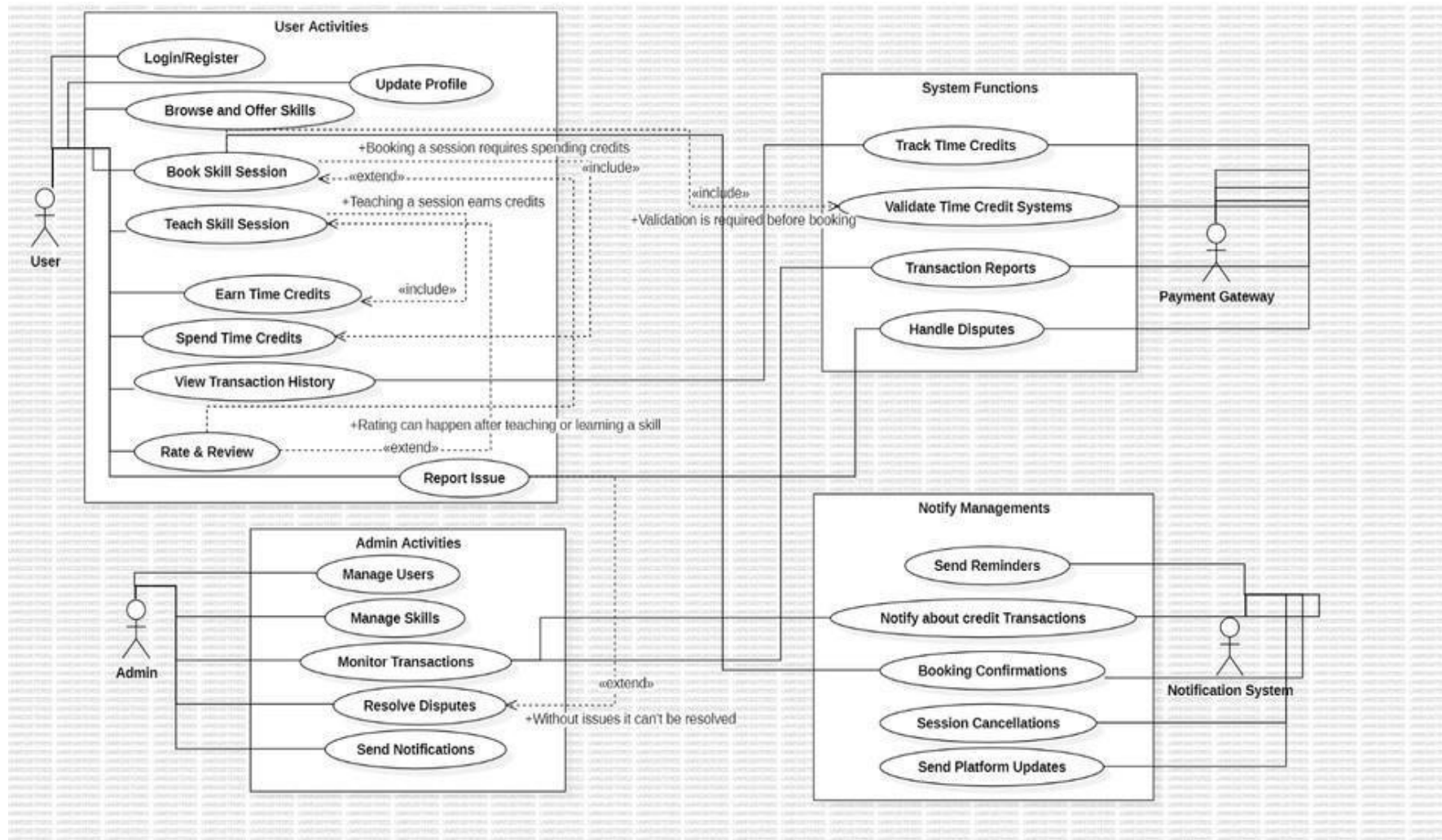
- The Scalability Requirements are designed to ensure the system can efficiently handle increases in the number of users, skill listings, and transactions as the platform grows.
- The platform supports horizontal scaling, which involves adding more computing resources (e.g., servers) to distribute the load as user base and transactions grow. This will ensure that it can handle increased traffic and growing user registrations.
- While horizontal scaling is the primary approach, in some cases vertical scaling is also required. It involves increasing the capacity of individual servers (e.g., upgrading the CPU, adding more RAM) to handle a larger workload on a single machine.

## 4. Usability Requirements

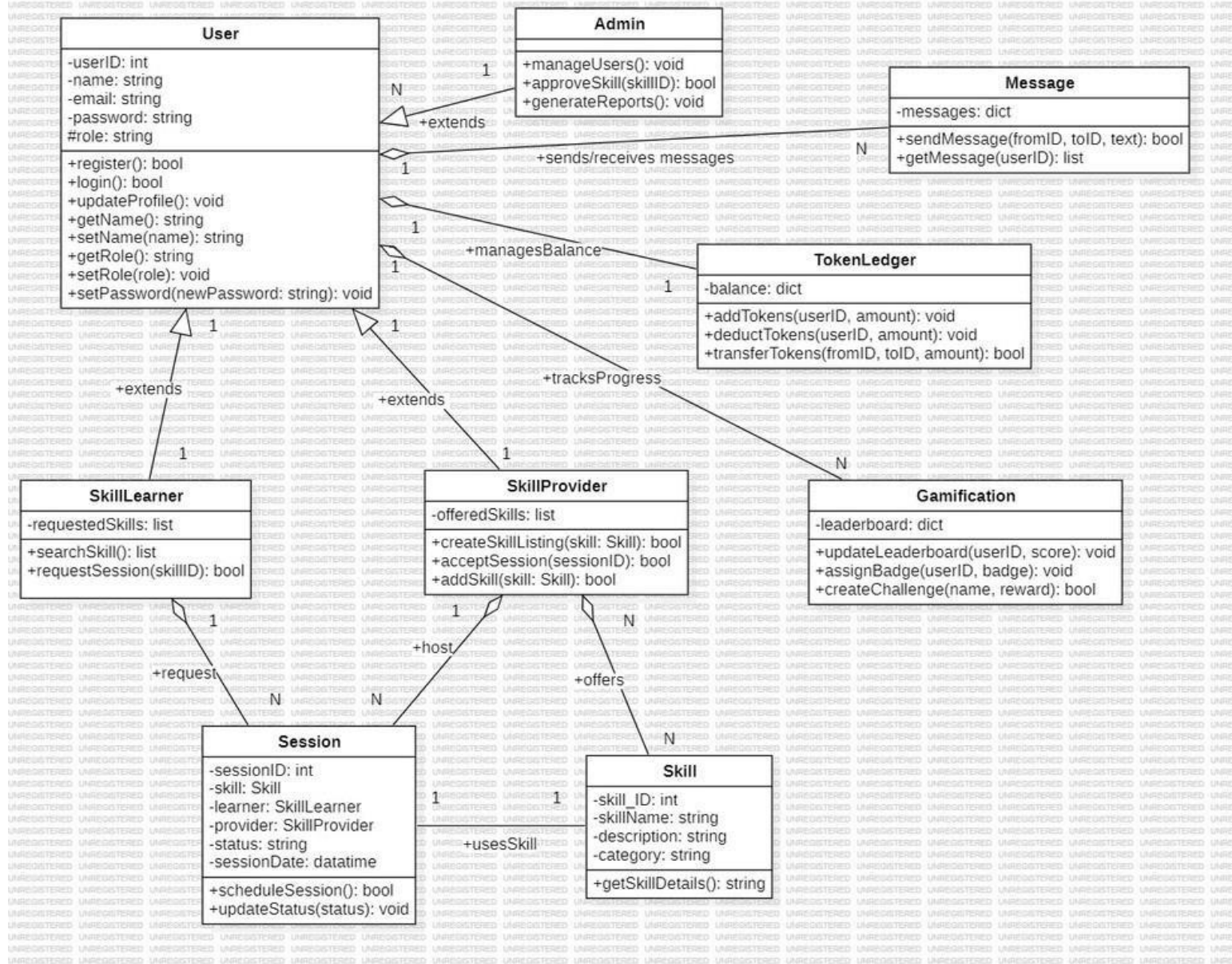
- The platform helps users with varying levels of technical expertise, from beginners who may not be familiar with digital platforms, to more advanced users who are accustomed to complex online environments.
- Provide onboarding with tooltips or short guides for new users. Since SkillSphere is a global platform, it provides multilingual support to accommodate users from different backgrounds.
- Intuitive navigation with logically grouped actions (e.g., "Skill Matching" and "Skill Swapping" under a "Skill Exchange" tab).
- Display progress indicators or confirmation messages for actions.
- Standardize design elements (consistent button colors and styles for "Confirm" and "Cancel").

# UML - Diagrams

- Use-case diagram

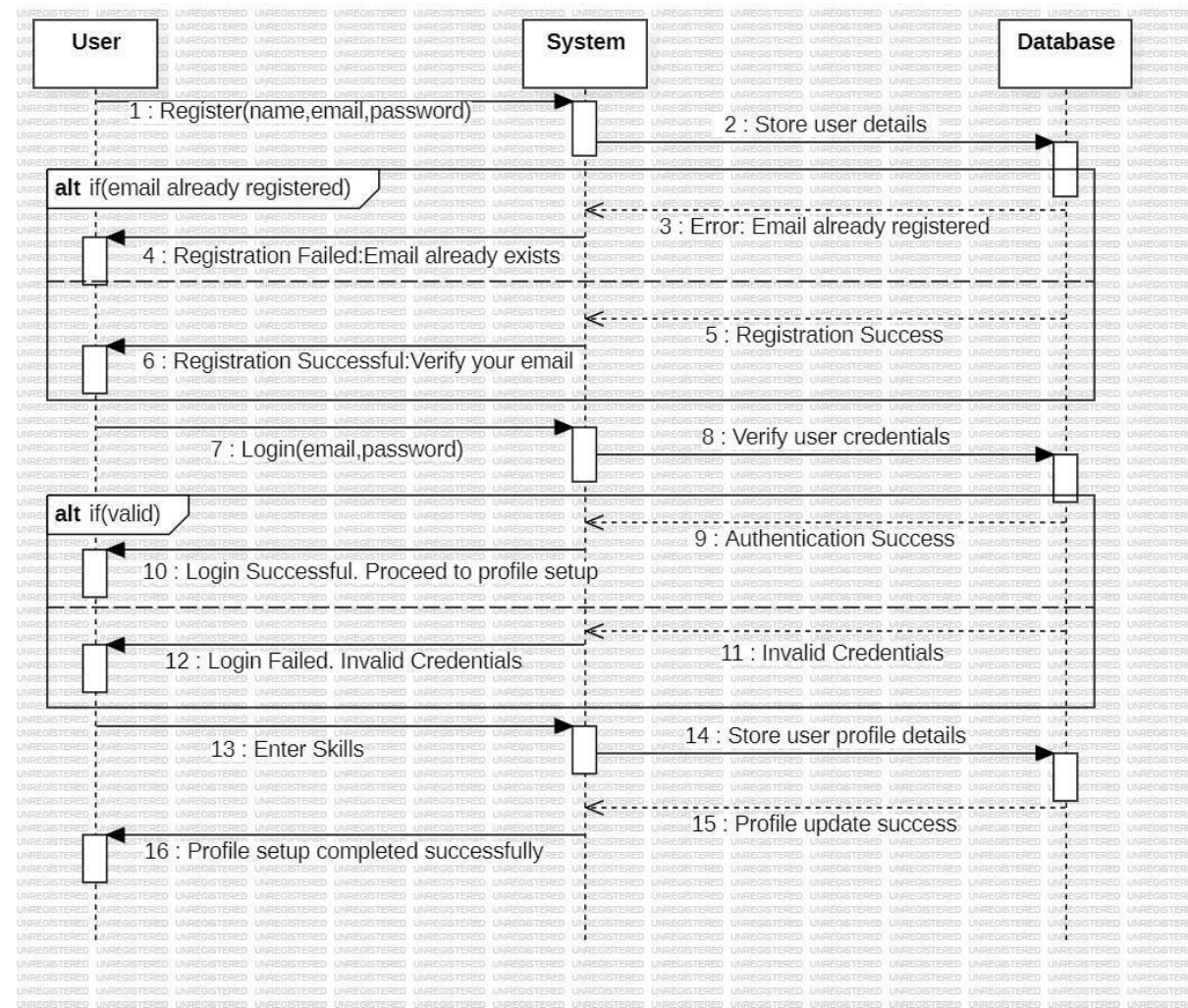


# • Class diagram

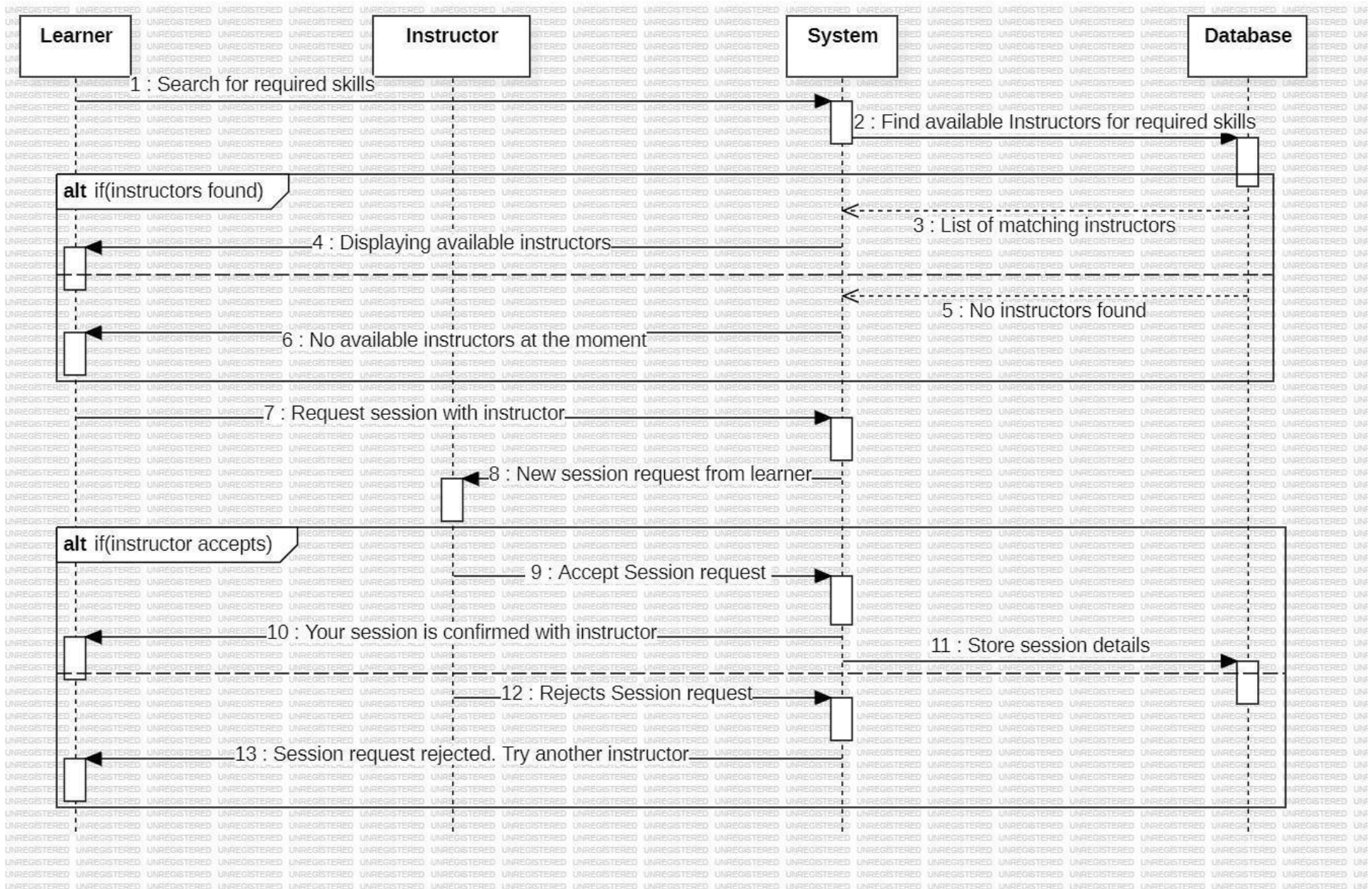


# • Sequence diagram

## 1. User Login

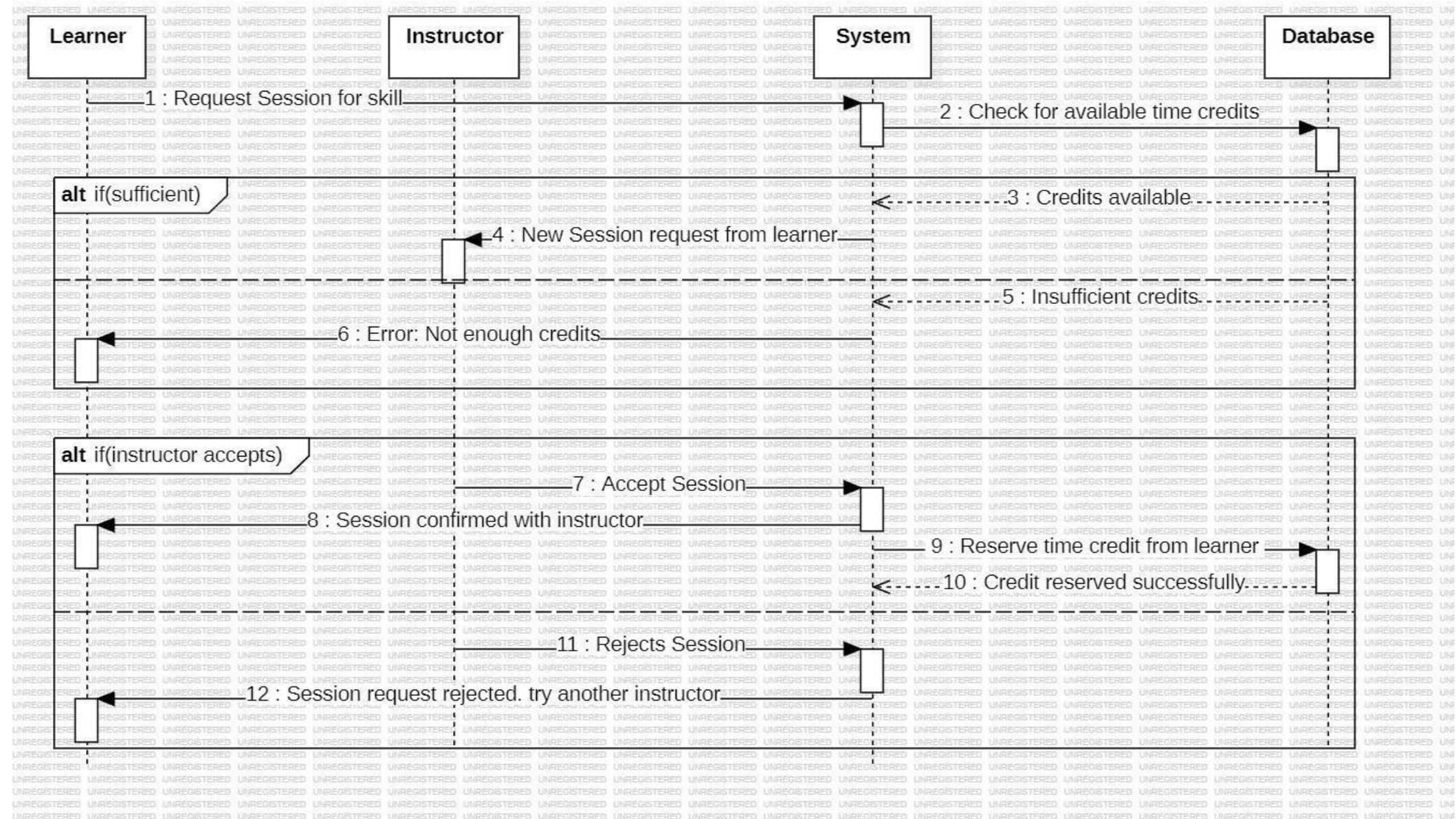


## 2. Based on Instructor availability





### 3. Based on time credits



# Testing

- Comprehensive testing for any two scenarios in your project

**Test Case 1:** Search for a Skill with Valid and Invalid Inputs

**Test Case ID:** TC001

**Test Scenario:** Validate skill search functionality under different input conditions.

**Test Description:** Ensure users can search for skills and receive appropriate results or error messages.

**Preconditions:** The system must have a database of skill listings.

**Test Steps:**

1. Open the skill search page.
2. Enter a skill name in the search bar.
3. Click the "Search" button.



## **Test Data:**

**Valid Input:** Skill: Python → Expected Result: List of Python-related skill providers displayed.

### **Invalid Cases:**

- Skill: !@# (Special characters) → Expected Error: "Invalid skill name."
- Empty Input → Expected Error: "Please enter a skill to search."

### **Expected Result:**

- Valid skills should return relevant providers.
- Invalid inputs should trigger appropriate error messages.

### **Actual Result:**

- Relevant skills returned correct providers.
- Invalid inputs resulted in expected error messages.

**Pass/Fail:** Pass

## **Test Case 2:** Checking Token Points

**Test Case ID:** TC002

**Test Scenario:** Validate the functionality of token points retrieval.

**Test Description:** Ensure users can view their correct token points.

**Preconditions:** The user must have an active account with a valid token points.

### **Test Steps:**

- 1.Navigate to the user dashboard.
- 2.Click "Wallet" or "Token Points."

**Expected Result:**

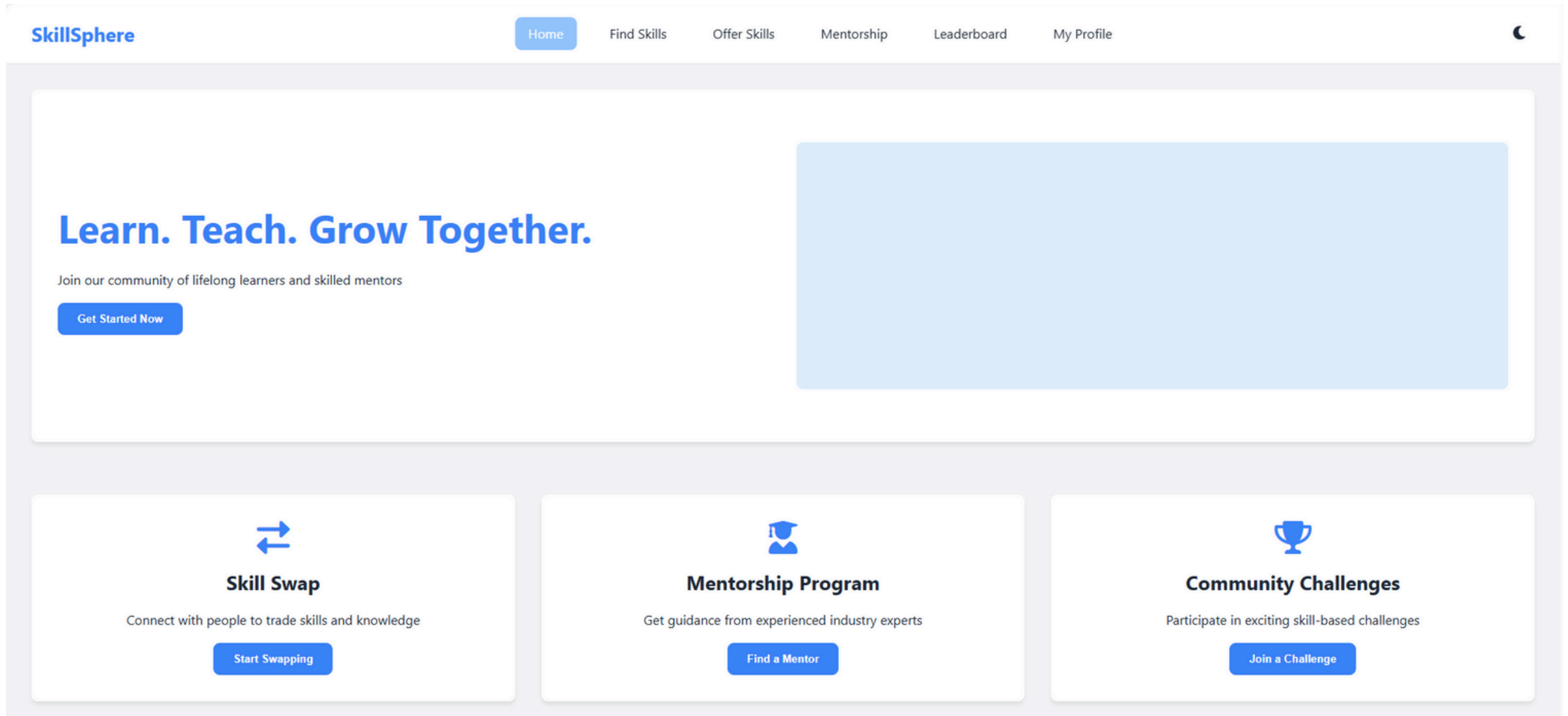
The system should display the correct token points for the user.

**Actual Result:**

Token points was correctly retrieved and displayed.

**Pass/Fail:** Pass

# Project



SkillSphere

Home

Find Skills

Offer Skills

Mentorship

Leaderboard

My Profile

What Our Users Say

"SkillSphere helped me learn web development by connecting me with amazing mentors!"  
- Alex Chen

Frequently Asked Questions

How does skill swapping work?  
Connect with other users who have complementary skills. You teach what you know, and learn what you want to know!

Is mentorship free?  
Some mentors offer free sessions, while others may charge. All pricing is clearly displayed on mentor profiles.

How do I earn points?  
Earn points by teaching others, completing challenges, and receiving positive feedback from your mentees.

Get in Touch

Name

Email

Message

Send Message

SkillSphere

Learn. Teach. Grow Together.

Quick Links

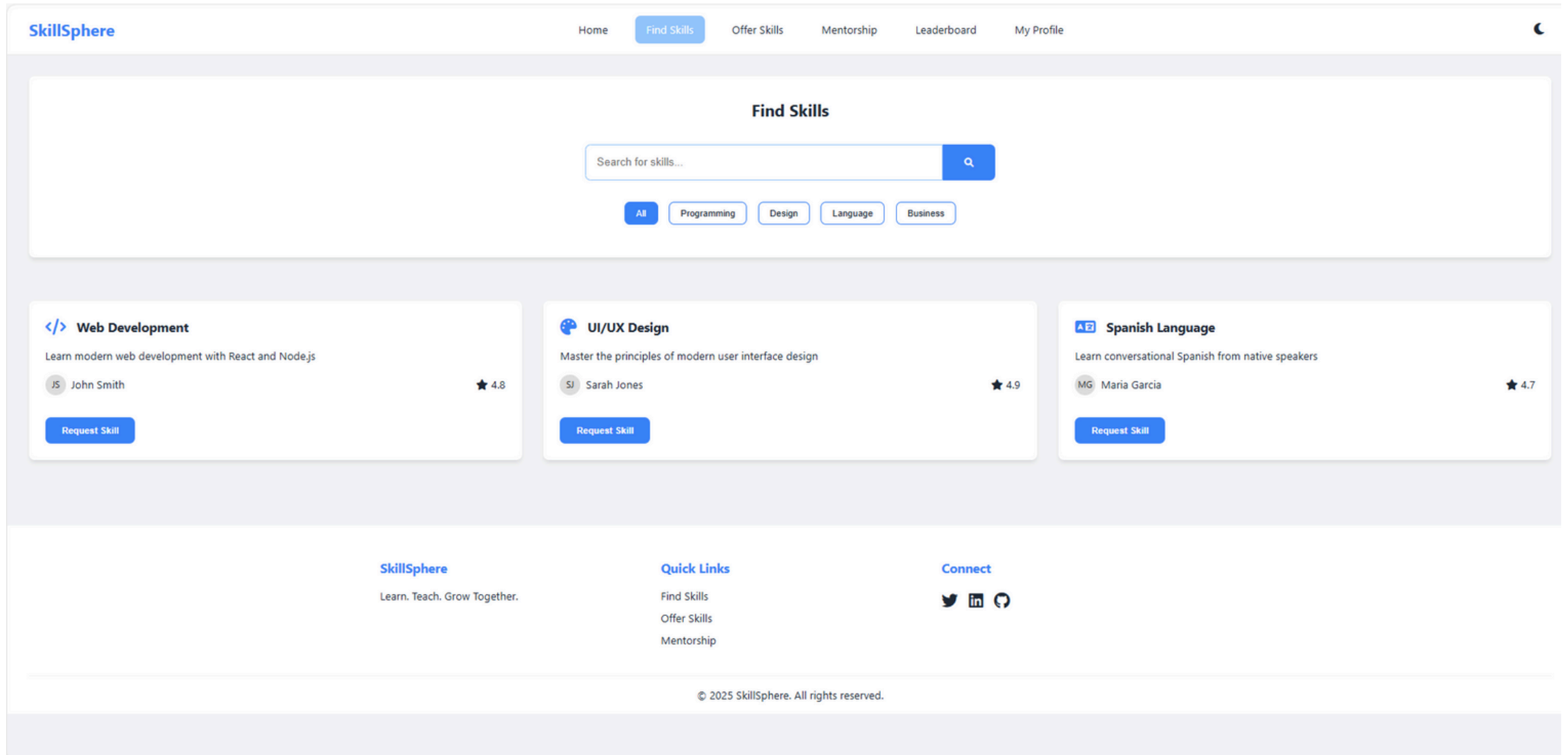
Find Skills

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Leaderboard

My Profile

Share Your Skills

Skill Title

Category

Select a category

Description

Teaching Level

Select level

Availability (hours per week)

Offer Skill

My Offered Skills

JavaScript Development

Programming

Teaching modern JavaScript including ES6+ features and frameworks

Advanced Level 10 hrs/week

12 Students 4.8

Edit

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My Profile

Find Your Perfect Mentor

All

Technology

Business

Creative

Language

DW

David Wilson

Senior Software Engineer

10+ years of experience in full-stack development. Specialized in React and Node.js.

★ 4.9

50+ mentees

Next Available Slots

Mon 2 PM

Wed 10 AM

Fri 4 PM

Book Session

EC

Emily Chen

UX Design Lead

Design leader with experience at top tech companies. Passionate about user-centered design.

★ 4.8

35+ mentees

Next Available Slots

Tue 3 PM

Thu 11 AM

Sat 2 PM

Book Session

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Quick Links

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Offer Skills

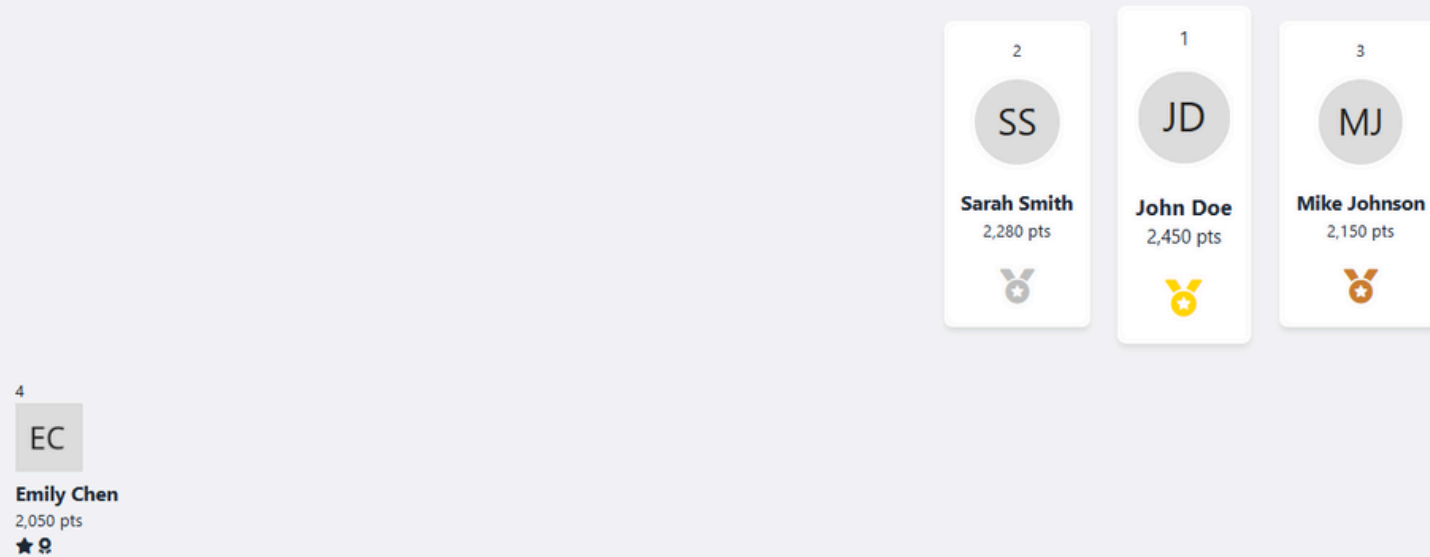
Mentorship

Connect

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## Top Contributors

[All Time](#) [This Month](#) [This Week](#)

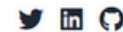
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## Connect





**John Doe**  
Full Stack Developer

**1,250** Points   **15** Skills Shared   **25** Sessions [Edit Profile](#)

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**Earned Badges**

★ Top Mentor

⚙ Skill Master

🏆 Challenge Winner

**Recent Activity**



**Completed React Workshop**

Earned 50 points  
2 days ago



**Mentored 3 Students**

Earned 150 points  
1 week ago

**SkillSphere**

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