

In The Partial Fulfilment Of
Master Science (Information Technology)
Sem-8



LJ Institute of Computer Applications
LJ University, Ahmedabad

SkillSwap: Skills Exchange Platform

Developed By:

1. Name: Yash Shah
2. Name: Arnold Macwan
3. Name: Nandini Bhavsar

Guided By:

Prof. Ananya Yaduvanshi

L.J Institute of Computer Applications

Near Nagdev Kalyan Mandir, Near Sanand Cross Roads,
Sarkhej-Gandhinagar Highway, Ahmedabad – 382210
Phone No: 9099063417



CERTIFICATE

Enrollment No: 21004500210160

This is to certify that **Yash Shah** of Master of Science (MSc.IT), Semester - 8, Roll No- **60 (B)** has satisfactorily completed his project titled **SkillSwap-Skill Exchange Platform** in Web Application Development using MEAN stack.

Internal Guide:

HOD:

Date of Submission:

L.J Institute of Computer Applications

Near Nagdev Kalyan Mandir, Near Sanand Cross Roads,
Sarkhej-Gandhinagar Highway, Ahmedabad – 382210
Phone No: 9099063417



CERTIFICATE

Enrollment No: 21004500210065

This is to certify that **Arnold Macwan** of Master of Science (MSc.IT), Semester - 8, Roll No- **28 (B)** has satisfactorily completed his project titled **SkillSwap-Skill Exchange Platform** in Web Application Development using MEAN stack.

Internal Guide:

HOD:

Date of Submission:

L.J Institute of Computer Applications

Near Nagdev Kalyan Mandir, Near Sanand Cross Roads,
Sarkhej-Gandhinagar Highway, Ahmedabad – 382210
Phone No: 9099063417



CERTIFICATE

Enrollment No: 21004500210016

This is to certify that **Nandini Bhavsar** of Master of Science (MSc.IT), Semester - 8, Roll No- **06 (B)** has satisfactorily completed his project titled **SkillSwap-Skill Exchange Platform** in Web Application Development using MEAN stack.

Internal Guide:

HOD:

Date of Submission:

Sr. No.	TABLE OF CONTENT
1.	INTRODUCTION
	1.1 Existing System
	1.2 Need for the New System
	1.3 Objectives of the New System
	1.4 Problem Definition
	1.5 Core Components
	1.6 Project Profile
	1.7 Assumptions and Constraints
	1.8 Advantages and Limitations of the Proposed System
2.	REQUIREMENT DETERMINATION & ANALYSIS
	2.1 Requirement Determination
	2.2 Targeted Users
3.	SYSTEM DESIGN
	3.1 Use Case Diagram
	3.2 Class Diagram
	3.3 Activity Diagram
	3.4 Sequence Diagram
	3.4 Data Dictionary
4.	DEVELOPMENT
	4.1 Coding Standard
	4.2 Screenshots
5.	AGILE DOCUMENTATION
	5.1 Agile Project Charter
	5.2 Agile User Story
	5.3 Agile Release Plan
6.	PROPOSED ENHANCEMENTS
7.	CONCLUSION
8.	BIBLIOGRAPHY

1. INTRODUCTION

- The new currency in today's fast-paced, constantly-changing world is **skills**. But not everyone can afford professional instruction, and not everyone has **equal** access to high-quality learning materials. This is the role of SkillSwap, a peer-to-peer **collaborative network** that allows people to **share** talents and information without exchanging money.
- Using the MEAN (MongoDB, Express.js, Angular, and Node.js), SkillSwap is a full-stack online application that enables users to teach others new skills. People from different backgrounds may interact, teach, and learn according to their areas of expertise in this community-driven setting.

1.1 Existing System

- In today's digital learning landscape, people primarily rely on **paid platforms**, online courses, and traditional coaching institutes to acquire new skills. While these methods provide structured learning, they often come with significant drawbacks that make them inaccessible or ineffective for a large section of learners.
- Affordable, participatory, and community-driven learning opportunities are not offered by the present systems. Individuals are either unable to obtain value for their money or are overly dependent on pricey platforms. This emphasizes the need for a different approach to learning that is economical, individualized, and collaborative.

1.2 Need for The New System

- SkillSwap addresses these needs by introducing a skill-exchange-based learning model, allowing users to both teach and learn through direct interaction and provide centralized collaborative platform. By providing cost effective learning or gather various SkillSwappers across the globe. Such kind of platform that allows people to **exchange skills, build networks, and grow together**—without the barriers of medium and trust or location. It's more than a platform — it's a **movement for democratized learning**.

1.3 Objective of the System

- The objective of SkillSwap is to create a collaborative, **peer-to-peer** platform where users can **exchange** skills and knowledge. The system aims to **connect** individuals based on their teachable and learnable skills, enabling them to **grow** personally and professionally through mutual learning, interactive sessions, and a community-driven environment. It promotes affordable, accessible, and personalized education by facilitating skill listings, search, filtering, and **request-based** exchange workflows — all built on a secure and user-friendly MEAN stack infrastructure.

1.4 Problem Definition

- In the current digital age, acquiring new skills often requires enrolling in expensive courses, relying on static self-learning resources, or struggling to find personalized guidance. These traditional methods create **financial, geographical, and accessibility barriers**, especially for learners who seek affordable and collaborative learning opportunities. By overcoming these issues, the system provides centralized platform which enables users to interact with each other exchange their skills and thoughts by promoting community-based skill learning.

1.5 Core Components

User	Admin
<ul style="list-style-type: none"> • Authentication • Provide Feedback • Profile Manage • Get reminders • Skills exchange • Skills Filter & search • Create Blog posts • Payment Management • Communication 	<ul style="list-style-type: none"> • Authentication • User management • Profile management • Skills Management • Manage transactions • Manage Blogs • Handle dashboard

1.6 Project Profile

Project Title	Skill-Swap
Frontend	HTML5, SCSS, TypeScript, Angular
Libraries	Angular Material UI, Tailwind CSS
Back-end	NodeJS, ExpressJS
Database	MongoDB Cluster
Tools	MS-OFFICE, Visual Studio Code, Draw.io

1.7 Assumption and Constraints

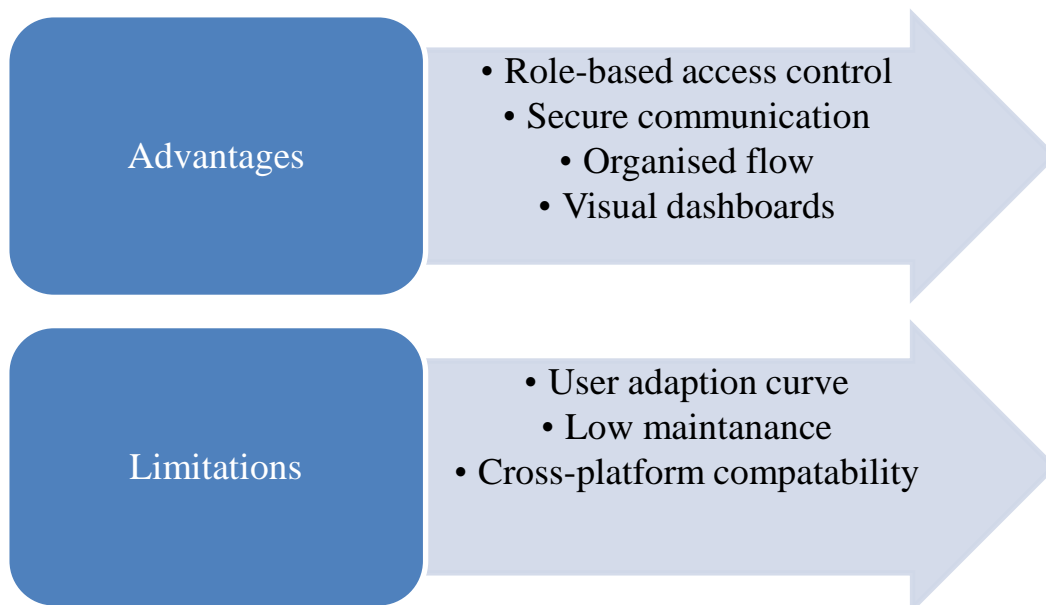
Assumption

- Users have access to the internet and a modern web browser to use the application effectively.
- Users will have to provide accurate information when signing up and listing their skills.
- Each user has at least one skill they can teach and one they want to learn.
- The platform will initially target **individual learners and educators**, not organizations.

Constraints

- The platform currently supports only English for content and communication.
- OAuth login is limited to selected provider (Google).
- Real-time communication or chat features may not scale efficiently in the early stages of the platform.

1.8 Advantages and Limitations



2. REQUIREMENT DETERMINATION AND ANALYSIS

2.1 Requirement Determination

- Requirement determination for task management involves gathering, Analysing, and documenting the needs and expectations of stakeholders.
- Requirements were identified through a combination of user research, brainstorming, and analysis of similar platforms.

• This phase is consisting of:

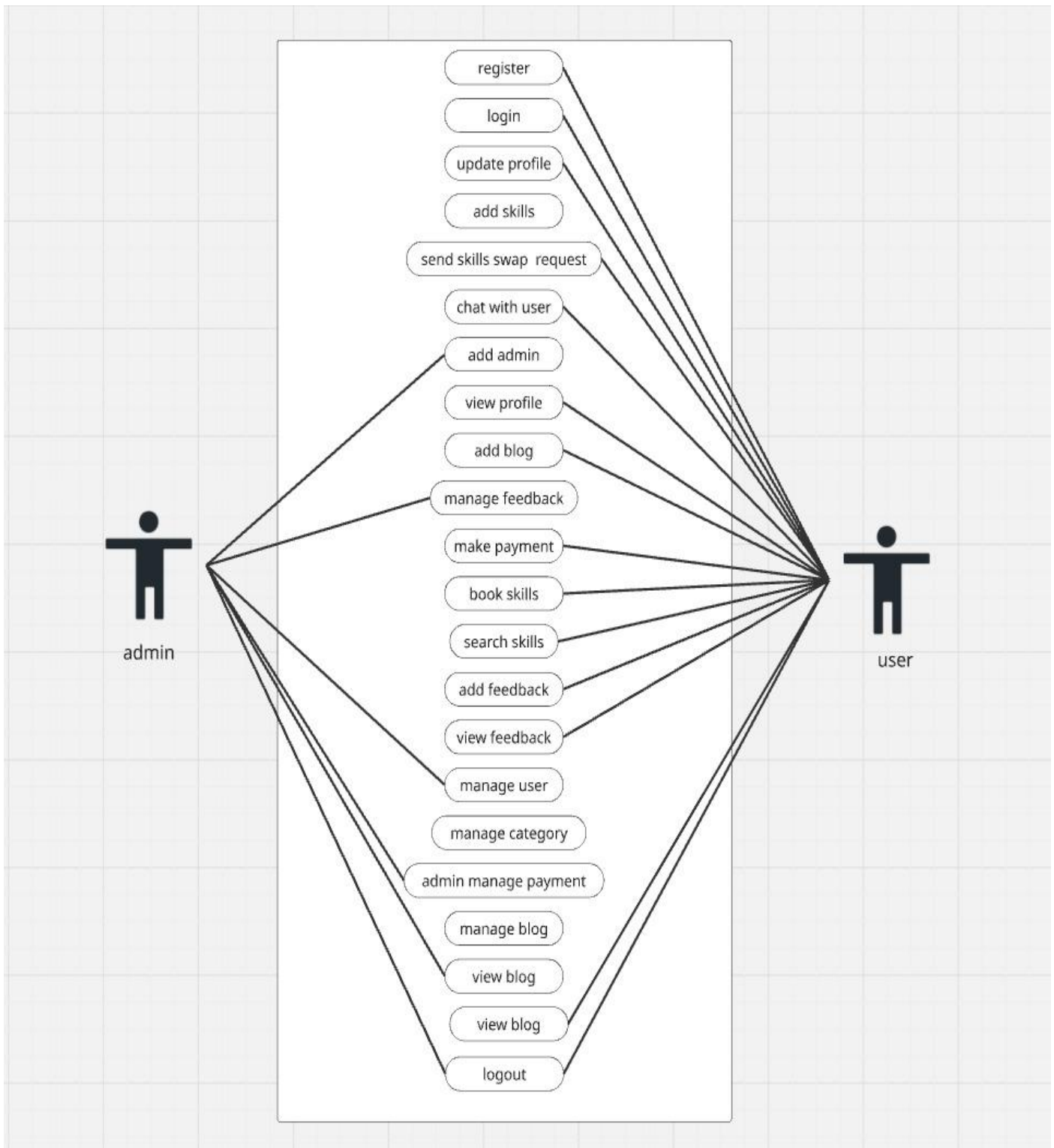
- Surveys & sampling
- Stockholders' requirements & analysis
- Review existing system if available
- Competitive analysis
- Planned or hypothetical interviews
- Mock-up

2.2 Targeted users

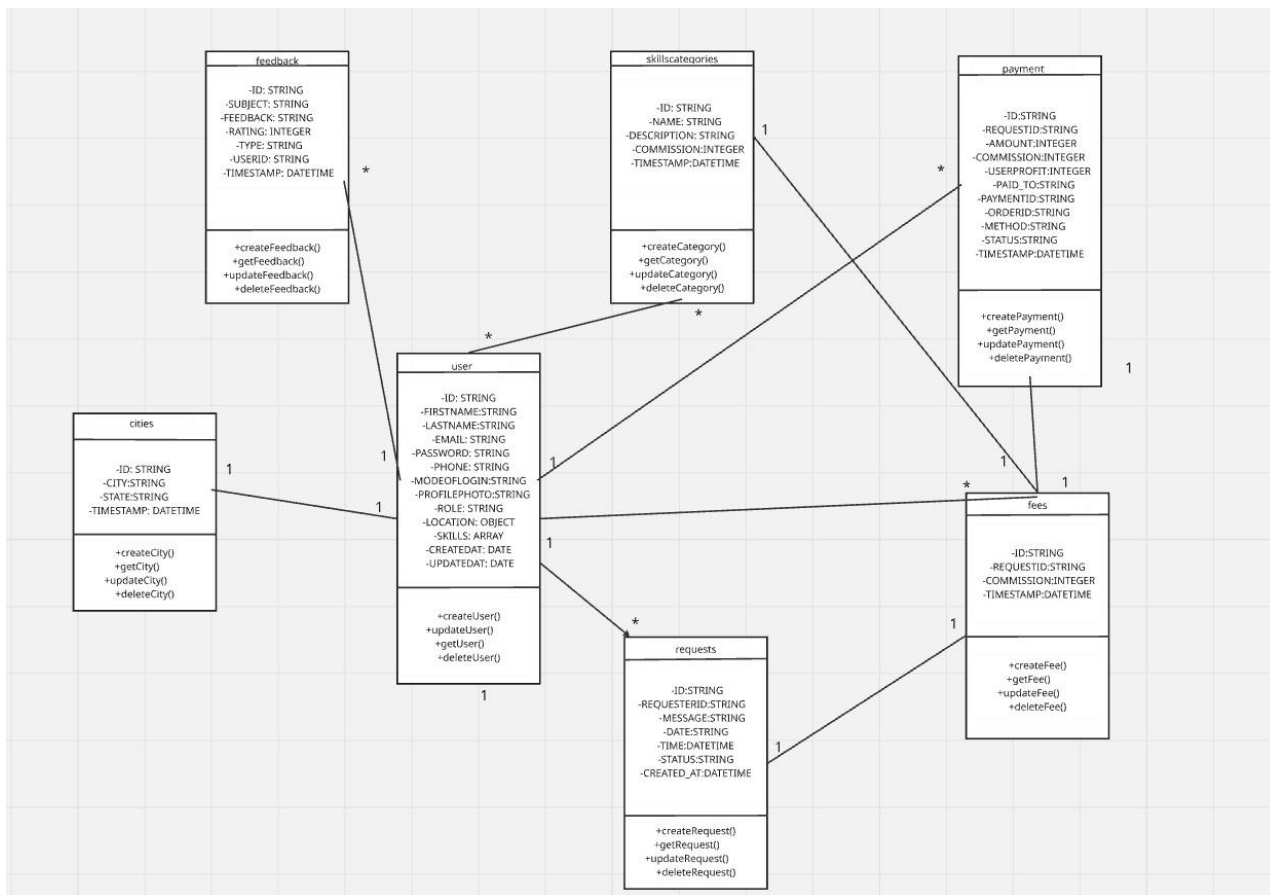
- Admin
- User

3. System Design

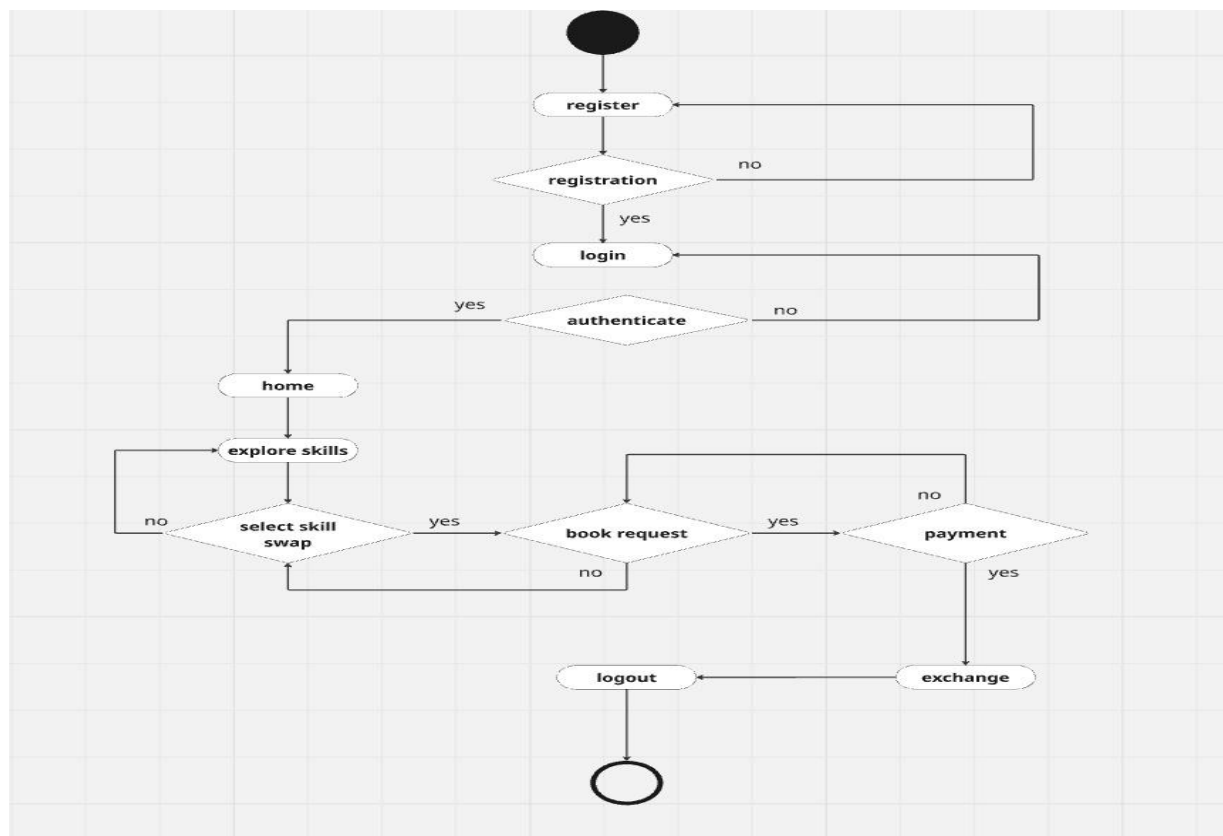
3.1 Use Case Diagram



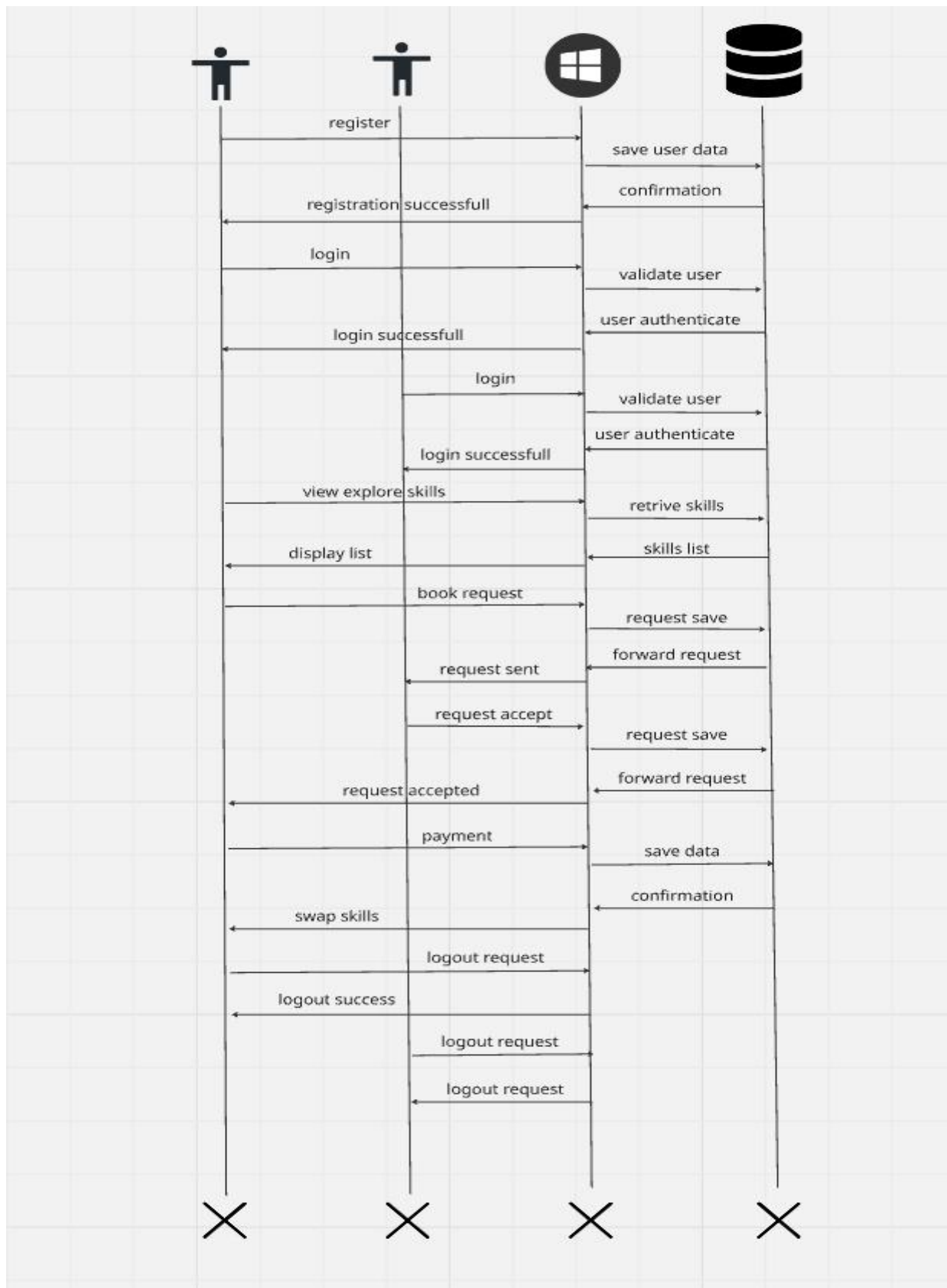
3.2 Class Diagram



3.3 Activity Diagram



3.4 Sequence Diagram



3.5 Data Dictionary

1. User

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67f6c02dc5a0504124894dc6
Firstname	String	50	Not null	Yash
Lastname	String	50	Not null	Shah
Email	String	100	Not null	2106450211600@jku.edu.in
Password	String	50	Not null	\$2a\$10\$cdnc5bxyuebb1bqwbvmfdeenchisjthvnrhlbc.khylsany2x5u2
Phone	String	15	Not null	1234567890
Modeoflogin	String	50	Not null	Google
Profilephoto	String	100	Not null	1744224697311.jpg
Role	String	20	Not null	User
Location	Object	-	Notnull	-
Location.house	String	100	Not null	Sweetal apartment
Location.area	String	100	Not null	Shapur
Location.state	String	100	Not null	Gujarat
Location.city	String	100	Not null	Ahmedabad
Location.pincode	Integer	6	Not null	380001
Skills	Array	-	Not null	-
Skills.categoryid	String	50	Reference key	67ea79b253d89517f16bd0a4
createAt	Date	50	Not null	2025-04-09

2. Feedback

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67f4f4dd8a819d3b2f06fbb
Subject	String	100	Not null	User interface
Feedback	String	100	Not null	Nice
Rating	Integer	5	Not null	5
Userid	String	50	Reference key	67f6c92dc5a85094124894dc6
Timestamp	Datetime	50	Not null	2025-04-12t11:32:29.597+00:00

3. Cities

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67f4f4dd8a819d3b2f06fbb
City	String	100	Not null	Ahmedabad
State	String	100	Not null	Gujarat
Timestamp	Datetime	50	Not null	2025-04-12t11:32:29.597+00:00

4. Requests

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67fd2bae6e6bba7a45d3787b
Requesterid	String	50	Reference key	67f6c02dc5a0504124894dc
Message	String	100	Not null	I want to swap this skills
Date	String	100	Not null	2025-04-17t00:00:00.000+00:00
Time	Datetime	50	Not null	Night
Status	String	50	Not null	Pending
Created_at	Datetime	50	Not null	2025-04-14t15:37:18.703+00:00

5. Fees

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67fe8e83037b27ddf67114ca
Requestid	String	100	Reference key	67fe1df1e8fed1e45a4b0109
Commission	Integer	100	Not null	75
Timestamp	Datetime	50	Not null	2025-04-15t17:08:56.401+00:00

6. Skill Category

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67ea79b253d89517f16bd0a4
Name	String	100	Not null	Health, wellness & fitness
Description	String	100	Not null	They are crucial for both personal and professional growth
Commission	Integer	100	Not null	10
Timestamp	Datetime	50	Not null	2025-04-12t11:32:29.597+00:00

7. Payment

Fieldname	Datatype	Field size	Constraint	Example
Id	String	50	Not null	67fe8e83037b27ddf67114cd
Requestid	String	100	Reference key	67fe1df1e8fed1e45a4b0109
Amount	Integer	100	Not null	500
Commission	Integer	100	Not null	75
Userprofit	Integer	100	Reference key	425
Paid_to	String	100	Not null	67f69b7a7b65f87cac357fd1
Paymentid	String	50	Reference key	Pay_qjpcxqulgicai5
Orderid	String	50	Reference key	Order_qjpbxfg2eftecz
Method	String	50	Not null	Razorpay
Status	String	50	Not null	Success
Timestamp	Datetime	50	Not null	2025-04-15t17:08:56.401+00:00

4. Development

4.1 Coding Standard

➤ **Project structure:**

- Use clear, descriptive names for directories, reflecting different modules.
- Name source code files meaningfully to indicate their function.

➤ **Code-version management:**

- Write detailed and meaningful commit messages that summarize changes
- Organize the repository with well-defined branches.

➤ **Error handling:**

- Implement comprehensive error handling for user input validation, skill matching conflicts, and payment processing failures.
- Ensure error messages are user-friendly and informative, without exposing internal system details.

➤ **UI design:**

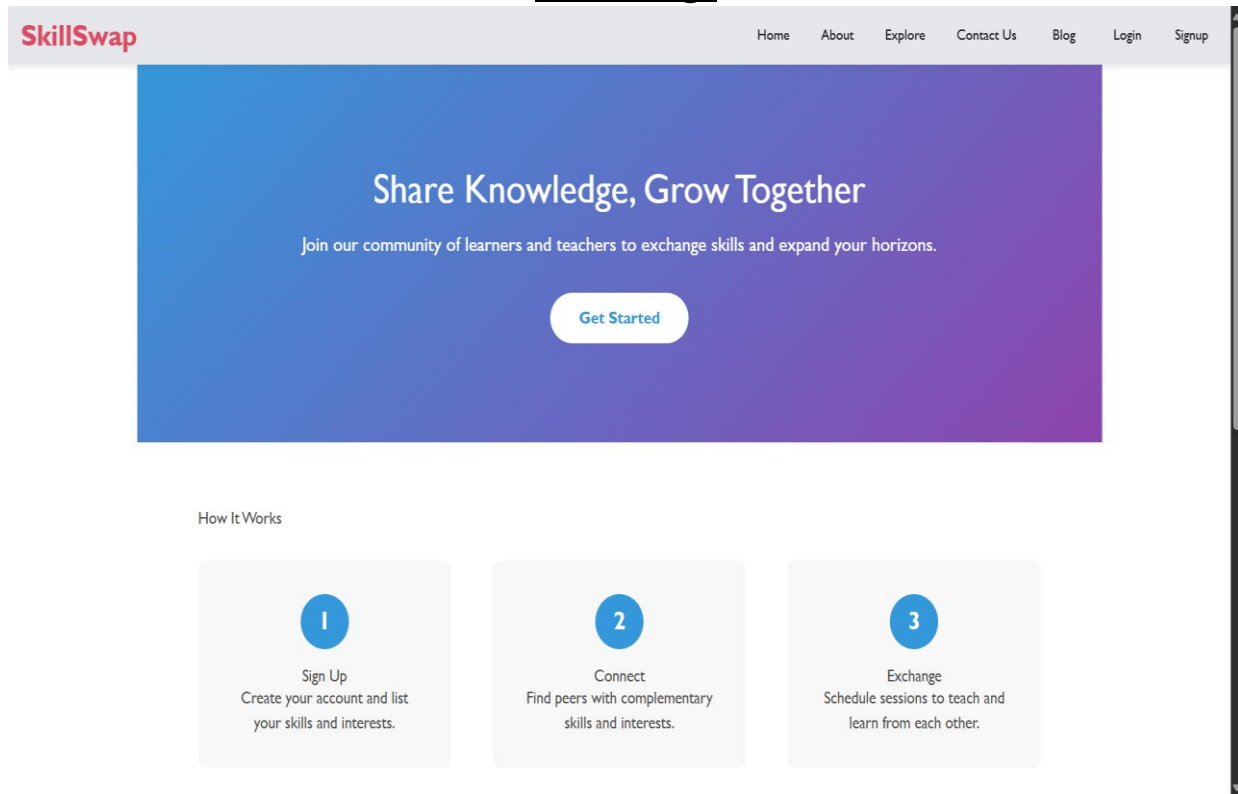
- Design a user-friendly and responsive interface so that users can use the system and understand it easily

➤ **Further development:**

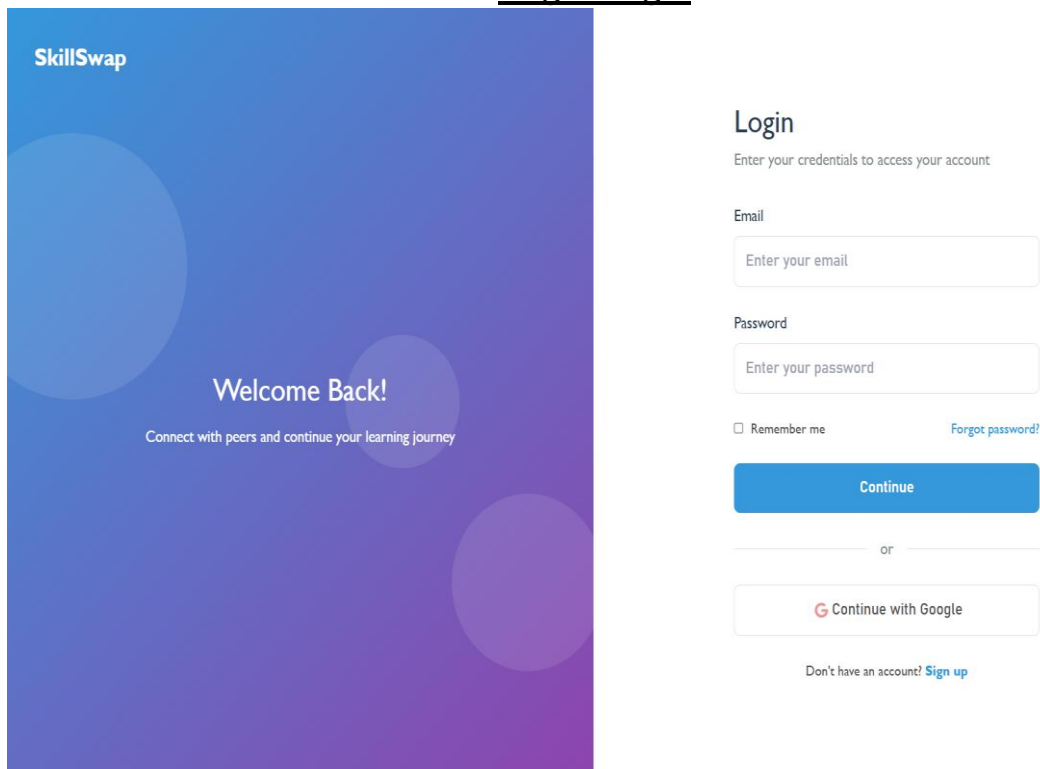
- Conduct regular code reviews to maintain code quality, promote best practices, and detect bugs or inefficiencies early.
- Keep documentation up-to-date, especially when new features are added or existing features are changed.

4.2 Screenshots

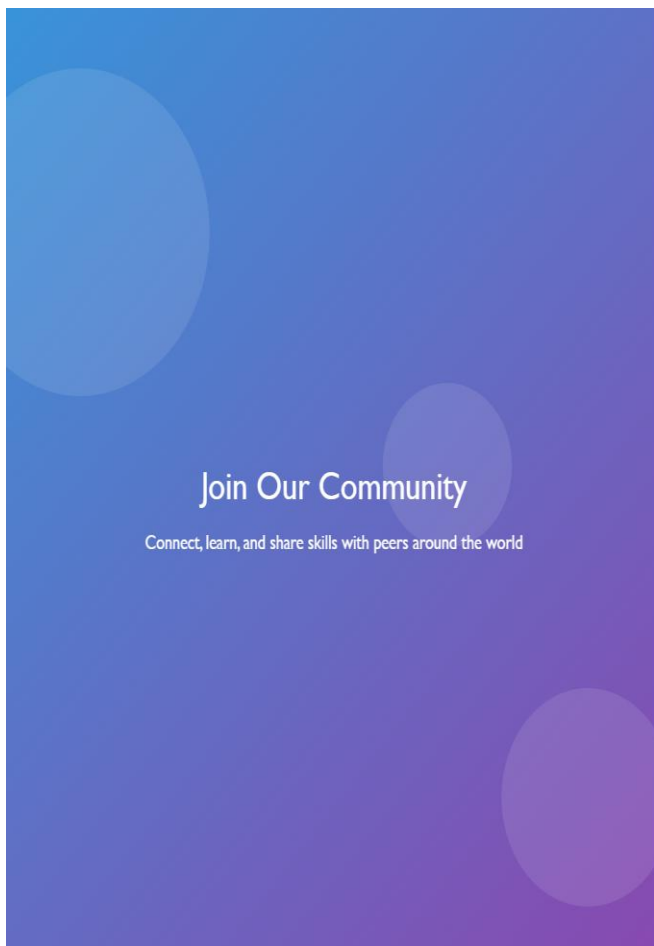
Home Page



Login Page:



Register Page:



First Name	Last Name
<input type="text" value="Enter your first name"/>	<input type="text" value="Enter your last name"/>
Email	
<input type="text" value="Enter your email"/>	
Password	
<input type="text" value="Create a strong password"/>	
confirm Password	
<input type="text" value="Create a same password"/>	
Phone Number	
<input type="text" value="Enter your phone number"/>	
Profile Photo	
<input type="button" value="Choose File"/> No file chosen No file chosen	
<input type="button" value="Create Account"/>	

Contact us:

SkillSwap
Home
About
Explore
Contact Us
Blog
Welcome, Arnold
Logout

Have any questions or feedback? Feel free to reach out!

Subject

Message


Rate Your Experience

★ ★ ★ ★ ★

© 2025 SkillSwap. All rights reserved.

Explore page


SkillSwap Home About Explore Contact Us Blog Welcome, Arnold Logout



Steve Rogers
1230456789
Skills: Not added
Barbigha - Bihar

Chat


View



Maxine Mayfield
8501236974
Skills: Tech & Digital Skills Parenting & Family Skills
Leh - Jammu & Kashmir

Chat


View



Ronald Macwan
9824504348
Skills: Creative & Artistic skills
Curchorem Cacora - Goa

Chat


View



Tony stark
8200781200
Skills: Tech & Digital Skills
Junagadh - Gujarat


Chat

View




Yash Shah
7990571191
Skills: Tech & Digital Skills
Ahmedabad - Gujarat

Chat



Manthan Parmar
8501236974
Skills: DIY & Household Skills
Amreli - Gujarat

Chat




Bruce Wayne
8527419630
Skills: Not added

Chat

Profile page

SkillSwap Home About Explore Contact Us Blog Welcome, Arnold Logout



Arnold Macwan
User

Total Profit earned ₹960

About Me

I am a highly motivated professional pursuing post-graduation, with a strong foundation in full-stack web development and expertise...

Show More

Personal Information

arnoldmacwan009@gmail.com
8200781208
B28, Harekrishna Park, Vatva, Gandhinagar, Gujarat - 382445

Skills

Skills I Can Offer

Tech & Digital Skills	Fees/Day: ₹600	PDF	Edit	Delete
Health, Wellness & Fitness	Fees/Day: ₹450	PDF	Edit	Delete
Creative & Artistic skills	Fees/Day: ₹599	PDF	Edit	Delete

Your Requests

SkillSwap
Home
About
Explore
Contact Us
Blog
Welcome, Arnold
Logout

Creative & Artistic skills
Fees/Day: ₹599

Your Requests

Skill	Status	Swapper	Date & Time	Note	Payment/Action	Stage
Creative & Artistic skills	Accepted	Ronald Macwan ronaldmacwan4524@gmail.com	Apr 22, 2025 Noon	hyy	COMPLETED	Pending
Tech & Digital Skills	Accepted	Maxine Mayfield maxfield254@yahoo.in	Apr 25, 2025 Evening	aa	PAY NOW	Pending

Your Bookings

Skill	Status	Requester	Date & Time	Note	Payment/Action	Stage
Health, Wellness & Fitness	Accepted	Maxine Mayfield maxfield254@yahoo.in	Apr 23, 2025 Night	konnichiwa	PAID	COMPLETED
Tech & Digital Skills	Accepted	Ronald Macwan ronaldmacwan4524@gmail.com	May 2, 2025 Night	hey	PAID	PENDING
Tech & Digital Skills	Accepted	Manthan Parmar parmarmanthan@gmail.com	Apr 28, 2025 Morning	hdbdnhv	PAID	PENDING

User detail page

SkillSwap
Home
About
Explore
Contact Us
Blog
Welcome, Arnold
Logout

User Details

Name: Maxine Mayfield
Email: maxfield254@yahoo.in
Phone: 8501236974
Location: Leh - Jammu & Kashmir

Skills:

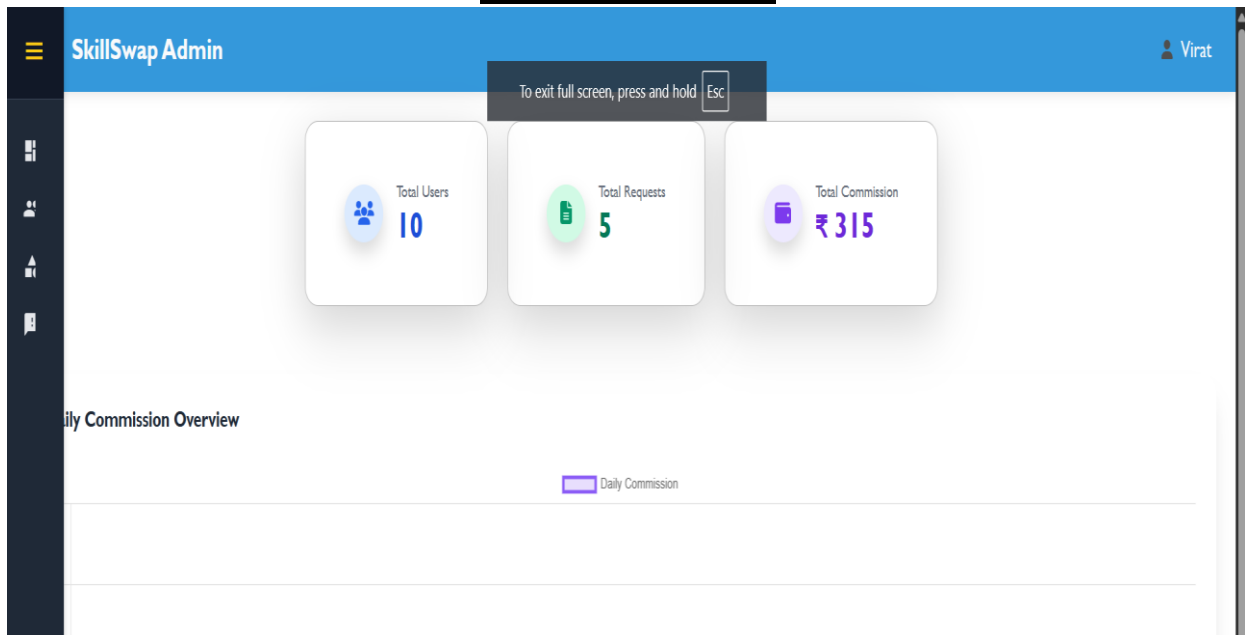
Tech & Digital Skills
Fees/Day: ₹552

View Certificate
Book

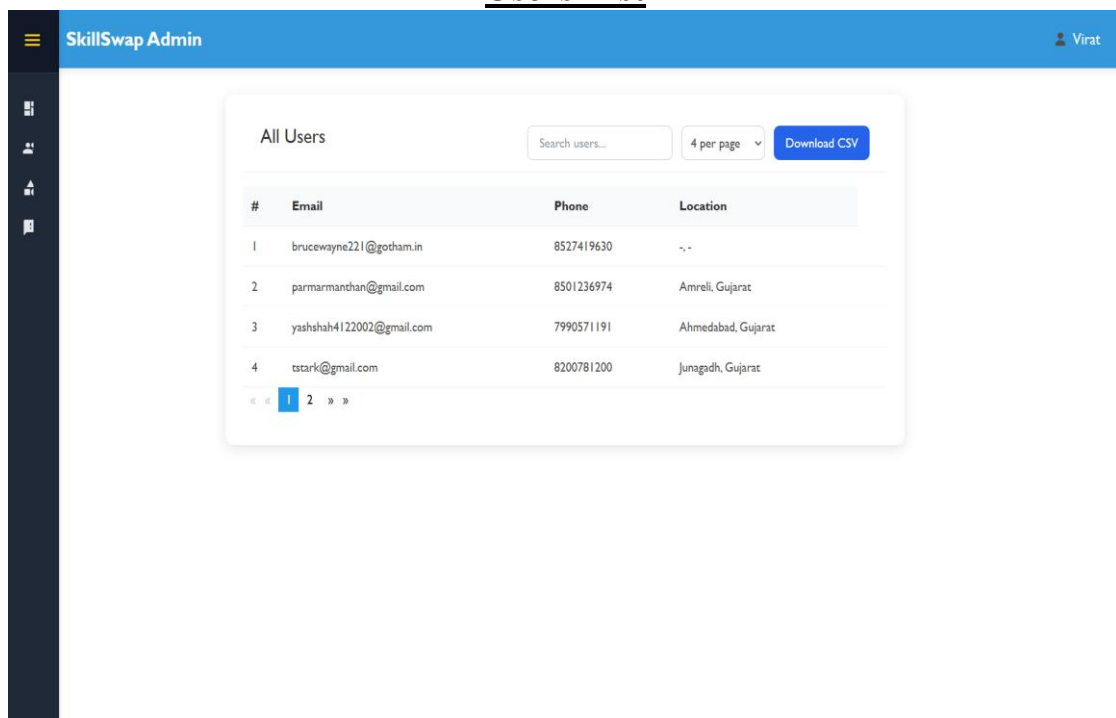
Parenting & Family Skills
Fees/Day: ₹100

View Certificate
Book

Admin Dashboard



Users List



The Users List page features a blue header with the "SkillSwap Admin" logo and a user profile "Virat". A dark sidebar on the left contains navigation icons. The main content area displays a table titled "All Users" with a search bar, a "4 per page" dropdown, and a "Download CSV" button. The table lists four users with their IDs, emails, phone numbers, and locations. A pagination bar at the bottom shows "1 2 » »".

#	Email	Phone	Location
1	brucewayne221@gotham.in	8527419630	-
2	parmarmanthan@gmail.com	8501236974	Amreli, Gujarat
3	yashshah4122002@gmail.com	7990571191	Ahmedabad, Gujarat
4	testark@gmail.com	8200781200	Junagadh, Gujarat

Add skill category

SkillSwap Admin Virat

Skill Categories + Add New Category Search categories... 4 per page

#	Name	Description	commission %	Price	Actions
1	Creative & Artistic skills	Creative and artistic forms of expression	15	325	[Edit] [Delete]
2	Tech & Digital Skills	Tech and digital skills, tools, and are crucial for the future	20	552	[Edit] [Delete]
3	Personal Development & Soft Skill	They are crucial for solving and emotional intelligence	5	666	[Edit] [Delete]
4	Health, Wellness & Fitness	Health, wellness, and mindful practices	8	233	[Edit] [Delete]

+ Add Skill Category

Category Name

Description

Commission (%)

Price/Charge

Save Category Cancel

Admin profile

SkillSwap Admin Virat

Virat Kohli
Email: viratkohli18@gmail.com
Phone: 8200781208

+ Add Admin

Edit Profile

List of Admins

#	Full Name	Email	Phone	Role
1	Doom Victor	dvictor35@gmail.com	8200781208	Admin

Payment Gateway

S SkillSwap

Price Summary
₹699

Using as +91 98245 04348

Secured by **Razorpay**

Payment Options

UPI QR 11.43

Scan the QR using any UPI App

Pay with UPI ID / Number

test@upi

Verify and Pay

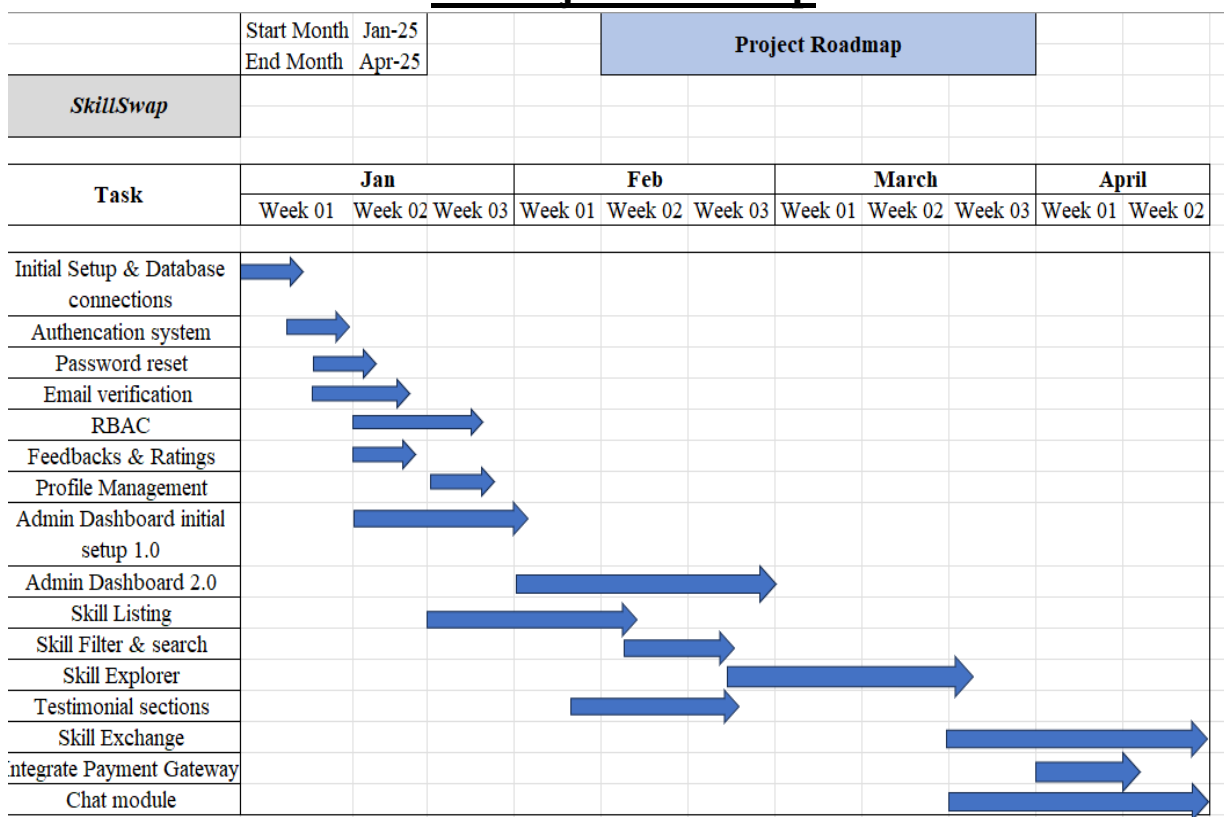
Test Mode

5. Agile Documentation

5.1. Project Charter

Project Name	Skill Swap
Guide	Ananya Yaduvanshi
Project expected Start date	02-01-2025
Project expected end date	17-04-2025
Project Scope	Skill Swap is a platform where people can exchange skills with each other. Users can offer a skill they know like cooking, coding, or painting and find others who can teach them something new in return. The system helps match users based on skills, set up sessions, and manage bookings. It also includes features like messaging, reviews, and payments if needed.
Project mission	The mission of Skill Swap is to create a user-friendly platform that connects people who want to learn new skills with those who are willing to teach, through a simple and fair skill exchange system. Instead of using money, users trade their knowledge, making learning more accessible and community-driven. Skill Swap aims to empower individuals by helping them share what they know, discover new talents, and build meaningful connections through learning.
Project vision	Our vision is to build a global community where everyone can learn, grow, and share their skills freely. We imagine a world where skill-sharing is easy, accessible, and empowering for all—regardless of background or income. Skill Swap strives to become the go-to platform for exchanging knowledge, fostering personal growth, and building strong human connections through learning.

5.2 Project Roadmap



5.3 Sprint Table

Id	Task/Module	Assigned to	Status	Estimated time (hours)	Story points
1	Authentication	Arnold	Completed	2.5	6
2	Password reset & Email Verification	Yash	Completed	2	5
3	Feedback & Ratings	Nandini	Completed	4.5	5
4	Profile Management	Arnold	Completed	6	7
5	Dashboard UI	Nandini	Completed	4	7
6	Admin Dashboard	Arnold	Completed	5	7
7	Skills Listing	Yash	Completed	2.5	8
8	Skills Filter & Search	Arnold	Completed	2.5	8
9	Skills explorer	Nandini	Completed	2	7
10	Skill exchange	Arnold, Yash	Completed	7.5	9
11	Chat Module	Yash	Completed	8	7
13	Payment Module	Yash, Arnold	Completed	4	8

5.4 User Story

Sr.	As a <user>	Want to <task>	So that <goal>
1	Admin	Login	Admin login to access the system dashboard.
2	Admin	Logout	Admin logout securely from the system.
3	Admin	View User	Admin view users
4	Admin	Generates reports	Admin can view or generate reports to gain system's useful insights
5	Admin	Manage Skills	Admin can add, update or delete available skills.
6	Admin	Manage Transactions	Admin can monitor user payments.
7	User	Login	User logs in to access their account.
8	User	Logout	User logs out to securely end the session.
9	User	Edit Profile	Users can update or edit their profiles.
10	User	Exchange Skills	User finds and connects with others to exchange skills.
11	User	Filter & Search Skills	User easily finds matching skills or users.
12	User	Provide Feedback	User shares feedback after a skill exchange.
14	User	Get Reminders	User receives notifications or reminders for scheduled sessions.
15	User	Create Blog Posts	User shares their experience or knowledge with the community.
16	User	Manage Payment	User completes or reviews payments for premium exchanges or services.
17	User	Communication	User chats or messages other users to plan skill exchanges.

5.5 Release Plan

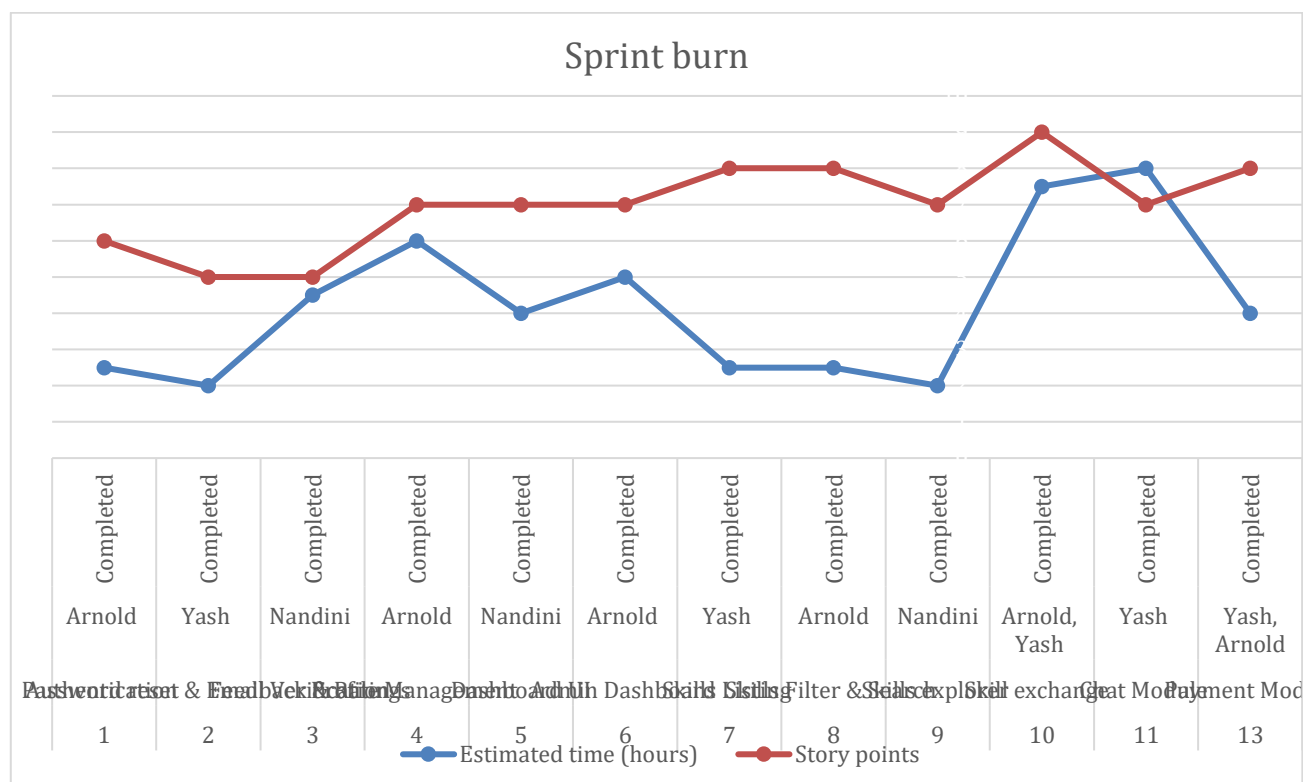
Task	Start Date	End Date	Status	Release date
Database connection & Initial setup	02-01-2025	02-01-2025	Released	03-01-2025
Authentication	03-01-2025	05-01-2025	Released	06-01-2025
Password reset & Email Verification	05-01-2025	09-01-2025	Released	12-01-2025
Feedback & Ratings	07-01-2025	08-01-2025	Released	12-01-2025
Profile Management	12-01-2025	15-01-2025	Released	15-01-2025
Admin Dashboard UI	30-01-2025	03-02-2025	Released	05-02-2025
Admin Dashboard Management	05-02-2025	09-02-2025	Not Released	-
Skills Listing	16-02-2025	21-02-2025	Released	23-02-2025
Skills Filter & Search	25-02-2025	01-03-2025	Released	05-03-2025
Skills explorer	03-03-2025	09-03-2025	Released	15-03-2025
Skill exchange	10-03-2025	19-03-2025	Released	22-03-2025
Chat Module	21-03-2025	26-03-2025	Released	01-04-2025

5.6 Test Plan

Project Name	SkillSwap	Browser:	Chrome
Tested on:	16-04-2025	Device:	Ryzen 5 Laptop

Test#	Action	Expected Result	Actual Result	Status
1	User Authentication	Redirect to home screen	Redirect	PASS
2	Admin Authentication	Redirect to admin dashboard	Redirected	PASS
3	Add skill category	Add the skill category by only admin credentials	Added with only Admin rights	PASS
4	Reset password using Email	Password reset by email verification	Password reset by email verification	PASS
5	Feedback section	Feedbacks should be displayed on user screen	Feedbacks is displayed on user screen	PASS
6	Profile management	Edit profile with valid credential of own profile	Edited profile with authorized user	PASS
7	View and filter skills (user)	Skills should be listed and filtered on user screen	Skills are listed and filtered	PASS
8	Edit Skill Category	Skill category should only edit by admin	Admin only can edit skill category	PASS
9	Skill exchange	Skills exchange should be complete after payment	Skill is exchanged after payment	PASS
10	Chat box	Chat box should be open with particular user only	Chat box is only opened with authorized user	PASS

5.7 Sprint Burn Chart



6. Proposed Enhancement

- The proposed enhancements for the SkillSwap platform aim to take the system beyond its basic functionality and transform it into a highly scalable, feature-rich and user-centric application. The system also proposed to implement following features:
 - AI Chat Bot
 - Dynamic Skills Ratings & recommendation
 - More scalable reach
 - More enhanced Chat Module
 - Regular maintenance

7. Conclusion

The Skill Swap platform offers a smart way for people to share and learn skills from each other. It helps users connect based on their interests, making learning more flexible, affordable, and community-driven. By allowing skill exchange, the platform encourages personal growth and builds a helpful network of learners and teachers. With planned improvements and user-friendly features, Skill Swap has the potential to become a valuable tool for lifelong learning and collaboration.