

# SkillSwap – Peer Learning Platform

## Overview

### Brief Description

SkillSwap is a web-based peer learning platform that allows users to share and learn skills with each other in a collaborative environment. Users can teach skills they are proficient in and learn new ones in exchange – promoting a knowledge-sharing ecosystem.

## Problem Statement

Many learners struggle to access affordable, personalised learning experiences. There is also a lack of platforms for skill exchange among peers. This project addresses the gap by providing a platform for people to mutually teach and learn skills.

## Objectives

- Create a platform for skill-sharing and peer learning
- Enable AI-powered matching of learners and teachers
- Secure user authentication and session management
- Build a responsive UI for easy access on all devices
- Integrate real-time chat and session scheduling
- Include user feedback and rating system

## Technologies Used

### Frontend:

React.js

Tailwind CSS

### Backend:

Node.js

Express.js

### Database:

MongoDB

### Others:

JWT – for authentication

Axios – for API requests

Bcrypt – for password hashing

# Architecture & Design

Frontend (React) communicates with  
Backend (Express.js APIs) which connects to  
Database (MongoDB) for storing user data, skills, feedback, etc.  
Authentication Layer using JWT  
Axios for API handling

## User Stories / Features

User Registration & Login  
Create and manage profiles with skill listings  
AI-based matching of peers  
Real-time chat system  
Feedback & rating after sessions  
Calendar-based scheduling

## Database Schema (Basic Structure)

Users Collection  
userId  
name  
email  
password (hashed)  
skillsOffered [Array]  
skillsToLearn [Array]  
Sessions Collection  
sessionId  
learnerId  
teacherId  
time  
status  
Feedback Collection  
feedbackId  
fromUserId  
toUserId  
rating  
Comment

## System Requirements

Hardware Requirements  
4GB RAM minimum

Internet connection  
Modern browser  
Software Requirements  
Node.js  
MongoDB  
Code Editor (VS Code)

## Development Process

Methodology  
Agile – Iterative development with sprints  
Challenges Faced  
Managing real-time matching logic  
Handling concurrent chat sessions  
Ensuring secure password handling

## Advantages of the Project

Free and accessible peer learning  
Promotes community-driven skill development  
Secure and scalable  
Personalised learning experiences

## Disadvantages of the Project

Requires active user participation  
Quality of learning depends on peer expertise  
No monetary incentive may limit professional tutors

## Future Enhancements

Mobile app version  
Video call integration  
Gamification (badges, leaderboards)  
AI-based skill recommendation system  
Language translation support

## Conclusion

SkillSwap provides a modern approach to learning through peer interaction. It fosters community learning, bridges skill gaps, and creates opportunities for people to grow together—without the barrier of cost.