SKILL BARTERING PLATFORM

A COLLABORATIVE SKILL EXCHANGE PLATFORM

~ EMPOWERING LEARNING THROUGH BARTERING

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PROJECT OVERVIEW

A **peer-to-peer skill-sharing platform** designed for students to learn and teach skills in a structured way.

Key Features:

• **Mentor-learner matching** based on skillset.

• **Skill tracking** & structured **session scheduling.**

• **Real-time notifications** for instant updates.

• **Gamification elements** – Points-based **badges & leaderboards**(🚀 planned)

• **Feedback & Ratings** system (🚀 planned)

OBJECTIVE

- Create an **interactive** and **structured** learning ecosystem.
- Enable **seamless session scheduling** with time slot proposals.
- Implement **gamification** (points, rewards, badges, leaderboard).
- Integrate **real-time notifications** and Google Calendar scheduling (🚀 planned).

TECHNOLOGIES USED

Frontend (React.js - MERN Stack)

- **React.js** – User interface development with reusable components.
- **React Router** – Navigation between pages.
- **Socket.io (Planned)** – Real-time notifications and live session updates.

Backend (Node.js & Express.js)

- **Express.js** – API handling and server-side logic.
- **Socket.io (Planned)** – Real-time match updates and notifications.

Database (MongoDB)

- **MongoDB Atlas** – Stores user profiles, skills, matches, and session data.

Authentication & Security

- **JWT (JSON Web Token)** – Secure user authentication.
- **bcrypt.js** – Password hashing for user security.

Third-Party Integrations

- **Google Calendar API** – For scheduling sessions with Google Meet links.

UNIQUE FEATURE

- **Structured Skill Matching** – Automatically suggests mentors based on skills.
- **Gamification** – Points, Badges & Leaderboards (🚀 planned).
- **Real-Time Notifications** – Session updates, mentor responses.
- **Flexible Scheduling** – Rescheduling requests handled systematically.
- **Rating & Feedback System** – Improves mentor-learner interactions (🚀 planned).
- **Google Calendar Integration** – Direct meeting scheduling (🚀 planned).

MODULES & FEATURES

Completed Features	To Be Completed Features
User Authentication (Register, Login)	Handle Accept, Reject, reschedule, sessions efficiently
Adding Skills	Reviews & Ratings system
Find Matching Teachers based on skillset	(Planned) Google Meet Link Generation via API & Calendar Integration
Send Requests to teachers with time slots	Backend Optimization – Handle all errors robustly
Teachers can View Requests – Accept, Reject, Reschedule	Enhanced UI for a better user experience
Real-Time Notification System	
Private Routes for Secure Access	

EXISTING PLATFORMS AND UNIQUENESS

BarterQuest:

- **Concept** : users can trade goods, services or even real estate.
- **Features** : allows bartering in multiple categories, not just skills.
- Uniqueness in our project : our platform is dedicated to skill-sharing, not general bartering.

TimeRepublik:

- **Concept:** A **time-banking** system where users earn "time credits" for teaching and spend them to learn.
- **Features:** Users trade services based on time rather than money.
- Uniqueness in our project **:** Your platform **automates** the process of finding the best match for learning.

EXISTING PLATFORMS AND UNIQUENESS

Udemy & Coursera :

- Concept: Both platforms offer online courses where users can learn various skills at their own pace.
- Features: Pre-recorded courses, Self-paced learning, Limited interaction , Paid model.
- Uniqueness in our project :
  - Live, interactive learning instead of passive video courses.
  - Free skill exchange, unlike their paid model.

USES OF SKILL-BARTERING PLATFORM

- **Find & Connect with Mentors** – AI-powered matching for seamless learning.
- **Teach & Earn Points** – Share knowledge and unlock new learning opportunities.
- **Automated Skill Matching** – No manual searching, instant best-fit mentor-student pairing.
- **Live & Interactive Learning** – Real-time sessions with structured scheduling.
- **Gamification & Rewards** – Earn points, badges, and rankings for active participation.
- **Real-Time Notifications** – Instant updates for session requests, approvals, and reminders.

8 – WEEK’S DEVELOPMENT PLAN:

Phase 1 (week 1-2)

- Setup project, install dependencies, finalize workflow.

Phase 2 (week 3 – 4)

- Frontend Development (dashboard, UI components, services).

Phase 3 (week 4 – 8)

- Backend Development (authentication, DB setup, AI-matching).
- Testing & feedback from users (friends & professor).

Current Focus: Implementing **real-time notifications (Socket.io) & session scheduling.**

NEXT 8 WEEKS DEVELOPMENT PLAN

Phase 1 (4 Weeks)

Finalize & implement key features:

- **Gamification (Rewards & Points, Leaderboards).**
- **Real-time notifications – More advanced updates.**
- **Rating System & Teacher sorting.**

Phase 2 (4 Weeks)

- Final **testing & UI refinements**
- Backend optimization – Improve error handling & robustness.
- Google Meet Integration for scheduling (🚀 planned).

Goal: A fully optimized, feature-rich, and seamless learning platform!

CHALLENGES & SOLUTIONS

Technical Challenges Faced

- **Frontend-Backend Integration– API mismatches.**
- **Dependency Issues – Version conflicts.**
- **Installation Errors – Troubleshooting setup failures.**
- **MongoDB Connection Errors – Authentication & connectivity issues.**

Solutions Implemented

- **Debugging & error handling best practices.**
- **Extensive documentation & research.**
- **Community support & developer forums.**

THANK YOU

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