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Inspiring Excellence

CSE370 : Database Systems
Project Report

Project Title : <mark>Neighborhood Skill Exchange Platform</mark>

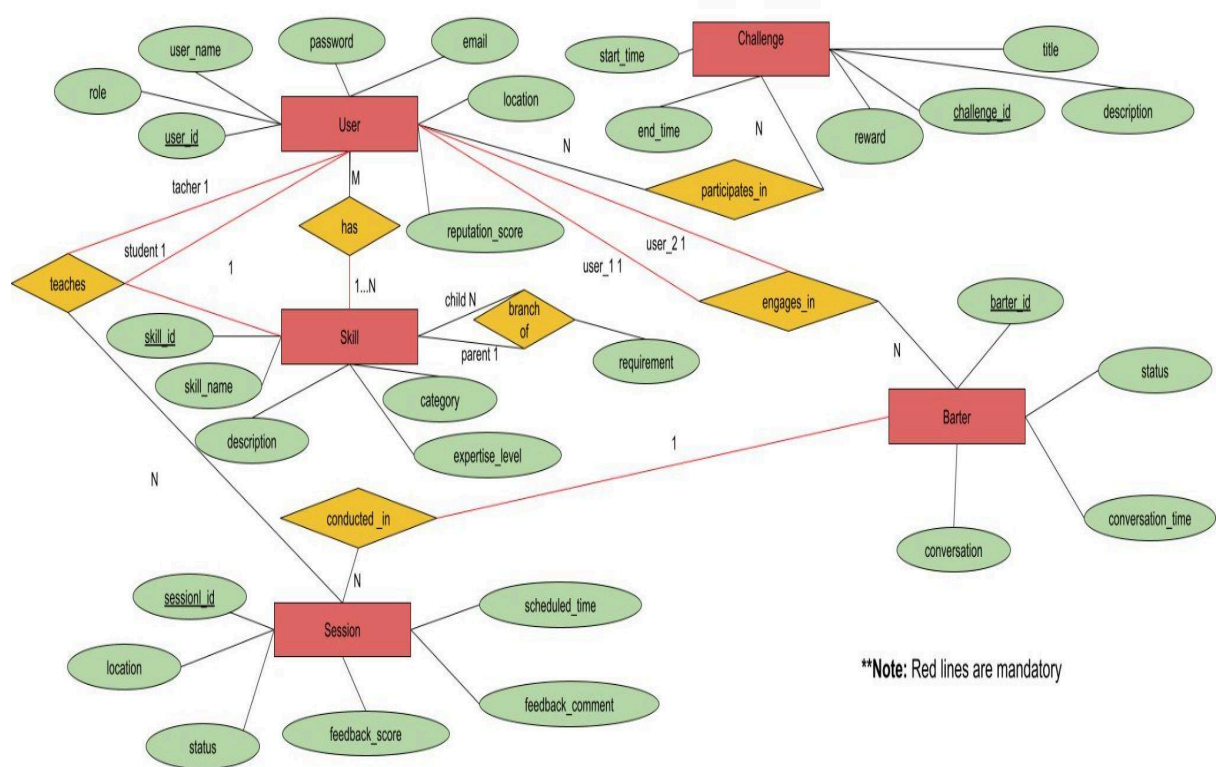| Group No : _06_, CSE370 Lab Section : _15_, Summer 2025		
ID	**Name**	**Contribution**
23101108	Md. Ashrafi Tahmid	User dashboard,skill tree(CSS+creating), leaderboard
23101226	Kazi Maisha Rahman	Home page (Css+ creating),signup (creating only)page, barter(CSS+creating), session(CSS+creating)
22299035	Md. Nafiul Islam	CSS(Login,Signup), Challenge feature

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Introduction:

We have created a website that enables community members to exchange skills such as cooking, coding, or playing guitar and so on through a bartering system, encouraging collaborative learning and active participation within the community. The platform provides essential features, including a homepage for registration and login, a user dashboard that acts as a central hub for navigation, and an admin dashboard that allows administrators to oversee and manage the platform. Members can also make use of the barter page to send and respond to skill exchange requests, while the session page keeps a record of their session history and current activities. After completing a session, participants can submit feedback and rate their mentors, helping to ensure quality interactions.

What makes our platform distinctive are its two unique features: **Skill Tree Visualization** and **Community Skill Challenges**. The skill tree records each user's learning history, displaying a categorical map of their skills and skill level and suggesting new skills to acquire based on their existing expertise. Meanwhile, the community challenges feature introduces group activities that include leaderboards and rewards, stored in the database, to foster engagement, healthy competition, and a gamified approach to learning. We have applied HTML, CSS and PHP to complete our project.
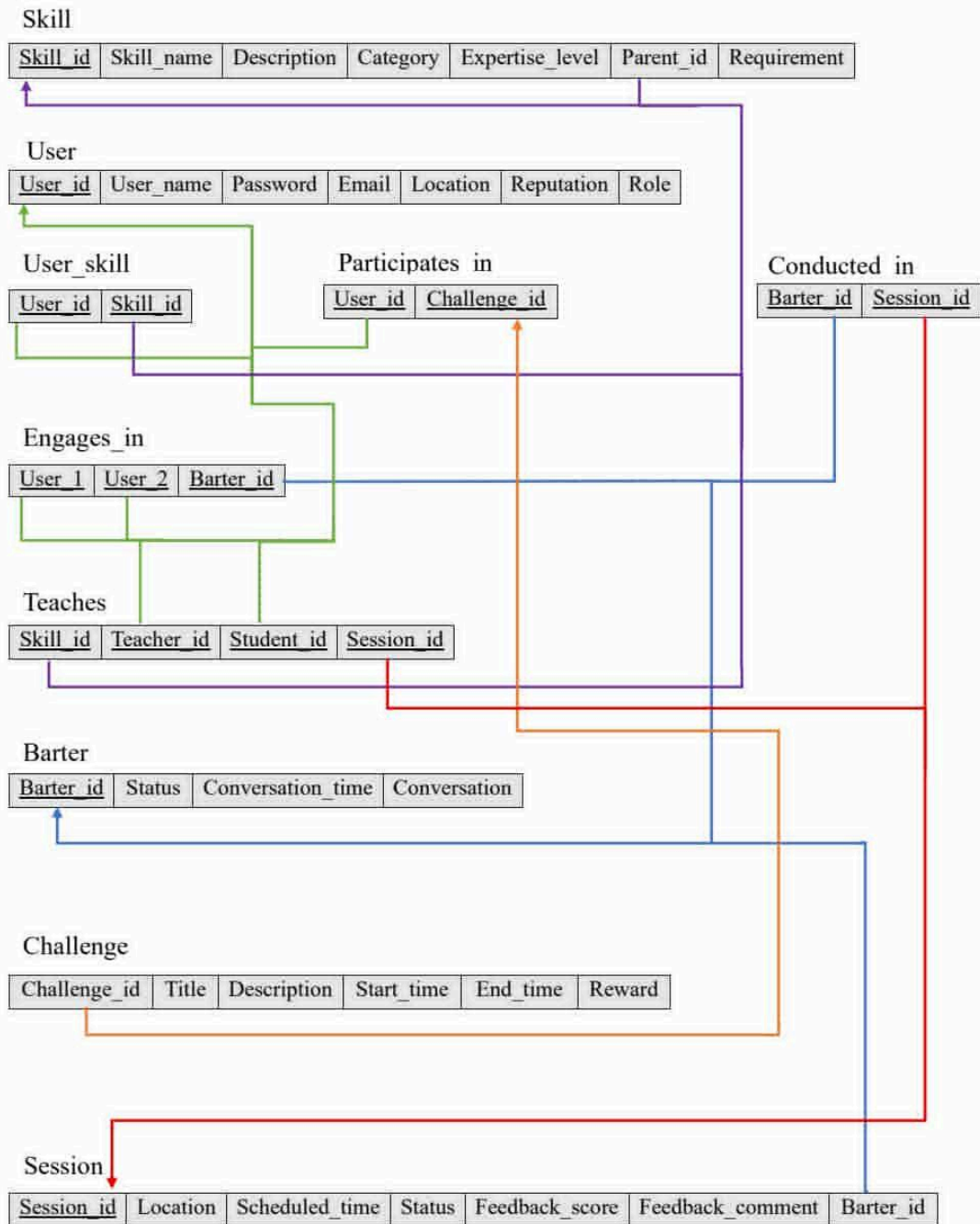
Project Features:

ID, Name	Features [3 per member]	
23101108, Md. Ashrafi Tahmid	Ft 1	"Skill Tree" Implementation
	Ft 2	"Leaderboard" Implementation
	Ft 3	User Dashboard
23101226, Kazi Maisha Rahman	Ft 1	Login and Signup features, Admin Dashboard
	Ft 2	"Barter"and Logout features
	Ft 3	"Session" feature
22299035,Md. Nafiul Islam	Ft 1	"Challenge" feature Implementation
	Ft 2	CSS implementation on Login page
	Ft 3	CSS implementation on Skill Tree

ER/EER Diagram:

**Note: Red lines are mandatory

Schema Diagram:

Skill

Skill_id	Skill_name	Description	Category	Expertise_level	Parent_id	Requirement

User

User_id	User_name	Password	Email	Location	Reputation	Role

User_skill

User_id	Skill_id

Participates_in

User_id	Challenge_id

Conducted_in

Barter_id	Session_id

Engages_in

User_1	User_2	Barter_id

Teaches

Skill_id	Teacher_id	Student_id	Session_id

Barter

Barter_id	Status	Conversation_time	Conversation

Challenge

Challenge_id	Title	Description	Start_time	End_time	Reward

Session

Session_id	Location	Scheduled_time	Status	Feedback_score	Feedback_comment	Barter_id

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Normalization

    a. Explain if your converted Schema is in 1NF or not. If not, decompose it to 1NF.
    b. Explain if your converted Schema is in 2NF or not. If not, decompose it to 2NF. Can there be any partial functional dependencies in your relational schema?
    c. Explain if your converted Schema is in 3NF or not. If not, decompose it to 3NF. Can there be any transitive dependencies in your relational schema?

Answer:

a. Our converted schema is in 1NF because no multivalued/composite attributes or nested relations present in the given schema.

b.Our converted schema is in 2NF as it has satisfied both the criterias of being in 1NF and having no partial dependencies.

c.Our converted schema is in 3NF as it is already in 2NF and also there are no transitive dependencies.

Frontend Development

Contribution of ID :23101108, Md. Ashrafi Tahmid

I created the user dashboard, which links users to all the important pages on the site, making navigation easy. I also worked on displaying the skill tree in a colorful way with CSS so that each user's learning progress can be viewed clearly.

Contribution of ID : 23101226, Name : Kazi Maisha Rahman

I developed the home page, login page and signup pages and applied CSS styling on the home page (not the login/signup page) and the barter page to enhance their appearance and make them more user-friendly. I also built the admin dashboard, providing a clear interface for administrators to manage the platform efficiently, and implemented the logout feature to ensure smooth and secure user access**.**

Contribution of ID: 22299035, Name : Md. Nafiul Islam

I worked on the CSS styling for the login page and the signup page to make it look vibrant and user-friendly.

Backend Development:

Contribution of ID :23101108, Md. Ashrafi Tahmid

I helped with the backend of the skill tree, ensuring that each user's learning progress is saved and updated correctly. I also worked on the leaderboard, which records and updates each user's performance and reputation score, allowing members to track their progress and compare it with others.

Contribution of ID : 23101226, Name : Kazi Maisha Rahman

I worked on the backend to handle user login and signup, keeping account information safe and secure. Additionally, I contributed to the backend of the session feature, which tracks and updates user learning activities, and the barter feature, which manages requests between members for skill exchanges and displays their status

Contribution of ID: 22299035, Name : Md. Nafiul Islam

I completed the backend development for one of the two unique features, the Community

Skill Challenges, ensuring that challenges, leaderboards, and rewards are properly stored and

managed in the database.

Source Code Repository

Link to Git:

https://github.com/MdAshrafiTahmid-23101108/Neighborhood-Skill-Exchange-Platform.git

Conclusion :

Overall, this platform provides a complete system for sharing skills, tracking learning progress, and taking part in community challenges. With its easy-to-use interface, strong backend, and unique features like the skill tree and community challenges, it offers an effective and engaging environment for users to learn and exchange skills.

References:

1)Video Source (HTML,CSS):

https://youtube.com/playlist?list=PLfqMhTWNBTe0PY9xunOzsP5kmYIz2Hu7i&si=Esw7CHpMoRoc5tRV

2)Video Source (PHP):

https://youtu.be/zZ6vybT1HQs?si=CYUdfnB83oTlfddd

3) Resources shared in discord:

https://www.youtube.com/watch?v=d5Hf6d6QtIo

https://www.youtube.com/watch?v=J8QPm8_j6lM

https://bux.bracu.ac.bd/asset-v1:buX+CSE370+2022_Fall+type@asset+block/CSE370_Lab06.pdf

https://drive.google.com/drive/folders/1QXTZ120Wt1gJiTPMlM9cWfsgZZkiV8FQ

https://www.youtube.com/playlist?list=PLJW6cU20q-SOQB1Dqj2vF9mcNqgh4-z_j