



Team Up

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What is Team Recommender System?

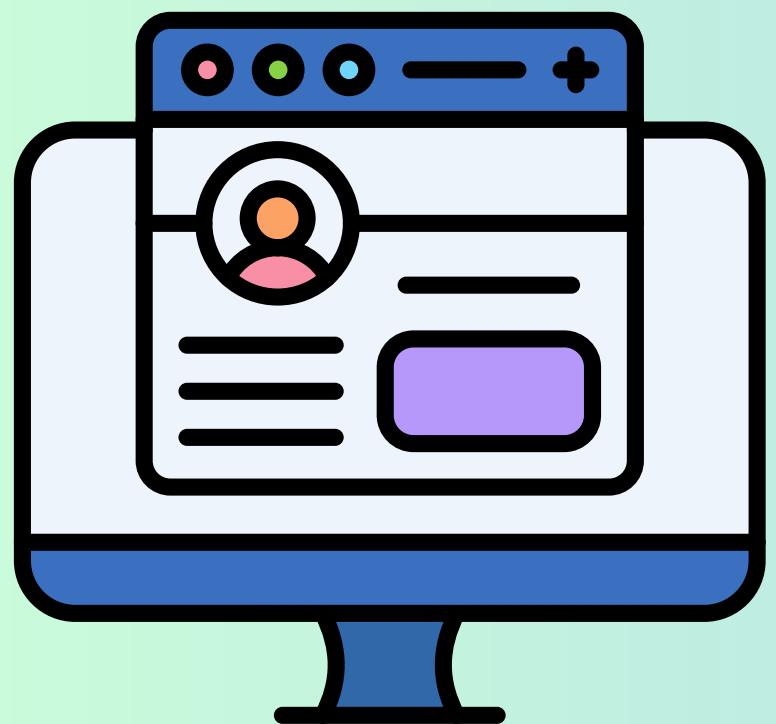
A web-based tool developed seeks to improve team formation by allowing instructors and students to build teams informed by a machine learning model.



Team Up Focus

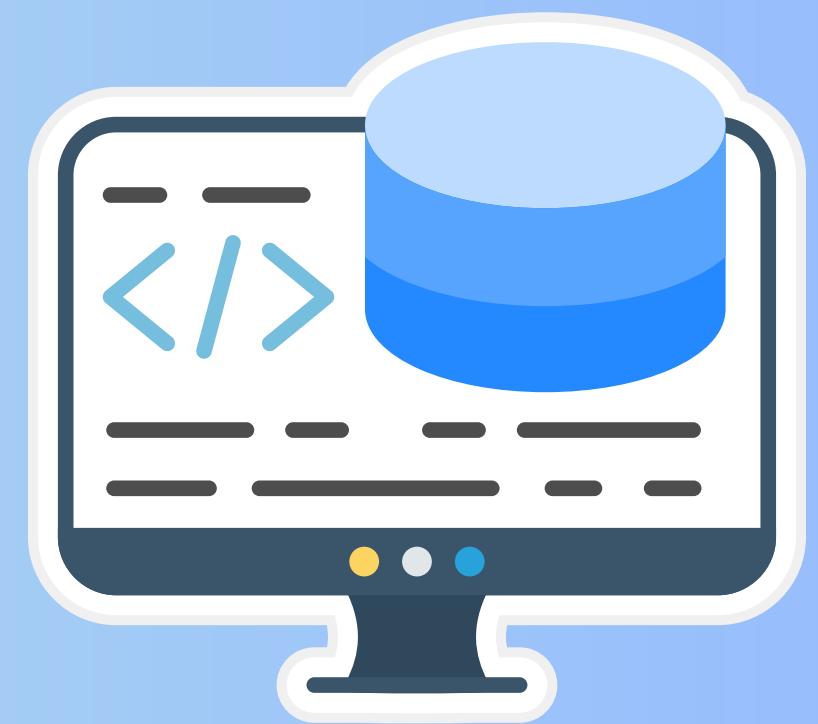
Hany Ghobrial

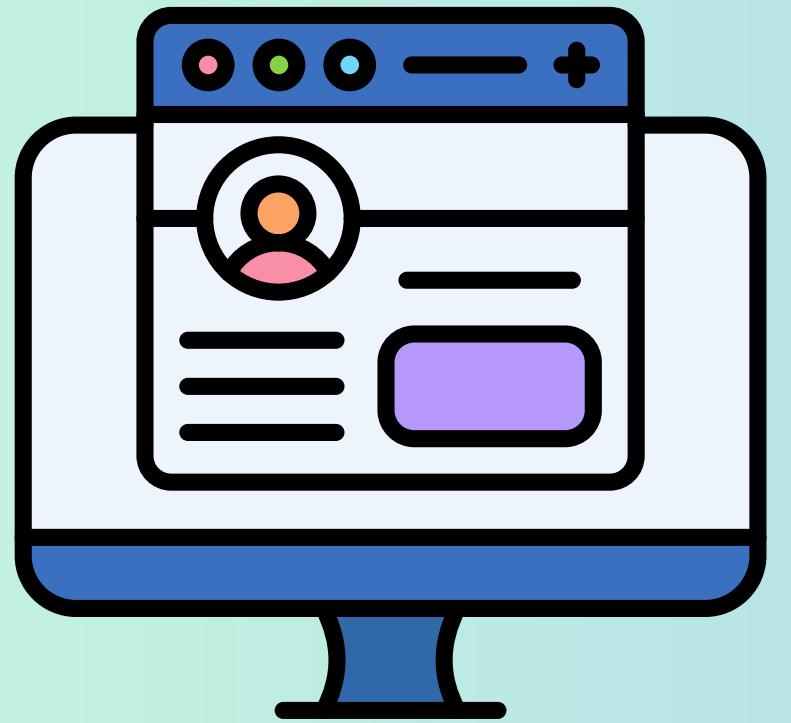
Front-End



Tran Le

Back-End Database





Front-end



Project Overview

Background: Advances prior student work on the system's front-end.

Objective: Enhance college/university project team formation with machine learning.

Features:

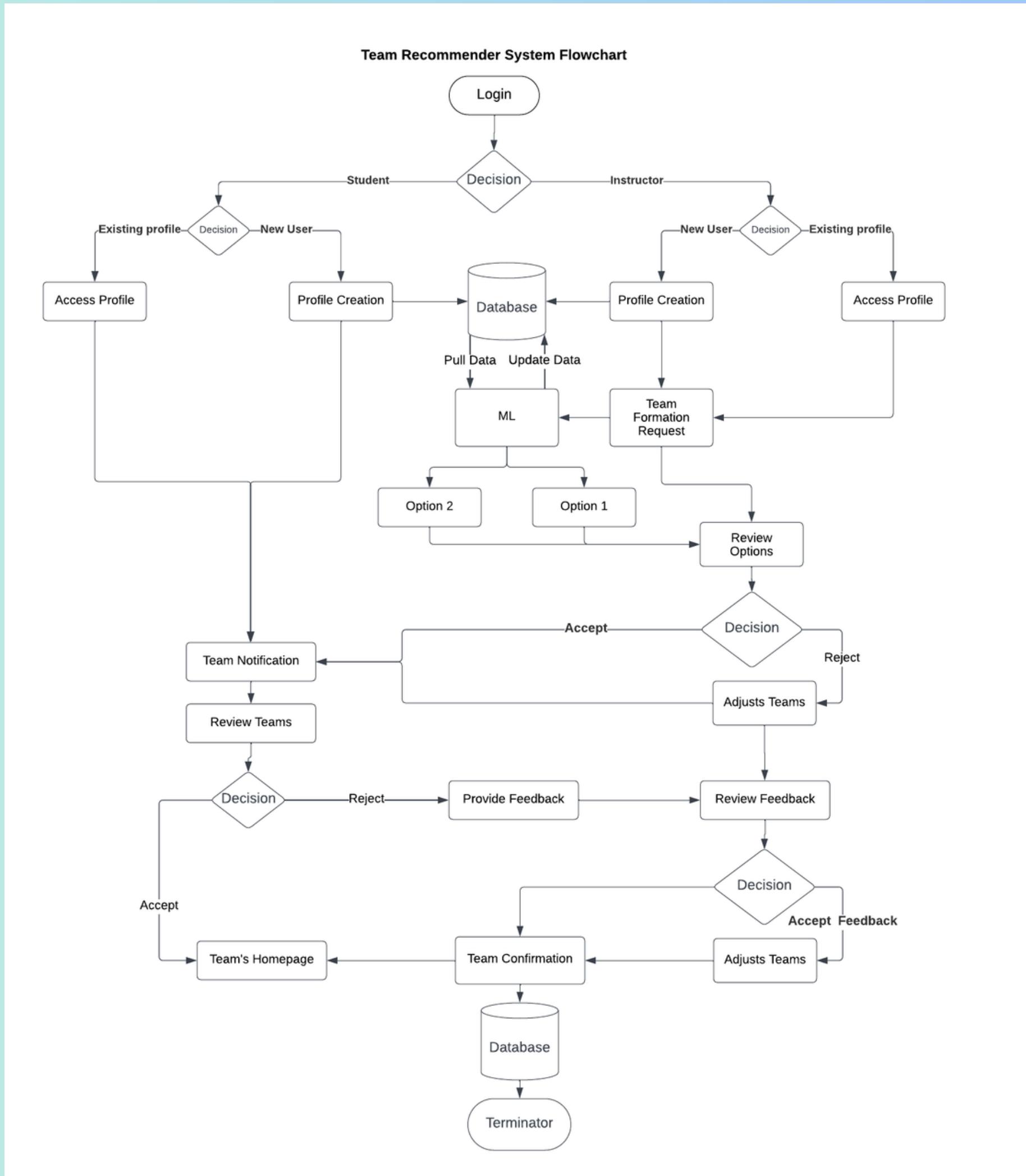
- Creates two team options, balancing skills and diversity.
- Promotes effective collaborative learning.

How It Works:

- Students and professors submit comprehensive profiles.
- ML model quickly analyzes profiles for optimal team recommendations.



System Flowchart Overview





Understanding Users and System Requirements

Dr. Liam Smith

Age: 45
Work: Computer Science professor at UWB
Location: Seattle, WA
Languages: English

Bio

Dr. Liam Smith is a seasoned Computer Science professor with extensive research experience in machine learning and data science. He prioritizes real-world applications in his teaching to enhance student learning outcomes. Dr. Smith is a firm believer in the educational value of diverse and collaborative team projects.

Goals

- To efficiently form balanced and diverse teams capable of tackling complex projects.
- To ensure each team benefits from a range of skills, backgrounds, and viewpoints.
- To facilitate an environment where team dynamics are healthy and productive, offering guidance when necessary.

Personality

	Introvert	Extrovert
Thinking	■	■
Sensing	■	■
Judging	■	■
	Feeling	Intuition
Perceiving	■	■

Frustrations

- The time-consuming and often biased manual process of team formation.
- Challenges in accurately evaluating student skills and availability for team assignments.
- The administrative burden of resolving student disputes and team reassessments.

Motivation

Motivation Type	Strength
Incentive	■■■■■
Fear	■
Growth	■■■■■
Power	■■■■■
Social	■■■■■

Skills

- Expertise in machine learning, data science, and software development methodologies.
- Strong organizational skills in managing classroom dynamics and project assignments.
- Excellent mentorship and communication skills, fostering a positive learning environment.

Technically

Technology	Proficiency
Internet	■■■■■
Social Media	■■■■■
Mobile Apps	■■■■■

Alex James

Age: 23
Work: Student at UWB
Location: Bothell, WA
Languages: English, Spanish

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition
Judging	Perceiving

Bio

Alex is an ambitious Computer Science junior at University of Washington-Bothell with a passion for software development and a keen interest in artificial intelligence. He actively seeks out opportunities to participate in coding bootcamps and hackathons. Alex is eager to apply his skills in team projects that challenge him and provide opportunities for growth.

Goals

- To contribute significantly to team projects while learning new skills.
- To be part of a diverse and balanced team in terms of skills and availability.
- To engage in projects that align with his career aspirations.

Frustrations

- Being placed in teams without consideration for skill diversity and balance.
- Inflexible team assignments that don't account for personal development goals.
- Unclear project objectives and poorly defined team roles.

Motivation

Incentive

Fear

Growth

Power

Social

Skills

- Proficient in programming languages such as Java, Python, and C++.
- Strong problem-solving abilities and a keen analytical mind.
- Effective communication and teamwork skills.

Technically

Internet

Social Media

Mobile Apps

Persona: Created personas for professors and students to guide feature development with a focus on academic oversight and balanced team formation.

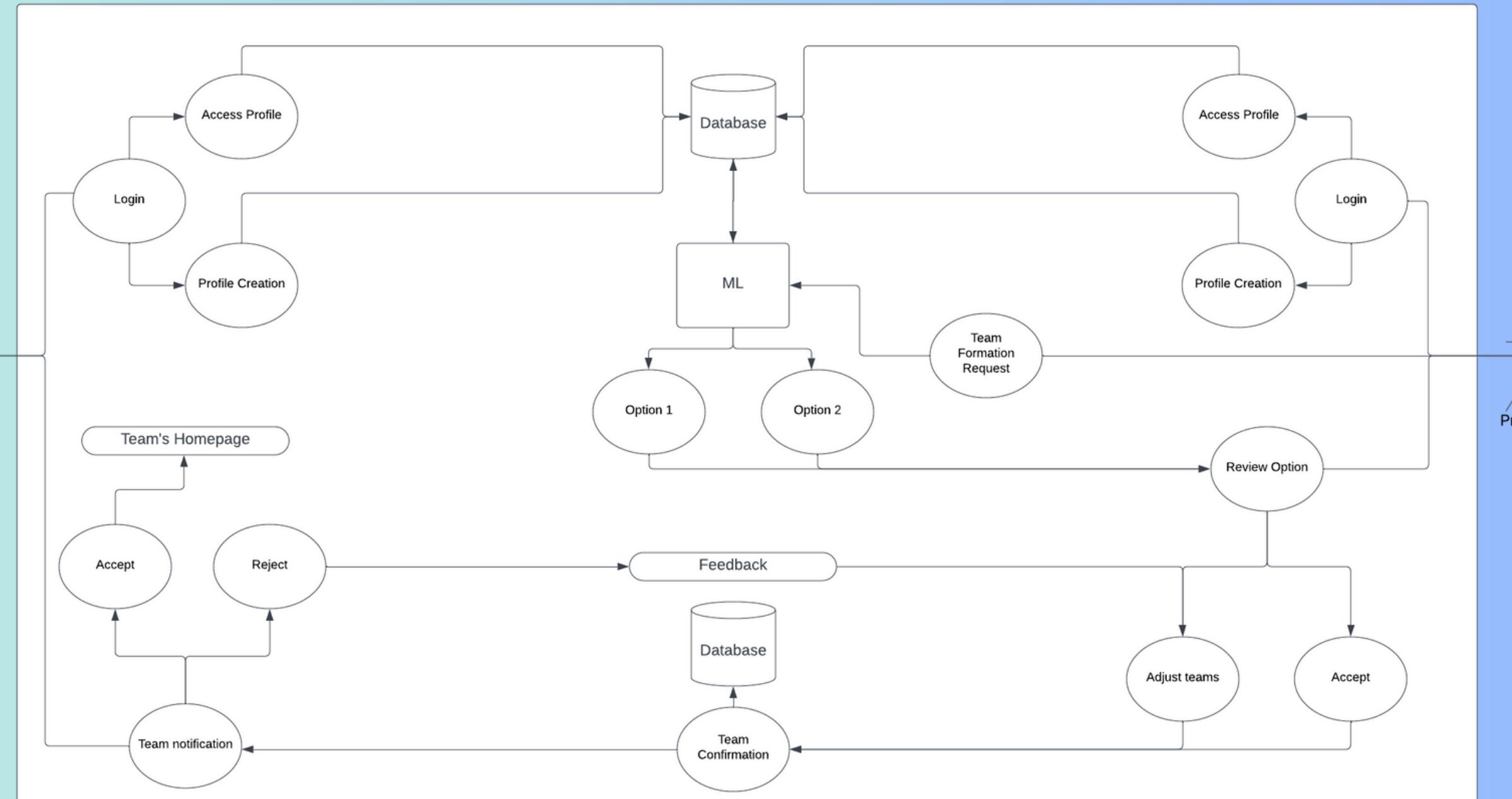


Requirements: Defined system requirements based on personas and flowchart, covering registration, profile management, and team formation.

Use Case: Developed a use case illustrating system interactions, including login/signup, team formation, and feedback mechanisms.

Student

Professor





Insights from Usability Study

Usability study conducted with potential users provided critical feedback for refining design and enhancing user experience, interface clarity, and functionality.



Evolution of Figma Design



The screenshot shows the homepage of the Team Up website. At the top, there's a navigation bar with a user icon, 'Team Up' text, 'Create Account', and 'Login'. Below the header, there's a main content area with a blue background. It features a large circular graphic with the words 'TEAM WORK' and a group of colorful human icons. To the left is a circular icon showing hands holding each other. A quote by John C. Maxwell is displayed: "'Teamwork makes the dream work' -John C. Maxwell". At the bottom of the main area is a blue button labeled 'Learn More'.

Figure 1

The screenshot shows the 'Profile' page for Nancy Wilson. The sidebar on the left includes icons for Profile, Courses, Teams, Notifications, Settings, and Help. The main content area displays Nancy's profile picture, her name 'Nancy Wilson', and her department 'CSSE'. Under 'Courses', it lists 'CSS 342'. In the 'Bio' section, there is a bio text about Nancy Wilson. The 'Education' section lists her degrees: 'Ph.D. Computer Science, MIT', 'M.S. Information Science', and 'B.S. Software Engineering'. The 'Contact' section provides her office location, hours, and email address.

Figure 2

The screenshot shows the 'Dashboard' page. The sidebar on the left includes icons for Profile, Courses, Teams, Notifications, Settings, and Help. The main content area shows a timeline for the next few days: 'Today February 23' (Nothing Planned Yet), 'Tomorrow February 24' (Nothing Planned Yet), and 'Wednesday February 25' (Nothing Planned Yet).

Figure 3

The screenshot shows the 'Profile' page for John Smith. The sidebar on the left includes icons for Profile, Courses, Teams, Notifications, Settings, and Help. The main content area displays John's profile picture, his name 'John Smith', and his major 'CSSE'. It also shows his year 'Year Junior'. Under 'Courses', it lists 'CSS 342'. In the 'Hobbies' section, it shows 'Reading'. The 'Interests' section lists 'Informatics'. The 'Skills' section shows 'Python' at the 'Novice' level and 'Illustrator' at the 'Advanced' level. The 'Availability' section is a grid where checkboxes are present in the 'Morning' and 'Afternoon' columns for most days of the week.

Figure 4

Evolution of Figma Design



Teamup.com

Teams > Settings

Team Details

Teams formations
12 total number of students / 4 number of students per team = 3 number of teams

Enter the number of roles in a team and the name of each role

Number of roles	Role 1	Role 2	Role 3	Role 4
4	Leader	Coordinator	Facilitator	Code editor
	select skill	select skill	select skill	select skill

Availability Personality Hobbies

% of Similarity:

Are teams allow to swap roles within a team?

Swap roles Anytime Mid-term Never

Request Team Formation

Profile Courses Teams Notifications Settings Help

Teamup.com

TEAMUP

Teams > Settings

Search

Profile Courses Teams Notifications Settings Help

Team 1	Option A	Team 1	Option B
Sandy	Alex	Andrew	Prisha
Katy	Alex	Kirk	Prisha
Sally	Jo	Leo	Alexa
Sandy	Jo	Kirk	Prisha
Sally	Maria	Andrew	Prisha
Katy	Maria	Andrew	Alexa

View Team

View Team

View Team

View Team

View Team

View Team

Evolution of Figma Design



teamup.com

TEAM UP

Teams > Team 1 Option A

Team Member And Roles

Sandy Leader	Alex Coordinator	Andrew Facilitator	Prisha Code editor
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Your team was built by machine learning model based on:

Availability: 100%	Team potential success rate 80 %
Skills: 100%	
Personal Interests: 35%	

Accept Team Adjust Team Request Re-Formation

Profile
Courses
Teams
Notifications
Settings
Help

teamup.com

TEAM UP

Teams > Team 1 Option B

Team Member And Roles

Katy Leader	Alex Coordinator	Kirk Code editor	Prisha Code editor
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Your team was built by machine learning model based on:

Availability: 80%	Team potential success rate 68 %
Skills: 60%	
Personal Interests: 40%	

Accept Team Adjust Team Request Re-Formation

Profile
Courses
Teams
Notifications
Settings
Help

Evolution of Figma Design



Figure 1

The screenshot shows the 'Team Member And Roles' section with four team members: Sandy (Leader), Alex (Coordinator), Andrew (Facilitator), and Prisha (Code editor). Below this, a message states: 'Your team was built by machine learning model based on: Availability: 100%, Skills: 100%, Personal Interests: 35%'. At the bottom are 'Accept Team' and 'Request Team Change' buttons.

Profile Courses Teams Notifications Settings Help

TEAM UP

Teams > Team 1

Team Member And Roles

Sandy Leader

Alex Coordinator

Andrew Facilitator

Prisha Code editor

Your team was built by machine learning model based on:

Availability: 100% Skills: 100% Personal Interests: 35%

Accept Team Request Team Change

Figure 2

Figure 3

The screenshot shows a 'Request Team Change' form with a placeholder text 'Please leave your comments here..'. At the bottom are 'Go Back' and 'Send Request' buttons.

Profile Courses Teams Notifications Settings Help

Teams > Team 1 > Request Team Change

Request Team Change

Please leave your comments here..

Go Back Send Request

The screenshot shows the 'Dashboard' page with a list of team members: Andrew, Sandy, Alex, and Prisha. Next to each member is a 'Send Message' button. At the bottom is a 'Team Homepage' button.

Profile Courses Teams Notifications Settings Help

Teams > Dashboard

Send Message

Send Message

Send Message

Send Message

Team Homepage

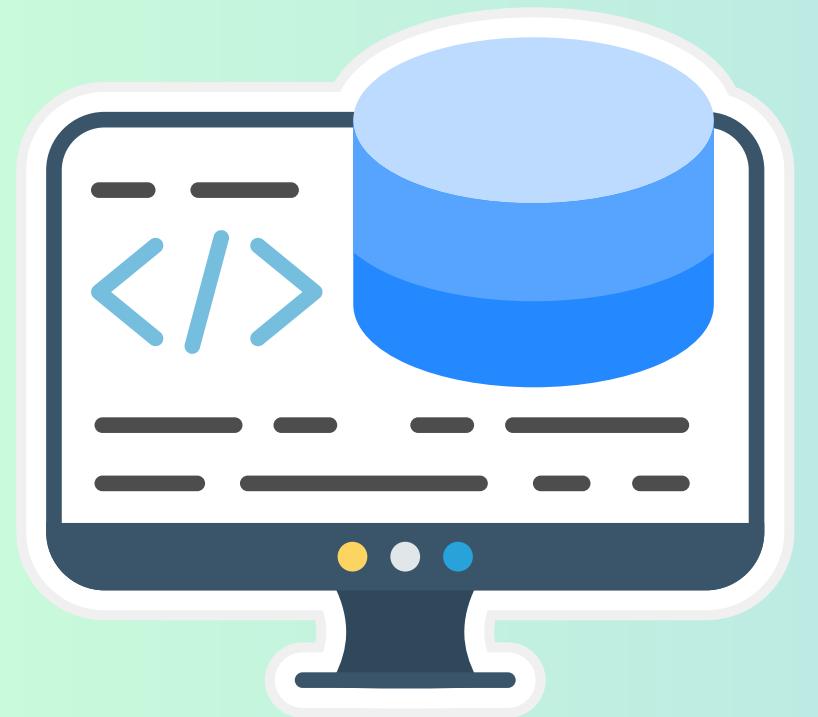


Future Directions and Next Steps

Front-End Implementation: Move towards coding and full integration of the front-end component with machine learning backend.

Usability Enhancements: Continuous refinement based on user feedback to improve accessibility and satisfaction.

Real-World Application and Testing: System to undergo further testing in academic settings, aiming to validate effectiveness in team formation and collaborative learning.



Back-End Database

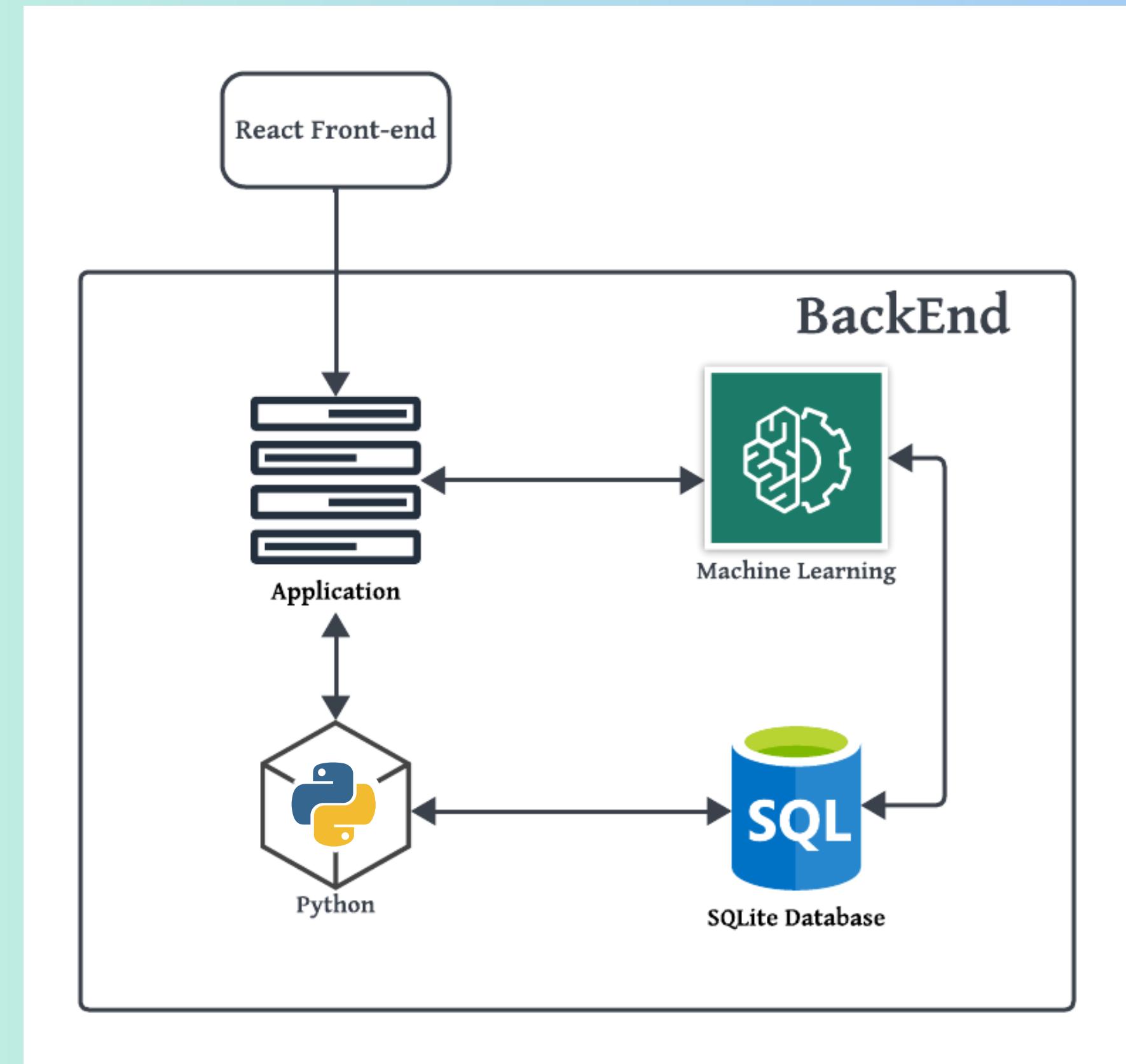


Overview

The project deliverable was a Python backend database system intended to simplify and speed up team administrative procedures, including user registration, profile updating, course registration, and team matching.



Potential System Architecture





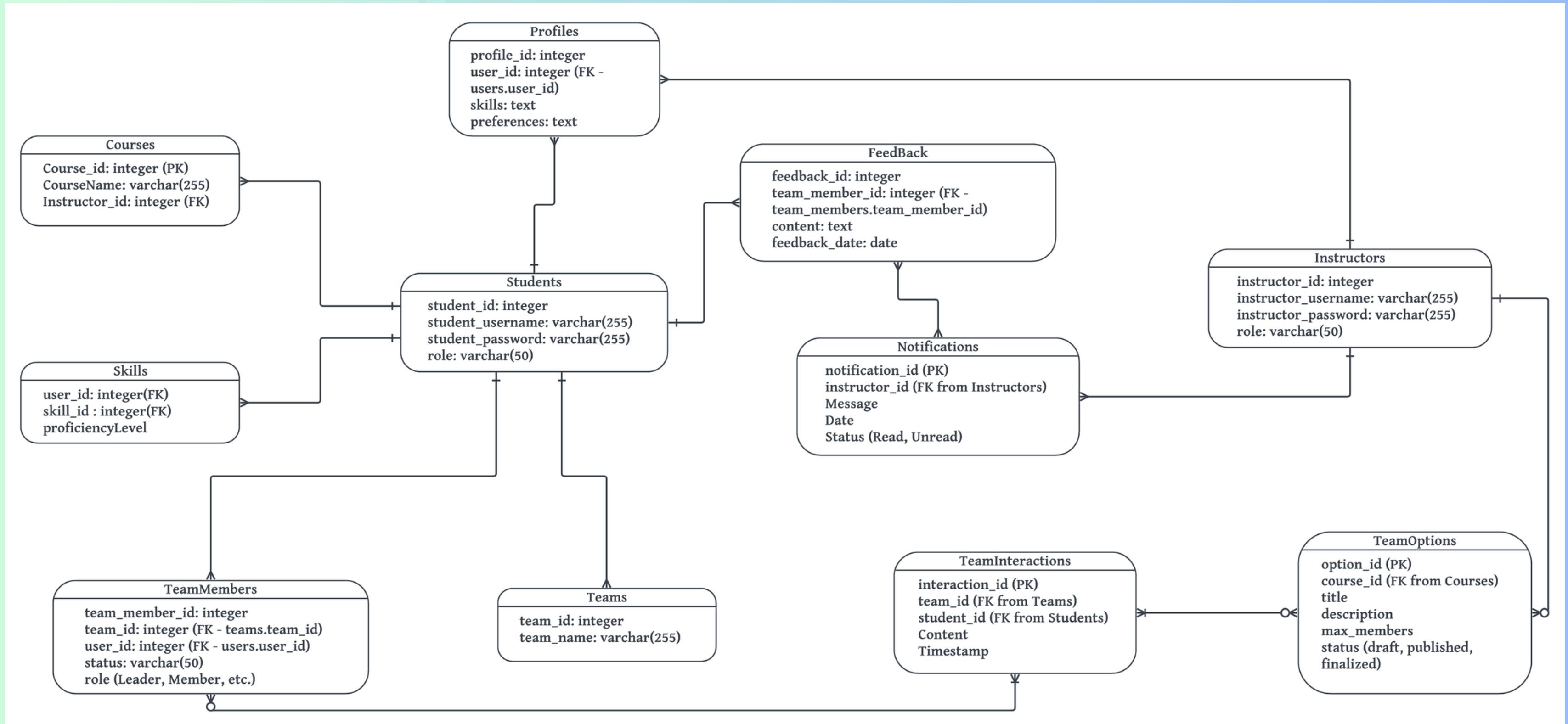
System use cases

This Python software details how to simulate university course registration and team recommender systems. It offers user registration and login, profile building and changes, course enrollment, viewing timetables, and randomly generated team member names.





Database Schema



Solutions



Welcome to the Team Recommender System

Do you want to login or register? (login/register): register

Create a username: tranlee

Create a password: bibi12345

Registration successful. Logging you in...

Welcome, tranlee!

What would you like to do? Update profile (u), **View profile (v)**, View schedule (s), Register for a course (r), View teams (t) or Exit (e): v

Profile:

Full Name: N/A

Email: N/A

Major: N/A

Age: N/A

Skills:

Hobbies:

What would you like to do? **Update profile (u)**, View profile (v), View schedule (s), Register for a course (r), View teams (t) or Exit (e): u

Enter your full name: Tran Le

Enter your email: tranlee@uw.edu

Enter your major: CSSE

Enter your age: 24y

Enter your skills separated by commas: c++, python, sql, java

Enter your hobbies separated by commas: reading book, watching movies

What would you like to do? Update profile (u), **View profile (v)**, View schedule (s), Register for a course (r), View teams (t) or Exit (e): v

Profile:

Full Name: Tran Le

Email: tranlee@uw.edu

Major: CSSE

Age: 24y

Skills: c++, python, sql, java

Hobbies: reading book, watching movies



Solutions



What would you like to do? Update profile (u), View profile (v), View schedule (s), Register for a course (r) View teams (t) or Exit (e): r

Course ID: 101, Course Name: Introduction to Computer Science

Course ID: 102, Course Name: Data Structures

Course ID: 103, Course Name: Algorithms

Course ID: 104, Course Name: Databases

Course ID: 105, Course Name: Computer Networks

Enter the ID of the course you want to register: 101

Course registered successfully.

What would you like to do? Update profile (u), View profile (v), View schedule (s), Register for a course (r), View teams (t) or Exit (e): r

Course ID: 101, Course Name: Introduction to Computer Science

Course ID: 102, Course Name: Data Structures

Course ID: 103, Course Name: Algorithms

Course ID: 104, Course Name: Databases

Course ID: 105, Course Name: Computer Networks

Enter the ID of the course you want to register: 102

Course registered successfully.

What would you like to do? Update profile (u), View profile (v), View schedule (s), Register for a course (r), View teams (t) or Exit (e): s

Your schedule:

Course ID: 101, Course Name: Introduction to Computer Science, Room: 101A, Time: 09:00 AM, Instructor: John Doe

Course ID: 102, Course Name: Data Structures, Room: 101B, Time: 11:00 AM, Instructor: Jane Smith

What would you like to do? Update profile (u), View profile (v), View schedule (s), Register for a course (r), View teams (t) or Exit (e): t

Team Name: Busy Bugs, Members: ['M C', 'O F', 'N K', 'C W']

Team Name: Believers, Members: ['C W', 'E E', 'H N', 'X F']

Team Name: Code Men, Members: ['Y G', 'M L', 'U A', 'Q X']

Team Name: Brain Buds, Members: ['L H', 'K K', 'R S', 'P P']

Team Name: Code Red, Members: ['A G', 'S V', 'G I', 'K E']

What would you like to do? Update profile (u), View profile (v), View schedule (s), Register for a course (r), View teams (t) or Exit (e): e

Exiting. Thank you for using the system.

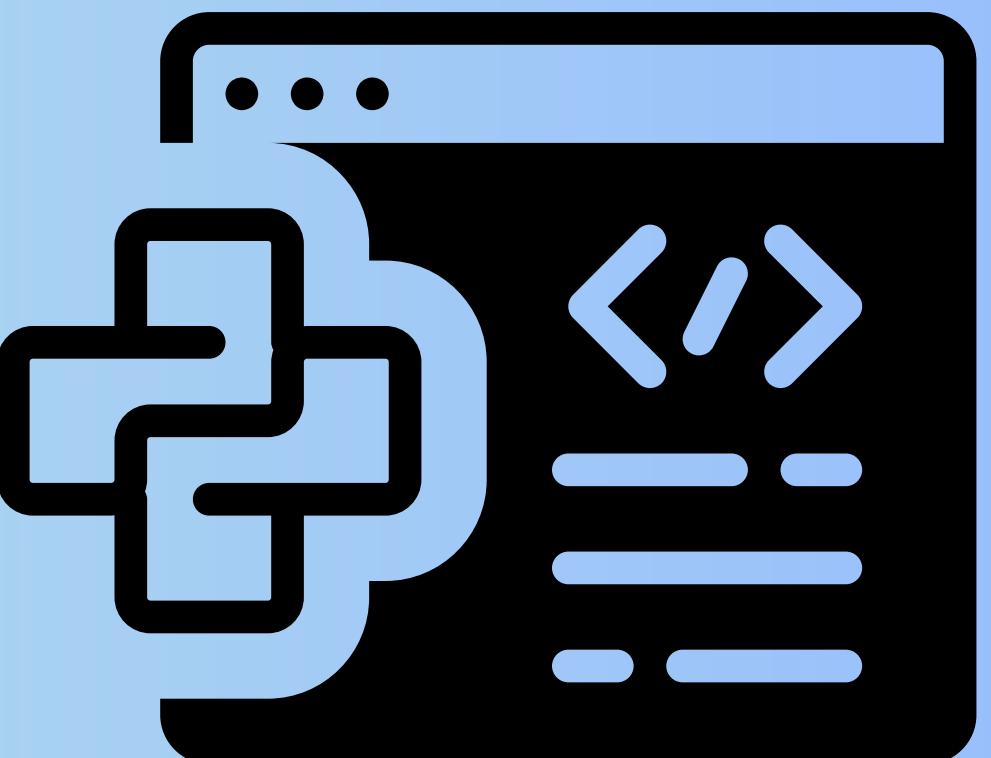




Next Step



Host a SQL database in the cloud



Connect to the front end



Relevant Coursework

CSS 360: Software Engineering

CSS 370: Analysis And Design

CSS 478: Usability And User-Centered Design

CSS 475: Database Systems

CSS 480: Principles Of Human-Computer Interaction

Thanks

Do you have any questions?

Special help for our faculty advisor **Dr. Annuska Zolyomi** for her
guidance and support.