

Hack4Change @ chorch

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Open Innovation Theme Chosen: Skilling

Problem Statement: To **Empower Professionals/Peers with AI-Driven Enriched Learning Collaboration** by creating a platform that enables to bridge the skills gap between professionals by leveraging their peer network, thereby enhancing:

- Access to tailored skilling opportunities
- Active participation and knowledge sharing
- Meaningful interactions and collaborations

Solution: PEER CONNECT HUB

Brief about the Prototype

PEER CONNECT HUB aims to **Empower Professionals/Peers** with **AI-Driven Enriched Learning Collaboration**.

It is a platform that enables to bridge the skills gap between professionals by leveraging their peer network, thereby enhancing:

- Access to tailored skilling opportunities
- Active participation and knowledge sharing
- Meaningful interactions and collaborations

Features:

- AI-Driven Mentor Matching
- AI-Enhanced Feedback Analysis
- One-Stop Peer Connect

Opportunities

How different is it from any of the other existing ideas?

Traditional Methods to bridge skills gap have below challenges:

- Lack of efficiency & Failure to harness the collective expertise of professionals
- Under-Utilization of peer-to-peer learning opportunities

AI-Driven Mentor-Mentee Match & Personalization: The use of AI for mentor matching enables to utilize the collective expertise of the peer networks amongst professionals and the feedback analysis ensures that users receive highly personalized guidance and support, which is often lacking in traditional training platforms.

Centralized Collaboration: By offering a one-stop platform for communication and collaboration, it breaks down knowledge silos and promotes collective learning, which is not a focus of many existing solutions.

How will it be able to solve the problem?

Proposed solution helps address these challenges by enabling:

- AI-Driven Mentor Matching
- AI-Enhanced Feedback Analysis
- One-Stop Peer Connect

USP of the proposed solution

Providing Targeted Mentorship: AI-driven Mentor Matching helps peers to connect with mentors amongst each other, who have complementary skills to the mentee

Enhancing Feedback Mechanisms: AI-enhanced feedback provides actionable insights tailored to individual learning styles, promoting continuous improvement and personalized learning experiences.

Facilitating Collaboration: The centralized platform encourages active participation and knowledge sharing, helping users learn from each other and develop their skills collaboratively.

List of features offered by the solution

Feature 1 - AI-Driven Mentor Matching

Problem Addressed - In a dynamic learning environment, professionals often struggle to find mentors who align with their specific skills and career goals

Solution - Harness Artificial Intelligence to match professionals/peers with complementary skills and career trajectories, facilitating impactful mentor-mentee relationships.

Unique Highlight - *Fostering impactful mentorship connections and Effective Skill Exchange among peers*

Feature 2 - AI-Enhanced Feedback Analysis

Problem Addressed - Feedback mechanisms in traditional learning environments are often generic and may not provide insights tailored to individual learning styles and needs, and proper actionables

Solution - Integrate AI to capture feedback, analyse sentiments and derive actionables from it to enhance the learning experience and foster continuous improvement.

Unique Highlight - *Enabling professionals to receive actionable feedback that enhances their strengths and addresses specific areas for improvement, fostering continuous and personalized learning journeys*

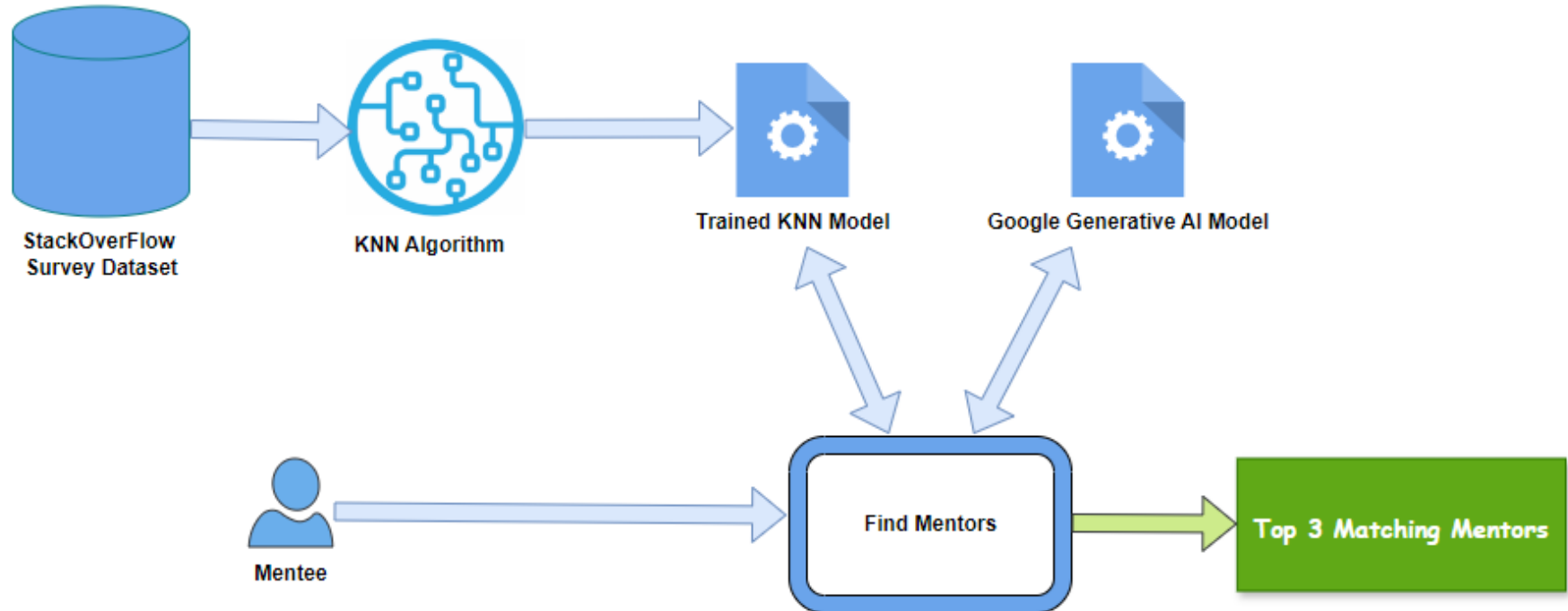
Feature 3 - One-Stop Peer Connect

Problem Addressed - Without a central hub, communication can be sporadic and unstructured, leading to missed opportunities for collaboration and support amongst peers who are working professionals. Valuable insights and solutions developed by individual participants remain confined, preventing collective learning and innovation.

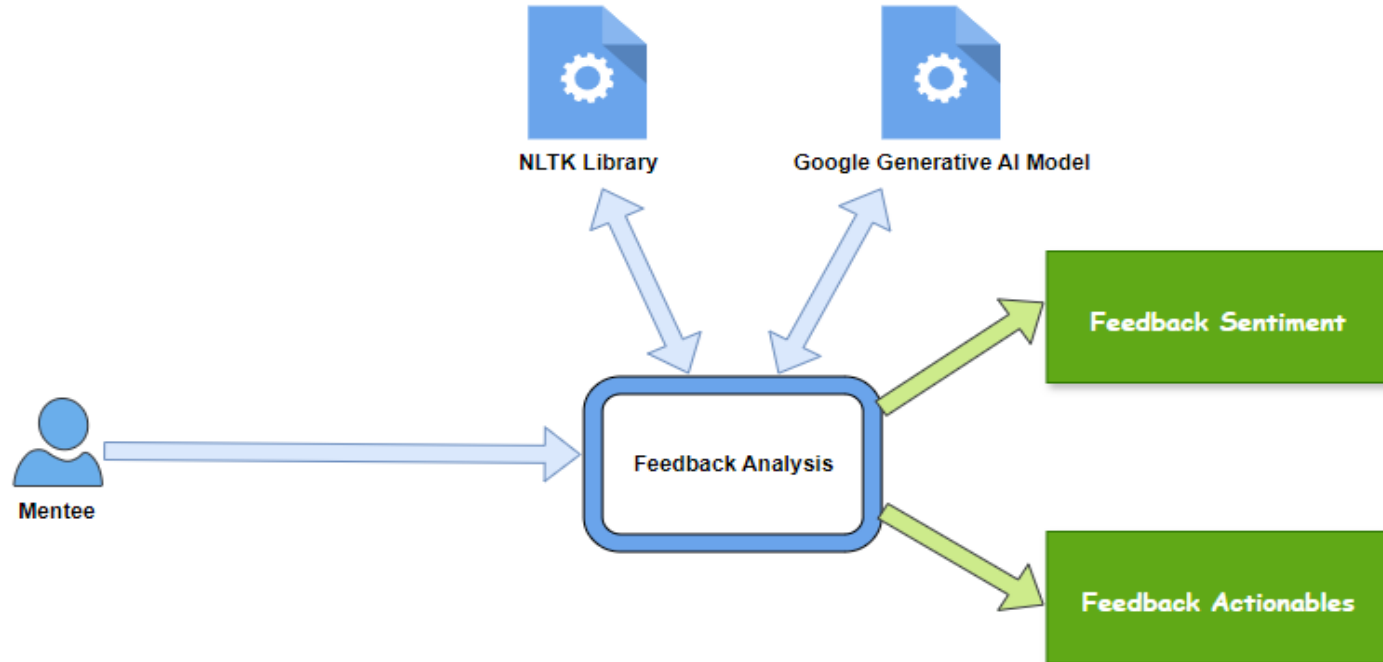
Solution – Create a one-stop platform to search for other peers and form a supportive learning community, encouraging participants to share, connect, and grow together

Unique Highlight – *Helps break traditional knowledge silos in learning environments, by opening a centralised bridge/huddle spot to ideate and collaborate*

Process flow diagram – Feature 1 - AI-Driven Mentor Matching (Aims to use StackOverflow Survey dataset for training)



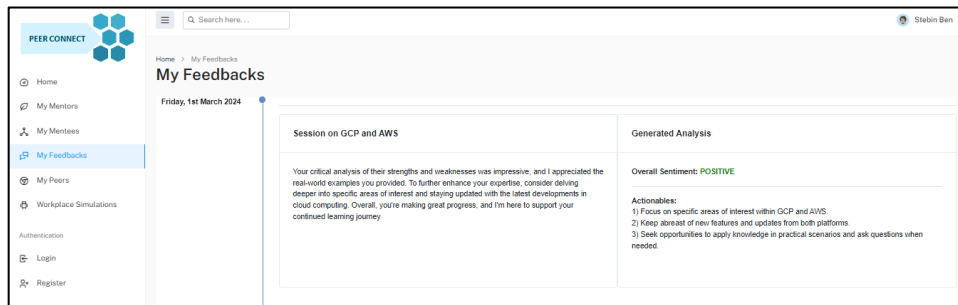
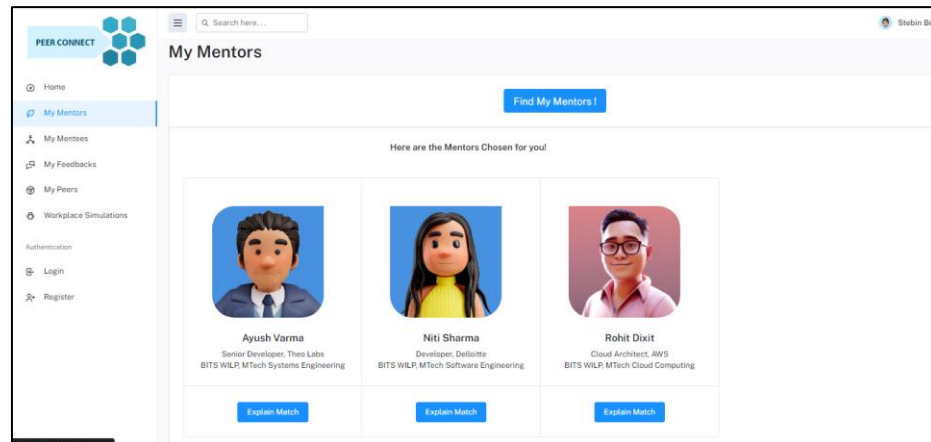
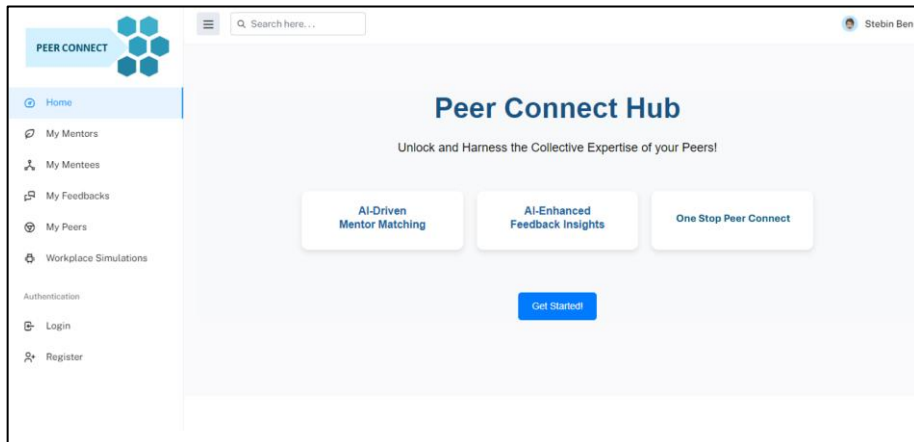
Process flow diagram – Feature 2 - AI-Enhanced Feedback Analysis



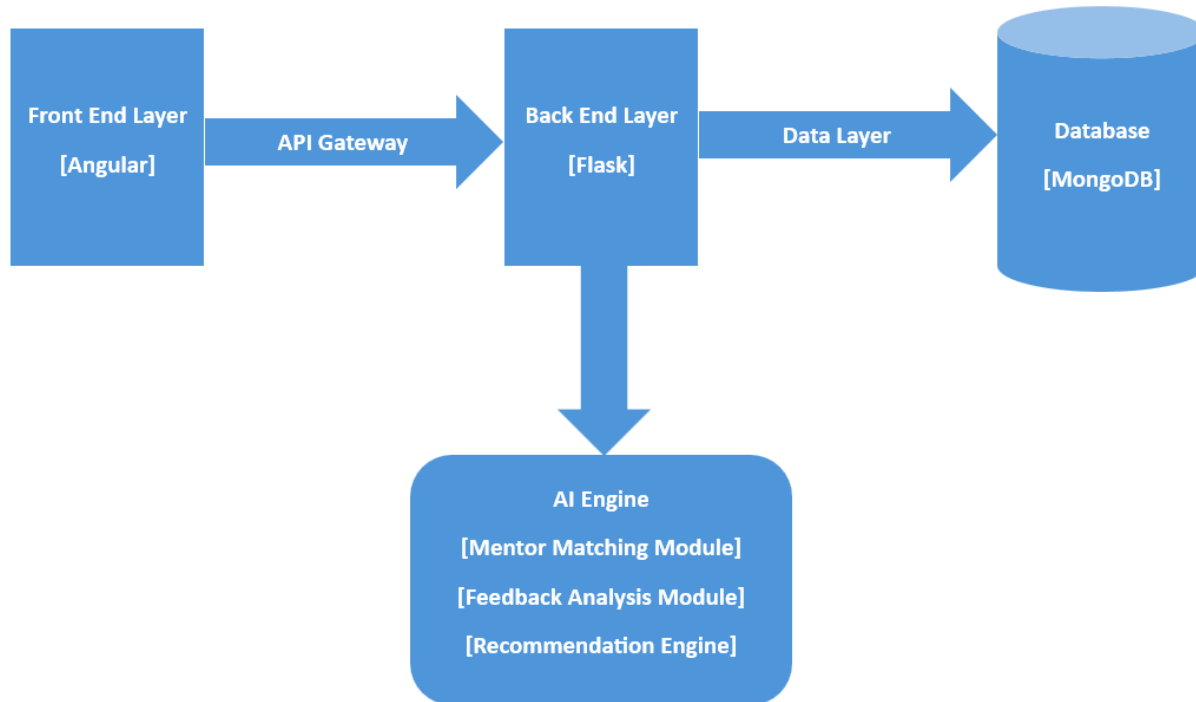
Process flow diagram – Feature 3 – One-Stop Peer Connect



Wireframes/Mock diagrams of the proposed solution



Architecture diagram of the proposed solution



Technologies to be used in the solution

Programming Languages: Typescript, Python

Frameworks/Libraries: Angular, Flask, SkLearn, Numpy, NLTK, google.generativeai library, HTML, CSS

Data Storage and Retrieval: MongoDB

Estimated implementation cost (optional)

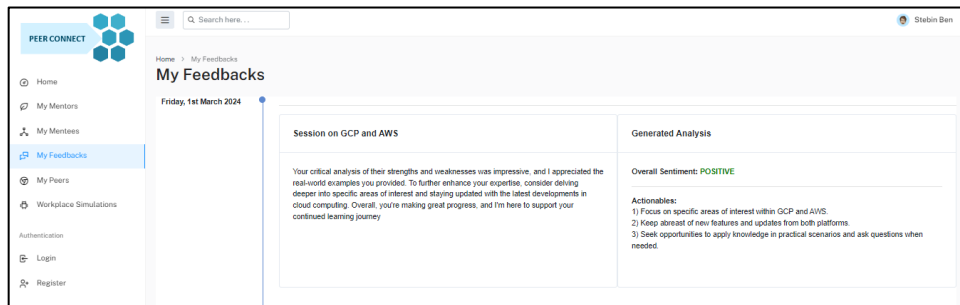
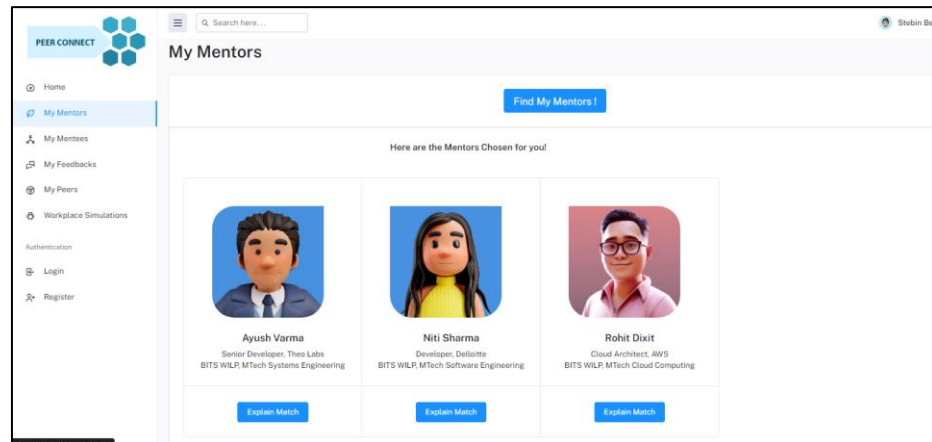
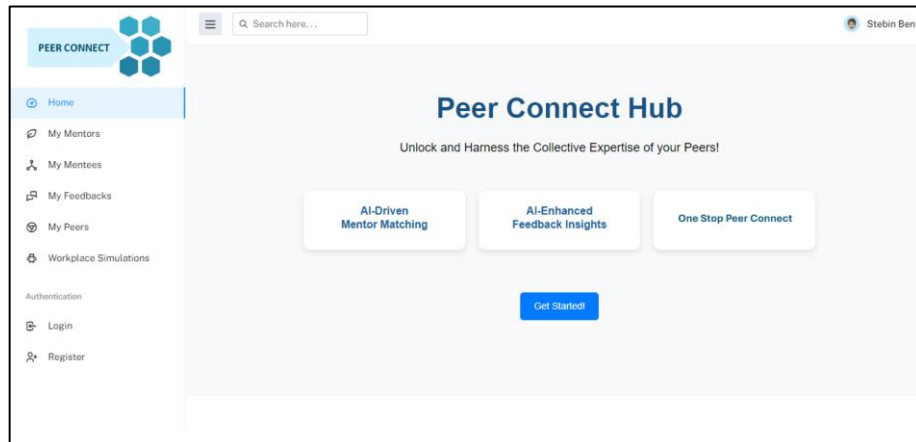
Gemini API Costs for Scaling

Right now we are on Free Tier which has limitations on the number of API calls per month

FrontEnd and BackEnd Hosting Costs

Right now we are using Free Hosting services - <https://render.com/> and <https://vercel.com/> which have limited RAM/CPU/Storage capacities

Snapshots of the prototype



Prototype Performance Report/Benchmarking

KNN Algorithm Confidence Scores for Top 3 Mentors:

Mentor 1:

Confidence Score: 98.19%

Mentor 2:

Confidence Score: 74.68%

Mentor 3:

Confidence Score: 55.22%

IPYNB File for Reference: https://github.com/gayatri-01/Peer-Connect-Hub-Hack4Change/blob/main/Peer_Connect_Hub.ipynb

Additional Details/Future Developments (if any)

Feedback Enhancement - Include a fine-tuned personalised Feedback analysis loop, by using Natural Language Processing

AI-Based Workplace Simulations - Professionals often face limitations in applying theoretical knowledge to practical scenarios. So, we can develop realistic simulations using AI to provide hands-on, practical experiences within a virtual work environment, allowing professionals to apply theoretical knowledge effectively. For example, virtual meeting spaces with AI Avatars which simulate the meeting environment and act as the target audience. It can bridge the gap between theory and practice, allowing professionals to refine their skills in lifelike scenarios, contributing to more effective learning outcomes

Prototype Resources:

GitHub Public Repository Link: <https://github.com/gayatri-01/Peer-Connect-Hub-Hack4Change>

Demo Video Link (3 Minutes): <https://drive.google.com/file/d/12g38pH5O88hQOJr0ZxRQCTsndowehouJ/view?usp=sharing>

Final Product Link: <https://peer-connect-hub-angular.vercel.app/home>

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THANK YOU

