Group 1
Ansh Puri 218587527
Kwangmin Ryu 217233321
Mathieu Johnson 220794343
Manavkumar Shah 219935592
Yashavi Mahajan 217848011
EECS 3461
2024/11/12

SkillSwap Hub is an innovative mobile application that redefines how individuals connect for skill learning and teaching. In a world where access to affordable and flexible education is increasingly vital, SkillSwap Hub addresses this need by providing a dynamic platform where users can share knowledge and learn from one another within a supportive community.

The app features user-friendly profiles, allowing individuals to highlight their skills and specify areas they wish to learn. Whether someone wants to learn coding, photography, or cooking, SkillSwap Hub makes it easy to find compatible partners. An intelligent matchmaking algorithm efficiently pairs users based on their skill sets, learning preferences, and geographic proximity, facilitating meaningful connections.

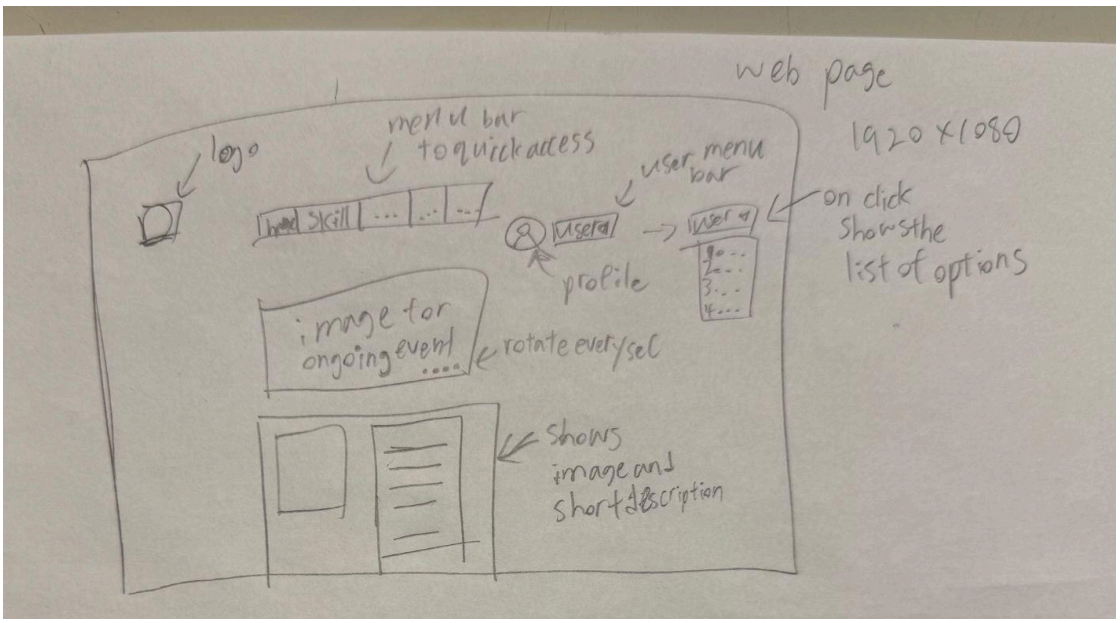
Once matched, users can seamlessly schedule skill swap sessions using integrated calendar tools that send reminders to keep everyone organized. For those participating remotely, SkillSwap Hub offers a robust virtual learning environment with real-time video capabilities, screen sharing, and immersive augmented reality features that enhance the learning experience, making it more engaging and interactive.

To promote inclusivity, the app incorporates auto-translation technology, breaking down language barriers and allowing users from diverse backgrounds to communicate and collaborate effectively. This global approach enriches the learning experience and fosters cross-cultural connections.

After each session, users have the opportunity to provide feedback, which not only helps improve the platform but also allows participants to earn in-app certificates that validate their newly acquired skills. These certificates can be showcased on users' profiles, enhancing their credibility and professional appeal.

Community engagement is a cornerstone of SkillSwap Hub, with skill-based challenges and events encouraging users to participate in competitions and collaborative projects. By earning badges and rewards, users can build their reputation within the community, fostering motivation and continued learning.

Additionally, the app features a resource-sharing section where users can upload and access educational materials and tutorials, enriching the overall learning experience. In summary, SkillSwap Hub democratizes learning by offering a personalized, community-driven platform that makes acquiring new skills accessible and enjoyable for everyone.



(Option 1)

The design for the SkillSwap Hub webpage, titled **Interactive Community Hub**, is crafted to prioritize user engagement and ease of navigation while fostering a sense of community among users. One of its most striking features is the prominent centralized poster that showcases ongoing community events. This rotating poster captures users' attention immediately, highlighting various activities and encouraging participation. By placing this visual element at the center of the page, the design effectively draws users into the vibrant community offerings available on the platform.

Key characteristics of the design include a user profile icon positioned in the top left corner, allowing for quick access to user-related functions such as scheduling sessions, editing profiles, and managing account settings. This placement ensures that users can easily navigate to their personal spaces without having to search through multiple layers of menus. Complementing this feature is an intuitive navigation menu that includes clearly labeled options such as Home, Skills, Schedule, Community, About, and Support. This straightforward structure helps users quickly find essential information, enhancing the overall usability of the site.

Below the main event poster, the design incorporates a section dedicated to upcoming events and news articles. This area features images and concise descriptions, displayed in a scrollable format that allows users to browse through a variety of opportunities and updates

seamlessly. By organizing information in this manner, the design ensures that users can stay informed about relevant events and resources without feeling overwhelmed.

The rationale behind this design approach centers on creating a user-centric experience that emphasizes accessibility and community engagement. By centralizing the event poster, the layout promotes active participation, which is crucial for building a vibrant learning community. The clear menu structure simplifies navigation, allowing users to explore different aspects of the platform without frustration. This focus on usability is particularly important for a diverse user base, which may include individuals with varying levels of technical expertise.

Throughout the design process, I learned the critical importance of balancing visual appeal with functionality. While creating an attractive interface is essential for capturing users' interest, ensuring that they can navigate the platform effortlessly is equally important. I employed iterative testing and gathered user feedback at various stages of development, which proved invaluable. These insights revealed specific areas for refinement, allowing me to enhance both the user experience and community engagement. For instance, adjustments made to the navigation menu based on user feedback improved clarity and accessibility, making it easier for users to locate desired features.

Additionally, I recognized that fostering a sense of community is vital for the success of a skill-sharing platform like SkillSwap Hub. The design should not only facilitate individual learning but also encourage collaboration and interaction among users. By highlighting community events and providing spaces for user-generated content, the design reflects this goal at every level.

In summary, the Interactive Community Hub design effectively combines visual appeal with practical functionality, creating a user-friendly experience that encourages engagement and fosters a sense of belonging. The lessons learned during the design process underscored the importance of user feedback and iterative improvements, ultimately resulting in a platform that meets the needs of its diverse audience while promoting a thriving community of learners and teachers.

Key Characteristics(Option 2)

- **Centralized Dashboard (Home Page)**: The home page acts as a hub, providing access to the main features of the application, including user profiles, skill scheduling (calendar), video calls, skill ratings, and group challenges. Each feature is represented by an intuitive card for quick navigation.
- **Skill Management (Profile - Skills to Teach and Skills to Learn)**: The profile section allows users to manage their skill sets by categorizing skills they wish to teach and those they want to learn. Users can add or delete skills, set proficiency levels, and display a brief description to personalize their profile.
- **Scheduling Interface (Skill Swap Calendar)**: This page includes a calendar interface for managing and scheduling skill swap sessions. Users can select dates, view existing appointments, and schedule new ones by specifying meeting details.
- **Video Call Integration (Skill Swap Video Call)**: The video call page enables real-time interactions, with options to start or join a call by entering a room ID. It includes placeholders for local and remote streams, enhancing the virtual skill-swapping experience.

Rationale

The design aims to provide a cohesive experience for users who want to learn and teach skills within a community. By integrating different functional pages into a unified platform, SkillSwap meets the application's requirements for collaboration, scheduling, skill management, and real-time interaction.

- **Unified Experience**: Each page seamlessly connects to the others, allowing users to navigate from scheduling sessions to starting video calls or managing their profiles without friction.
- **Targeted User Journey**: The design supports a logical flow for users, from managing their skills, to scheduling skill exchanges, to participating in video-based interactions, all with the goal of building a skill-sharing community.

Advantages

- **User-Centric Design**: The interface is intuitive, minimizing the learning curve and making it easy for users to engage in skill-sharing activities.

- **Efficient Organization**: Features are organized clearly, with a dashboard that serves as the entry point, ensuring users have easy access to all the main functions.
- **Enhanced Collaboration**: By including real-time video call functionality and a structured calendar, the design effectively supports interactive learning and scheduling.
- **Personalization**: Users can customize their profiles with skills they wish to teach or learn, enhancing engagement and helping others understand their expertise and interests.

Design Approach

The design approach centered around creating a smooth user journey and a connected experience for skill sharing, scheduling, and interaction.

- **Brainstorming Process**: The team focused on identifying the key activities users would engage in on the platform—skill management, scheduling, and real-time interaction. This led to a modular yet connected design where each function serves a specific purpose within the broader skill-sharing ecosystem.
- **User-Centric Feedback**: Through initial brainstorming sessions, it became clear that users needed an intuitive, organized interface that wouldn't overwhelm them. The design evolved to prioritize simplicity, accessibility, and ease of navigation, ensuring each page feels intuitive and flows naturally to the next.
- **Learning Outcomes**: The design process emphasized the importance of creating a unified experience where each feature feels interconnected. The team learned the value of consistency in layout and functionality, which makes complex applications more user-friendly. Additionally, they realized the significance of offering clear navigation paths and concise user instructions for each feature.

OverAll

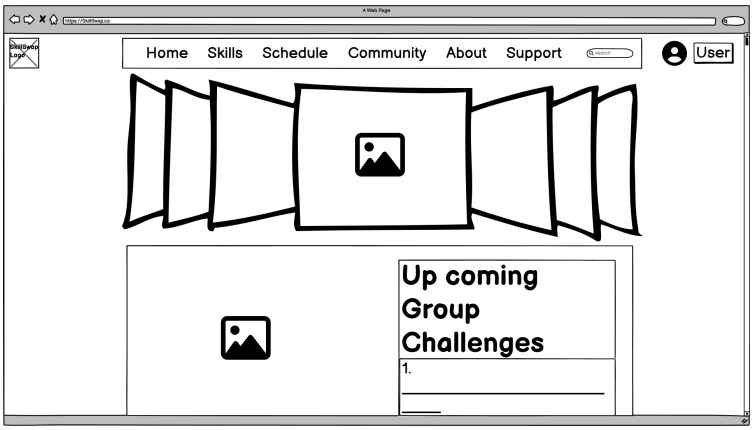
The design approach for the SkillSwap Hub aimed to create a user-centric platform that encourages skill sharing, community engagement, and seamless navigation. The goal was to foster a space where users could easily connect, teach, and learn, while ensuring the interface remained intuitive for individuals with varying levels of technical expertise.

In **Option 1**, the design focused on community engagement by featuring a central event poster that highlighted ongoing activities, capturing users' attention and encouraging participation. The navigation structure was streamlined with clearly labeled options, ensuring that users could easily access profiles, scheduling, and community resources. Through iterative testing and user feedback, I learned the importance of balancing visual appeal with usability. While vibrant visuals were essential for drawing users in, ensuring that the platform remained intuitive and accessible was equally crucial. Feedback helped refine features like the navigation menu, improving clarity and ease of use.

In **Option 2**, the design adopted a more modular approach with a centralized dashboard that acted as the entry point for skill management, scheduling, and video calls. The layout was structured to create a logical flow, guiding users from one feature to the next without confusion. A key lesson here was the value of a unified user experience—ensuring consistency across all pages for a cohesive and intuitive journey. Both designs reinforced the importance of user feedback, which played a pivotal role in refining the interface and ensuring it met the needs of the diverse user base.

Ultimately, the design process highlighted the significance of continuous refinement, usability, and community-driven features to create a platform that encourages active participation and collaboration.

[Prototype1]



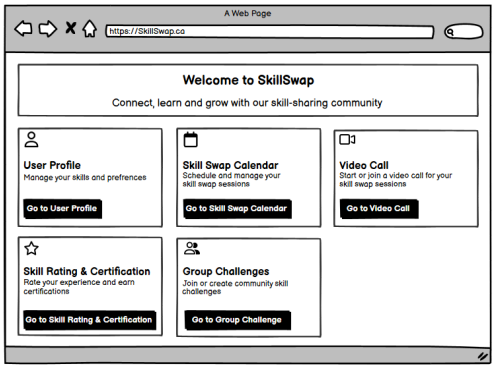
[Prototype2]

Decision (prototype2)

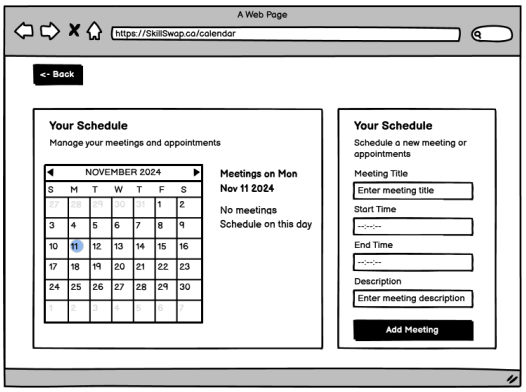
Prototype 2 offers several advantages over Prototype 1, making it a more streamlined and user-friendly design for the SkillSwap Hub platform. It provides a unified experience, integrating core features like profile management, skill scheduling, and video calls into a cohesive dashboard, allowing users to seamlessly transition between tasks. In contrast, Prototype 1 focuses more on community events, which could distract users from their primary goal of skill-sharing. The intuitive card-based navigation in Prototype 2 simplifies access to key functions, reducing the learning curve and minimizing confusion. Additionally, Prototype 2 emphasizes skill management, allowing users to categorize and personalize the skills they wish to teach or learn, which fosters deeper engagement and makes it easier for users to interact with one another based on their expertise. Prototype 1, on the other hand, lacks this clear skill organization. The design in Prototype 2 is also more consistent and modular, making it easier to scale or add new features without disrupting the user experience. Prototype 1, with its focus on rotating event posters, could create visual clutter and overwhelm users, making it harder for them to focus on their main objectives. Overall, Prototype 2 offers a more efficient, focused design with a clear flow, making it better suited for users seeking a seamless skill-sharing experience, while Prototype 1’s emphasis on community events may divert attention from the platform's core purpose.

Storyboard

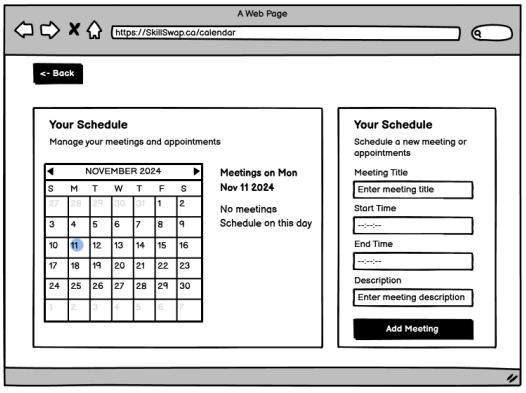
1. **Accessing the Home Page** : The user logs into the SkillSwap platform and lands on the home page.



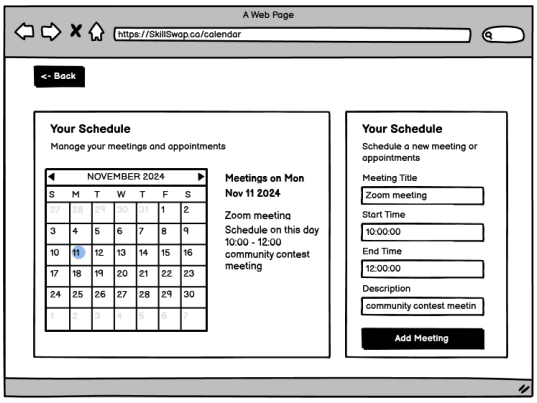
2. **Entering the Skill Swap Calendar :** After clicking the Skill Swap Calendar card, the user is directed to a detailed calendar view. The calendar displays a monthly or weekly layout, showing available time slots and existing appointments.



3. **Selecting an Available Time Slot :** The user clicks on an open time slot on the calendar. A pop-up appears with fields to enter session details, such as meeting title, start time, end time, description.



4. **Finalizing the Skill Swap Session :** The user completes the session details, reviews their input, and clicks "Add Meeting" to finalize the appointment. The calendar then updates to reflect the newly scheduled session.



Heuristic Evaluation

Our heuristic evaluation involves a team of three evaluators, each playing the role of an expert evaluator. Each evaluator independently assesses the prototype (Option 2) for usability issues based on Nielsen's 10 Usability Heuristics. The evaluation uses the following Usability Heuristics:

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help and documentation

Setup and Process

1. **Prototype Preparation**: A walkthrough of the low-fidelity prototype is conducted to ensure readiness for testing. This involves simulating various tasks to confirm that the screens and task flows are clear and navigable, as well as refining any elements that could impact usability.
2. **Evaluation Session**: A session is scheduled for each evaluator to go through the prototype independently, noting usability issues against each of Nielsen's heuristics. The evaluators will document their findings on the provided heuristic sheet to ensure consistency across evaluations. They will write about the issues they find and use the following scale to rate them: (1) cosmetic problem, (2) minor usability problem (3) major usability problem (4) usability catastrophe.
3. **Expected Timeframe**: Each evaluator will need approximately 30 minutes to complete their evaluation, allowing adequate time to explore each screen and identify issues per heuristic.

Individual Evaluations

Individual 1:

(1) Visibility of system status

a. Issues: When switching between profile-teach and profile-learn, users with lack of web knowledge might struggle to understand where they are. We can see the white bar jump to the proper section when navigating, however this might not be obvious to someone who is technologically challenged. I would suggest adding a simple animation where the white box moves to the selected section. I would also disable the selected section's button to prevent confusion.
b. Rate: 1 - Cosmetic problem

(2) Match between system and the real world

a. Issues: In the video-call page, some jargon, such as local stream and remote stream, should not be used, as many people will not understand what they mean. I would replace them with easier terms that can be understood by mostly everyone.
b. Rate: 2 - minor usability problem

(5) Error prevention

a. Issues: In the profile-teach and profile-learn, the buttons used to add a skill to learn and a skill to teach can be found on both sections. This can lead the user to press the wrong button and add the skill to the wrong section. I would make sure that only the button associated with the section is shown.
b. Rate: 3 - major usability problem

(8) Aesthetic and minimalist design

a. Issues: The buttons in the profile and home pages have too much text and should be reduced to 1-2 words for simplicity.
b. Rate: 1 - Cosmetic problem

Consolidation of findings

The SkillSwap platform demonstrates a user-friendly design with strong usability, particularly in its skill management, scheduling, and video call features. However, there are several areas for enhancement based on the heuristic evaluation:

1. **System Status Visibility**: While the platform updates users on their schedule and video call status, clearer feedback (such as progress indicators or confirmation messages) would improve user confidence in their actions.
2. **Real-World Match**: The platform's skill categories are intuitive, but adding brief descriptions or tags for skills would enhance user understanding, especially for more complex or specialized skills.
3. **User Control and Freedom**: Although users can manage their profiles and schedules easily, introducing an undo function would allow for the reversal of accidental actions, such as skill deletions or session cancellations.
4. **Consistency**: The design is mostly consistent, but the video call interface could be better aligned with other features in terms of layout and controls, reducing the need for users to relearn different interaction models.
5. **Error Prevention**: More proactive error-prevention measures such as alerts for scheduling conflicts or invalid room IDs would help minimize user mistakes and frustration.
6. **Recognition Rather Than Recall**: Adding tooltips or brief descriptions for skills and actions would reduce the cognitive load, making it easier for users to recognize and understand functionality without recalling previous steps.
7. **Help and Documentation**: While the platform is intuitive, incorporating interactive tutorials or onboarding tips for first-time users would enhance user experience and ease of use.

In conclusion, SkillSwap's design is strong but could benefit from small adjustments to improve error handling, system feedback, and user guidance. These changes would further optimize the platform for a wide range of users, enhancing both beginner and advanced user experiences.

Workload distribution and summary

To effectively design and develop the SkillSwap platform, we divided the work into two main teams, each focusing on specific aspects of the prototype. After completing the initial prototypes, both teams collaborated to evaluate, refine, and finalize the design. Once the design was finalized, we worked together to create a storyboard and conducted a heuristic evaluation.