

Group 1

Ansh Puri 218587527

Kwangmin Ryu 217233321

Mathieu Johnson 220794343

Manavkumar Shah 219935592

Yashavi Mahajan 217848011

EECS 3461

2024/10/17

Project Proposal: SkillSwap Hub

1. Description of the Proposed Application

SkillSwap Hub is an app that connects individuals wanting to learn or teach specific skills, fostering a community for skill exchange. Users can create profiles showcasing their skills, search for lessons, and arrange sessions. It features a rating and review system, built-in messaging, scheduling tools, and immersive augmented reality sessions. Additionally, there's a resource-sharing section and a rewards system for teachers, making learning affordable and accessible.

The app also hosts community events and challenges, allowing users to earn badges and certifications that enhance their credibility. This unique approach encourages mentorship, fosters community engagement, and promotes efficient learning.

2. Description of the Target Users

The target users for **SkillSwap hub** include:

- **Learners** seeking affordable methods to acquire new skills or hobbies.
- **Professionals** looking to upskill or explore new career opportunities.
- **Students** interested in education and peer-to-peer learning.
- **Instructors** or **Hobbyists** who want to teach others and earn extra income.
- **Certification Seekers** aiming to earn in-app certificates to validate their skills.

3. Addressing a Unique Need

SkillSwap Hub addresses the need for flexible, affordable, and personalized learning. Many people encounter barriers to traditional education, such as high costs, time constraints, language differences, or geographical limitations. By offering an interactive platform that matches users based on learning preferences, location, and skill set, **SkillSwap Hub** provides a cost-effective alternative that caters to diverse learners.

The in-app certification system enhances credibility, allowing users to showcase their skills. Community engagement through challenges and mentorship fosters long-term learning and relationship-building, often absent in traditional educational platforms.

4. List of Tasks Users Can Perform

Users of **SkillSwap Hub** will be able to:

- 1. Create and Manage Profiles:** Users can list the skills they possess and those they want to learn, with detailed descriptions and preferences.
- 2. Skill Matchmaking:** An algorithm efficiently pairs users with compatible partners based on their learning needs, location, and style.
- 3. Schedule SkillSwap Sessions:** Users can propose, accept, and schedule sessions, with calendar integration and reminders.
- 4. Participate in Virtual Sessions:** Remote users can engage in real-time skill exchanges through a video platform with screen sharing and immersive tools. It also features cutting-edge augmented reality to enhance the learning experience.
- 5. Auto Translation:** Auto translation breaks the language barriers, providing users with a global learning experience that enhances communication and collaboration for sharing skills across cultures.
- 6. Provide Feedback and Earn Certificates:** After each session, users can rate their experience and earn in-app certificates that enhance their professional profile.
- 7. Engage in Community Challenges:** Users can join events like skill-based competitions(e.g., coding bootcamps, photography challenges), earning badges and rewards for their participation.
- 8. Utilize Resource_Sharing Tools:** Users can upload and access educational materials, tutorials, and resources relevant to their skill exchanges.

Dave

- **Background**
 - Age: 24(Male, Japan)
 - Tag: College students - Computer Science
- **Personality**
 - Passion, Hardworking, Social, Like to code
- **Technology**
 - Use online learning tool to study
 - Intermediate coding skill
- **Motivation**
 - Like to advance a coding skills
 - Wants to challenge his skills
- **Frustration**
 - Struggles to find a study place outside of College
 - Hard time translating to Japanese
 - Finding a professional coder to learn from
- **Needs**
 - Stabled place to study
 - Needs well organized professional coder's profile
 - Wants real-time translation



Scenarios

Dave, a 24-year-old computer science major in Japan, uses the SkillSwap Hub app at home to enhance his coding skills during a free hour between classes. Eager to advance his knowledge in advanced C++ and real-time applications, he seeks a professional mentor and discovers a highly rated mentor named Amy through the app's "Skill Matchmaking" feature. After messaging her to propose a skill swap session, they quickly schedule a meeting via the app's integrated calendar. To prepare, Dave downloads relevant tutorials from Amy's resource-sharing materials. On the day of the session, he engages in an immersive learning experience using the app's video and screen-sharing features. Afterward, he rates his experience and earns an in-app certification that boosts his profile. By leveraging SkillSwap Hub's features, Dave effectively overcomes learning barriers, connects with a supportive community, and achieves his goal of advancing his coding skills while staying motivated to seek further opportunities for growth.

Abby

- **Background**
 - Age: 35(Female, Italy)
 - Tag: Violinist
- **Personality**
 - Playful, Disciplined, Open-Mind, Like to play piano
- **Technology**
 - Advanced Violinist
 - Absolute Pitch
- **Motivation**
 - Like to learn a new instruments piano
 - Wants to play a favorite songs in piano
- **Frustration**
 - Hard time managing time
 - Hard to define a current skill level
 - Finding a duo to play piano together
- **Needs**
 - Well organized schedule system
 - Provide feedback to understand current level
 - Efficient matchmaking system



Scenarios

Abby, a 35-year-old violinist from Italy, is eager to learn piano through the SkillSwap Hub app, driven by her deep love for music. While preparing for an upcoming performance, she struggles with time management and accurately assessing her skill level, prompting her to take advantage of the app's feedback tools. Upon discovering the "Community Challenges" feature, Abby enthusiastically registers for a friendly piano competition, setting a goal to learn and perform a specific piece on stage. The app connects her with fellow participants, fostering a supportive community where they share tips and encouragement. As the competition date approaches, Abby effectively schedules dedicated practice sessions, ensuring she balances her commitments while honing her skills. After the challenge, she receives constructive feedback and earns a participation badge, which motivates her to continue her musical journey. This experience not only enhances Abby's piano abilities but also improves her time management and helps her build valuable connections with fellow music enthusiasts, enriching her overall musical experience.

Nate

- **Background**
 - Age: 68(Male, Canadian)
 - Tag: Baker
- **Personality**
 - Creative, Friendly, relax
- **Technology**
 - Advanced baking skills
 - High tech user
- **Motivation**
 - Share baking skills
 - Searching for creative idea form youngs
- **Frustration**
 - Difficult to share realism visually online
 - Difficult to guarantee a compilation of the course
 - Having competitive challenges
- **Needs**
 - Virtual share can enhance realism
 - Provide certificate
 - Community challenges to enhance skills



Scenarios

Nate, a 68-year-old Canadian baker, uses the SkillSwap Hub app from his restaurant to connect with younger bakers and share his extensive baking skills. Motivated by a desire to inspire creativity, he initiates a “Baking Challenge” within the app, inviting participants to create unique desserts that incorporate traditional baking methods. To enhance the realism of the challenge, Nate uses the app's work-along feature, allowing participants to bake alongside him in real time. As they create their recipes together, Nate actively engages with them, providing constructive feedback and sharing tips from his own experience. He also introduces a community voting system, where participants can showcase their creations and receive input from their peers. At the end of the challenge, Nate awards certificates to the top-rated desserts, fostering a sense of accomplishment and motivation. This experience not only allows Nate to share his passion for baking but also helps him connect with a vibrant community, bridging the generational gap and inspiring a new wave of creative bakers.

InterView Script

1. Could you tell me about yourself(occupation, age, skills, etc)?
2. How do you like to find out about SkillSwap Hub in daily life?
3. What are your goals for using SkillSwap Hub?
4. What kind of skills do you expect to see in SkillSwap Hub?
5. How do you learn new skills or hobbies?
6. What difficulties do you expect when trying to learn or teach a skill?
7. What kind of challenges have you faced while learning and teaching?
8. What platforms or tools do you use for skill exchange?
9. What features do you expect in learning and teaching apps?
10. How do you feel about peer-to-peer learning(between 1-5)?
11. How important is flexibility when scheduling a skill exchange(between 1-5)?
12. What types of community events or challenges do you wish to have?
13. How do you prefer to communicate with others(chat,voice,video)?
14. What kind of support do you need when teaching a skill?
15. What motivates you to learn new skills?
16. How do you feel about receiving badges or rewards during the learning process(between 1-5)?
17. What would you like to receive as rewards?
18. What do you think about getting a certificate after successful completion of a course(between 1-5)?
19. Have you ever used augmented reality? If so, how confident are you in using it?
20. What are your thoughts on virtual learning sessions that incorporate augmented reality(between 1-5)?
21. How likely are you to recommend SkillSwap Hub to others(between 1-5)?
22. Can you share a positive or negative experience related to education?

P1

1. Age 21, aspiring professional farmer, feisty, difference between acquaintances and strangers, game-loving, and watching sports
2. Introduce (bus or subway ads) in various ways without irritation, so that you can see them at a glance
3. Gathering information about something of interest (I want to ask, understand)
4. Math, English, and games among many hobbies
5. Find community Find YouTube (hard to find results you want, lack of trivia)
6. I don't want to move on to the next topic before I understand it
7. I'm also dissatisfied with the time limit for solving problems
8. Talking to each other on video
9. Goals setting function, writing down plans
10. It looks good. 4 out of 1 to 5
11. It's ok, 3 out of 1 to 5
12. It would be nice if there were missions with prizes. It feels like growing up on missions according to grades
13. Prefer voice conversation
14. accurate and delicate information about students, such as their progress in studying
15. If the result comes out well, it's definitely motivating. I hope the evaluation is not open
16. Very good. 5 out of 1 to 5
17. Food, gift cards
18. Very good. 5 out of 1 to 5
19. Never used
20. Very good. 5 out of 1 to 5
21. Very good. 5 out of 1 to 5
22. There's nothing good or bad about it

Role play

- I wish I had a teacher who could set me a goal (frustration)
- It's hard to set a goal by myself (frustration)
- I hope there's someone who can tell me what to start with (needs)
- Wanted to get certificate or learn new knowledge to improve myself (goal)

P2

Interview Summary:

- **Background:** A 23-year-old freelance graphic designer with a passion for coding and a desire to expand skills in areas like video editing and digital marketing.
- **Discovery of SkillSwap:** Finds new platforms through social media, word-of-mouth, and online communities like Reddit and LinkedIn.
- **Goals for SkillSwap:** Aims to learn video editing and animation while sharing graphic design skills, seeking a more personal and collaborative learning experience.
- **Expected Skills on SkillSwap:** Looks for a mix of professional skills like coding and marketing alongside creative hobbies such as painting and yoga.
- **Learning Preferences:** Prefers online tutorials but values one-on-one mentorship for hands-on learning.
- **Challenges in Learning/Teaching:** Struggles with the lack of personalized feedback and coordinating schedules with learning partners.
- **Desired Features:** Real-time chat, video call options, built-in scheduling, and easy file-sharing.
- **Importance of Flexibility:** Rates scheduling flexibility as a 5/5 due to varying weekly availability.
- **Motivation and Rewards:** Driven by professional growth and creativity, appreciates badges and certificates but values skills and connections more.

Scenario Summary:

Using SkillSwap to Learn Video Editing & Offer Coding Skills:

1. **Profile Setup:** Lists "Coding for Beginners" as the offered skill and "Video Editing" as the desired skill.
2. **Finding a Match:** Uses the app's match feature to find a video editing partner. Finds a user who needs HTML and CSS tutoring.
3. **Connecting:** Initiates conversation using a customizable message template and arranges a swap of three sessions each.

4. **Scheduling:** Uses the app's calendar feature to plan sessions, receiving reminders before each.
5. **Skill Exchange:** Conducts coding sessions through video calls with screen sharing. Learns video editing in subsequent sessions, using the app's note-taking feature.
6. **Feedback & Progress:** Provides mutual feedback after sessions, building credibility on the platform.
7. **Rewards & Networking:** Earns a badge for completing the exchange, motivating further participation. Adds the partner to their network for future collaborations.
8. **Future Plans:** Browses other skills like photography and considers joining community challenges to continue expanding their skill set

P3

1. Age 25, a student interested in technology, with a focus on learning new skills like programming, photography, and languages
2. I would like to find out about it through social media, maybe via recommendations or ads on platforms I already use, such as Instagram or YouTube
3. My main goals would be to learn new skills affordably, meet others who can teach me, and perhaps teach others skills I am proficient in, such as programming.
4. expect to see a wide range of skills, from coding and digital marketing to hobbies like cooking or photography.
5. Majorly through online videos or the study apps. However, sometimes it's hard to find exactly what I need, so I'm excited about the personalized learning experiences offered by SkillSwap Hub.
6. The main difficulty is finding someone who can explain concepts in a way that matches my learning style. Also, scheduling time that works for both the learner and teacher can be tricky.
7. When teaching, it's hard to gauge how well someone is progressing.
8. I currently use YouTube and sometimes Reddit for learning new skills.
9. expect features like easy communication (chat or video), progress tracking, scheduling tools, and feedback systems. Having a certification feature is a great bonus.
10. I'd rate it a 4. I think peer-to-peer learning can be very effective, especially when both parties are passionate about the subject.
11. Flexibility is key, so I'd rate it a 5. It's important to have the ability to schedule at times that work for both parties.
12. I'd love to see coding bootcamps, photography challenges, or other skill-based competitions where we can earn rewards and badges.
13. I prefer using voice or video for real-time exchanges, but chat is useful for follow-ups or scheduling.
14. I'd need progress tracking tools, feedback from learners, and perhaps a library of resources to share with students.
15. I'm motivated by personal growth and career advancement. I also enjoy mastering new hobbies in my free time.
16. I'd rate it a 5. I think badges and rewards can help make the learning process more engaging and fun.

17. I'd appreciate rewards like gift cards, access to premium features, or maybe even something practical like discounts on learning materials.
18. I'd rate this a 5. Certificates are great for validating my skills, especially for career opportunities.
19. 19. Never used
20. I'd rate it a 5. I believe AR can make virtual learning more interactive and engaging, which could be very helpful for certain skills.
21. I'd give it a 5. It sounds like a great platform for both learning and teaching, and I would definitely recommend it to others who enjoy peer-to-peer learning.
22. A positive experience was when I learned programming from a friend in an interactive way through video calls. A negative experience was trying to learn a complex subject online without any real feedback, which made it harder to stay motivated.

P4

1. I'm 28, a freelance graphic designer with an interest in photography and digital marketing. I've been freelancing for 5 years, and I love picking up new creative skills in my spare time.
2. I'd love to see it promoted on social media and YouTube through tutorials or success stories. It would be great if it were integrated into platforms I already use, like LinkedIn or Reddit.
3. I want to learn new creative techniques, like animation and motion graphics, and teach others graphic design basics. I'd also like to connect with a community of like-minded creatives.
4. Anything creative—graphic design, video editing, digital illustration. It would also be cool to see practical skills like coding, cooking, and DIY projects.
5. Mostly through YouTube tutorials, online courses like Skillshare, and by experimenting on my own.
6. The hardest part is finding quality resources and understanding complex topics without face-to-face interaction. Time zones and scheduling can also be tricky.
7. I often feel that online tutorials aren't interactive enough, and when teaching, it's hard to gauge someone's progress without real-time feedback.
8. I've used Discord for community learning, LinkedIn Learning, and Zoom for some remote teaching.
9. Definitely scheduling tools, screen sharing, collaborative whiteboards, and maybe progress tracking features.
10. 4. It's a great concept, especially for real-world application of skills.
11. 5. Flexibility is key for me since I work with clients from different time zones.
12. Creative contests, monthly challenges where we can collaborate on design projects, or skill-based missions with rewards like tools or software discounts.
13. I prefer video for tutorials or lessons, but voice or chat works well for quick exchanges or feedback.
14. Access to teaching aids, templates, and tools for creating effective lessons. Also, feedback from students on how I can improve.
15. Keeping up with industry trends and the chance to expand my freelance offerings.
16. 4. Badges are fun and provide a sense of progress. Rewards like tools or course discounts would be great.

17. Software subscriptions, digital tools, or even mentorship opportunities with professionals.
18. 5. Certificates are great for showing off skills on platforms like LinkedIn.
19. I've used AR a little in mobile apps like Snapchat and Instagram. I'm confident in trying it out for creative tutorials.
20. 5. AR sounds like a fantastic way to make learning interactive and engaging, especially for skills like design or DIY projects.
21. 5. If it delivers on its features, I'd definitely recommend it to my peers.
22. A positive experience I had was when I took a project-based design course. The hands-on projects helped me learn faster, and peer reviews were really helpful. On the downside, I've also had experiences where courses were too theoretical without practical application, which made it hard to stay engaged.

ROLE PLAY SCENARIO

Alex logs into SkillSwap Hub, feeling excited but unsure about how to start learning animation. While browsing available mentors, they struggle to find the right path and wish there was a **goal-setting tool** to help them create a learning plan. They decide to join a **community challenge** for animators, but scheduling sessions with a mentor in a different time zone is challenging.

During a session, Alex realizes that **real-time feedback** is missing. While the platform's chat feature helps, Alex wishes for **AR-enhanced lessons** to make learning more immersive. They love the idea of earning badges and **certificates** for completing each skill module, motivating them to continue learning.

P5

1. I'm a 21-year-old student, and I'd love to learn pottery. I am good at cooking.
2. I'd like to see it in YouTube videos or on social media like TikTok and Instagram.
3. I want to learn new skills affordably.
4. A variety of academic, like math or bio, and non-academic, like cooking and pottery, options.
5. I usually attend summer academies with certified professionals.
6. Time commitment and coordinating with others can be difficult.
7. In barista training, I lacked equipment for consistent practice, and creating teaching materials takes a lot of time.
8. I use Zoom for tutoring and YouTube for my own learning.
9. Note-sharing and communication features like video or AR.
10. I give it a 4/5 when it's affordable.
11. Not very important (1/5), as people already make time for learning.
12. I'm introverted, so I don't think I'd participate in those.
13. I prefer texting on social media.
14. I use tools like PowerPoint, Google images, and notepads.
15. I'm influenced by celebrities or TV shows like cooking programs.
16. I'd rate it a 5, as rewards could lead to perks like free trials and reinforces learning.
17. Discounts, money, or perks like free trials.
18. I rate it a 5; it's nice to have proof of achievements.
19. I haven't used it but would try it if it's affordable.
20. I'd rate it a 3; it sounds good but VR/AR devices need to be more affordable.
21. For now, 2.5, until I try it more. I would need to see more.
22. A bad or disrespectful teacher makes it harder to learn effectively.

Scenario/role-play:

- I don't like that learning new skills is always pricey (frustration)
- Complex user interfaces make learning hard as I am not good with technologies (frustration)
- I need to be in an environment that makes me feel good, concentrated, and ready to learn (needs)
- Certificates are great way to support your improvements and they make you feel more accomplished (goal)

User Backgrounds	Learning Methods	Needs	Challenges	Skills Desired
Farmer	Online Tutorial	Progress Tracking	Scheduling Difficulties	Video editing
Freelance graphic designer	One on One Mentorship	Goal Setting Tools	Lack of Personalized FeedBack	Coding
Student	Video	Real Time communication	Difficulty in finding quality resources	Pottery
				Animation

Annie

- **Background**
 - Age: 21(Female, Canadian)
 - Tag: Student, Interests(Cooking and Pottery)
- **Personality**
 - Influenced by cooking shows and celebrities
- **Technology**
 - Uses Zoom for tutoring and YouTube for personal learning
 - Engages with social media for inspiration
- **Motivation**
 - Seeks affordable ways to learn new skills
 - Aims to explore a variety of academic and non-academic subjects
- **Frustration**
 - Finds learning resources often too expensive
 - Struggles with complex user interfaces
 - Experiences difficulty coordinating with others for group learning
- **Needs**
 - Comfortable learning environment that fosters concentration
 - Note sharing and communication features, ideally including AR
 - Certificates of achievement to validate skills and accomplishments

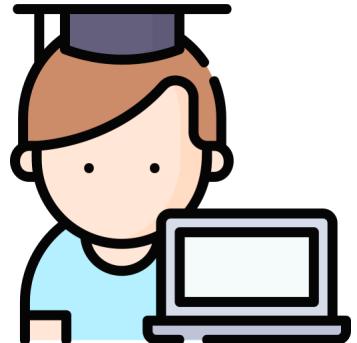


Scenario(Annie)

Annie, a 21-year-old student from Canada, is passionate about cooking and pottery, inspired by her favorite cooking shows and celebrity chefs. Eager to enhance her skills, she turns to a new learning platform, hoping to find affordable and interactive courses that connect her with mentors and peers. Using the platform from her cozy study space at home, Annie aims to explore various subjects and earn certificates to validate her achievements. She believes that group learning experiences will enrich her journey, making collaboration essential. To achieve her goals, the platform needs to offer a diverse range of affordable workshops, user-friendly communication tools, and features for note-sharing. Ideally, it would incorporate AR technology to create immersive learning experiences. With these resources, Annie can effectively track her progress and build confidence in her abilities, ultimately mastering new skills in both cooking and pottery while fostering a sense of community among fellow learners.

Sam

- **Background**
 - Age: 28(Male, Canadian)
 - Tag: Graphic Designer, Interests(Photography and digital marketing)
- **Personality**
 - Creative and motivated, Values collaboration and community
- **Technology**
 - Uses platforms like Discord, Zoom, and LinkedIn Learning
 - Relies on online courses and tutorials
- **Motivation**
 - Wants to learn animation and video editing
 - Aims to share graphic design skills with others
- **Frustration**
 - Struggles with scheduling sessions due to time zone differences
 - Finds online tutorials often lack interactivity
 - Difficulty gauging student progress during teaching
- **Needs**
 - Real time chat and video call options for mentorship
 - Features for scheduling and progress tracking
 - Opportunities for community challenges and creative contests



Scenario(Sam)

Sam is a 28-year-old freelance graphic designer from Canada, with a strong interest in photography and digital marketing. Driven by creativity and a desire for collaboration, he seeks to enhance his skills in animation and video editing while sharing his graphic design expertise with others. He frequently uses platforms like Discord, Zoom, and LinkedIn Learning to access online courses and tutorials, but often finds them lacking in interactivity. Working from his home studio, Sam faces challenges in scheduling sessions with international peers due to time zone differences, which can hinder his learning and teaching experiences. To achieve his goals, he needs a learning platform that offers real-time chat and video call options for mentorship, as well as features for scheduling and tracking student progress. Additionally, Sam is motivated by community engagement and would greatly benefit from opportunities to participate in creative contests and challenges that inspire collaboration. By leveraging these resources, he aims to create a vibrant learning environment that fosters growth for both himself and his students.

John

- **Background**
 - Age: 21(Male, Canadian)
 - Tag: Farmer, Interests(Enjoys gaming and watching sports)
- **Personality**
 - Feisty, Eager to learn and understand new concepts
- **Technology**
 - Utilizes online platforms for learning
 - Prefers video calls for discussions
- **Motivation**
 - Aims to gather information about farming practices
 - Seeks to improve math or other skills
- **Frustration**
 - Difficulty finding relevant information online
 - Dissatisfied with time limits for problem solving
 - Wishes for more engaging learning methods
- **Needs**
 - A platform that introduces information clearly and effectively
 - Goal setting functions to write down and track plans
 - Rewards for completing missions or learning objectives



Scenario (John)

John is a 21-year-old Canadian farmer with a feisty personality and a passion for gaming and sports. Eager to learn, he utilizes online platforms to gather information about farming practices while also seeking to improve his math and other skills. However, he often finds it challenging to locate relevant information online and feels frustrated by time limits imposed during problem-solving tasks. John prefers video calls for discussions, as they facilitate more interactive learning experiences. To effectively meet his learning goals, he needs a platform that presents information clearly and engagingly, helping him understand new concepts without confusion. Additionally, features that allow for goal setting and tracking plans would greatly benefit him, providing a structured approach to his learning journey. John is also motivated by rewards, so incorporating missions or learning objectives with incentives for completion would enhance his engagement and satisfaction with the learning process. By addressing these needs, John can foster a more fulfilling and productive learning experience that aligns with his aspirations in farming and beyond.

Key Requirements

User Needs

- **Learning Goals:**

- Affordable learning opportunities for a variety of skills (academic and creative).
- Specific interests include programming, video editing, animation, photography, cooking, and pottery.

- **Community & Networking:**

- Desire to connect with like-minded individuals for teaching and learning.
- Interest in collaborative projects and community challenges.

- **Feedback & Progress Tracking:**

- Need for personalized feedback to gauge progress.
- Tools for tracking learning milestones and setting goals.

- **Motivation & Rewards:**

- Value in earning badges, certificates, and rewards to enhance motivation.
- Interest in competitions or skill-based missions with tangible rewards.

Learning Preferences

- **Format:**

- Preference for video calls or voice conversations for real-time interaction.
- Interest in online tutorials, social media content, and personalized mentorship.

- **Communication Tools:**

- Need for easy communication features (chat, video calls, screen sharing).
- Tools for note-sharing and collaborative learning.

Additional Features

- **Technology Use & Scheduling:**

- Interest in incorporating AR/VR elements for immersive learning experiences.
- High importance placed on scheduling flexibility to accommodate varying availability.

- **Resource Availability:**

- Access to teaching aids, templates, and materials to enhance the learning process.

Work Breakdown

We all contributed equally to the project, working together collaboratively and ensuring that everyone was involved in the process. Throughout our work, we provided each other with constructive feedback, which helped us refine our ideas and improve the overall quality of the final product. This teamwork not only strengthened our individual skills but also fostered a sense of camaraderie among us.