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Technology and Information Systems
(SECP 1513)

Design Thinking Report

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Theme of Assignment:	Design Thinking Assignment – **Innovation for Disadvantage Group**			
Group Title:	PHYSICOVERY APP			

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Acknowledgement:

This paper presents the design and conceptual framework of the *Physicovery App*, which we aim to launch in the future to improve the quality of life for individuals with physical disabilities. Our goal is to alleviate their challenges and support them on their recovery journey through the innovative solutions provided by our app. In this paper, we analyse the background and problems faced by our target users and propose effective solutions to address their needs. Additionally, we discuss the collected data to provide better visualization and insights. Finally, we describe the features and functionalities of the *Physicovery App*, tailored to accommodate the specific needs and challenges of its users.

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1.0 Introduction

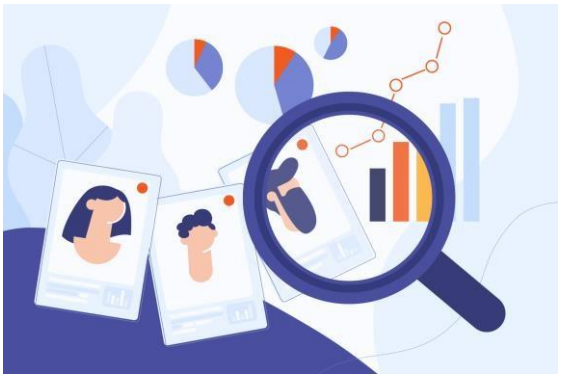
These days, the rate of individuals with disabilities suffering from movement-related conditions has been steadily increasing, significantly impacting their daily routines. Many face challenges in their recovery process due to packed schedules, limited support from their surroundings, and lack of transportation. To address these issues, we developed the idea for an app called PHYSICOVERY.

PHYSICOVERY is designed to assist individuals with disabilities in their recovery journey by making physical therapy more accessible and manageable. The app includes features tailored to users' needs, offering therapy exercises, progress tracking, and access to experienced therapists for consultations. By providing these tools, the app aims to empower users to regain their strength and recover from their injuries effectively.

Using the Design Thinking approach, we focused on understanding users' needs and creating impactful solutions. This process involves five key steps—Empathize, Define, Ideate, Prototype, and Test—that guided us in developing a user-centric app. Through brainstorming and testing, we refined our ideas to ensure the app addresses the unique challenges faced by individuals with physical disabilities.

By leveraging innovation and creativity, PHYSICOVERY not only addresses pressing community issues but also serves as a platform for empowering individuals to overcome recovery challenges and improve their quality of life.

2.0 Market Research and Data Collection



Before deciding on the specific group of people to focus on, our team conducted extensive research on individuals in need. Through this process, we identified that people with physical disabilities are a prevalent group whose needs are often overlooked by society. To support our observations and insights, we collected information from both primary and secondary resources.

2.1 Articles

Based on WHO (World Health Organization) Fact Sheets:

- An estimated 1.3 billion people experience significant disability. This represents 16% of the world's population, or 1 in 6 of us.
- Some persons with disabilities die up to 20 years earlier than those without disabilities.
- Persons with disabilities have twice the risk of developing conditions such as depression, asthma, diabetes, stroke, obesity or poor oral health.
- Persons with disabilities face many health inequities.
- Persons with disabilities find inaccessible and unaffordable transportation 15 times more difficult than for those without disabilities.
- Health inequities arise from unfair conditions faced by persons with disabilities, including stigma, discrimination, poverty, exclusion from education and employment, and barriers faced in the health system itself.

Overview

Disability is part of being human and is integral to the human experience. It results from the interaction between health conditions such as dementia, blindness or spinal cord injury, and a range of environmental and personal factors. An estimated 1.3 billion people – or 16% of the global population – experience a significant disability today. This number is growing because of an increase in noncommunicable diseases and people living longer. Persons with disabilities are a diverse group, and factors such as sex, age, gender identity, sexual orientation, religion, race, ethnicity and their economic situation affect their experiences in life and their health needs. Persons with disabilities die earlier, have poorer health, and experience more limitations in everyday functioning than others.

2.2 Survey Analysis Data

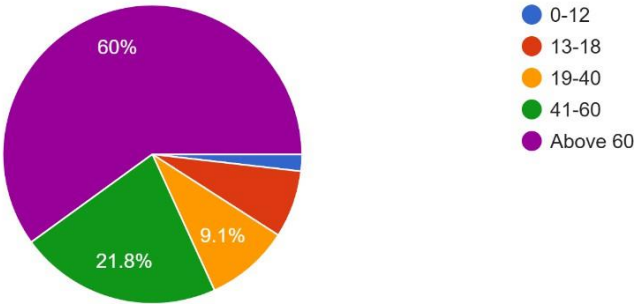
To design an effective solution, we conducted a survey among 55 respondents to gather insights and feedback, enabling us to design a functional solution for the challenges they face.

Survey: Challenges and Needs in Physical Therapy for Injury Recovery and Body Coordination Improvement

The survey targeted individuals from disadvantaged groups, with the following demographic breakdown:

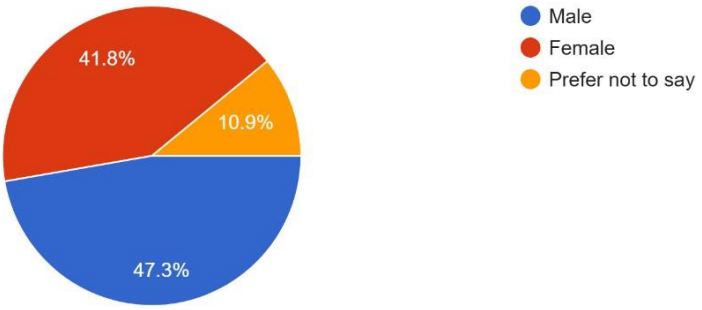
Your Age

55 responses



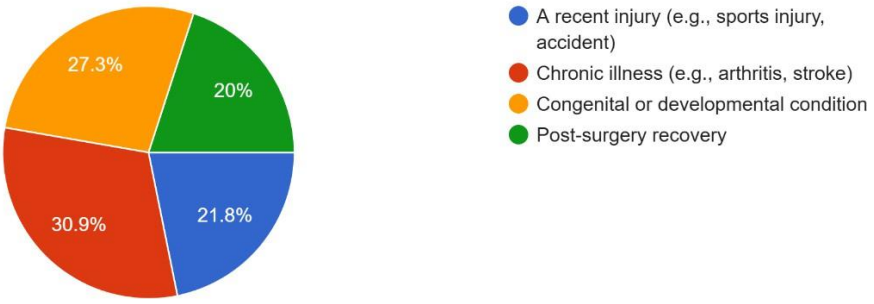
Your Gender

55 responses



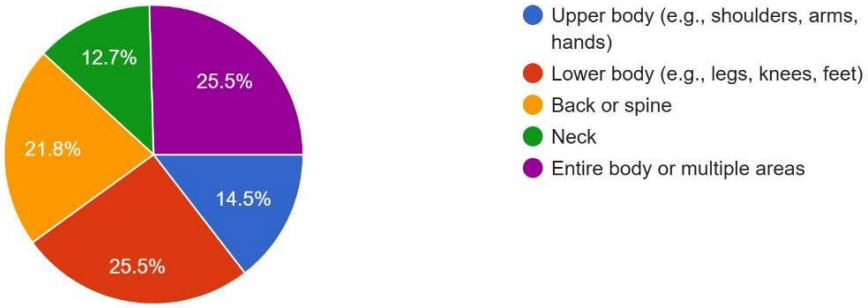
What caused your physical disability or condition?

55 responses



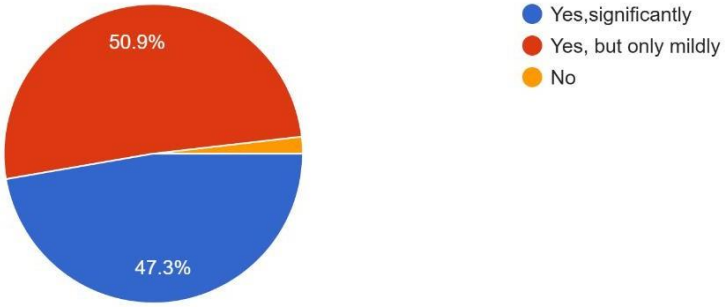
Which part of your body is affected?

55 responses



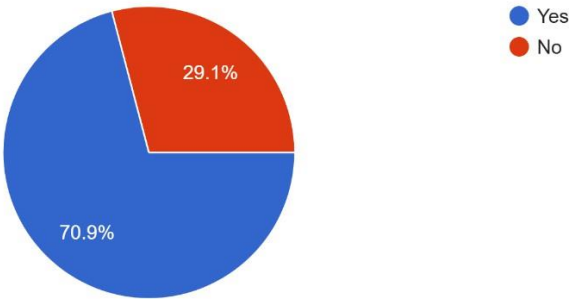
Is your condition severe enough to affect your daily routine?

55 responses



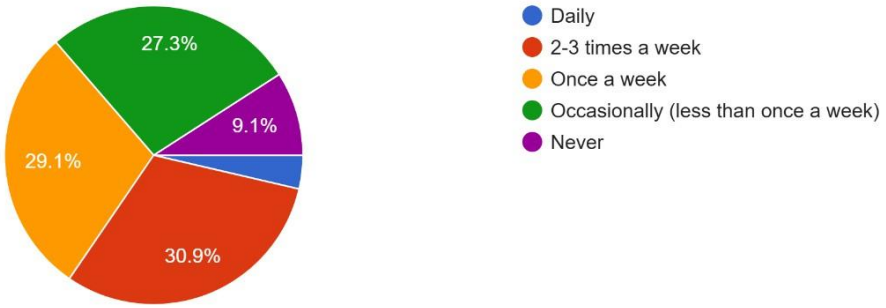
Do you currently undergo physical therapy for recovery?

55 responses



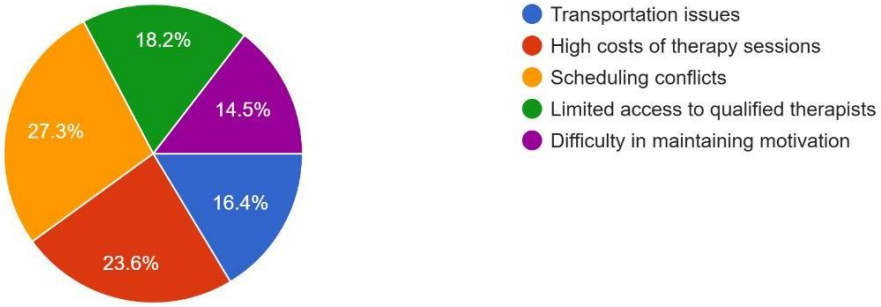
How often do you attend physical therapy sessions?

55 responses



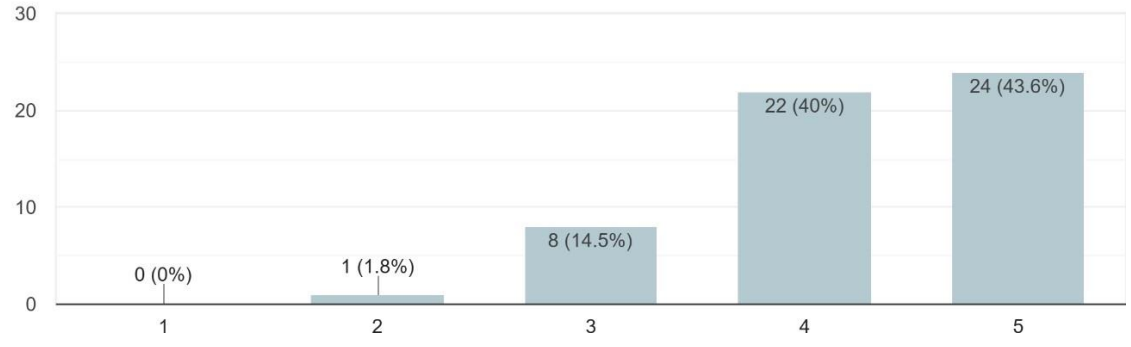
What challenges do you face when attending physical therapy?

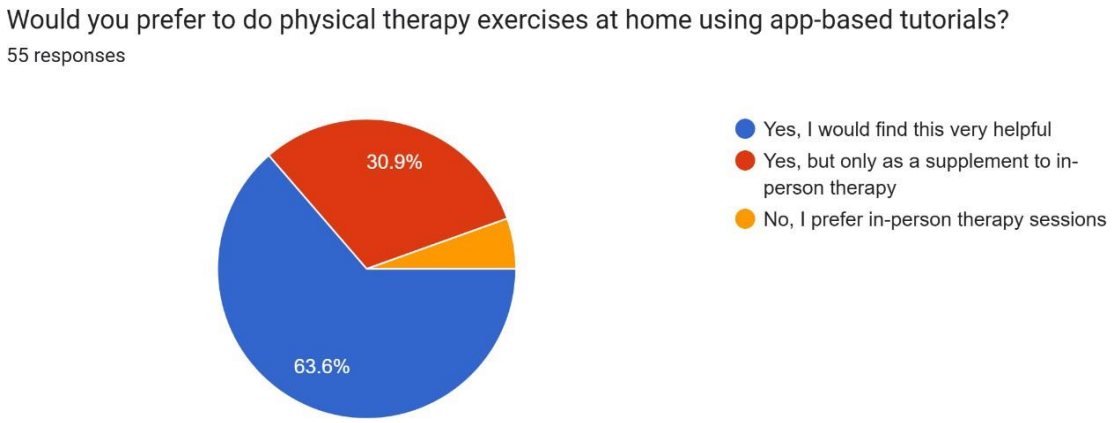
55 responses



How important do you think physical therapy is for recovery?

55 responses





The majority of respondents were aged 60 and above (60%), followed by those aged 41–60 (21.8%), and a smaller group aged 0–10. In terms of gender, 47.3% identified as male, 41.8% as female, and 10.9% preferred not to disclose. Physical disabilities were attributed to chronic illness (30.9%), congenital or developmental conditions (27.3%), recent injuries (21.8%), and post-surgery recovery (20%). Affected areas included the lower body or multiple areas (25.5%), the back or spine (21.8%), the upper body (14.5%), and the neck (12.7%).

Nearly all respondents (98.2%) reported that their physical disabilities impact their daily lives, with 50.9% experiencing significant effects and 47.3% experiencing mild effects. While 70.9% are undergoing therapy, they face challenges such as scheduling conflicts (27.3%), high costs (23.6%), limited access to qualified therapists (18.2%), transportation issues (16.4%), and difficulty maintaining motivation (14.5%). Therapy frequency varies, with 30.9% attending 2–3 sessions weekly, 29.1% once weekly, and 27.3% occasionally.

Most respondents are concern about the importance of physical therapy, with 83.6% rating it highly (4 or above on a scale of 5). Additionally, 63.6% found app-based tutorials very helpful, and 30.9% agreed they could use these as a reference. Many expressed a preference for conducting therapy exercises at home, either as a primary activity or to supplement in-person sessions. This feedback supports the development of a recovery app to facilitate accessible and affordable physical therapy for users in their own space.

3.0 Solution

Based on the problem analysis above, we believe that physical therapy plays a critical role in the recovery process for many individuals. For those with temporary physical disabilities or injuries, performing therapy exercises independently may suffice for a full recovery. However, for individuals with more critical physical disabilities, having access to a recovery app provides an effective way to stretch and strengthen muscles, maintain mobility, and improve overall well-being over time.

3.1 Proposal Development

To address the challenges highlighted by our survey data, we propose developing an innovative app designed to provide step-by-step physical recovery tutorials. This app will guide users through exercises in a clear and structured manner, ensuring an effective and safe recovery process. Our survey revealed that scheduling conflicts (27.3%), transportation issues (16.4%), and high therapy costs (23.6%) are significant barriers to attending in-person therapy sessions. By offering an app, users can perform therapy exercises anytime and anywhere, eliminating the need for transportation and providing a cost-effective alternative to traditional therapy sessions.

The app will feature simple, practical, and easy-to-follow **therapy tutorials** suitable for users of all levels, making it a convenient and reliable substitute for face-to-face therapy. To prevent misunderstandings when following video tutorials, we will also include a **therapist chat service**, enabling users to communicate directly with professional therapists for guidance or information at no additional cost.

To address the shortage of qualified therapists reported in our survey (18.2%), the app will **recommend certified therapists** based on the user's location. It will also offer a feature to book therapy appointments at a lower fee compared to traditional services, ensuring accessibility for more individuals.

Moreover, to encourage consistent effort and progress, the app will include a **tracking system** that monitors users' training schedules and provides motivational messages. Since the majority of respondents (83.6%) view physical therapy as crucial to their recovery, this feature aims to sustain users' dedication and improve adherence to their therapy plans, promoting faster and more effective recoveries.

Recognizing that many of our target users are elderly (60% of respondents were aged 60 and above), the app will provide a **step-by-step tutorial** for ease of use. Additionally, to support those unfamiliar with technology, we plan to offer optional face-to-face training sessions, where a representative visits users at their residences to assist them in setting up and navigating the app.

By addressing key challenges such as cost, accessibility, and motivation, our recovery app offers a comprehensive solution for individuals with physical disabilities, empowering them to take control of their rehabilitation journey and improve their quality of life.

3.2 Literature Review

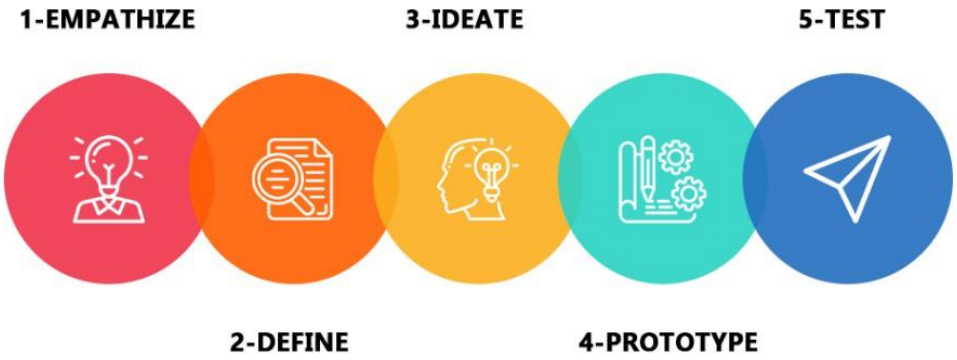
We conducted a literature review to analyse existing apps in the market, identifying their key features, strengths, and limitations. This allowed us to pinpoint market gaps, such as the lack of video tutorials, progress tracking, or personalized guidance, while gaining insights into user needs and preferences. By understanding the competitive landscape and best practices, we aim to design a unique, user-focused app that addresses these shortcomings and offers innovative solutions for physical recovery.

App	Core Feature Overview	Strengths and Highlights	Areas for Improvement
PT Timer: Stretch & Exercise 	• Focuses on scheduling and pacing physical therapy (PT) exercises. • Allows PTs to input exercise plans into the app. • Guides patients through exercises with	• Patients can record feedback on exercises (what went well and what was challenging). • Built-in timer and counter for exercises.	• Free to download but requires a subscription for full access. • Lacks video tutorials or AI guidance to adjust posture.

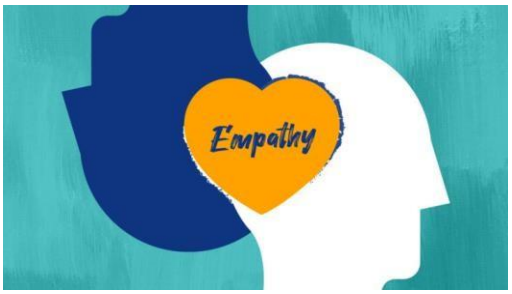
	cues for preparation, execution, and rest. • Tracks reps and sets and generates a PDF report sent to physical therapists. • Prioritizes execution and accountability, enabling patients to follow their regiment independently.	• Customizable prompts to suit individual needs.	• No progress tracking feature to monitor recovery.
Luna Physical Therapy 	• Provides on-demand physical therapy at home with most insurance plans accepted. • Includes in-app exercises to complement at-home therapy sessions. • No prescription required to book appointments.	• Ability to book appointments covered by insurance. • In-app messaging for therapist assistance. • Built-in timing count for exercises.	• No video tutorials for users, only names of exercises, which may cause confusion. • Limited therapist availability in some areas. • No feature to track progress or monitor recovery.
MedBridge Go	• Utilizes gamification, reminders, and push notifications to engage patients.	• Gamified exercises, like daily challenges, to encourage	• No video tutorials for detailed guidance; only exercise

	• Provides looping demonstrations of exercises. • Tracks progress and sends reports to providers. • Includes automated reminders to keep patients on schedule. • Offers in-app messaging for patient-provider communication.	regular therapy. • Variety of sessions available for users to choose from. • Motivational feedback after completing exercises.	names are provided. • Users may face confusion in understanding the correct execution of exercises.

4.0 Implement Design Thinking Phase



4.1 Empathy



Empathy forms the foundation of human-centred design. It is the process through which we observe our target users and the challenges they face due to physical disabilities. We identified that physical disabilities can significantly impact their daily routines, either directly or indirectly, creating barriers to their overall well-being.

To gain deeper and more personalized insights into their experiences, we actively engaged with our target users by interacting with and interviewing them. This approach allowed us to understand their emotions, struggles, and specific needs on a more intimate level. By putting ourselves in their shoes and genuinely empathizing with their situations, we were able to develop a more meaningful, problem-solving app tailored to their lives.

Our goal is to not only address their challenges but also encourage them to embrace physical therapy as a valuable step toward recovery and improved quality of life. Through this empathetic approach, we aim to design a solution that truly resonates with their needs and supports their journey toward a healthier, more active lifestyle.

4.1.1 Key Questions and User Insights

1) How often should physical therapy exercises be done?

Answer: Exercises should typically be done 3–5 times a week, depending on your condition and your therapist's advice.

2) Can physical therapy exercises without personal doctor's knowledge?

Answer: It is recommended to consult with your doctor or therapist to ensure your condition permits such exercises.

3) Can physical therapy exercises if you had surgery?

Answer: Consult your surgeon or your physical therapist before starting any exercises. Begin with light movements specifically recommended for post-surgery recovery.

4) How long does it take to see results?

Answer: This varies by severity and consistency. Most users see improvement within 4–6 weeks of regular practice.

5) What equipment is usually needed for physical therapy exercises?

Answer: Many exercises can be done with just a mat. Optional tools include resistance bands, a foam roller, or light dumbbells depending on the exercise chosen.

6) At what age can people start doing physical therapy exercises?

Answer: Physical therapy exercises are suitable for all ages but should be tailored to individual needs and abilities.

4.1.2 Composite User Personas

Name	Age	Background	Needs
Nicholas	20	Athlete Loves to challenges himself with extreme outdoor activities such as bicycling but recently broke his leg due to intense activity	Fast, easy-to-follow tutorials that can aid his recovery from his broken leg so he can get back to his normal life faster.
Afiq	19	Student Recovering from a hand injury caused by a motorcycle accident	Looking for convenient and effective at-home treatment options to aid his recovery
Saaktii	67	Active Senior Retired; loves to do some gardening, but has limited function in the hands and knees due to arthritis.	Low-impact exercises adapted to his age, advice on pain management for arthritis, and tutorials on improving flexibility and strength.

Khira	28	New Mom Recently delivered a baby and has lower back pain from carrying her baby.	Post-pregnancy exercises, posture correction tips for lifting and carrying, and simple routines to regain strength and flexibility.
Faris	22	Fitness Enthusiast A regular gym user who is recovering from a minor sports injury.	Rehabilitation exercises, advice on injury prevention, and practices to help him regain his strength and confidence in his workouts.
Alia	41	Chronic Pain Sufferer Diagnosed with fibromyalgia, she has widespread pain and fatigue.	Gentle, low-intensity exercises to manage pain, stress-relief practices, and education on pacing physical activity to avoid flare-ups.

Figure shows interview process with target users

4.2 Define

In Define phase, we unpack and synthesize the findings from the empathy stage into actionable insights and compelling needs. This phase involves scoping specific and meaningful challenges and articulating a clear problem statement. We create a guiding statement—our Point of View—to focus on the specific user and their needs

4.2.1 Challenges

- Problem Statement:

People experiencing pain or recovering from injuries often face barriers like cost, distance, and time constraints, preventing access to professional physical therapy. Many lack guidance on proper exercises for effective recovery.

- Reframed Challenge:

How might we empower individuals of all ages and backgrounds to independently manage pain and enhance mobility through accessible, personalized, and guided physical therapy exercises?

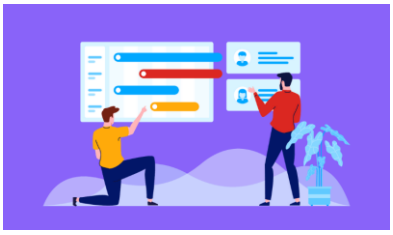
4.2.2 Understanding Needs

- Personalized Routines: Tailored exercises for various lifestyles, conditions, and recovery goals, such as post-pregnancy, arthritis, or sports injuries.

- Convenience: Quick, home-based tutorials with minimal equipment to fit busy schedules and limited mobility.

- Ergonomics and Lifestyle: Guidance on movement, posture, and daily activities to prevent strain and manage pain.

- Progress track and Motivation: Progress tracking, clear benefits of exercises, and motivational feedback to sustain engagement.

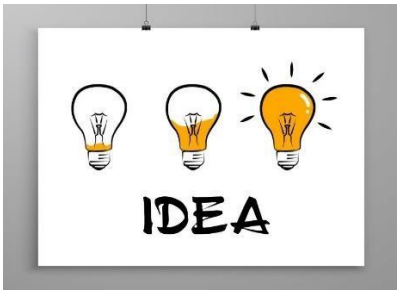


- Professional Guidance: Access to therapists through chat or video for personalized advice and real-time corrections.

4.2.3 Point of View

- Develop clear and engaging video tutorials with step-by-step guidance, incorporating voiceovers, animations, or interactive features for better user understanding.
- Allow users to input personal data such as age, pain areas, and conditions to receive customized exercise recommendations tailored to their needs.
- Include user-friendly features like multilingual support, offline access, and exercises requiring minimal equipment to ensure inclusivity and convenience.
- Provide a tracking system where users can log pain levels, mobility, and exercise frequency, with visual progress indicators to motivate continued effort.
- Offer ergonomic advice and additional resources from expert therapists via chat or articles, addressing common pain causes and self-care practices to prevent injuries.

4.3 Ideate



In Ideate phase, we generate a wide range of ideas and explore diverse solutions. This step emphasizes creativity, encouraging the generation of numerous concepts, and ensures a variety of possibilities. From this vast pool of ideas, we refine and select the most promising one to develop further.

4.3.1 Divergent Thinking Process

Role Storming: The team explored ideas by adopting the perspectives of various user personas, including elderly individuals, athletes, and busy professionals, to identify diverse needs and innovative solutions.

Rapid Fire Ideas: Team members contributed one idea each within a set timeframe, fostering creativity and collaboration. The team then evaluated and selected the most impactful idea for the project.

4.3.2 Idea Feasibility and Implementation Concerns

Ideas	Concept	Assessing the Workability of Ideas
Virtual Reality Therapy 	Use VR to simulate real-life environments for rehab exercises.	While VR can provide an immersive and engaging experience, it could be cost-prohibitive for many users due to the need for specialized hardware. Access to VR equipment may not be feasible for all users, and it could create barriers for those who cannot afford the technology.
Gamification 	Reward users with points or badges for completing sessions and milestones.	This feature aligns well with motivational strategies and user engagement. While the idea is promising for long-term user retention, it's best to implement it after the app's core functionality is stable.

Progressive Difficulty 	Adjust exercise difficulty as users progress in their therapy.	Introducing higher difficulty levels too early could overwhelm beginners, making the app less approachable for newcomers. It's important to offer flexibility, allowing users to opt for more advanced routines only when they feel ready.
Wearable Integration 	Sync with devices to track movement and provide real-time feedback.	The need to purchase a wearable device adds a financial burden for users, especially if they need to buy additional accessories to fully utilize the feature. Not all users may have access to these devices, creating a potential barrier to entry.
Community Forum 	Allow users to share progress and advice with others in similar situations.	A community forum is a great feature for user engagement, but the app's primary focus should remain on delivering high-quality tutorials and
AI Analytics 	Use AI to analyze progress and suggest personalized exercises.	Considerable to start with basic AI functionality to assess posture during tutorials, and then refine its capabilities over time based on user feedback and therapist input.
Post-Therapy Tips 	Offer additional recovery content like stretching routines and injury prevention tips.	While providing post-therapy tips is valuable, the accuracy and safety of the content are critical. Without expert validation from licensed physical therapists, there's a risk of offering advice that could potentially harm users.
Voice Assistant 	Integrate voice-guided exercises and reminders for hands-free use.	Although a voice assistant could greatly enhance user experience, the technology needed to implement it effectively may be complex and costly. Developing it later in the process, when the app's foundation is stable, could be more feasible.
Group Classes	Provide live, virtual therapy sessions for community support.	While group classes can be highly engaging, they require robust technology for seamless communication and live video streaming. Building this infrastructure would require substantial investment and might be outside the

		initial scope of the app.
Customized Stretching 	Offer personalized stretching routines based on therapy needs.	Collaborate with physical therapists to build a set of customizable stretching routines, while allowing users to update their preferences based on their recovery stages.

4.3.3 Concept Development

App Name: *Physicovery* — a modern and intuitive name that encapsulates the app's mission to guide users through personalized physical therapy and recovery journeys.

The Physicovery logo features a circular design with a modern, minimalist silhouette of a person in motion, symbolizing recovery, vitality, and growth. The dynamic figure emphasizes movement and strength, representing the app's mission to guide individuals on their physical therapy journey. Encircling the design are the phrases "Physicovery" and "Your Personal Therapy Guide", reflecting the app's purpose and user-centred approach.

Mission:

To empower individuals with accessible and personalized physical therapy tools, enabling them to regain mobility, reduce pain, and enhance their quality of life.

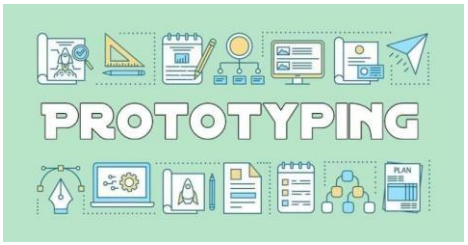
Vision:

To become a global leader in digital physical therapy by providing innovative and inclusive solutions that cater to diverse recovery needs and encourage independence in rehabilitation.

Key Features:

1. Login and Register: Personalized profiles to save user data for tailored recommendations.
2. Therapy Exercises: Access specific therapy routines based on user preferences.
3. Exercise Categories: Tutorials for targeted areas like knees, back, neck, shoulders, and more.
4. Slot Reserve: Book affordable face-to-face therapy sessions with top-rated professionals nearby.
5. Workout Tracker: Monitor daily exercise progress and compare weekly analytics.
6. Motivation Phase: Encouraging users with weekly progress updates and motivational insights.
7. AI Guidance: Real-time feedback using a camera or image-based diagnosis for minor conditions.
8. Offline Mode: Download exercises for seamless access in areas with poor internet connectivity.
9. Multilingual Support: Expanding accessibility to non-English speakers.
10. Virtual Consultations: Connect with physical therapists for personalized guidance.
11. Personalized Schedule: Plan daily routines, set reminders, and stay consistent with therapy goals.

4.4 Prototype



In the Prototype phase, we transform our chosen idea into a tangible, workable model to test in the physical world. Prototypes can take many forms, such as post-it notes, role-playing activities, objects, spaces, or even storyboards. This phase allows us to interact with users and gather valuable feedback for improvement.

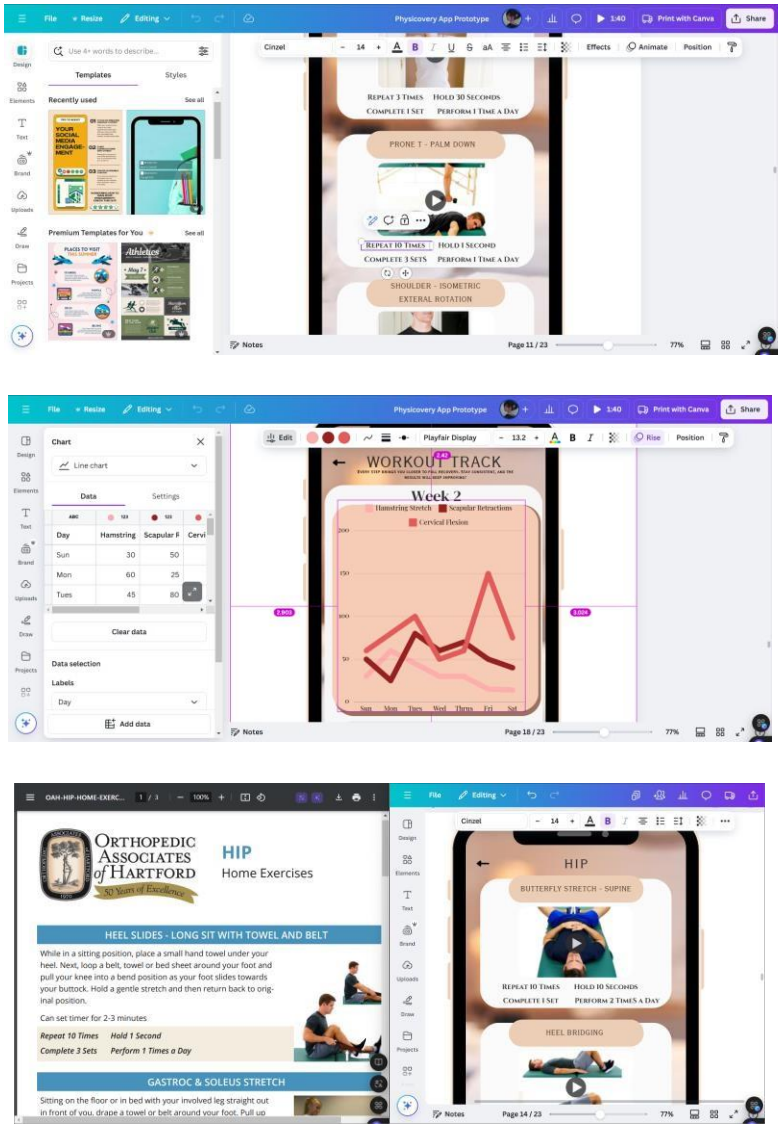
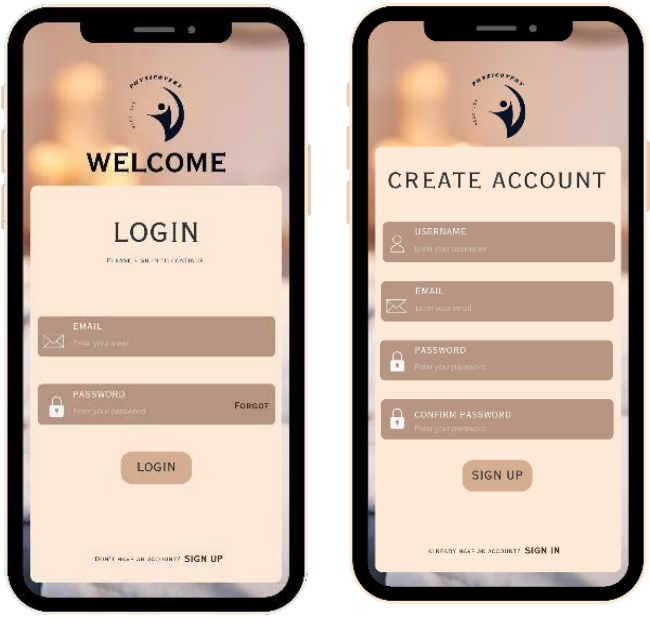


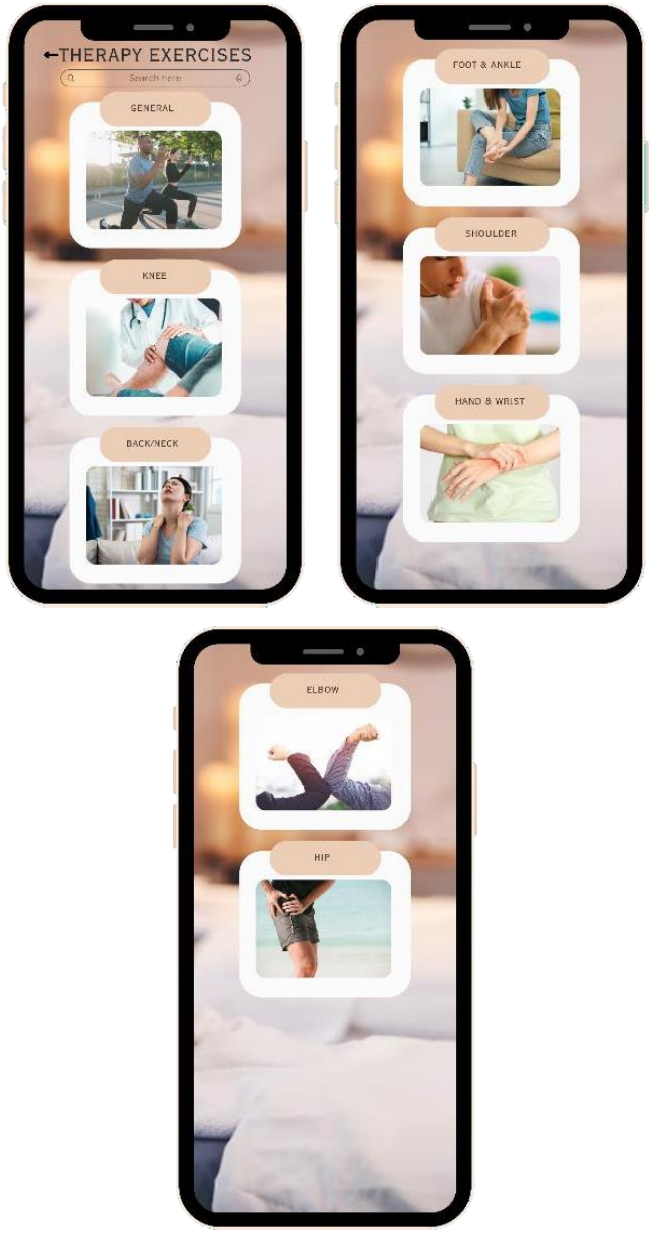
Figure shows some details while making prototype

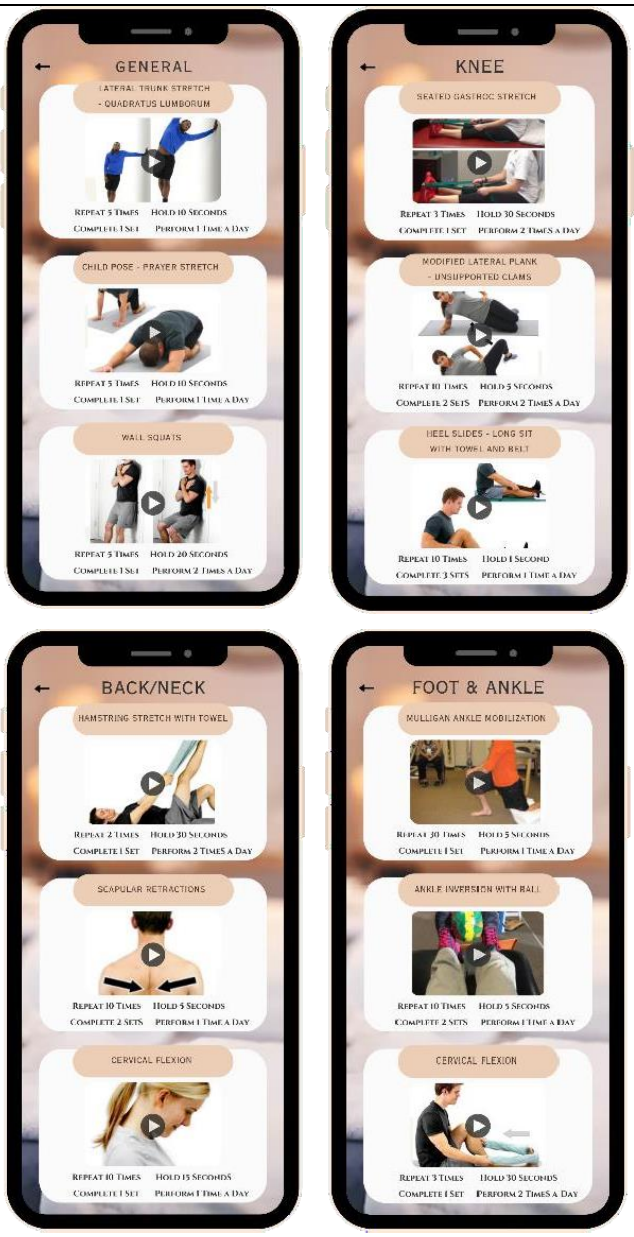
4.4.1 Prototype Showcase

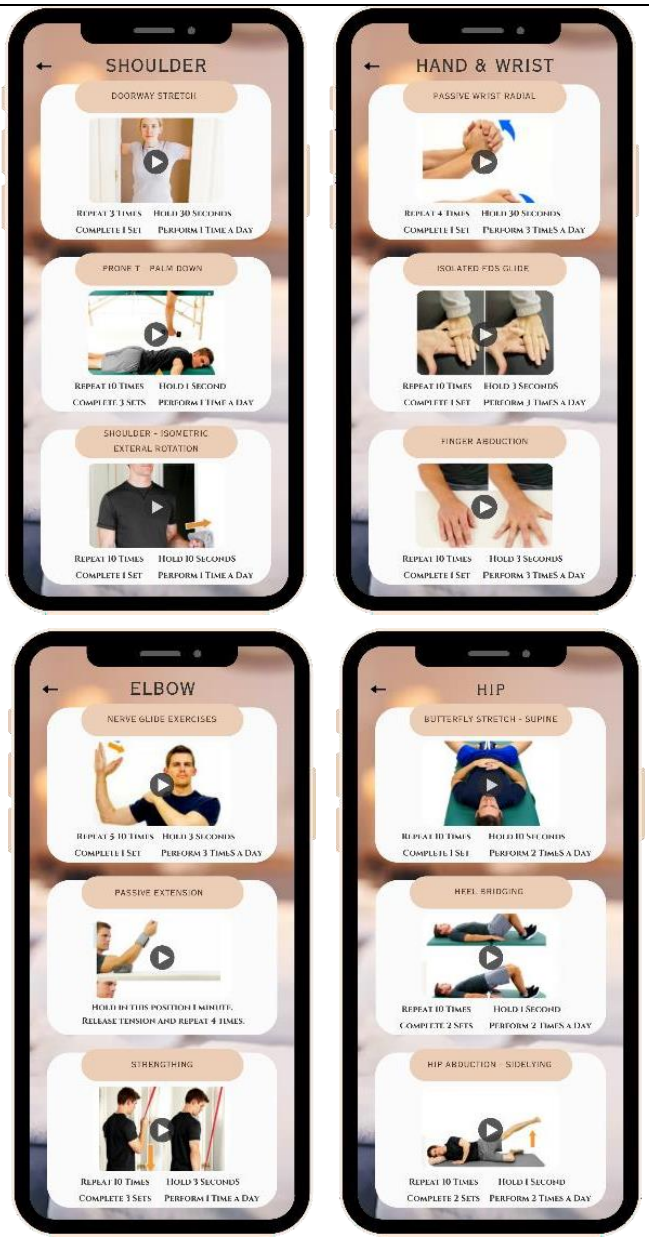
To create a prototype that effectively represents our app, we focused on designing a user-friendly and visually appealing interface. The process involved selecting a suitable theme, choosing appropriate icons, and organizing the layout to ensure clarity and functionality. We used Canva as our design tool to streamline the process and showcase our app's key features. Images of the app interface were incorporated into the prototype for illustration, providing a clear visual representation of how the app would look and function.

Physicovery App

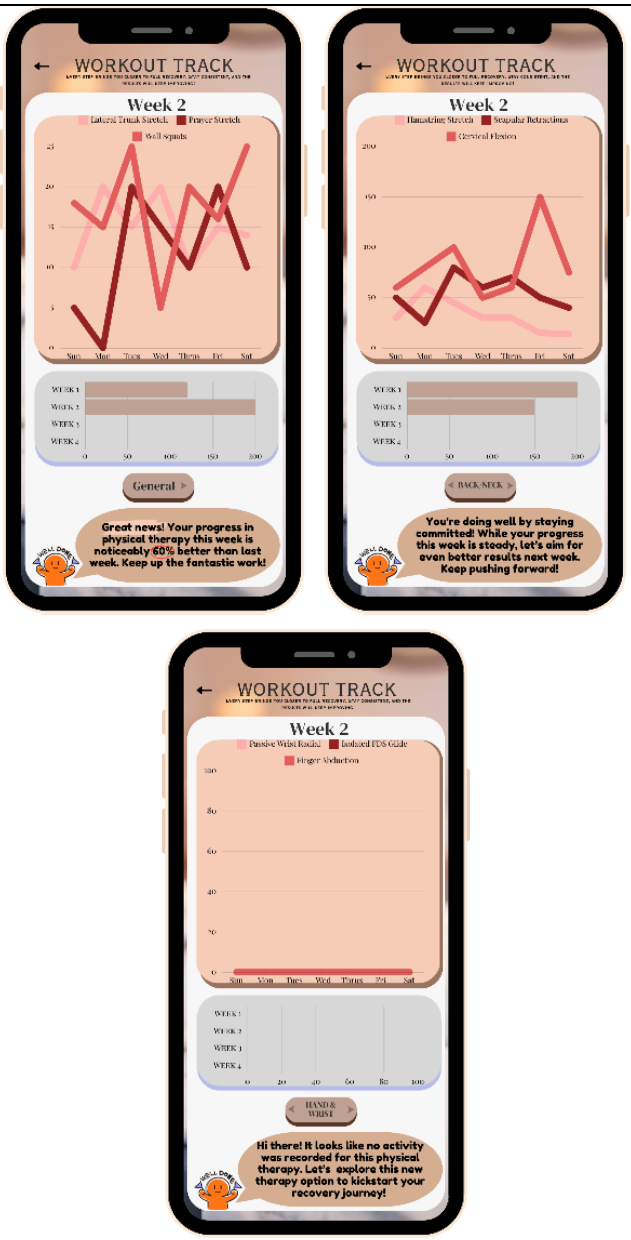
Feature Overview	Interface Design
We provide an easy-to-use login and account creation feature, allowing users to save their progress and personalized data for a seamless and tailored experience.	Login/Create Account 
The main page serves as the central hub where users can navigate through various app features. These include Therapy Exercise, Reserve Slot, Workout Track, and Profile. Additionally, users can access the Contact Us button for assistance when needed.	Homepage 

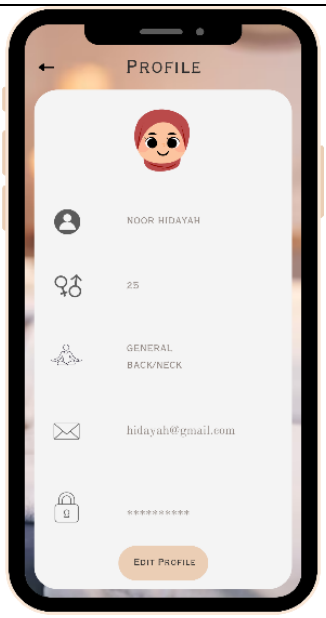
Selecting the **Therapy Exercise** option takes users to a page offering a curated list of physical therapy tutorials. These tutorials are categorized by body parts, such as knees, feet, or shoulders, to make finding relevant exercises simple and intuitive.	Lists of Therapy Exercise 
After choosing a body part, users are presented with a list of recommended tutorials specific to their selection. Each tutorial is tailored to their needs, with details such as posture focus and desired duration, ensuring a personalized therapy experience.	Tutorial Selection

	 GENERAL LATERAL TRUNK STRETCH - QUADRATUS LUMBORUM REPEAT 5 TIMES HOLD 10 SECONDS COMPLETE 1 SET PERFORM 1 TIME A DAY CHILD POSE - PRAYER STRETCH REPEAT 5 TIMES HOLD 10 SECONDS COMPLETE 1 SET PERFORM 1 TIME A DAY WALL SQUATS REPEAT 5 TIMES HOLD 20 SECONDS COMPLETE 1 SET PERFORM 2 TIMES A DAY KNEE SEATED GASTROC STRETCH REPEAT 3 TIMES HOLD 30 SECONDS COMPLETE 1 SET PERFORM 2 TIMES A DAY MODIFIED LATERAL PLANK - UNSUPPORTED CLAMS REPEAT 10 TIMES HOLD 5 SECONDS COMPLETE 2 SETS PERFORM 2 TIMES A DAY HEEL SLIDES - LONG SIT WITH TOWEL AND BELT REPEAT 10 TIMES HOLD 1 SECOND COMPLETE 3 SETS PERFORM 1 TIME A DAY BACK/NECK HAMSTRING STRETCH WITH TOWEL REPEAT 2 TIMES HOLD 30 SECONDS COMPLETE 1 SET PERFORM 2 TIMES A DAY SCAPULAR RETRACTIONS REPEAT 10 TIMES HOLD 5 SECONDS COMPLETE 2 SETS PERFORM 1 TIME A DAY CERVICAL FLEXION REPEAT 10 TIMES HOLD 15 SECONDS COMPLETE 1 SET PERFORM 1 TIME A DAY FOOT & ANKLE MULLIGAN ANKLE MOBILIZATION REPEAT 30 TIMES HOLD 5 SECONDS COMPLETE 1 SET PERFORM 1 TIME A DAY ANKLE INVERSION WITH BALL REPEAT 10 TIMES HOLD 5 SECONDS COMPLETE 2 SETS PERFORM 1 TIME A DAY CERVICAL FLEXION REPEAT 3 TIMES HOLD 30 SECONDS COMPLETE 1 SET PERFORM 2 TIMES A DAY

	
The **Reserve Slot** feature directs users to a reservation page displaying recommended therapists based on their location. Users can view therapist profiles, including their biodata, and book in-person appointments at an affordable rate. For added convenience, users can also contact therapists for free advice.	Slot Reservation

	
By selecting **Workout Track**, users can monitor their daily and weekly progress through detailed analytics. Motivational messages and phrases are also provided to inspire users to stay consistent with their therapy goals.	Workout Track

	
On the **Profile** page, users can customize their experience by selecting their gender and specifying their physical therapy interests. This helps the app recommend exercises and tutorials tailored to their specific preferences and recovery needs.	Profile

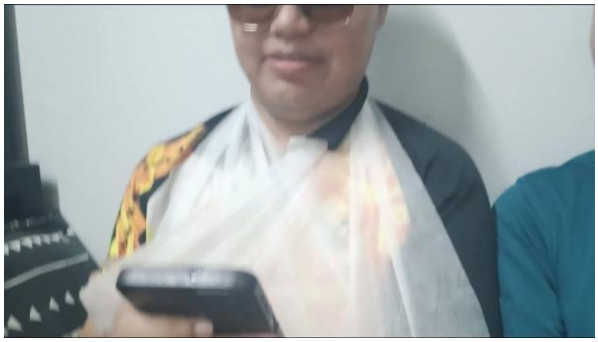
	 PROFILE NOOR HIDAYAH 25 GENERAL BACK/NECK hidayah@gmail.com ********** EDIT PROFILE

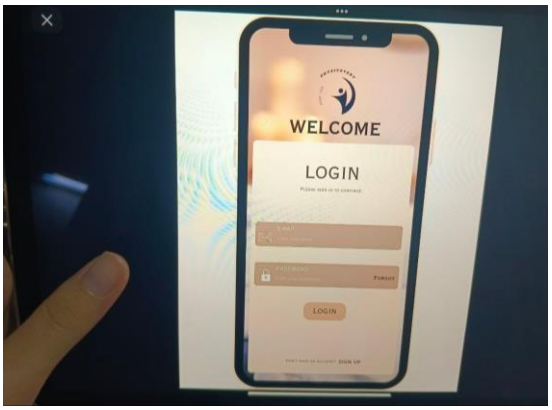
4.5 Test

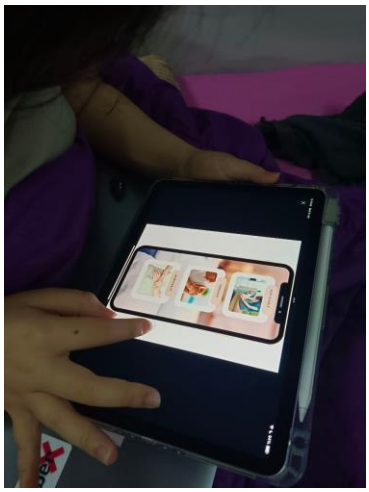
Finally, the Test phase provides the opportunity to refine our solutions and enhance them based on user feedback. This iterative process ensures that the final product meets user needs effectively and delivers the desired outcomes.

User	Feedback	Suggestion for Improvement
Nicholas	The app is useful because I can exercise and recover faster by following the therapy exercises provided. It also helps me monitor my health status so I can return to normal life faster.	• Include more video tutorials for better guidance. • Add a reminder alert feature for tracking exercises and health.
Afiq	The app provides an excellent solution for me to perform recovery exercises conveniently at home.	• Introduce a customizable timetable feature for organizing and tracking physical therapy sessions. • Enhance the user interface to make it more intuitive and user-friendly for a better experience.
Saaktii	The app has potential for helping seniors like me manage physical limitations. It would be wonderful if it addressed age-specific concerns like arthritis.	• Offer low-impact exercises suitable for seniors, focusing on flexibility and strength. • Provide advice on pain management specifically for arthritis. • Introduce a premium VR feature for an engaging and interactive recovery experience.
Khira	As a new mom, this app could be a lifesaver for managing post-pregnancy aches and regaining strength. It's already helpful!	• Add post-pregnancy exercise routines targeting lower back pain and core strength. • Include tips on proper posture for lifting and carrying babies. • Create a community feature for moms to share recovery tips and experiences.

Alia	I appreciate the app's focus on recovery. For someone like me with fibromyalgia, I think it could do even more to support chronic pain management.	• Provide gentle, low-intensity exercises tailored to chronic pain sufferers. • Offer stress-relief practices, such as guided breathing or meditation. • Include educational content about pacing physical activity to prevent pain flare-ups. • Attach recovery tips for specific conditions, like post-surgery guidance.







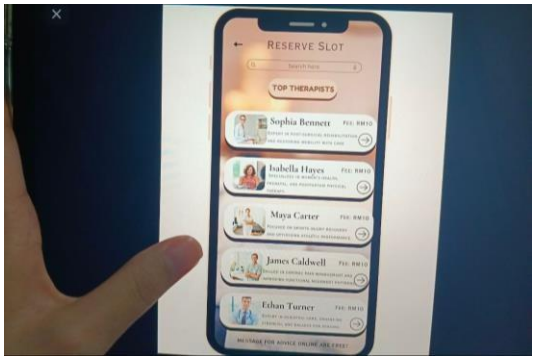


Figure shows prototype testing with users

5.0 Reflection

Throughout the design thinking process, each team member brought unique perspectives and self-reflections regarding our goals and inspirations. This diversity enriched our approach and highlighted the collaborative essence of design thinking. We explored its impact on solving real-world challenges, acknowledging its value in fostering creativity and user-centered solutions. Looking ahead, we aim to identify areas for potential improvement by iterating on feedback, enhancing our methods, and refining our designs to better meet user needs. This process has not only improved our problem-solving skills but also emphasized the importance of continuous learning and adaptation in achieving meaningful outcomes.

Group Member 1: Eleanor Ting Pik En

1. Initial Goal and Inspiration

Our primary goal is to empower individuals with physical disabilities by providing a convenient solution for performing therapy exercises anytime, anywhere. By doing so, we aim to ease their recovery journey and enhance their quality of life. Drawing from the knowledge gained in our Technology and Information Systems Course, we have implemented innovative technological principles to design and develop a user-friendly software application. This app not only incorporates our academic learnings but also demonstrates our ability to apply theoretical knowledge to real-world challenges, combining empathy, creativity, and functionality in one cohesive solution.

2. Design Thinking and Its Impact

Throughout the design thinking process, we adopted the five essential steps—Empathy, Define, Ideate, Prototype, and Test—to thoroughly analyse the problem, generate creative solutions, and refine our app based on user feedback.

a) **Empathy**: We immersed ourselves in understanding the struggles and needs of individuals undergoing physical therapy. This user-centric approach allowed us to design solutions that address real challenges.

b) **Define**: We clearly articulated the core problem: the lack of an accessible, personalized, and technology-driven therapy tool for individuals with diverse needs.

c) **Ideate**: Through brainstorming and role-storming sessions, we explored innovative ideas and features, such as AI-driven exercise guidance, progress tracking, and personalized tutorials.

d) **Prototype**: We created a functional prototype that showcases our vision, ensuring the design is intuitive and user-friendly.

e) **Test**: By gathering feedback from potential users and stakeholders, we identified areas for improvement and refined the app to better align with user expectations.

This iterative process has not only brought us closer to achieving our goal of creating a transformative therapy app but has also equipped us with skills in problem-solving, collaboration, and innovation.

3. Future Action for Potential Improvement

To ensure the continued growth and success of our app, we will be continuously refining our app and expanding our skillset such as embracing cutting-edge technology, expanding accessibility, collaborating with experts. By doing so, we get to position ourselves to make significant contributions to the healthcare technology industry. Our project not only showcases our ability to innovate but also reflects our commitment to creating technology solutions that are both impactful and inclusive. This journey has solidified our vision of becoming leaders in digital healthcare, where we can bridge the gap between technology and personalized therapy to improve lives.

Group Member 2: Norhaslin Binti Shari

1. What is your goal/dream with regard to your course/program?

My goal in this field as a bioinformatic student's is to gain as much knowledge as I can about science computer and biology. This course teaches me how to integrate the computational methods and biological sciences so that any problem regarding medical can be solved by doing an innovation about previous issues.

Besides, I want to use the power of technology to make significant strides in understanding about this course deeper and want to contribute to a future where I can produce or develop any technology related to my course so that the future generation can use it efficiently. For example, by using machine learning and artificial intelligence, we can predict protein structures, understand drug interaction, and uncover the underlying mechanisms of various biological processes. Therefore, it's really fun and exciting to learn in this field as I can enhance my skills and my critical thinking regarding problem given.

2. How does this design thinking impact on your goal/dream with regard to your program?

First and foremost, design thinking greatly affects my aspirations in the bioinformatics industry by offering an organized method for creativity and problem-solving. These five methods—empathy, definition, ideation, prototyping, and testing—are part of design thinking. All these approaches are crucial since they can help me learn more about the issue. For example, brainstorming to get an idea about developing an app, do a critical thinking to analysis something and produce a prototype to implement my idea.

Additionally, design thinking gives me the ability to approach issues systematically and creatively, guaranteeing that the solutions I create are creative, user-centered, and efficient. It offers a structure that precisely matches my goals in bioinformatics and computer science, assisting me in realizing my aspirations to use technology to advance scientific research and healthcare. Additionally, it allows me to demonstrate my ability to tackle any issue by carefully and thoroughly analyzing it.

3. What is the action/improvement/plan necessary for you to improve your potential in the industry?

My plan to improve my potential in the industry is to join as many of the programs provided by my faculty as I can or join any talk related to my course. Besides, I also want to take part and be a participant in every competition that was related to AI or coding. Within this approach, I can widen my connection with people surrounding and enhance my programming skills in languages. In addition, I want to enroll in advanced courses and obtain certifications related to my course, data science and computational biology. For example, Google and AI certificates. This is because it helps me to stay updated with the latest trends and technologies.

Moreover, I did like to improve my ability like communication skill, and problem-solving by joining any competition held in my university. This essential for collaborations and helps me in tackling challenging projects and developing innovative solution.

Next, I would like to seek mentorship. I will find a mentor in this field who can provide guidance, support, and valuable insights into my career development. By doing this, not only do I get a guidance, but I also get to build a strong relationship between me and my mentor.

Group Member 3: Afina Soleha Batrisyia

1. What is your goal/dream with regard to your course/program?

My primary goal regarding to my course is to master the computing skills and techniques also deepen my knowledge about bioinformatics to analyze and interpret complex biological data as i plan to pursue a carrier in the IT and biology field. I am determined to develop a deep understanding of algorithms, data structures and machine learning methods and contribute to uncover new insights into human health and biology.

Additionally, the potential of artificial intelligence and machine learning in bioinformatics really excites me as artificial intelligence really give big impact in our generation. I want to learn to effectively visualize biological data to make meaningful insights more accessible to researchers, clinicians and decision-makers. I aim to leverage my IT skills to design scalable systems and databases that can handle vast amounts of biological data, thereby facilitating smoother workflows, optimize computational resources and data storage systems to improve the efficiency of biological data analysis and it is my dream to design and develop intuitive bioinformatics software tools that streamline the analysisof biological data, making complex workflows accessible to a wider range of researchers.

All in all, i want to use all my knowledge and skills in a good use for the future.

2. How does this design thinking impact on your goal/dream with regard to your program?

Design thinking really shape my goal of developing an app for physical therapy by keeping the user experience at the heart of the process. The idea of starting this project is to help people with physical pain to endure or recover using a medium that is easy to access and meets their needs. It’s not just building something that works; it’s about creating a tool that patients actually want to use and that helps them in meaningful ways.

Design thinking empowers me to approach my program with a mindset focused on both technological innovation and patient centered care. It closely related to my goal of using data and computational methods to improve patient outcomes while prioritising the solutions i help create are usable, easy to navigate for any age, effective and meaningful to the people they serve. Design thinking also brings together different perspectives. It encourages collaboration

with physical therapist, healthcare experts and users which is the key to ensuring the app works both clinically and practically.

3. what is the action/improvement/plan necessary for you to improve your potential in the industry?

To improve my potential in the industry, I plan to take few clear actions. Firstly, i need to participate more in workshops or talk to sharpen my technical skills especially in areas like app development and user experience design. It is to make sure I can create apps that are not only functional but also easy and enjoyable for patients to use. This also can help me learning more about coding, design principles and how to build intuitive, user-friendly interfaces.

Other than that, i should participate more in competitions regarding to the projects. Competitions provide an opportunity to apply skills in real-world scenarios, gain exposure and receive valuable feedback. Judges from the industry or other experienced professionals who provide real-time feedback that can help identify strengths i didn't know i had as well as areas where I can improve.

Lastly, I'm committed to enlarge my networking within the healthcare and tech communities. I want to connect with mentors, collaborate with experts and get involved in projects that can give me real-world experience. They also can offer advice, share knowledge and help guide the project development. A broader network connects to people with different backgrounds, skills and experiences. This diversity of perspectives can expand the understanding of the challenges and opportunities in the industry. This also can help meet like-minded individuals who might become valuable collaborators in the project.

Group Member 4: Abdul Rasyid bin Abd Gani

1. My goal regarding this course to develop my skill in computer science especially in bioinformatics where i want to learn a deeper understanding of how computational tools and techniques can be applied to solve complex biological problems, such as analysing genetic data, modelling biological systems, and advancing medical research.
2. This design thinking really makes me think more and realize how important creativity, collaboration, and problem-solving are in developing innovative solutions to real-world challenges. It has significantly impacted my goal by encouraging me to approach bioinformatics problems with a user-centric mindset, enabling me to design more effective and practical computational tools and solutions. By integrating design thinking principles, I am better equipped to bridge the gap between biology and computer science, fostering innovation and making meaningful contributions to the field.
3. To improve my potential in the industry, I will continuously develop technical and soft skills, gain hands-on experience through projects and internships, stay updated with advancements, network with professionals, and embrace innovation through interdisciplinary collaboration and lifelong learning.

6.0 Task Allocation

The tasks were carried out collaboratively by all group members to ensure a cohesive and comprehensive outcome. However, specific responsibilities were allocated to each member to streamline the process and document their contributions effectively. Below is the task distribution:

Group Member	Task
Eleanor Ting	• Development of the Prototype Utilize Canva to design a visually appealing and functional prototype for the project. Focus on selecting the appropriate design elements, such as layout, colour schemes, typography, and interactive features, to create a user-friendly and aesthetically pleasing prototype. • Finalization of the Report Review, edit, and organize the report to ensure it is coherent, well-structured, and free of errors. Include necessary visual aids, references, and data to support findings while maintaining a professional tone throughout the document.
Norhaslin Shari	• Drafting the Introduction Create a compelling introduction that provides context for the project, outlines the main objectives, and highlights its significance. Engage the reader by briefly explaining the problem being addressed and the proposed solution. • Conducting Market Research and Data Collection Focus on understanding the challenges faced by individuals with physical disabilities, such as mobility limitations, access to therapy, and social barriers. Collect insights about their needs, preferences, and pain points to ensure the solution is relevant and effective. Study the background of target users, including their demographics, daily routines, and technology usage patterns. Use surveys, interviews, and existing data sources to gather meaningful information that guides the development process.
Afina Soleha Batrisyia	• Leading the Empathy phase Identify targeted users by defining the key demographic or user group for the project. Develop thoughtful interview questions to understand their needs, challenges, and expectations, ensuring the insights guide the development process. • Defining the problem and key objectives

	Identify the core challenges faced by individuals with physical disabilities, including limited access to therapy, lack of personalized rehabilitation options, and difficulties in maintaining independence. Establish clear objectives to create a solution that addresses these issues effectively. The goal is to develop a practical and accessible tool or system that supports recovery, enhances mobility, and empowers users to manage their rehabilitation process with greater ease.
Abdul Rasyid bin Abd Gani	• Ideation and brainstorming solutions Encourage each team member to share their ideas and suggestions for addressing the challenges faced by the target users. Research the feasibility of each idea and assess how well it aligns with the project concept and prototype requirements. Facilitate discussions among team members to evaluate and refine the proposed ideas, ultimately selecting the most practical and impactful solution to finalize. • Editing video Capture footage and photos of the team's discussion and collaboration process. Use video editing tools to enhance the visuals with effects, transitions, and captions to create an engaging and professional presentation that highlights the team's efforts and progress.

Group Photo During Discussion

Gannt Chart

Physicovery

Section 01

Group 1

27 Oct 2024

START DATE

25 Dec 2024

END DATE

Task ID	Task Name	Start Date	End Date	Duration (In Days)	27/10/2024	28/10/2024	29/10/2024	30/10/2024	31/10/2024	1/11/2024	2/11/2024	3/11/2024	4/11/2024	5/11/2024	6/11/2024	7/11/2024	8/11/2024	9/11/2024	10/11/2024	11/11/2024	12/11/2024	13/11/2024	14/11/2024	15/11/2024	16/11/2024	17/11/2024	18/11/2024	19/11/2024	20/11/2024	21/11/2024	22/11/2024
T01	Initial Concept Brainstorming	27/10/2024	29/10/2024	3																										
T02	Team Task Distribution	30/10/2024	31/10/2024	1																										
T03	User Feedback Survey Design	1/11/2024	2/11/2024	2																										
T04	Data Collection and Insights Analysis	3/11/2024	9/11/2024	7																										
T05	Solution Proposal Development	10/11/2024	14/11/2024	5																										
T06	Background Research and Literature Review	15/11/2024	17/11/2024	3																										
T07	Implementation of Design Thinking Process	18/11/2024	19/11/2024	2																										
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T15	Final Report Compilation	15/12/2024	16/12/2024	2																										
T16	Video Production and Editing	17/12/2024	21/12/2024	5																										
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Gannt Chart
Physicovery

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7.0 Conclusion

To sum up, we have gained invaluable insights and hands-on experience throughout the design thinking process. This journey has not only enhanced our problem-solving and creative thinking abilities but also deepened our understanding of how technology can address real-world challenges. From empathizing with users to brainstorming solutions, prototyping, and refining our ideas through feedback, every step has contributed to shaping a meaningful and user-centric solution.

We sincerely hope that our concept for the Physicovery App can create a significant positive impact on individuals in need of physical therapy. By providing an accessible, innovative, and personalized platform, we aim to empower users to take control of their recovery journey, reduce pain, and improve their quality of life. Our aspiration is for Physicovery to serve as a bridge between advanced technology and human-centric care, making therapy more accessible, convenient, and effective for all.

This project has inspired us to continue striving for innovation and inclusivity, and we are committed to evolving our ideas to meet the diverse needs of users worldwide.

TIS Design Thinking Video

Our Group Photo After Completing Report

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