AI AGENTIC PATTERNS IN FITNESS & WELLNESS INDUSTRY

A PROJECT REPORT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

MASTER OF DESIGN

IN

INTERACTION

Submitted by

HARSH MEHRA

(2K23/MDID/05)

Under the supervision of

PROF. PARTHA DAS

DEPARTMENT OF DESIGN

DELHI TECHNOLOGICAL UNIVERSITY

(Formerly Delhi College of Engineering)

Bawana Road, Delhi-110042

MAY,2025

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CANDIDATE'S DECLARATION

I, **Harsh Mehra**, Roll No.-**2K23/MDID/05** student of M.Des (Interaction),hereby declare that the project Dissertation titled "**AI Agentic Patterns in fitness & wellness industry"**which is submitted by me to the Department of Design, Delhi Technological University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Technology is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Degree, Diploma Associateship, Fellowship or other similar title or recognition.

Place: Delhi **(HARSH MEHRA)**

Date: January 2025(For a Period of 6 Months)

DEPARTMENT OF DESIGN
DELHI TECHNOLOGICAL UNIVERSITY
(Formerly Delhi College of Engineering)
Bawana Road, Delhi-110042

CERTIFICATE

I hereby certify that the Project Dissertation titled "**AI Agentic Patterns in fitness & wellness industry"** which is submitted by **Harsh Mehra**, Roll No.-**2K23/MDID/05**, Department of Design, Delhi Technological, University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Design, is a record for the project work carried out by the student under my supervision. To the best of my knowledge this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere.
Please find attached Offer letter

Place: New Delhi **(PROF. PARTHA DAS)**
Date:

ACKNOWLEDGEMENT

Presentation, inspiration, and motivation have been instrumental in the success of this venture. I extend my sincere gratitude to **Prof. Partha Das** for guiding me to the highest peak and providing me with the opportunity to prepare this dissertation report. Additionally, heartfelt thanks to my friends for their unwavering inspiration and encouragement throughout this project's completion.

Last but not least, my family has been a constant source of inspiration, and I am deeply grateful for their unwavering support.

ABSTRACT

This thesis explores the transformative journey from research to high-fidelity wireframes in the design process, emphasizing meticulous planning, collaboration, and iterative refinement. Beginning with comprehensive user research, crucial insights were gathered to inform every stage of the design process. Low-fidelity wireframes allowed for exploration of functionality and flow, while high-fidelity prototypes added polish and detail. Throughout, collaboration and communication were paramount, ensuring alignment with stakeholder expectations and user needs. By embracing feedback-driven iterations and maintaining a user-centric approach, a seamless and intuitive product was crafted. This study underscores the significance of thorough exploration, teamwork, and iterative refinement in achieving exceptional design outcomes, offering valuable insights for practitioners and scholars in the field of Interaction and user experiencedesign.

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CHAPTER 1: INTRODUCTION

Project Name: AI Agentic Patterns in Fitness & Wellness Industry

1.1 Genesis

My journey through the Master of Design in Interaction Design has been transformative, enriching, and profoundly influential in the ever-evolving landscape of interaction design. I have had the privilege of delving deeply into the intricate realms of design theory, methodology, and practical application over the course of two immersive years. My Bachelor's degree in design thinking gave me a solid foundation for my M.Des program's diverse and dynamic curriculum, which worked well with my architecture background. This fusion of disciplines has not only broadened my perspective but has also equipped me with a unique lens through which to approach design challenges.

This thesis is a testament to the knowledge I've gained, the obstacles I've overcome, and the growth I've experienced throughout my academic career. Through its exploration, I aim to contribute meaningfully to the discourse surrounding visual communication while reflecting on the profound impact of interdisciplinary education in shaping contemporary design practices.

Illustrations serve as the vibrant heartbeat of my creative expression. With a passion for storytelling intricately woven into every stroke, I find immense joy in breathing life into ideas through visual narratives. Whether capturing the essence of a concept, evoking emotion, or simply delighting the senses, each illustration is a labor of love—a testament to my dedication to the craft. From whimsical characters dancing across the page to intricate scenes that unfold like chapters in a book, my illustrations serve as windows into fantastical worlds, inviting viewers to explore, imagine, and dream alongside .

CHAPTER 1: INTRODUCTION

1.1 About Shadow

India's $200 billion fitness industry is expanding rapidly thanks to a young population, digital platforms, and increased health awareness. Key trends include boutique studios, home workouts, and wellness tourism, with opportunities in smaller cities and fitness tech. While initiatives like "Fit India" help the country grow, obstacles like affordability persist..

Shadow

Your personal AI fitness coach.

Figure 2.1: Platforms

1.2 Problem Statement

Statement of the Problem: Trainees struggle with the high costs of individualized workout and nutrition plans as well as generic programs that do not meet their individual requirements. This makes it harder to achieve fitness goals, highlighting the requirement for a bespoke and budget-friendly solution..

1.2.1.1 High Cost of Personalized Workout Plans
1.2.1.2 High Cost of Nutrition Guidance
1.2.1.3 Insistent Workout Plan
1.2.1.4 No Performance Tracking

1.3 Objective

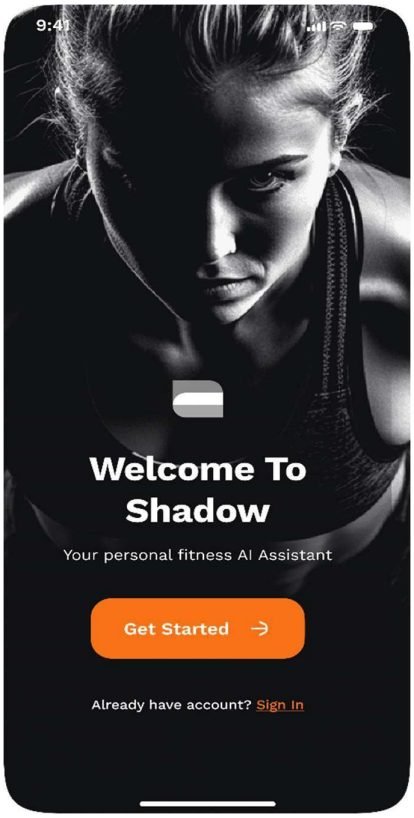
Fitness-AI project objective in clear, concise bullet points:

1.3.1 Create a fitness app based on AI that customizes workout and diet plans with ease.
1.3.2 Leverage machine learning to adapt routines based on user goals, performance, and progress.
1.3.3 Close the gap in the Indian fitness market between personalization and affordability.
1.3.4 Encourage users in semi-urban and urban areas to adopt healthy lifestyles.
1.3.5 Enhance user engagement through real-time tracking, AI feedback, and progress visualization.
1.3.6 Build a seamless, user-centric experience with a focus on simplicity and motivation.
1.3.7 Contribute to India’s growing digital wellness ecosystem by integrating fitness, nutrition, and AI innovation.

1.4 Solution

Personalized workout plans, tailored nutrition advice, and performance tracking are just some of the ways AI improves fitness. It adapts routines to individual goals, offers customized meal plans, and analyzes workout data to boost performance and prevent injuries

- AI designs and updates routines based on goals and progress.
- Personalized meal plans and dietary advice via apps.
- Tracking progress through the attendance & AI camera analysis

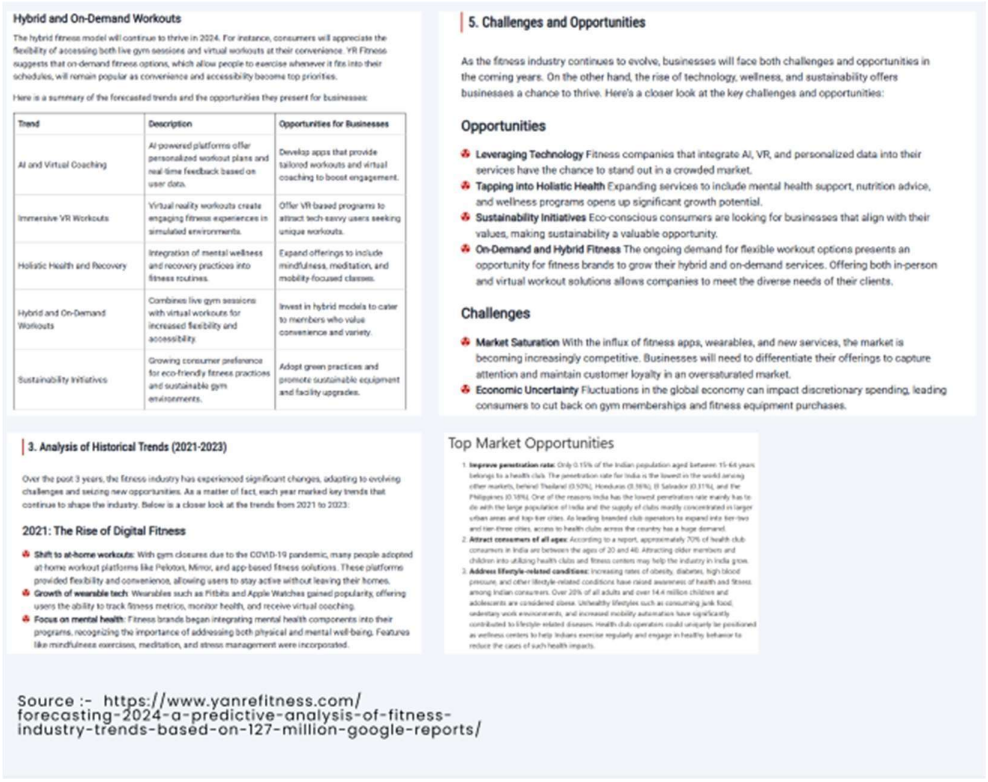


CHAPTER 2 : RESEARCH

2.1 Research

Since the study was done under design exploration semester, it was decided to ground the design of the process in the available literature. Therefore, in order to fully comprehend the topic, the literature review was divided into four sections. • The goal of the research is to learn about the fitness industry's fundamental practices and technical expectations.

•**Research objective** :- to understand the Fitness industry, basic practices & Technical Expect of the industry..



Hybrid and On-Demand Workouts

The hybrid fitness model will continue to thrive in 2024. For instance, consumers will appreciate the flexibility of accessing both live gym sessions and virtual workouts at their convenience. YR Fitness suggests that on-demand fitness options, which allow people to exercise whenever it fits into their schedules, will remain popular as convenience and accessibility become top priorities.

Here is a summary of the forecasted trends and the opportunities they present for businesses:

Trend	Description	Opportunities for Businesses
AI and Virtual Coaching	AI-powered platforms offer personalized workout plans and real-time feedback based on user data.	Develop apps that provide tailored workouts and virtual coaching to boost engagement.
Immersive VR Workouts	Virtual reality workouts create engaging fitness experiences in simulated environments.	Offer VR-based programs to attract tech-savvy users seeking unique workouts.
Holistic Health and Recovery	Integration of mental wellness and recovery practices into fitness routines.	Expand offerings to include mindfulness, meditation, and mobility-focused classes.
Hybrid and On-Demand Workouts	Combines live gym sessions with virtual workouts for increased flexibility and accessibility.	Invest in hybrid models to cater to members who value convenience and variety.
Sustainability Initiatives	Growing consumer preference for eco-friendly fitness practices and sustainable gym environments.	Adopt green practices and promote sustainable equipment and facility upgrades.

5. Challenges and Opportunities

As the fitness industry continues to evolve, businesses will face both challenges and opportunities in the coming years. On the other hand, the rise of technology, wellness, and sustainability offers businesses a chance to thrive. Here's a closer look at the key challenges and opportunities:

Opportunities

- **Leveraging Technology** Fitness companies that integrate AI, VR, and personalized data into their services have the chance to stand out in a crowded market.
- **Tapping into Holistic Health** Expanding services to include mental health support, nutrition advice, and wellness programs opens up significant growth potential.
- **Sustainability Initiatives** Eco-conscious consumers are looking for businesses that align with their values, making sustainability a valuable opportunity.
- **On-Demand and Hybrid Fitness** The ongoing demand for flexible workout options presents an opportunity for fitness brands to grow their hybrid and on-demand services. Offering both in-person and virtual workout solutions allows companies to meet the diverse needs of their clients.

Challenges

- **Market Saturation** With the influx of fitness apps, wearables, and new services, the market is becoming increasingly competitive. Businesses will need to differentiate their offerings to capture attention and maintain customer loyalty in an oversaturated market.
- **Economic Uncertainty** Fluctuations in the global economy can impact discretionary spending, leading consumers to cut back on gym memberships and fitness equipment purchases.

3. Analysis of Historical Trends (2021-2023)

Over the past 3 years, the fitness industry has experienced significant changes, adapting to evolving challenges and seizing new opportunities. As a matter of fact, each year marked key trends that continue to shape the industry. Below is a closer look at the trends from 2021 to 2023:

2021: The Rise of Digital Fitness

- **Shift to at-home workouts**: With gym closures due to the COVID-19 pandemic, many people adopted at-home workout platforms like Peloton, Mirror, and app-based fitness solutions. These platforms provided flexibility and convenience, allowing users to stay active without leaving their homes.
- **Growth of wearable tech**: Wearables such as Fitbits and Apple Watches gained popularity, offering users the ability to track fitness metrics, monitor health, and receive virtual coaching.
- **Focus on mental health**: Fitness brands began integrating mental health components into their programs, recognizing the importance of addressing both physical and mental well-being. Features like mindfulness exercises, meditation, and stress management were incorporated.

Top Market Opportunities

1. **Improve penetration rate:** Only 0.15% of the Indian population aged between 15-64 years belongs to a health club. The penetration rate for India is the lowest in the world among other markets, behind Thailand (0.50%), Honduras (0.16%), El Salvador (0.31%), and the Philippines (0.18%). One of the reasons India has the lowest penetration rate mainly has to do with the large population of India and the supply of clubs mostly concentrated in larger urban areas and top-tier cities. As leading branded club operators to expand into tier-two and tier-three cities, access to health clubs across the country has a huge demand.
2. **Attract consumers of all ages:** According to a report, approximately 70% of health club consumers in India are between the ages of 20 and 40. Attracting older members and children into utilizing health clubs and fitness centers may help the industry in India grow.
3. **Address lifestyle-related conditions:** Increasing rates of obesity, diabetes, high blood pressure, and other lifestyle-related conditions have raised awareness of health and fitness among Indian consumers. Over 20% of all adults and over 14.4 million children and adolescents are considered obese. Unhealthy lifestyles such as consuming junk food, sedentary work environments, and increased mobility automation have significantly contributed to lifestyle-related diseases. Health club operators could uniquely be positioned as wellness centers to help Indians exercise regularly and engage in healthy behavior to reduce the cases of such health impacts.

Source :- https://www.yanrefitness.com/forecasting-2024-a-predictive-analysis-of-fitness-industry-trends-based-on-127-million-google-reports/

2.2 Quantitative Research

I conducted initial research by creating a questionnaire that catered to diverse stakeholders. This survey is a critical method that helped me gather key insights from a large group for my study which would be later validated by in person interviews. This allowed me to efficiently collect data from a wide and diverse sample of respondents, providing with a holistic view of the topic.

Nutrition Related Question

How often do you feel your current diet plan addresses your personal health conditions or dietary restrictions?

- Always: 20%
- Often: 40%
- Sometimes: 30%
- Rarely: 10%

What challenges do you face when trying to adjust your diet plan based on your personal health conditions or dietary restrictions?

- Lack of Knowledge: 35%
- Time Constraints: 25%
- Availability of Ingredients: 20%
- Other: 20%

How would you rate your understanding of nutritional requirements (e.g., proteins, carbohydrates, fats, vitamins, minerals)?

- Excellent: 25%
- Good: 40%
- Fair: 25%
- Poor: 10%

How confident are you in balancing macronutrients (proteins, carbohydrates, fats) in your diet?

- Very Confident: 20%
- Somewhat Confident: 45%
- Not Confident: 35%

How often do you feel confused about portion sizes for different types of foods?

- Always: 15%
- Often: 25%
- Sometimes: 40%
- Rarely: 20%

How confident are you in planning meal timings (e.g., breakfast, lunch, dinner, snacks) to meet your nutritional needs?

- Very Confident: 30%
- Somewhat Confident: 50%
- Not Confident: 20%

What aspects of nutrition do you find most challenging?

- Balancing Macronutrients: 30%
- Understanding Nutritional Labels: 25%
- Planning Meals: 20%
- Portion Control: 25%

Have you ever used an AI diet planner to create or adjust your diet plan?

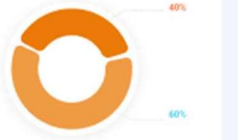
- Yes: 40%
- No: 60%

What challenges or limitations have you faced with the AI diet planner?

- Personalization: 35%
- Ease of Use: 25%
- Accuracy of Recommendations: 20%
- Other: 20%

Workout Related Question

Have you ever used an AI-customized workout plan?



- Yes: 40%
- No: 60%

What challenges do you face when trying to create a workout plan tailored to your fitness level and goals?

- Lack of Knowledge: 40%
- Time Constraints: 30%
- Equipment Availability: 20%
- Motivation: 10%

What challenges do you face when modifying your workout plan?

- Lack of Knowledge: 35%
- Time Constraints: 25%
- Physical Limitations/Injuries: 20%
- Motivation: 20%

How often do you feel your current workout plan addresses your physical limitations or injuries?

- Always: 25%
- Often: 35%
- Sometimes: 30%
- Rarely: 10%

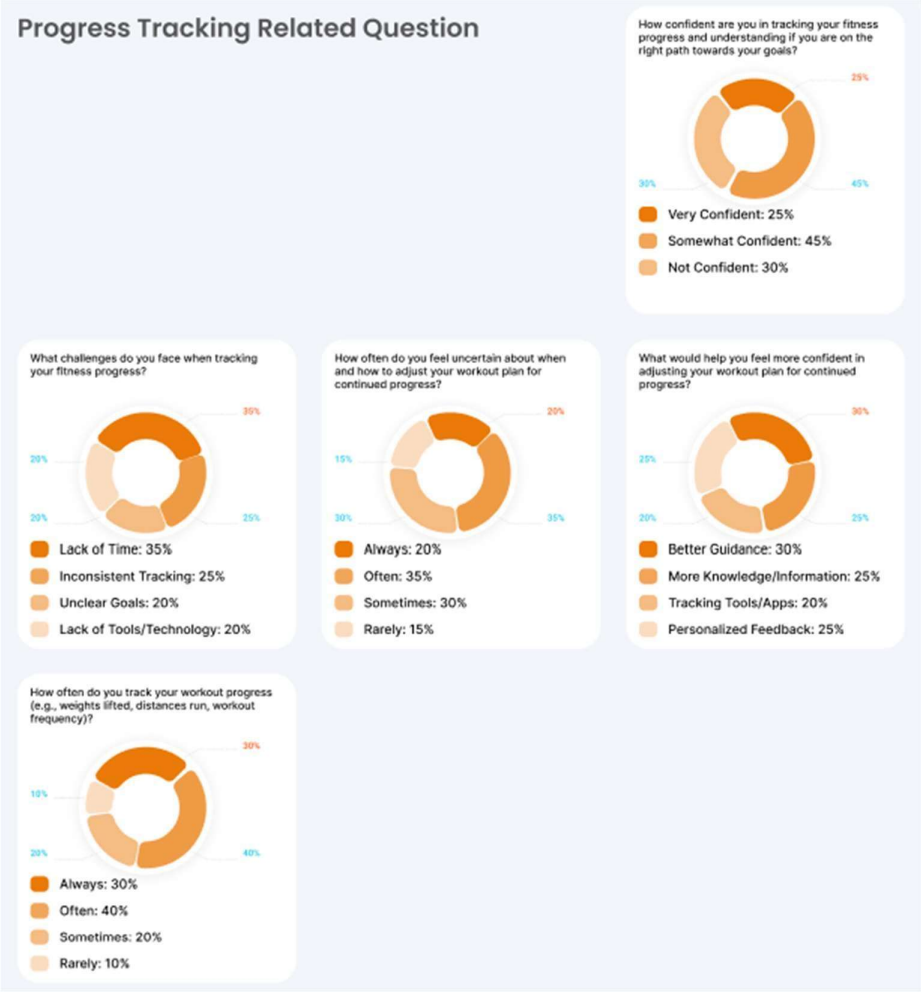
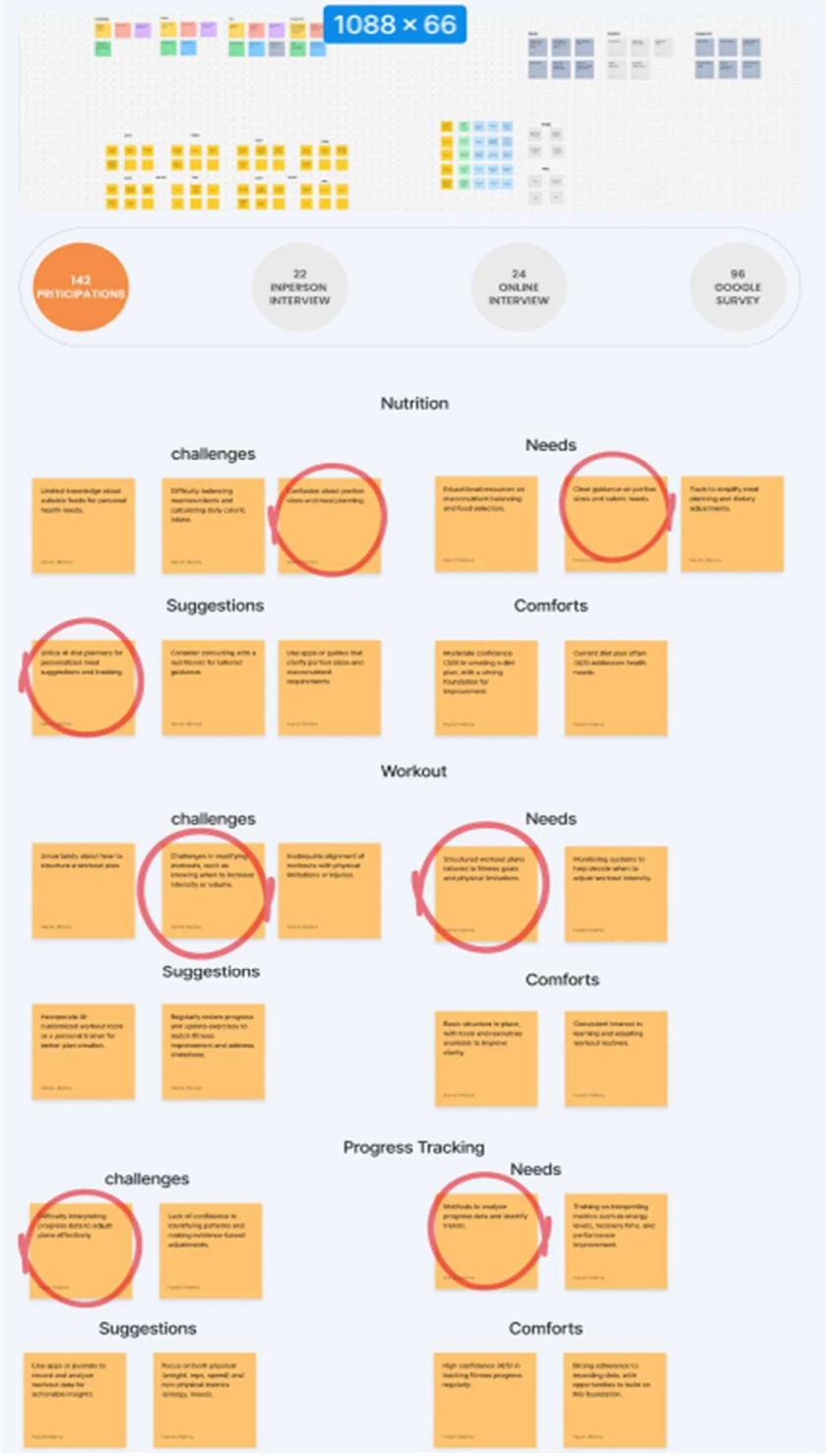
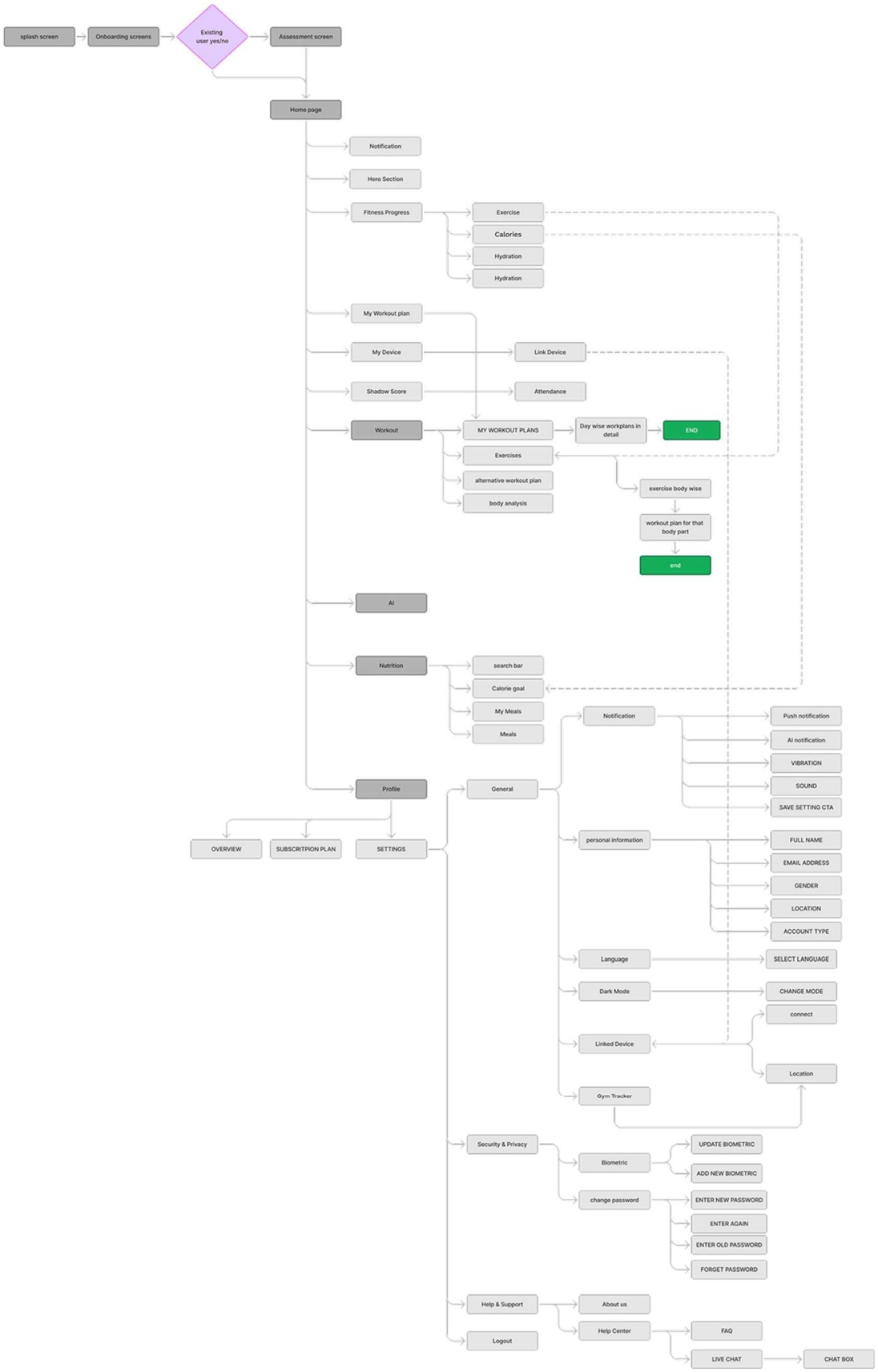


Figure 2.3: Interview Questions & Data

2.3 Insights & Solutions

After identifying the leverage points, the topics and subtopics act as foundational elements for detailed exploration and research under each broader category. The verbatim responses and insights from the interviews were gathered and organized into clusters accordingly.




splash screen
Onboarding screens
Existing user yes/no
Assessment screen
Home page
Notification
Hero Section
Fitness Progress
Exercise
Calories
Hydration
Hydration
My Workout plan
My Device
Link Device
Shadow Score
Attendance
Workout
MY WORKOUT PLANS
Day wise workplans in detail
END
Exercises
alternative workout plan
body analysis
exercise body wise
workout plan for that body part
end
AI
Nutrition
search bar
Calorie goal
My Meals
Meals
Profile
OVERVIEW
SUBSCRITPION PLAN
SETTINGS
General
Notification
Push notification
AI notification
VIBRATION
SOUND
SAVE SETTING CTA
personal information
FULL NAME
EMAIL ADDRESS
GENDER
LOCATION
ACCOUNT TYPE
Language
SELECT LANGUAGE
Dark Mode
CHANGE MODE
connect
Linked Device
Location
Gym Tracker
Security & Privacy
Biometric
UPDATE BIOMETRIC
ADD NEW BIOMETRIC
change password
ENTER NEW PASSWORD
ENTER AGAIN
ENTER OLD PASSWORD
FORGET PASSWORD
Help & Support
About us
Help Center
FAQ
LIVE CHAT
CHAT BOX
Logout

CHAPTER 3: DESIGN PROCESS

From initial research to high-fidelity wireframes, our design journey exemplified meticulous planning and iterative refinement. Starting with user research, we discovered crucial insights that influenced each design choice. We were able to investigate functionality and flow with low-fidelity wireframes, while high-fidelity prototypes added polish and detail. Collaboration and communication were crucial at every stage, assuring that user requirements and stakeholder expectations were met. By embracing feedback-driven iterations and maintaining a user-centric approach, we crafted a seamless and intuitive product. In order to achieve exceptional design outcomes, this journey demonstrates the significance of comprehensive exploration, teamwork, and iterative refinement..

3.1 Design System

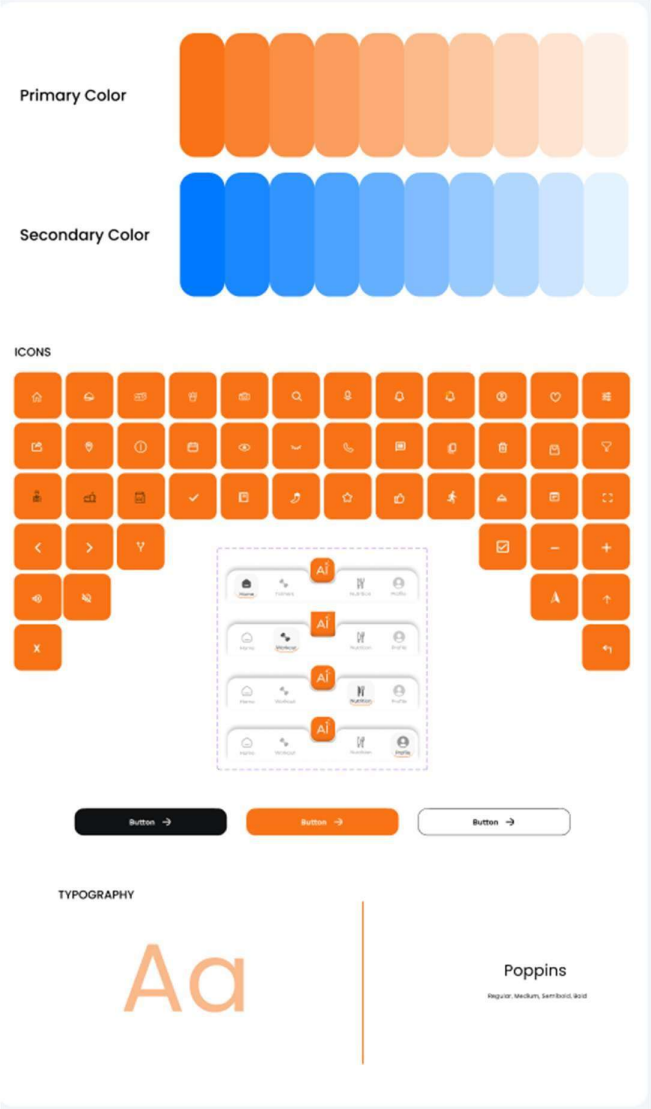


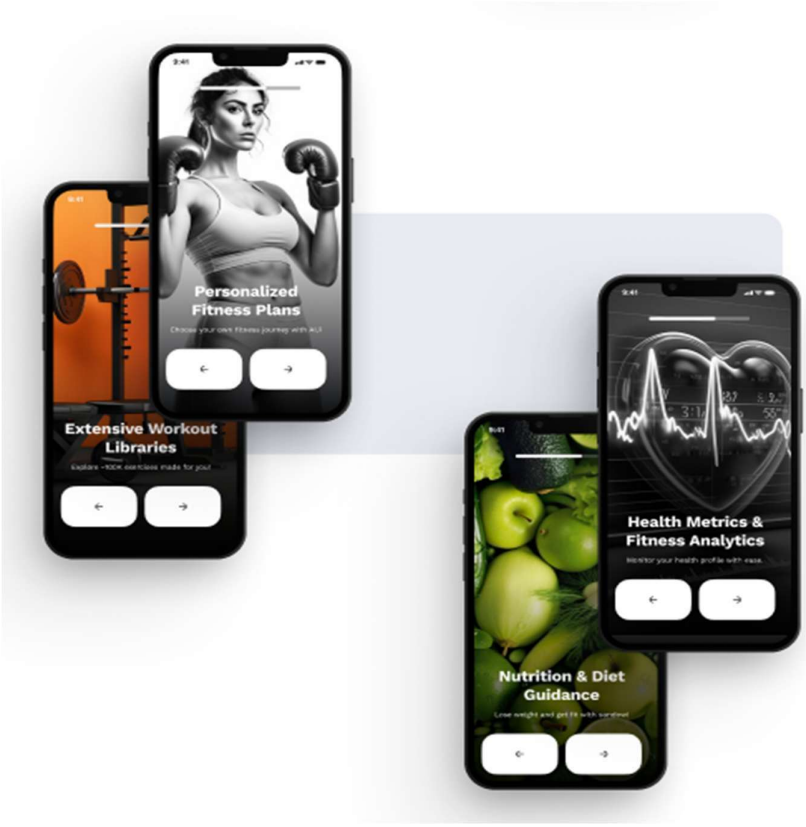
Figure 3.1: Design System

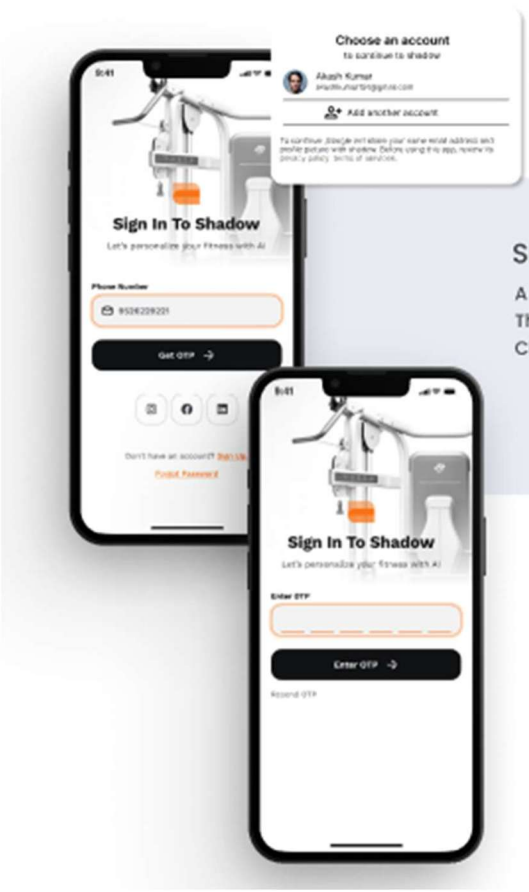
3.2 Hi-Fidelity Wireframes

3.2.1 Onboarding

ONBOARDING

The Onboarding Screen Presents A Comprehensive Overview Of All The Services Offered Within The App, Ensuring A Clear And Straightforward Understanding For Users.



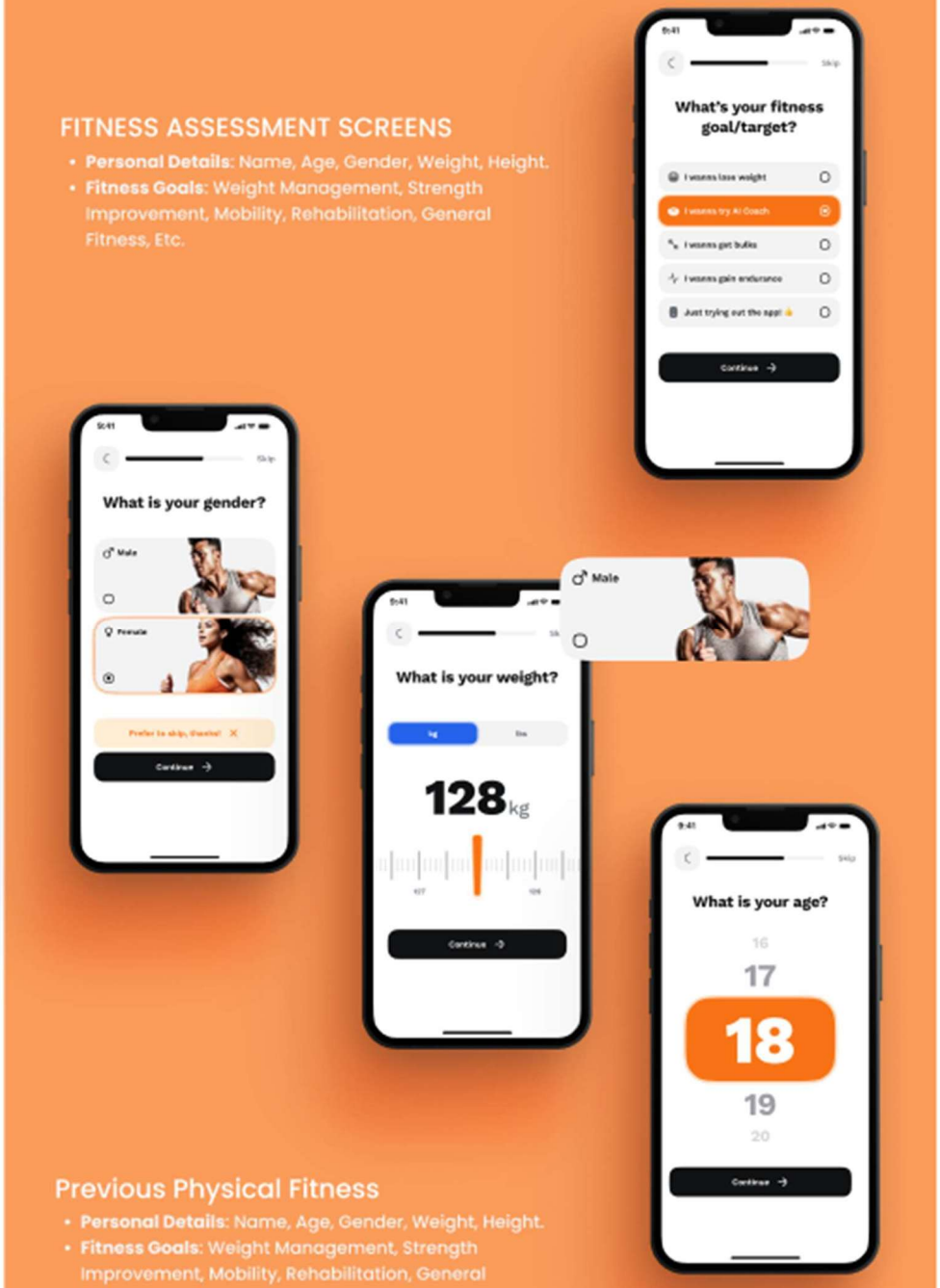


SIGNUP & LOGIN

A Minimalist Design Approach Aims To Streamline The Login Process By Minimizing The Number Of Clicks Required To Access The App.

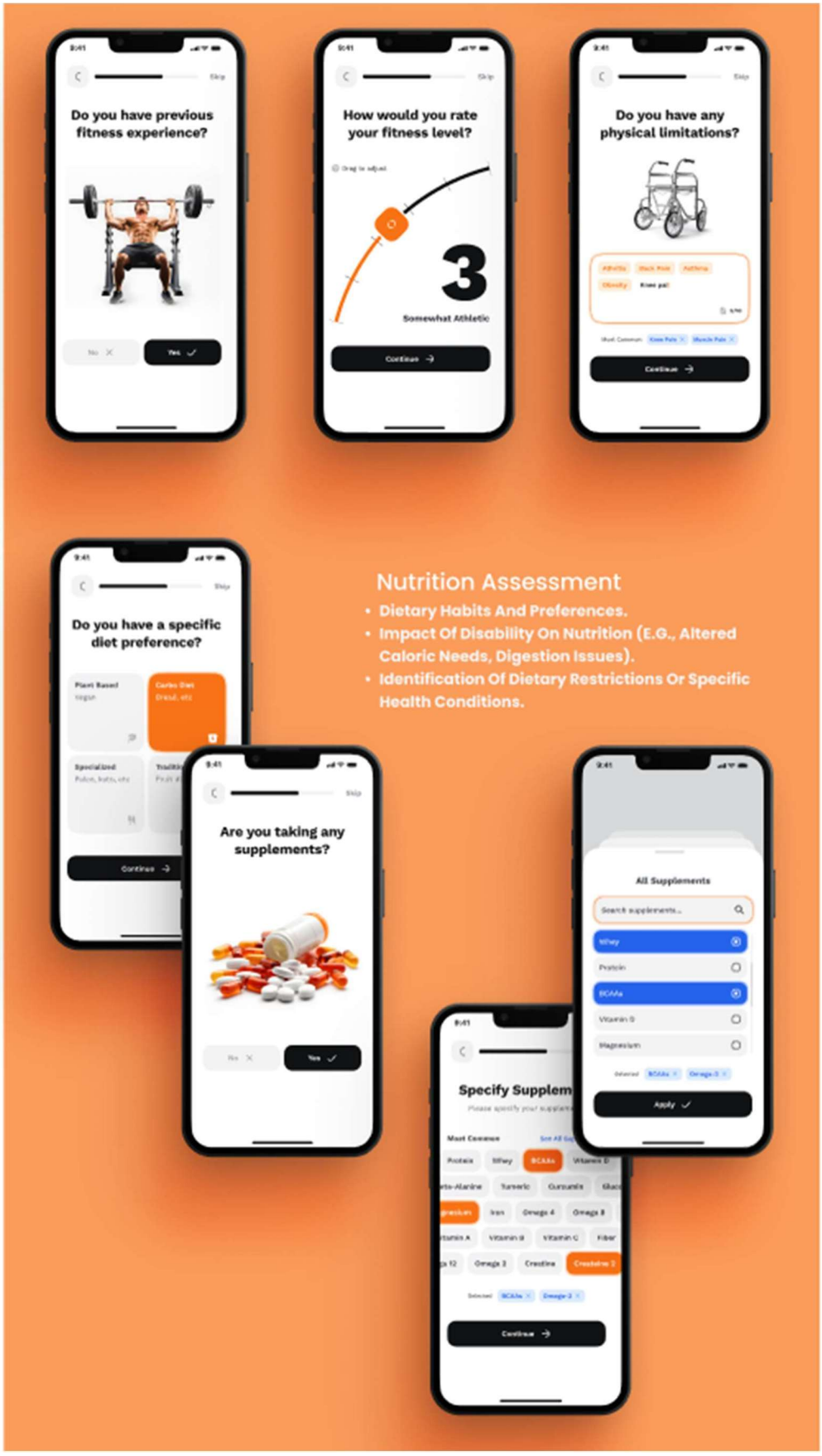
FITNESS ASSESSMENT SCREENS

- **Personal Details**: Name, Age, Gender, Weight, Height.
- **Fitness Goals**: Weight Management, Strength Improvement, Mobility, Rehabilitation, General Fitness, Etc.



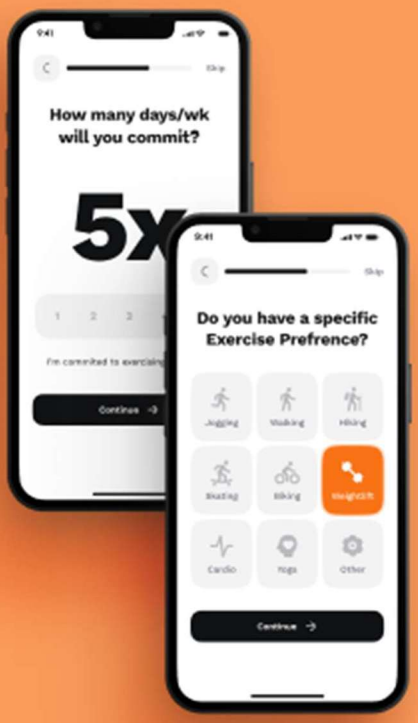
Previous Physical Fitness

- **Personal Details**: Name, Age, Gender, Weight, Height.
- **Fitness Goals**: Weight Management, Strength Improvement, Mobility, Rehabilitation, General Fitness, Etc.


Do you have previous fitness experience?
How would you rate your fitness level?
3
Somewhat Athletic
Do you have any physical limitations?
Do you have a specific diet preference?
Are you taking any supplements?
All Supplements
Nutrition Assessment
• Dietary Habits And Preferences.
• Impact Of Disability On Nutrition (E.G., Altered Caloric Needs, Digestion Issues).
• Identification Of Dietary Restrictions Or Specific Health Conditions.

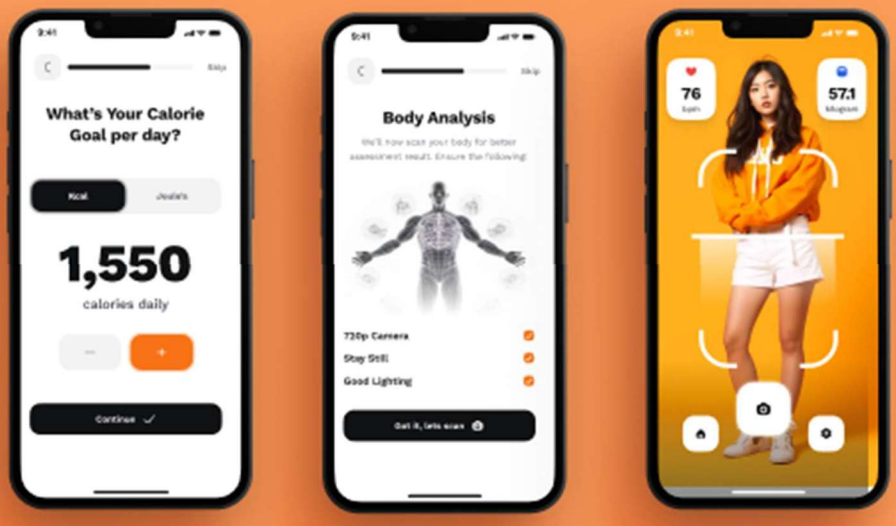
Health Metrics & Goal Setting

- Integration With Adaptive Devices For Real-Time Data
- Manual Input Of Metrics Like Heart Rate, BMI
- Ecommendations For Fitness Goals That Align With Abilities And Limitations.
- Focus On Functional Fitness, Rehabilitation, Or General Well-Being.
- Customizable Goals For Strength, Mobility, Or Endurance Improvements.

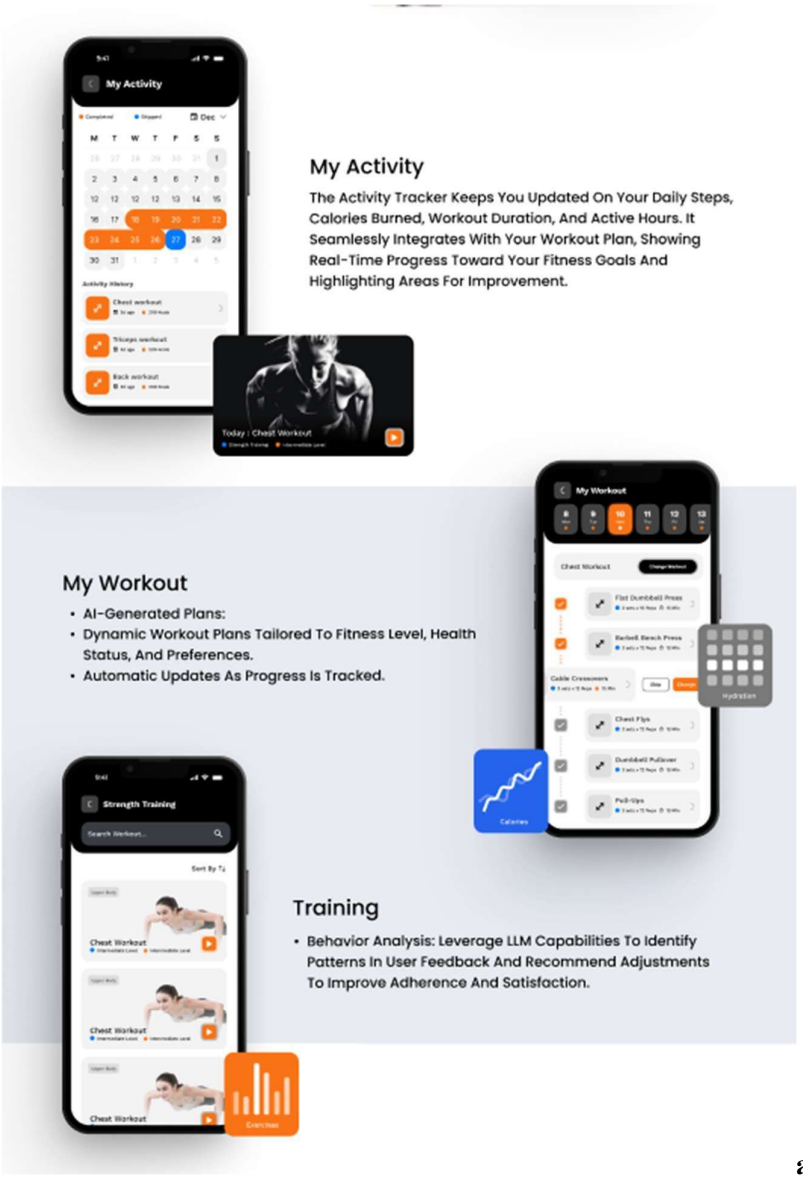


Progress Tracker Integration

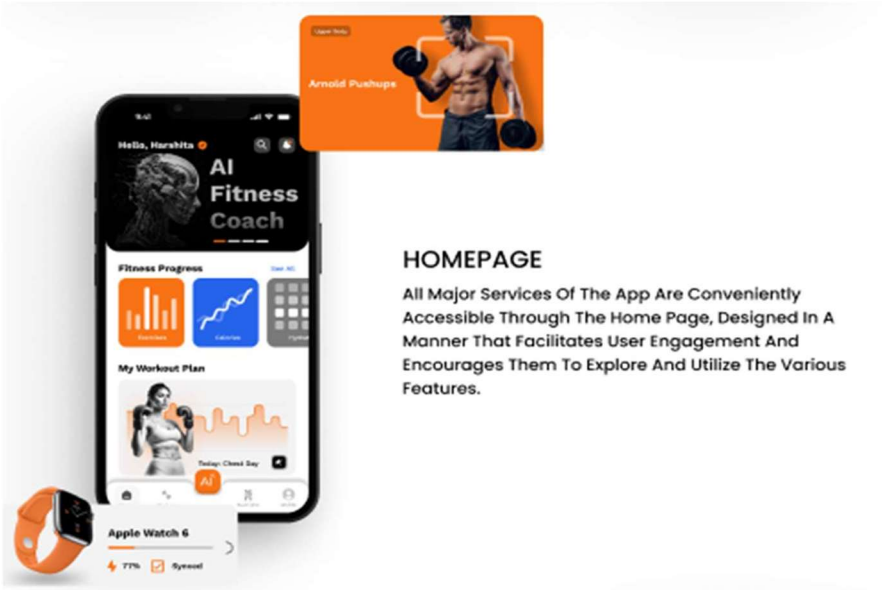
- Nclude Accessibility-Friendly Visualizations (E.G., High-Contrast Graphs, Audio Descriptions).
- Sync Results With Wearable Devices For Adaptive Metrics (E.G., Calories Burned For Wheelchair Users).
- Specific Trackers For Functional Improvements Like Increased Mobility, Reduced Pain, Or Improved Endurance.



- **Home Page**


My Activity
My Activity
The Activity Tracker Keeps You Updated On Your Daily Steps, Calories Burned, Workout Duration, And Active Hours. It Seamlessly Integrates With Your Workout Plan, Showing Real-Time Progress Toward Your Fitness Goals And Highlighting Areas For Improvement.
Today : Chest Workout
My Workout
My Workout
• AI-Generated Plans:
• Dynamic Workout Plans Tailored To Fitness Level, Health Status, And Preferences.
• Automatic Updates As Progress Is Tracked.
Strength Training
Chest Workout
Chest Workout
Chest Workout
Training
• Behavior Analysis: Leverage LLM Capabilities To Identify Patterns In User Feedback And Recommend Adjustments To Improve Adherence And Satisfaction.

ai

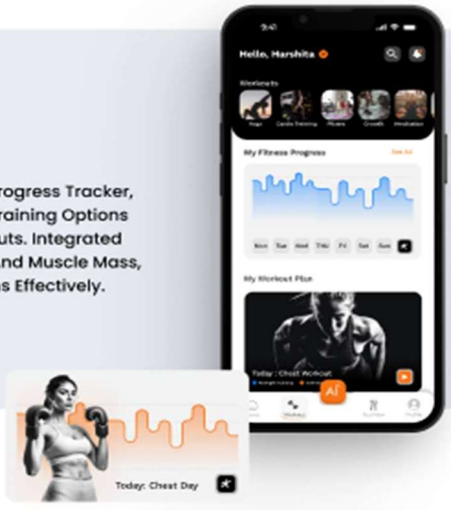


HOMEPAGE

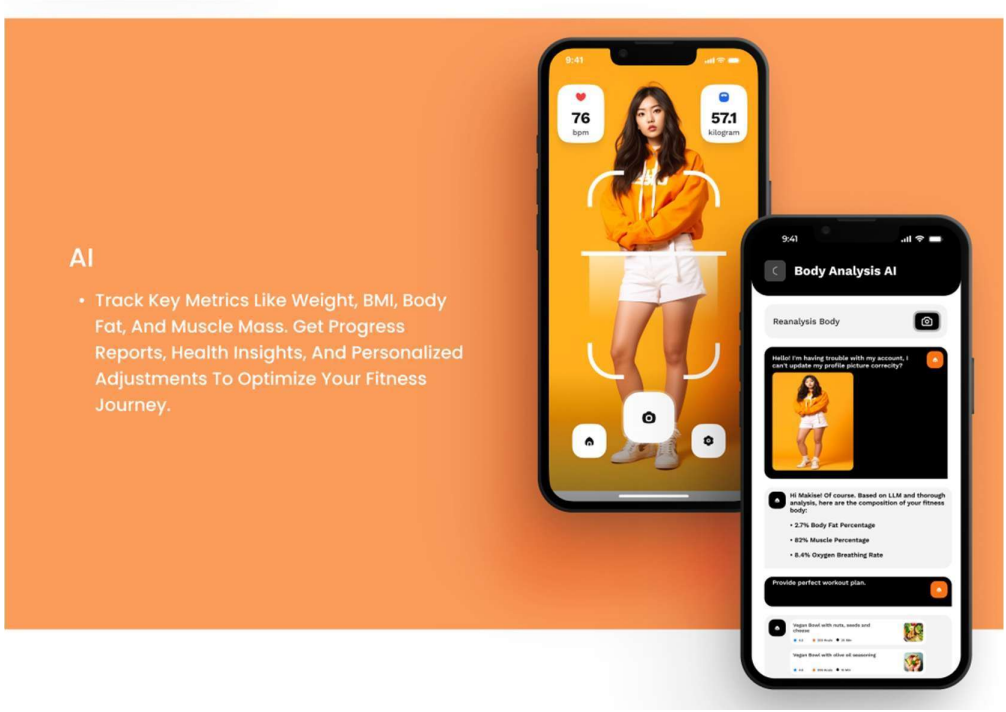
All Major Services Of The App Are Conveniently Accessible Through The Home Page, Designed In A Manner That Facilitates User Engagement And Encourages Them To Explore And Utilize The Various Features.

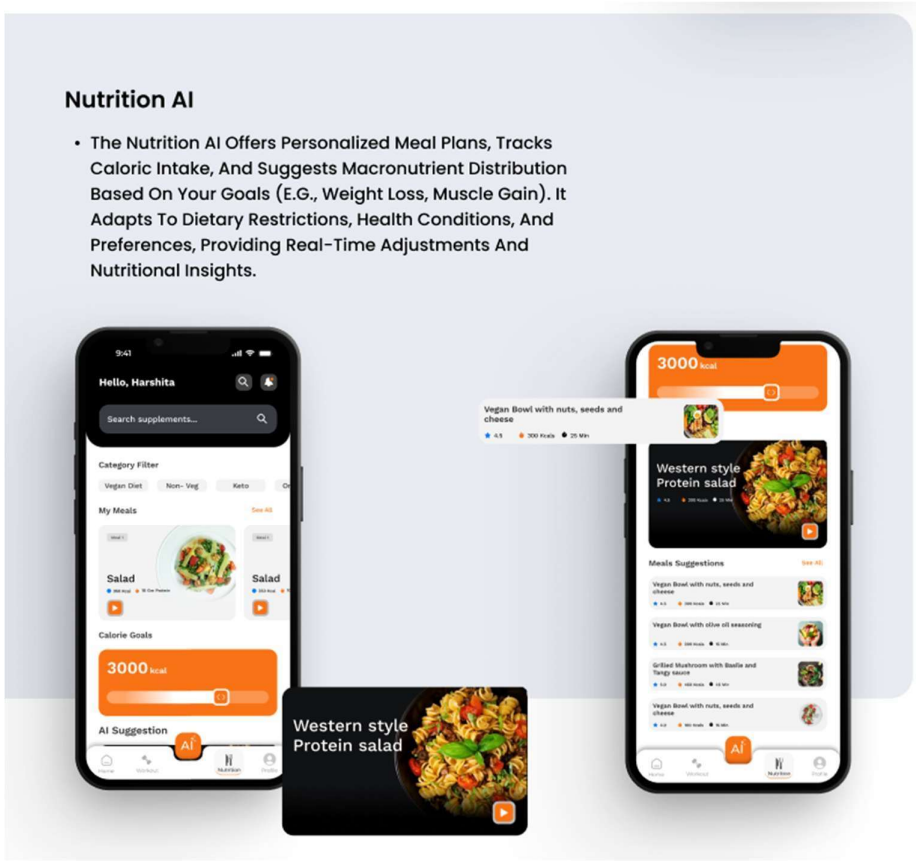
Workout Plan

The Workout Section Provides A Detailed Progress Tracker, Personalized Workout Plans, And Diverse Training Options Like Strength, Cardio, And Adaptive Workouts. Integrated Body Analysis Tracks Metrics Like Weight And Muscle Mass, Helping You Stay On Track And Adjust Plans Effectively.

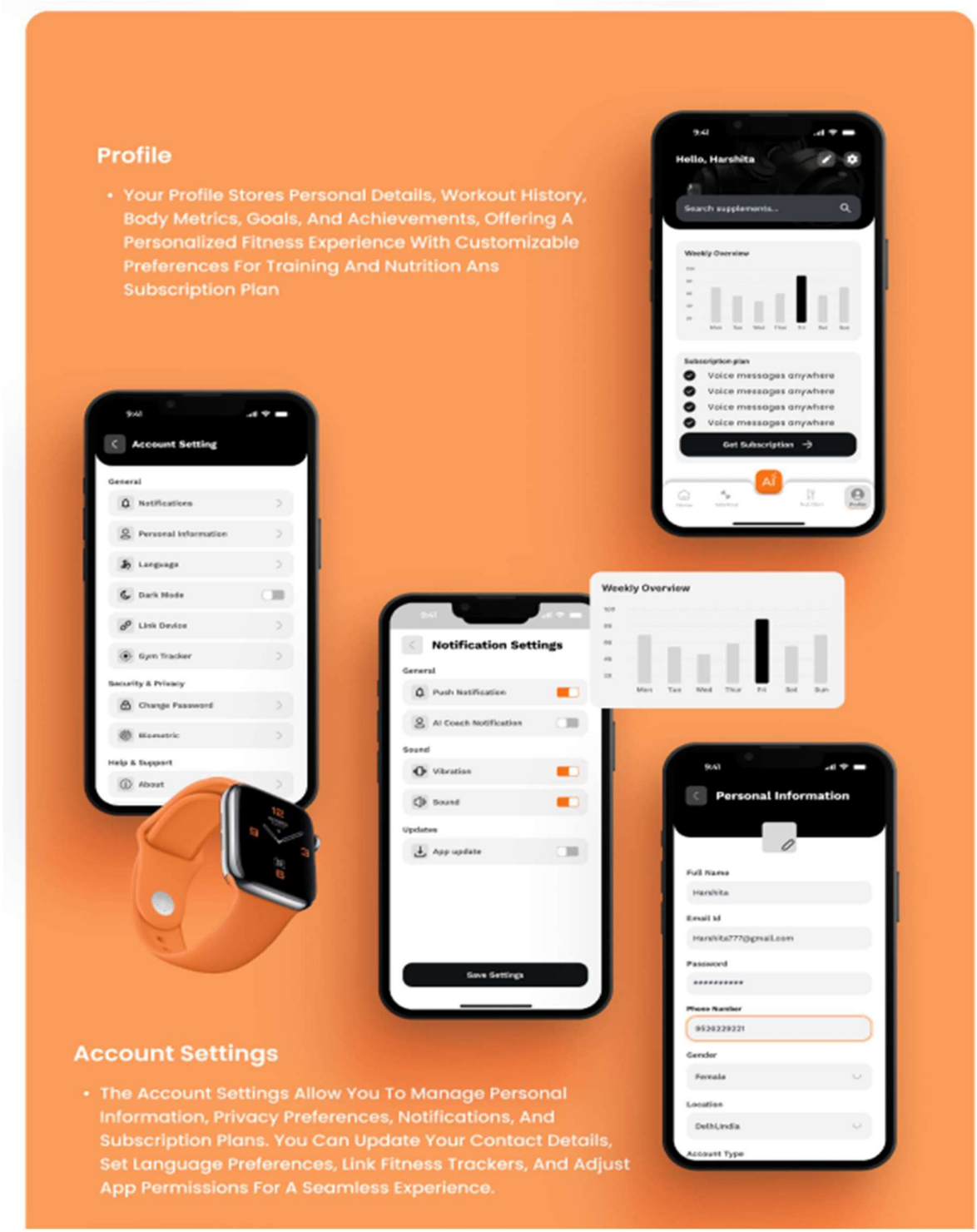


- **AI INTERGATATION**



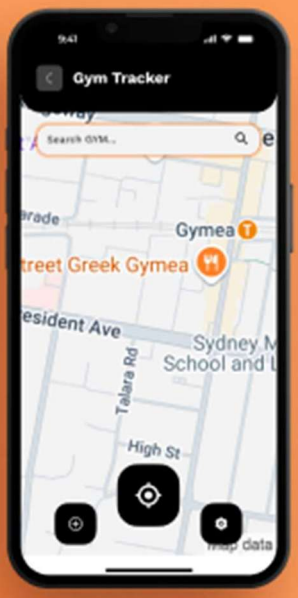


- **Profile**


Profile
• Your Profile Stores Personal Details, Workout History, Body Metrics, Goals, And Achievements, Offering A Personalized Fitness Experience With Customizable Preferences For Training And Nutrition Ans Subscription Plan
Hello, Harshita
Search supplements...
Weekly Overview
Subscription plan
Voice messages anywhere
Voice messages anywhere
Voice messages anywhere
Voice messages anywhere
Get Subscription
Account Setting
General
Notifications
Personal Information
Language
Dark Mode
Link Device
Gym Tracker
Security & Privacy
Change Password
Biometric
Help & Support
About
Notification Settings
General
Push Notification
AI Coach Notification
Sound
Vibration
Sound
Updates
App update
Save Settings
Weekly Overview
Personal Information
Full Name
Harshita
Email Id
Password
Phone Number
9526229221
Gender
Female
Location
Delhi,India
Account Type
Account Settings
• The Account Settings Allow You To Manage Personal Information, Privacy Preferences, Notifications, And Subscription Plans. You Can Update Your Contact Details, Set Language Preferences, Link Fitness Trackers, And Adjust App Permissions For A Seamless Experience.

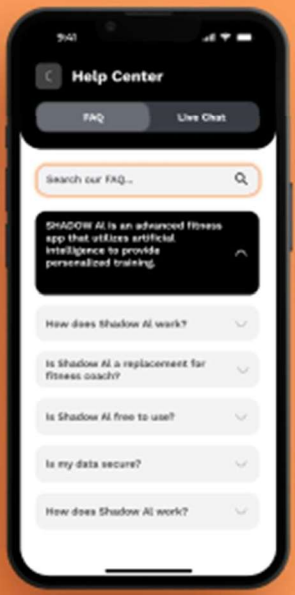
Link Device

- The Link Device Feature Allows You To Sync Fitness Trackers, Smartwatches, And Other Health Devices With The App. Track Your Steps, Heart Rate, Calories Burned, And Other Metrics Seamlessly, Providing A Unified View Of Your Progress And Fitness Data.



Automatic Gym Area Sensing & Notifications

- The System Detects Your Presence In Specific Gym Areas And Sends Real-Time Workout Notifications Based On Your Schedule. It Adapts Your Plan, Provides Exercise Reminders, And Adjusts Your Routine As Needed, Ensuring Seamless Progress.



Help Center

- The Help Center Offers FAQs, Support Contact, Tutorials, Troubleshooting, And Feedback Options To Assist With App Issues And Improve Your Experience.

CHAPTER 5: CONCLUSION & FUTURE SCOPE

5.1 Conclusion

In conclusion, my journey through the Master of Design program and Self sponsor project at DTU has been incredibly transformative and enlightening. Through rigorous academic study and hands-on industry exposure, I have deepened my understanding of design theory, methodology, and practical application. Working alongside talented professionals in a dynamic and collaborative environment has equipped me with invaluable skills, insights, and perspectives that will undoubtedly shape my future endeavours in the field of Interaction and user experience design.

5.2 Future Scope

Looking ahead, I am excited to continue my journey as a User Experience Designer, leveraging the knowledge and experiences gained to drive innovation and create meaningful impact in the ever-evolving landscape of design. I aspire to further refine my skills, explore emerging technologies, and champion user-centered design principles to address complex challenges and deliver delightful experiences across various domains and industries. Additionally, I am eager to contribute to the advancement of design education and mentorship initiatives, nurturing the next generation of creative minds and fostering a culture of collaboration, empathy, and innovation within the design community. With boundless opportunities for growth and exploration, I am confident that the skills and insights gained from my academic and professional pursuits will serve as a solid foundation for a fulfilling and impactful career in design.

REFERENCES

https://www.yanrefitness.com/forecasting-2024-a-predictive-analysis-of-fitness-industry-trends-based-on-127-million-google-reports/