Syddansk Universitet

Coach Freelancing Platform

Faculty of Engineering

BSc in Software Engineering

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1 Introduction

1.1 What is the issue we are trying to solve?

More and more fitness influencers are trying to increase their income and reach by offering one-on-one coaching often accompanied by custom training and diet plans. More generally, as consequence of the COVID-19 pandemic, an ever increasing number of traditional fitness coaches started to offer their coaching online as well. We can say from first hand experience that the resulting coaching can become quite messy independent from the coach. The user experience of the current influencer coaching is really bad, members of our team had first hand experience of how terrible it can be; it is very fragmented: communication channels are switched constantly, training and diet plans are hosted on seemingly random platforms and since it is all internet based, establishing initial trust / contact can result challenging. Our guess is that the GDPR is hardly respected. That's why want to offer a unified solution for influencer and fitness coaching to remediate to all these problems.

1.2 Is LinkedGym suitable for the market

Based on our limited market analysis and other business analysis tools that we applied throughout the project we can confidently say that we do believe that LinkedGym could be a product which consumers will have interest in, if launched. It won't grow by itself and will probably need to rely on influencer deals and need a decent marketing budget after launch which could be a limiting factor to its uptake.

1.3 Could we produce LinkedGym

In the scenario we would find ourselves in, if we were to concretely develop this product, most likely that the company developing it would be a startup with no- to very limited funding. With the abilities and knowledge we currently have, the successful development and deployment of LinkedGym would be very difficult, potentially possible if we were motivated enough. It is to be noted that our abilities to develop LinkedGym, would probably be sufficient after the completion of the third semester (distributed interactive software systems) in our education.

1.4 What is the basis of the project

The only actual requirement for this project was that it had to have some kind of database as it was needed for the successful completion of all exercises given. Various ideas surfaced during the brainstorming phase, and LinkedGym was not even our first choice. Ultimately LinkedGym turned out to be a better fir for two reasons: "founder fit" as all of the group members are fitness enthusiasts which amounts to a decent understanding of the current state of the fitness industry and it provided a better playing ground for the various software engineering exercises.

1.5 Outline of the project

This portfolio and the project itself is the sum of all activities assigned to us during the software engineering course. As already mentioned, the only substantive requirement was that our product would have the need for a database. The main objective

of this project is to be a learning experience in which we can practically apply tools, frameworks and concepts acquired during the lectures. To provide a brief overview of the project we started with clearly defining what our product would be and carried on analysing its goals and risks. A "mini" design sprint was conducted; it entailed crazy 8's, defining personas, user journeys and creating a prototype to conduct user testing. We continued with laying out all of our features and started doing estimations and prioritizations, followed by various UML models and diagrams. Finally we switched to the more business side of things with tools such as the SWOT analysis, business model, value proprosition canvas and similar.

1.6 Business model of LinkedGym

The primary source of revenue of LinkedGym will come from transactional commissions, where the platform takes a percentage of every transaction made through our platform. Furthermore we plan to have additional revenue streams by letting sporting brands promote their products on our platform. The business model will be discussed in further detail in chapter 5.

1.7 Product outline

LynkedGym is an online coaching platform that offer a streamlined experienced for coaches and trainees alike. Unlike self branded solutions and platforms LinkedGym unifies everything involved for a quality fitness coaching experience, while still providing the possibility to advance ones personal brand. Our solution offers a simple and secure way to establish communication and subsequently to carry it on in a in-

tegrated platform. LinkedGym provides a straightforward way to create and assign custom plans, track progress and facilitate the whole coaching experience.

1.8 Competing products

Based on our limited market research we did not find a platform which would be a direct competitor to LinkedGym. There are similar apps that offer ways to track progress and provide custom workout plans, made among others by influencers but none offer the possibility to have direct coaching. Alternatively, there are many self branded coaching websites which re-direct a potential customer to instagram direct messages or similar social messaging platforms.

As we did not find any directly competing product, it may mean one of three things: There is a market to be captured and our platform solves a real need, or there is no need for such a product, hence the lack of a similar product. Ultimately it could be that our googling skills need some improvement, reason why we did not find anything similar.

1.9 Goals and risk of LinkedGym

We defined goals and risks of LinkedGym by answering a list of predetermined questions that helped us to elucidate them.

What is the best thing that could happen?

- Multiple fitness influencers with a moderate amount of traction switch to our platform

What do we need to do to succeed?

- We need to attract influencers as for them to start using our platform
- We need to provide a straightforward and simple user experience
- We need to streamline the whole coaching process

What is the worst to happen?

- We do not attract neither influencers nor coaches
- No one is interested in using our platform, there is no actual need for it

If we fail...

- We did not provide enough differentiation relatively to similar platforms
- We did not manage to attract users
- The profit margins of the platform turn out to be too low to be a viable product

What are the possible pitfalls

- We overcomplicate the platform
- The scope is too big for us to complete it

2 Analysis

As a group our task was to create a software product to work on. Our aim was to find a common interest, so we would all have the same level of enthusiasm about the project. A few hours of brainstorming have led us to decide on a fitness application. The product is an online coaching application. The target audience can be divided into two categories: coaches and trainees. The application would function similar to LinkedIn where the coaches would have to create a portfolio in order to attract trainees or customers. They can list their degree, training routine, specialties and photos. The trainees would decide based on this portfolio page to contact the coaches. This product is different from other applications as it offers an opportunity to receive 1 on 1 training for a below market price. Moreover, the coaches would have time to focus on their clients closely as they would be able to take on only a few customers at the same time. We created this product to people who want to improve their health by exercising while staying in their budget. The target audience is wide as the coaches can have various background and take on trainees with different goals and needs. Starting from people who want to gain weight or lose weight all the way to people who want to improve their mobility classifies as our target audience because the coaches who sign up provide the application with variety. The opportunity of the product is the cost efficiency. Personal training has become an expensive service. The goal of this application is to have affordable coaches. While personal trainers only check in with you when you are training together, the coaches in our application can be available for your need at any time of the day and help you out with nutritional

questions as well.

2.1 User Journey Maps

In order to make sure that our application is easy to use we had to create user journey maps. When we created the app, we realized that our user can be divided into two groups, coaches and trainees. The two types of user are closely connected and when one of them does an action it will have an effect on the other user. The user journey maps are presented in the picture below.

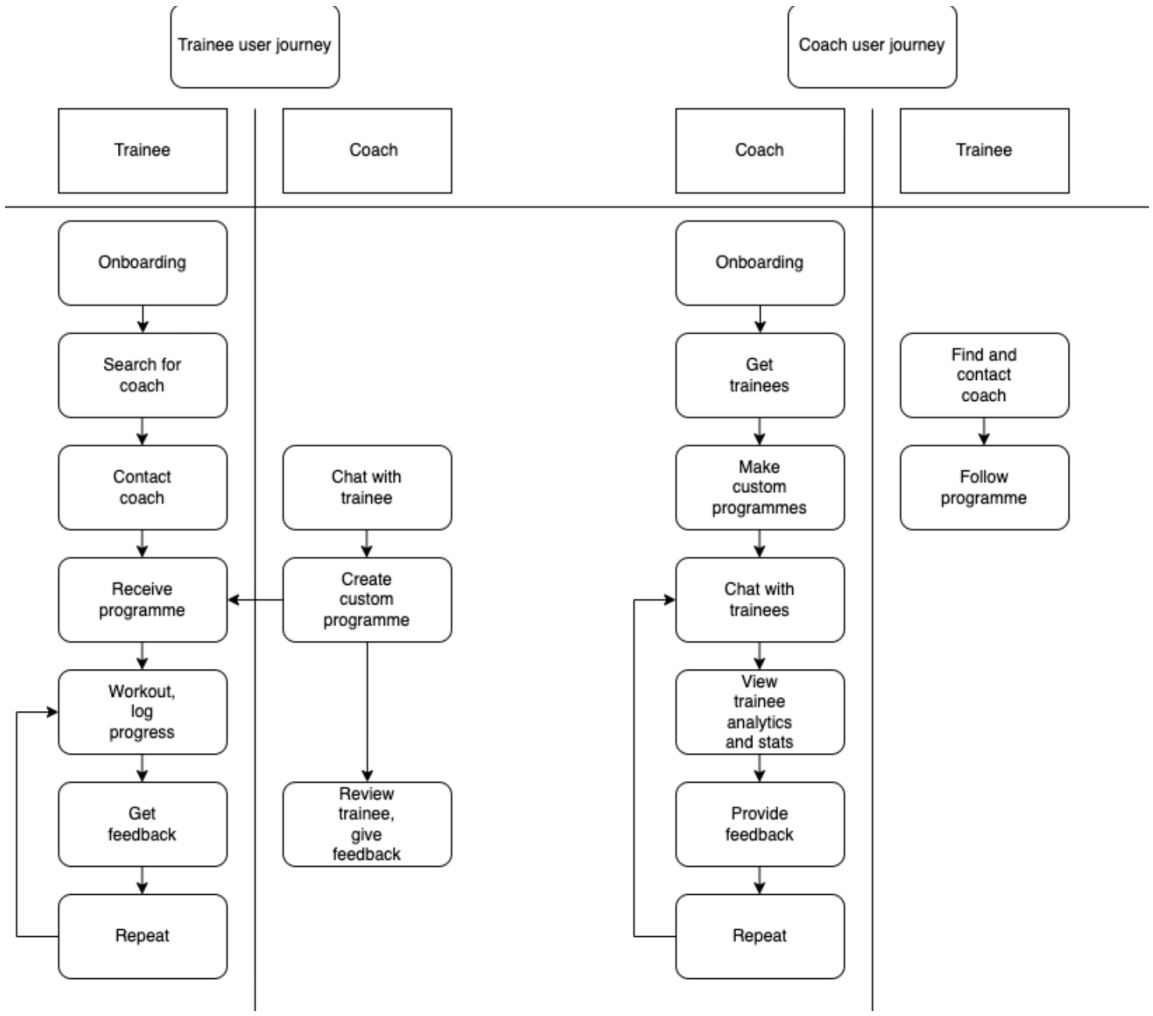

Figure 1: User Journey Maps

2.2 Personas

We had to create personas to make sure people with different goals and backgrounds could benefit from using our application. Diversity was our main goal while coming up with the personas. They were created using the software called Miro where each

persona has their own brief description, skills, main goals, personality, interest, gains and pains listed. We have created 5 personas in total.

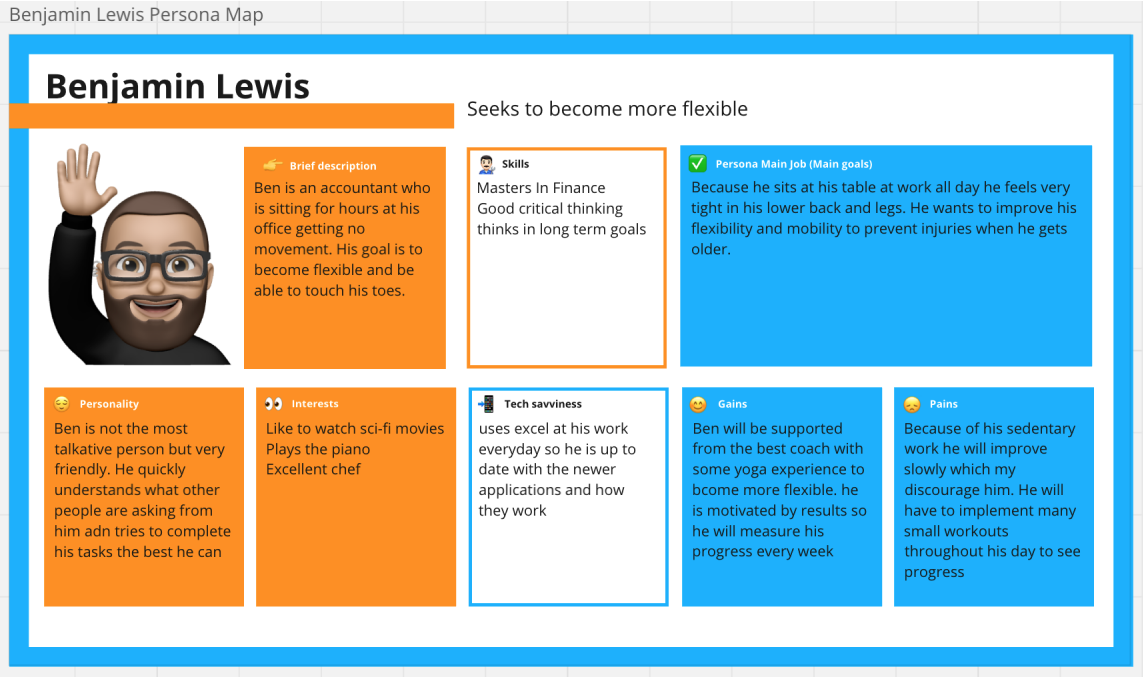

Figure 2: Benjamin Lewis

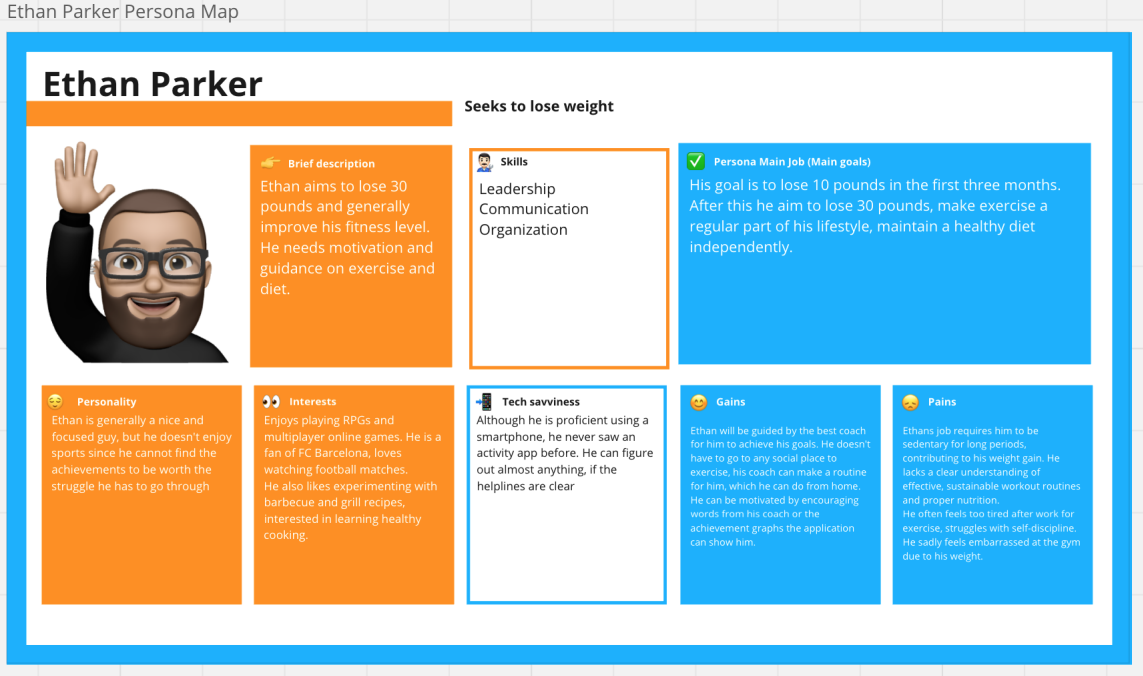

Figure 3: Ethan Parker

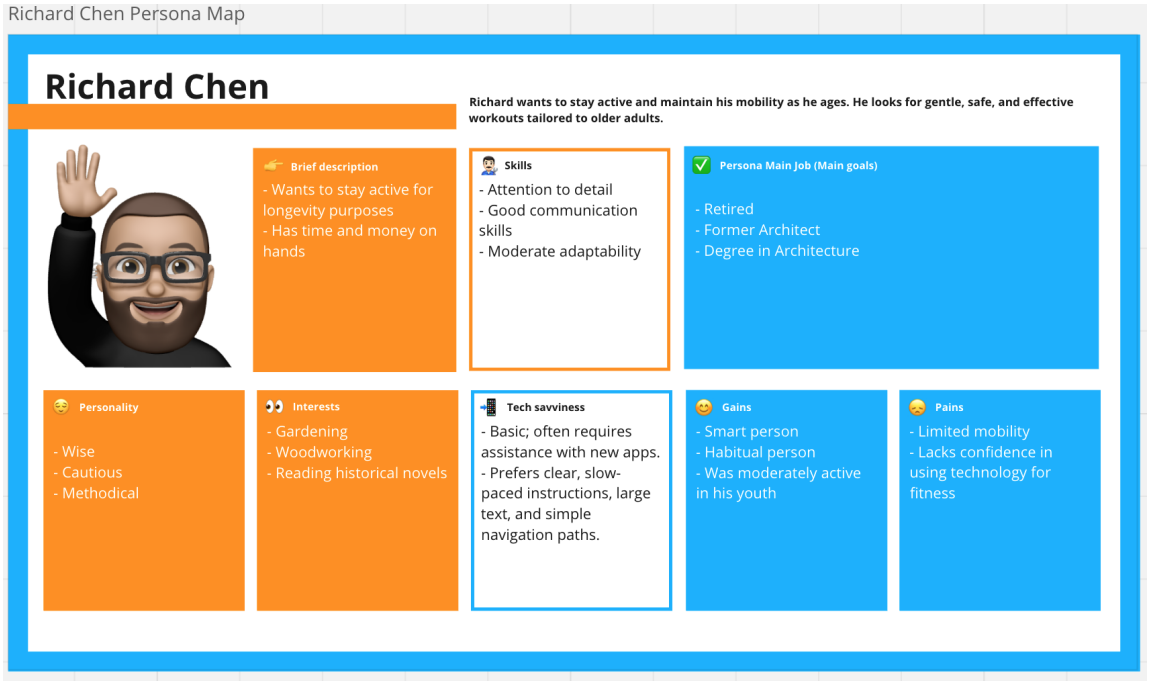

Figure 4: Richard Chen

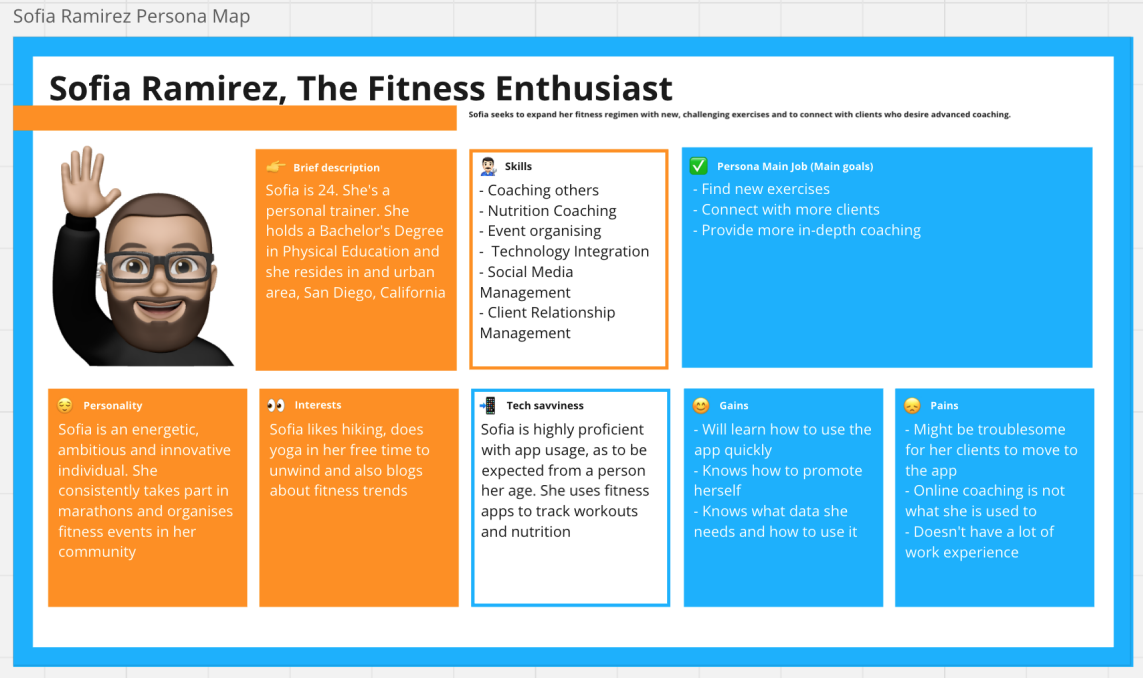

Figure 5: Sofia Ramirez

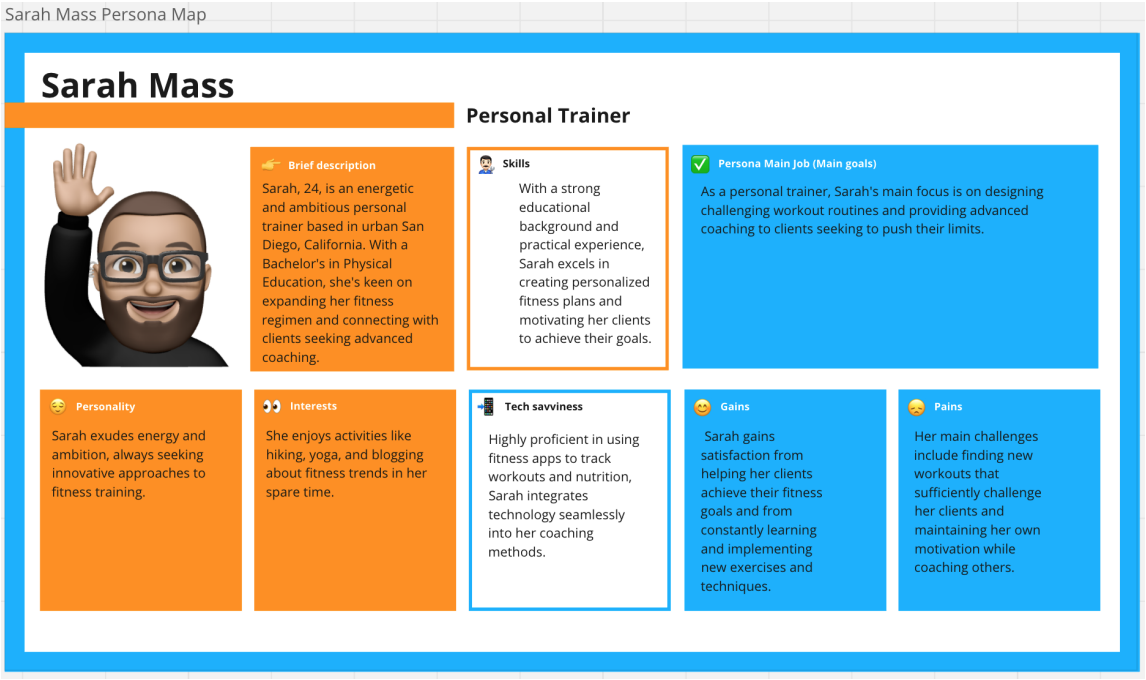

Figure 6: Sarah Mass

2.3 Functional and non-functional requirements

Functional requirements define the specific behaviours of a system. These requirements describe what the system should do in order to meet the user's needs. Our application includes user authentication. There is a separate one for coaches and trainees but the system behind it is the same. In the application we have to include a payment processor as the coaches will likely provide subscription-based coaching. Through this system we will enable users to place, track and cancel orders. When creating a profile, we need to store the personal information in a database which can be updated by the user in the setting part of the application. In the applica-

tion the trainees can search for preferred coaches therefore, the system allows users to search for coaches by various criteria, such as name, category and price range. Non-functional requirements specify the quality attributes of a system. These requirements describe how the system performs certain functions such as usability, performance, reliability and security. The system should be user-friendly, allowing new users to find what they require in the app without extensive explanation. The system should also be able to handle several simultaneous users without performance issues while being available most of the time, even during software updates. The application has to be well encrypted to protect user data.

3 Methodology

For the development of our Coach Freelancing Platform, we wanted to choose the software development process that would suit the needs and time constraints of this project. To achieve this, we dedicated an entire meeting to discuss each process we have learned about and list their pros and cons and arrived at the conclusion that we wanted to adopt an agile methodology, since they are the best suited for Software Development. Agile utilize iterative and incremental development. It promotes flexible responses to change and aims to deliver working software frequently, with a preference for shorter time cycles. In software development requirements can change rapidly. Agile is particularly effective, because the project's direction can be changed quickly, but it requires a high level of coordination and communication among team members. During our Software Engineering lectures we learned about many methodologies, here we will go through the most notable ones and argue why we chose to work with the agile framework: Scrum.

3.1 Waterfall Model:

This model is one of the earliest methodologies in engineering, it was and still is really popular outside of Software Engineering. It is based on linear sequential flow, meaning that any phase in the development process begins only after the previous one has been completed. The model is simple and easy to understand and use, which makes it suitable for projects with well-defined requirements that are unlikely to change, because after the report is done, and the project is planned out ahead,

we would have to work according to that plan, even if user-requirements have not been correctly anticipated or have changed. The changing requirements typical in Software Development made this methodology unsuitable for us.

3.2 Spiral Model:

The Spiral model combines iterative development with the systematic aspects of the Waterfall model. It allows for incremental refinements through each iteration or spiral. Each spiral starts with a set of goals and ends with the client reviewing the progress, which helps in early detection and reduction of risks. This model is particularly useful for large, complex, and high-risk projects. However, it can be more costly than other methods due to the ongoing evaluation and risk analysis and additionally, the model's complexity necessitates strict adherence to protocols and increased documentation.

3.3 V-Model:

The V-Model, or Validation and Verification model, provides a more structured approach which entails a lengthier planning period analogous to the waterfall method of software development. The planning of it must be very reliable as all the successive development phases almost exclusively rely on the previous planning phase. This model is often used in safety critical systems, because is useful for catching defects in early stages, which makes it cheaper and less time-consuming to fix them compared to later in the development process. Given the importance of the ahead of time planning the framework results to be quite inflexible and doesn't take into consideration the

possible changing of requirements during the development of the project.

3.4 Unified Process

This methodology is structured, iterative, and incremental and it emphasizes risk assessment, architecture, and continuous stakeholder involvement. It achieves these through distinct phases(Inception, Elaboration, Construction, Transition) and iterations which are, unlike Scrum, different length timeboxes, and not emphasized the same. Its values include adaptability, quality focus, and comprehensive documentation. While the Unified Process is suitable for complex, large-scale projects due to its detailed planning and risk mitigation, it can be expensive and complex, making it less agile and flexible compared to Scrum.

3.5 Agile

We already mentioned why we choose the agile methodology, now we had to choose a framework that utilizes it. We learned about many frameworks, a few of those were frameworks for large scale projects, which we aren't going to go in depth about here, since the magnitude of this project doesn't require it. We learned in depth about XP and Scrum. Since both of these are mostly similar, here we are going to mention a few key features and then argue why scrum is the more suitable for our project.

- Extreme Programming

  Extreme programming focuses on customer satisfaction and responding to changing customer requirements through practices like pair programming, test-driven development, and continuous integration. It also encourages frequent

releases in short development cycles to improve productivity and introduce checkpoints for new customer requirements and focuses on simplicity, communication, feedback, and courage among the development team.

- Scrum

  Scrum is built on the Agile Manifesto and the 12 Agile Principles. It uses fixed-length iterations called Sprints, lasting typically 2-4 weeks. The Scrum Team has defined roles: Product Owner, Scrum Master, Development Team. In and around the sprints there are structured events: Sprint Planning, Daily Scrum, Sprint Review, Sprint Retrospective. Scrum helps teams deliver value incrementally in a collaborative way. It has the artifacts Product Backlog, Sprint Backlog and Increment. It is important to maintain a prioritized Product Backlog to manage changing requirements and ensure that the team works on the most valuable tasks.

We chose scrum, because it is ideal for a small software startup as it fosters rapid development and adaptation to changing market demands. Scrum's lightweight framework is easy to understand and implement, allowing our team to stay focused, aligned, and responsive to our customers' feedback and business priorities. It promotes team collaboration and self-organization, and ensures regular delivery of valuable software increments, which values are important to almost all Software Developments.

3.6 Epics and User Stories

As part of Scrum we set up a Backlog in Atlassian's Jira webapplication. With the help of writing User Stories we pieced together Epics, which we are going to list below, and through those we identified issues and tasks, which all have been added to the backlog and can in the case of actuall production be put in different Sprints.

Epics:

- Transition / Stripe integration
  - Receive Payment
  - Pay for Coaching
  - Take a Cut From Payments
  - Change Payment Information
  - Change Billing Infromation
- Explore Page
  - Find Coach Through Explore Page
  - Filter Coaches
  - Get Found
  - Control How to Appear on The Explore Page
  - Get Notified if Coachin Spot is Freed
- Chat

  - Chatting with Coach
  - Send and Receive Attachments
  - Chatting with Trainee
  - Seeing Trainee Details in a Sidebar
  - Selecting Different Trainees to Chat to
- Calling / Video-Calling
  - Have Call between Coach and Trainee
  - Have Videocall between Coach and Trainee
- User Statistics
  - See Personal Statistics
  - See Statistics of Specific Trainee
  - See Average Statistics of All Trainees
  - Update / Log a Specific Metric
  - See Workout Specific Statistics
  - See Statistics for Selected Time Period
- Workout Builder
  - Create a New Workout
  - Seva a Workout Template
  - Use a Workout Template

- Pescribe a Workout
- Search for a Saved Workout
- Edit a Saved Workout

4 Timeplan

4.1 Time Management Towards the Deadline

After the project kick-off at the beginning of February, the team intends on spending the entire month in the planning phase. We think this is the right decision as it will allow us to carefully examine each aspect of our project, from the business standpoint, the requirements and component structure to the security, release planning and post-launch maintenance. Such a time window will allow us to carry out a design sprint, as well as prepare the following items before we can start the development stage:

- Figma Prototype
- UML Component Diagram
- UML Context Diagram
- Excel Spreadsheet with Project Requirements, Time Estimations and MoSCoW Prioritization
- UML Data Model Diagram
- UML Class Diagram
- Business Model, along with Personas and Value Proposition Canvases
- UML Use Case Diagrams
- UML Sequence Diagrams

- UML State Machine Diagrams

Once the initial documentation phase is finished, the team will move onto the development phase which will last until the beginning of May and result in the delivery of an MVP for LinkedGym. Next, the team will spend the rest of May adding more features and polishing the product to be ready for the realease of the MMP at the beginning of June. At this point, the team will continue on adding features that have been prioritized as "Could", implementing user feedback and fixing any bugs that will pop up, but the project will move into the final, maintenance phase. By reaching the final phase of the project, the Agile process will also be downscaled, which is described in the subsection *insert link to later subsection*.

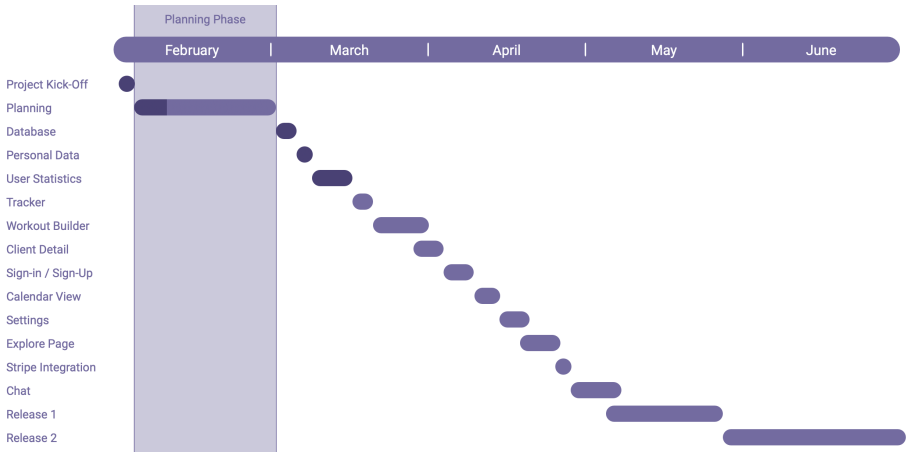

Figure 7: Timeplan Gantt Chart

5 Business Model

By analyzing industry trends and identifying opportunities we plan to tailor our business model. This tailored approach aims to not only effectively reach our target audience but also strategically position our offerings amidst competitors. Based on personal experience and the today's world full of digital content and enormous social media influence, we came to the conclusion that there would not be better way to attract customers than doing so digitally.

Our Coaching Freelancing Platform aims to solve a key problem that the majority of the fitness enthusiasts and health instructors have to face when it comes to online coaching – the absence of communication, the lack of easy-access workouts and direct contact with your trainer and the difficulty of effortlessly finding trainees. Our product provides digital environment where both coaches and trainees benefit from each other. Trainers can create their own profile listing their expertise, awards and pictures, diplomas and certificates, years of experience, area of training, result of previous clients and their feedback. If they already have a greater number of followers, it be extremely easy for them to find clients through the platform. If not, they can promote themselves and rise above other of their colleagues. Additionally, building clients' workouts won't be so time consuming and demanding for them as we provide a workout builder with variety of exercise to choose from, set reps and sets and place it in a monthly calendar. Fitness enthusiasts on the other hand will have the easiest way to find someone to help them achieve their health goals. With the ability to filter area of training, years of experience, testimonies, picture-based result,

etc., their decision will be trouble-free. Furthermore, we have solved the inability to communicate with your online coach by providing private one-on-one chatting channels between the trainee and the trainer. In those channels, both sides will be provided with statistics of the progress of the customer.

Our business plan include multiple revenue sources to support. Our primary source of income will come from transactional commissions, where we take a percentage from each coaching transaction made through our platform. Additionally, we will explore revenue streams by letting different sporting brands to promotes their products on our application. Moreover, leveraging a comprehensive database featuring user preferences, gym performance metrics, sleep and dietary habits, as well as body measurements, stands as a pivotal asset.

Having said the wide scope of our web-application, we will have a lot of research and development expenses, programmers' wages. Additionally, a budget for marketing and advertising fees has to be allocated as well.

We are going to have retail partnership with sports well-known brands who have big influence over the health community. Trainers will have easy access to their accounts through a web-site whereas trainees will be able to download the application from the App Store and Google Play Store.

The key task our team needs to face is the development and deployment of the Coach Freelancing Platform. This includes various stages, including planning, software design and architecture, coding and programming, testing and quality assurance, user interface and experience design, as well as implementation and ongoing maintenance. Additionally, our team will focus on providing continuous support to

ensure the platform operates smoothly, addressing any technical issues promptly, and incorporating user feedback to enhance the overall user experience.

Two essential resources critical to building and operating our software are a robust database infrastructure and the intellectual property associated with our application. A well-structured database is fundamental for storing and managing user data, coach profiles, workout routines, and other essential information efficiently. Furthermore, safeguarding the intellectual property rights to our application ensures that our innovative features and functionalities are protected, preventing unauthorized use or replication by competitors.

Two strategic partnerships crucial to our business model are with payment processing platform Stripe and handling transactions efficiently. Integrating with Stripe enables seamless and secure payment transactions on our platform, enhancing user trust and facilitating monetization through commissions. Additionally, partnering with transaction handling services ensures reliable and efficient processing of coaching session payments, reducing friction for users and coaches alike while streamlining our revenue generation process. These partnerships play a vital role in optimizing the financial operations of our Coaching Freelancing Platform and enhancing the overall user experience.

Health and fitness is an industry that is extremely dynamic and develops faster than ever. Therefor agility and adaptability are very important for our business model. By closely monitoring market trends, technological advancements, and user feedback enables us to quickly adapt and improve our platform, adding new features, improving user experience, as well as staying ahead of the competition. Our agile

way of working guarantees that Coaching Freelancing Platform adapts to diversifying customer tendencies as well as changing the market situation, thus, ensuring the project's success in the long-term perspective.

6 Design

6.1 How Are You Going to Build It?

For the development of LinkedGym, we embraced a user-centric approach, focusing on how and who the product will benefit. This strategy involved several stages to ensure we understood the exact needs of the user and integrated these insights into our design. To build LinkedGym, we adopted the Agile methodology, with a particular focus on the Scrum framework. Agile's iterative and incremental development process is ideal for our project, allowing us to adapt swiftly to changing requirements and deliver value consistently. Here's an overview of our initial phase and the development process:

1. **Identifying User Needs and Benefits:** We started with establishing who the major users of LinkedGym would be—fitness coaches and trainees. Our goal was to provide a unified solution which aims to provide improved solutions for the coaching services, as well as to ensure smooth training process of the trainees.

2. **Brainstorming and Concept Development:** Using brainstorming techniques like Crazy 8s, we generated a wide array of ideas. We then combined the best concepts to create user stories and personas, which helped us visualize our target users and their needs.

3. **User Journey Mapping and Testing:** We evolved these insights into detailed user journey maps and performed user testing sessions to gather feedback.

This process ensured that our design effectively addressed user pain points and preferences.

4. **Prototyping:** We divided the application into two parts for optimal convenience: a web app for coaches and a mobile app for trainees. Using Figma, we developed prototypes and performed multiple rounds of user testing, refining the prototypes based on the feedback received.

6.2 Architecture

We planned LinkedGym's architecture to support scalability, flexibility, and a seamless user experience across both the web and mobile platforms. The key components of our architecture include:

6.2.1 Frontend:

- **Web Application:** Would be developed using modern web technologies such as React or Angular, ensuring a responsive and interactive interface for coaches.
- **Mobile Application:** Built using Flutter or React Native would deliver a consistent user experience on both iOS and Android for trainees.

6.2.2 Backend:

- **Firebase Integration:** We chose to utilize Firebase for its comprehensive suite of tools, including Realtime Database, Cloud Firestore, Authentication,

Cloud Functions, and Hosting, to streamline development and ensure high performance.

- **APIs:** Implementing RESTful APIs to facilitate efficient communication between the frontend and backend components, ensuring modularity and ease of maintenance.
- **Security:** Employing Firebase Authentication to provide secure and seamless user login and registration processes, safeguarding user data and privacy.

6.3 Sketches, Storyboard, Wireframes/Prototype

Our design process involved creating detailed sketches, storyboards, wireframes, and prototypes to visualize and iterate on the user experience. Key design elements included:

6.3.1 User Personas and Stories

Detailed personas and user stories helped us understand our target audience and their specific needs, guiding our design decisions.

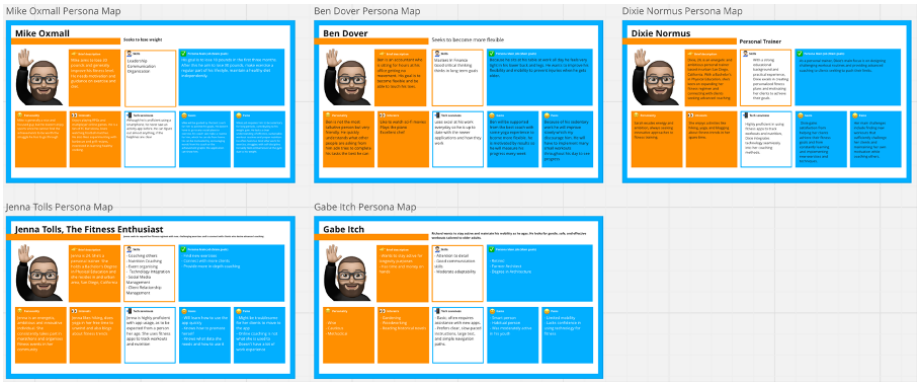

Figure 8: Persons

- **User Personas:** We created personas representing different types of users, including fitness coaches and trainees, to empathize with their goals, behaviors, and pain points.
- **User Stories:** We developed user stories to capture the requirements and expectations of each persona, ensuring that our design addressed real user needs.

6.3.2 User Journey Maps

Mapping the user journey allowed us to identify key interaction points and areas for improvement.

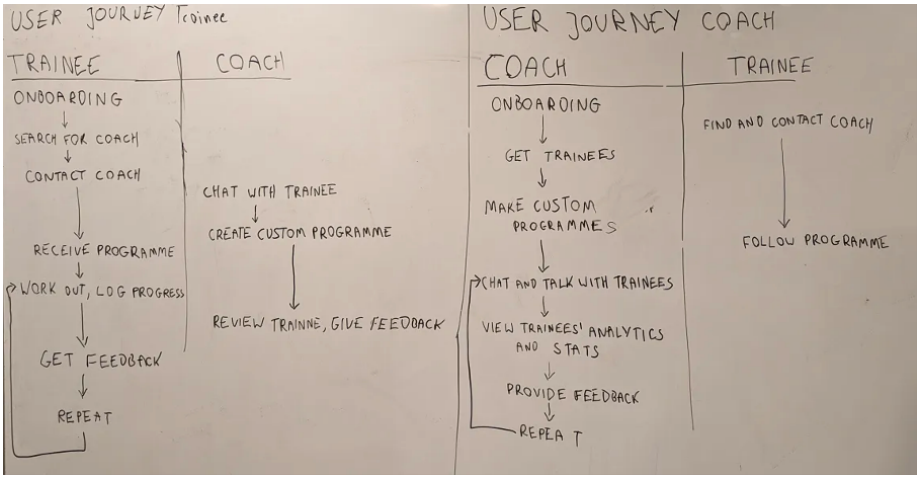

Figure 9: User Jouerney Map

- **Mapping Process:** We visualized the user journey from initial interaction with the app to achieving their fitness goals, identifying touchpoints, emotions, and pain points along the way.
- **Feedback Incorporation:** Through user testing and feedback, we refined the user journey maps to ensure a smooth and intuitive experience for users.

6.3.3 Wireframes and Prototypes

Using Figma, we developed interactive prototypes for both the web and mobile applications. These prototypes were refined based on user testing feedback to ensure an optimal user experience.

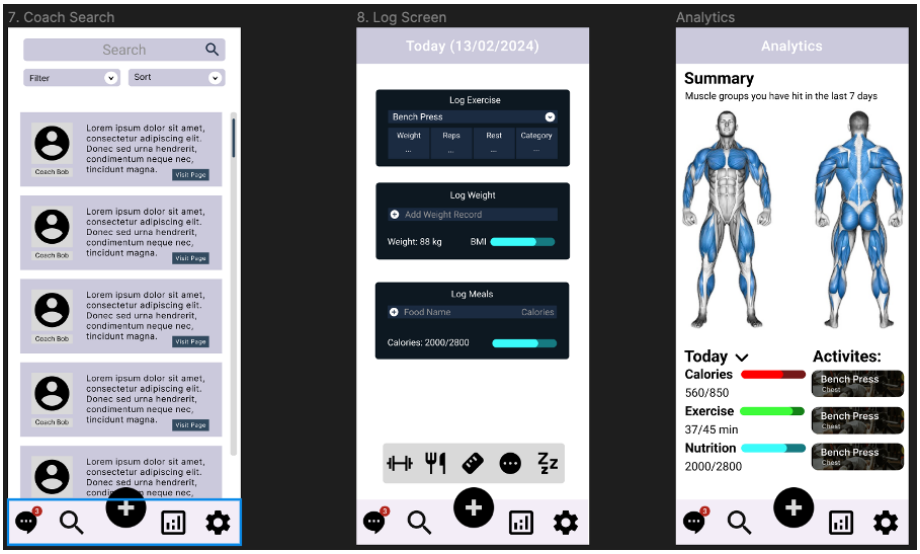

Figure 10: Mobile Application

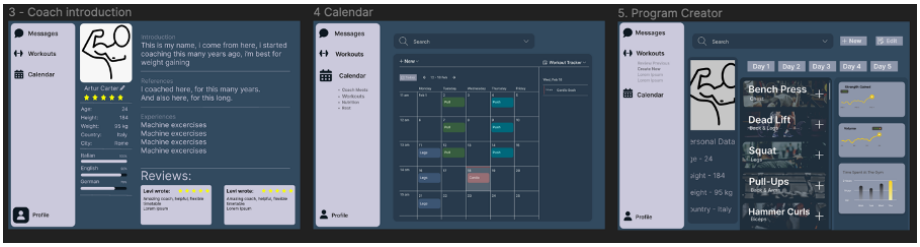

Figure 11: Web Application

- **Wireframes:** We created wireframes to outline the layout and functionality of each screen in the application, focusing on usability and navigation.

- **Prototypes:** Interactive prototypes were developed to simulate user interactions and gather feedback on features such as navigation, content placement, and user flow.

6.3.4 Detailed Design

After finalizing the prototypes, we created UML diagrams, data models, and acceptance criteria. We also developed CRC cards, class diagrams, use case diagrams, sequence diagrams, state machine diagrams, RAID diagrams, and performed MoSCoW and SWOT analyses to ensure a robust and comprehensive design.

- **UML Diagrams:** We used UML diagrams to visualize the structure and behavior of the system, including class diagrams, sequence diagrams, and state machine diagrams.
- **Data Models:** Data models were designed to represent the entities and relationships within the application, ensuring efficient data storage and retrieval.
- **Acceptance Criteria:** Clear acceptance criteria were defined to validate the functionality of the system and ensure that it met the requirements of stakeholders.

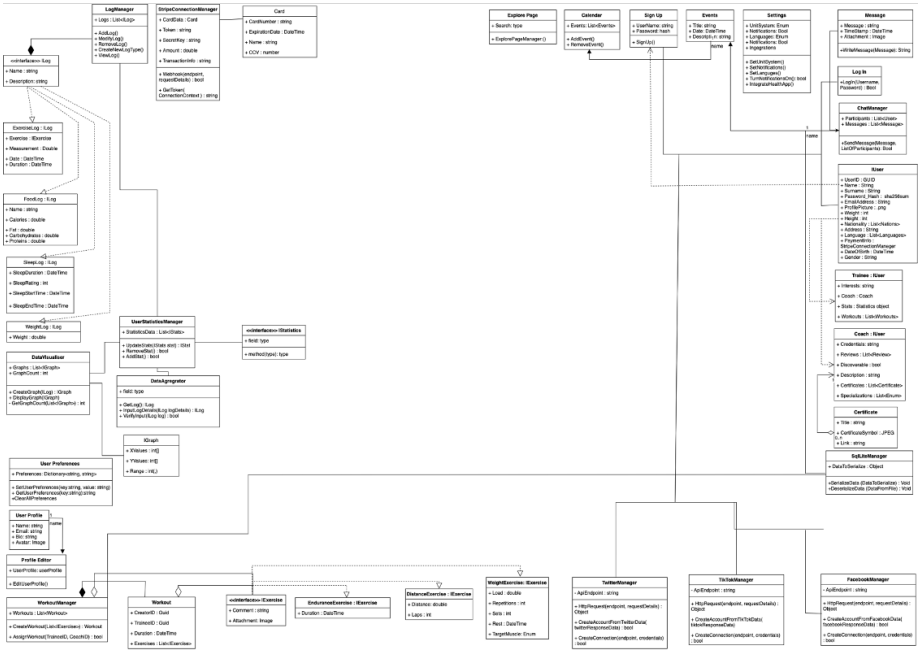

Figure 12: CRC Diagram

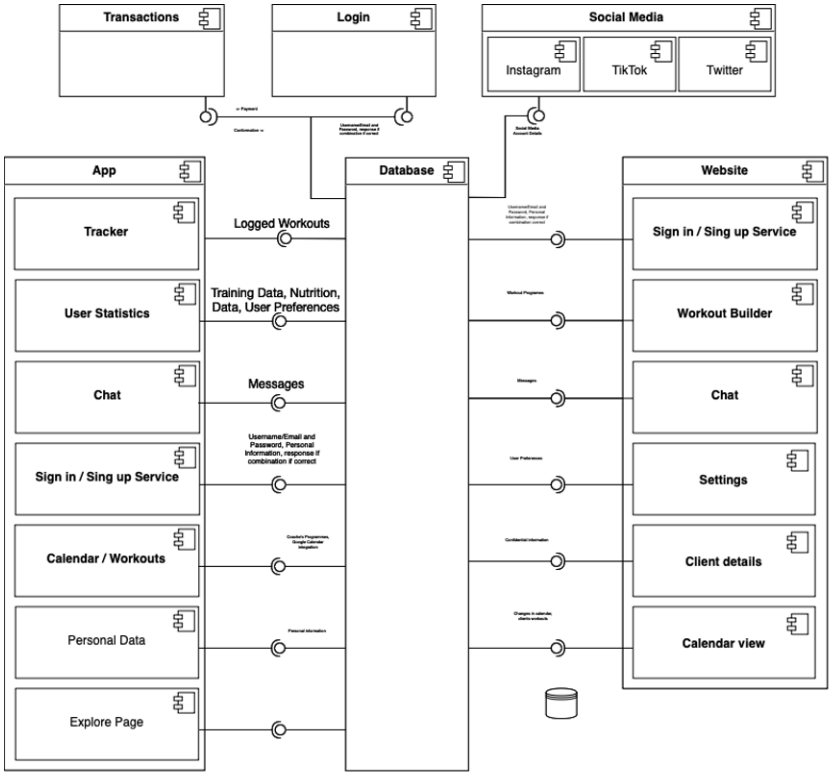

Figure 13: Database Structure

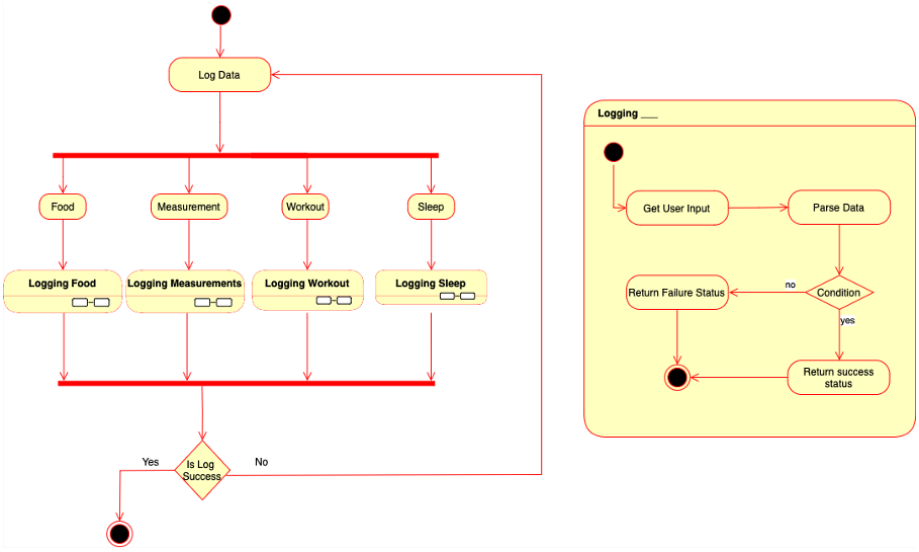

Figure 14: State Machine

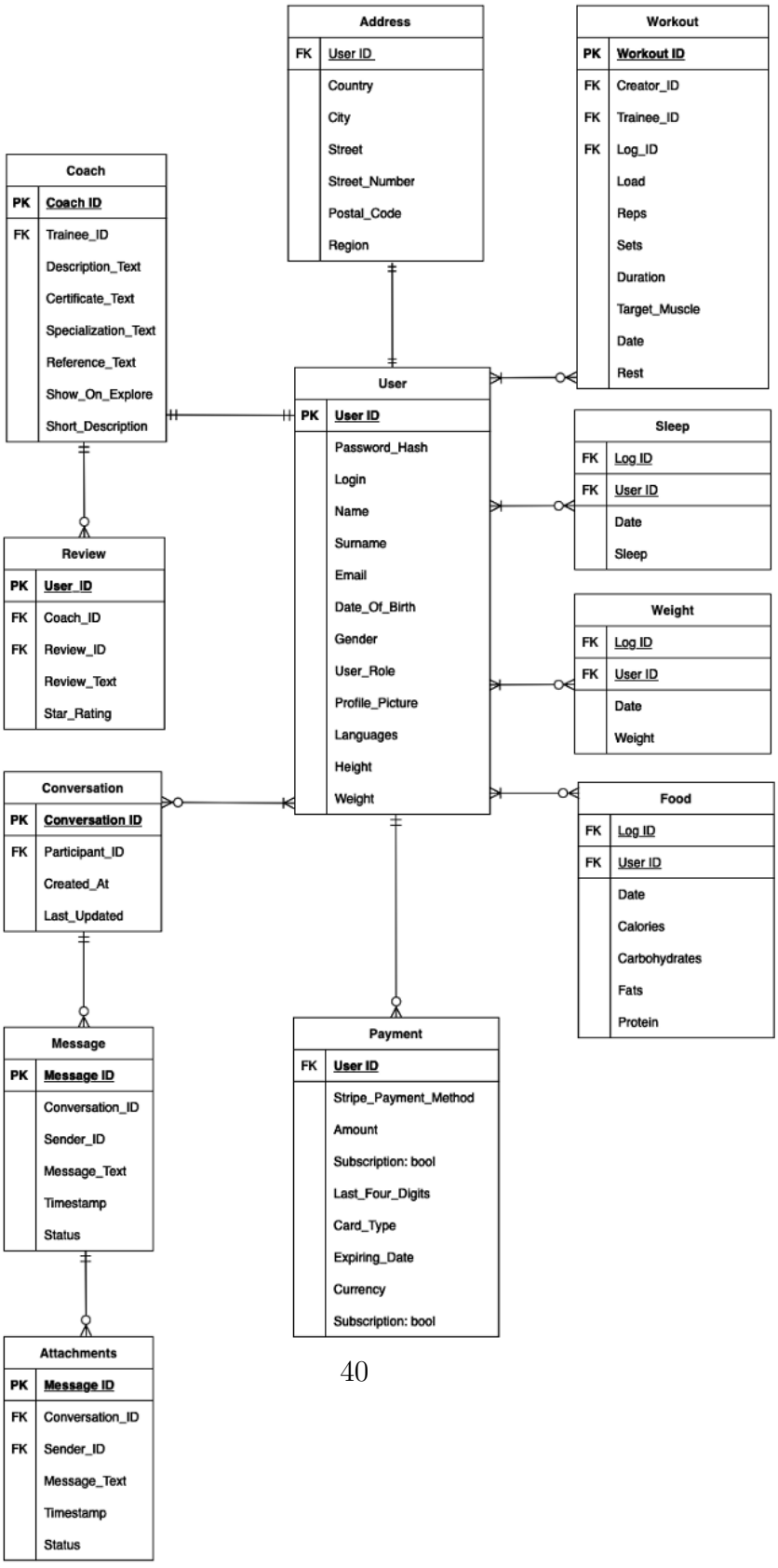

Figure 15: User Data

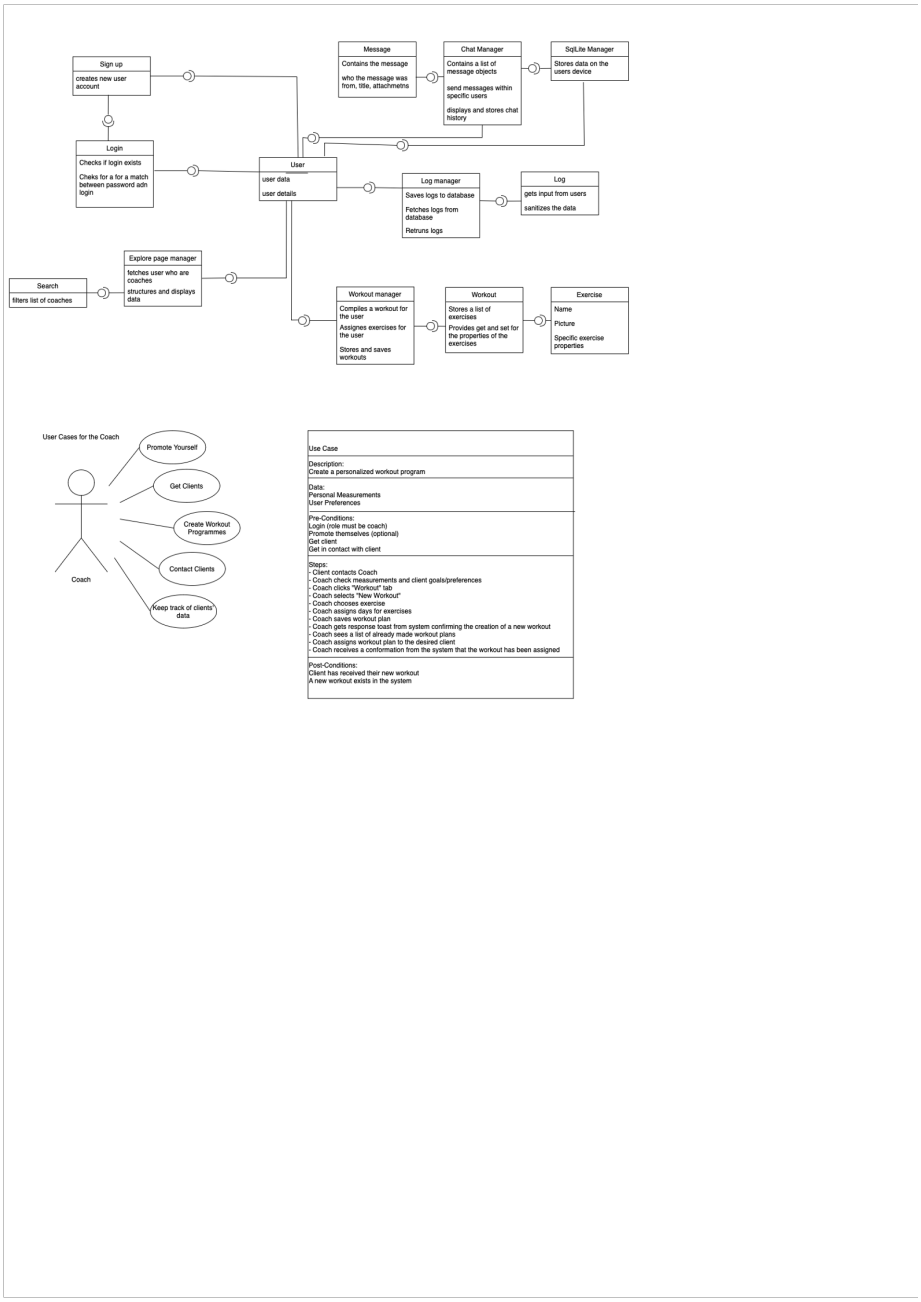

Figure 16: UML Diagram

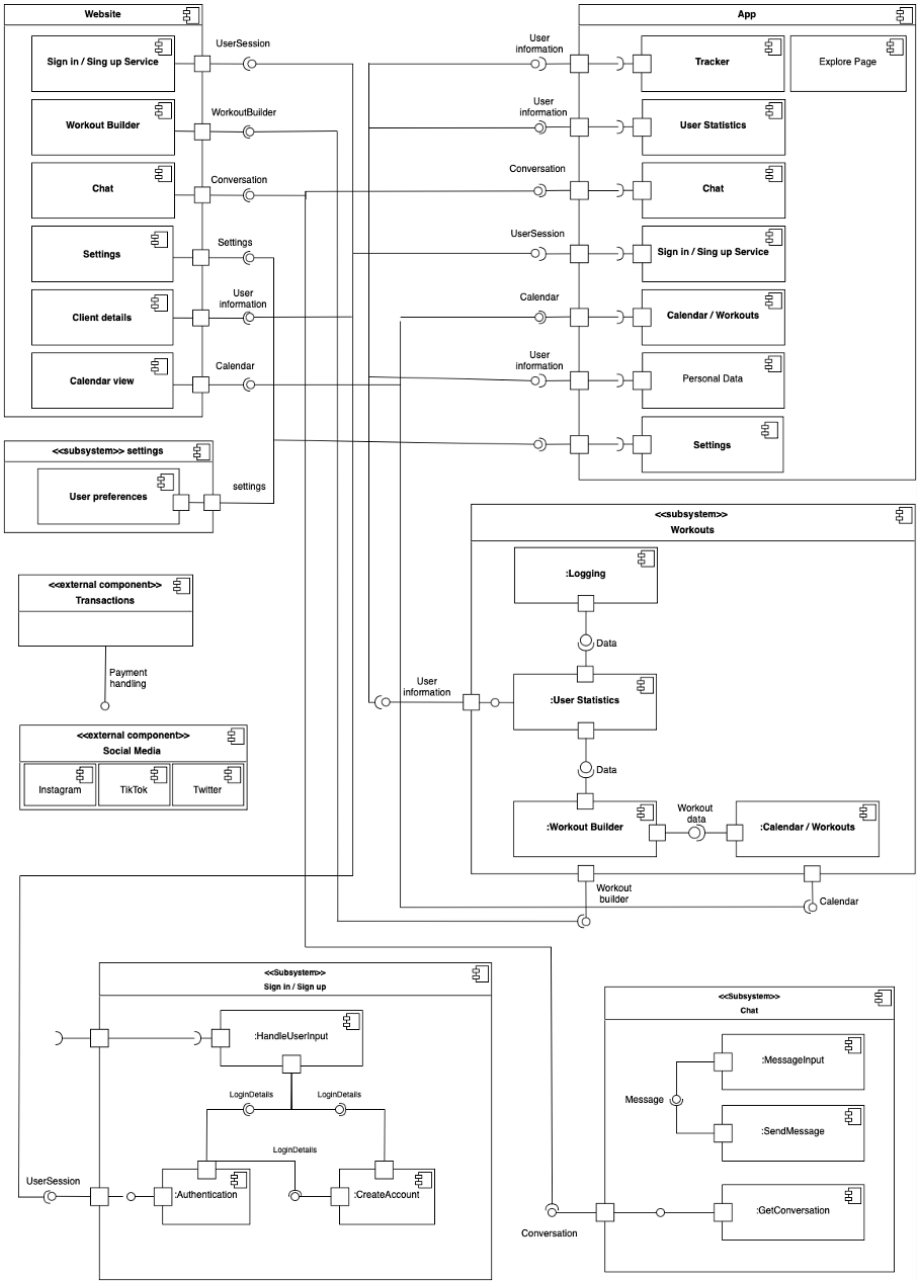

Figure 17: User Cases for Coach

6.4 Maintenance

To ensure LinkedGym's reliability and longevity we also focused on effective maintenance. Our maintenance strategy includes:

- **Continuous Integration/Continuous Deployment (CI/CD):** Implementing CI/CD pipelines to automate testing and deployment, ensuring seamless integration of updates and new features.
- **Monitoring and Logging:** Utilizing Firebase Performance Monitoring and Logging to track application performance, quickly identify issues, and maintain optimal user experience.
- **Regular Updates:** Delivering regular updates to fix bugs, introduce new features, and enhance existing functionalities based on user feedback and evolving market needs.
  - **User Feedback:** Actively collecting and analyzing user feedback to drive continuous improvement and ensure the platform meets user needs and expectations.
  - **Comprehensive Documentation:** Maintaining detailed documentation for developers and users to facilitate smooth onboarding, usage, and troubleshooting.

6.5 Conclusion

The design phase of LinkedGym emphasizes a user-centric approach, agile development practices, and thorough planning. By leveraging a cloud-based architecture, detailed wireframes, and robust maintenance strategies, we aim to deliver a high-quality platform that meets the evolving needs of the fitness coaching industry. Our iterative approach ensures that we remain responsive to changes, deliver value consistently, and create a seamless and engaging user experience.