

MILESTONE 1

Problem analysis

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SNACK & TRACK

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TABLE OF CONTENTS

<i>Snack & Track</i>	1
1. <i>Analysis of relevant literature</i>	3
2. <i>Analysis of competitor products</i>	4
3. <i>Description of user groups</i>	8
4. <i>Context analysis</i>	9
5. <i>User personas</i>	10
6. <i>Task analysis</i>	15
7. <i>Project management aspects</i>	17

1. ANALYSIS OF RELEVANT LITERATURE

1.1. A healthy lifestyle is positively associated with mental health and well-being and core markers of ageing

Hautekiet et al. (2022) [1] showed a direct correlation between healthy lifestyle choices and the occurrence of mental problems. For instance, with every one-point increase in lifestyle score, the probability of psychological stress decreases by 26% and the risk of depression by 43%. This means that even minimal changes in lifestyle will lead to positive changes. That is why informing and engaging the younger generation in this process is important.

[1] Pauline Hautekiet, Nelly D. Saenen, Dries S. Martens, Margot Debay, Johan Van der Heyden, Tim S. Nawrot, and Eva M. De Clercq. 2022. A healthy lifestyle is positively associated with mental health and well-being and core markers in ageing. 7. <https://pubmed.ncbi.nlm.nih.gov/36171556/>

1.2. Fostering Sustainable Nutrition Behavior through Gamification

The study analyzes nutritional behavior and explores gamification as an approach to improve the behavior. It states that nutritional behavior is habitualized and unreflective, which makes gamification an appropriate candidate for changing the behavioral process [2]. This information helps to set a trajectory for implementing routine-based techniques that will systematically improve nutritional behavior.

[2] Berger, V.; Schrader, U. Fostering Sustainable Nutrition Behavior through Gamification. *Sustainability* **2016**, *8*, 67. <https://doi.org/10.3390/su8010067>

1.3. Technology-Enabled Interventions for Sustaining Behaviour Change in Adolescents: A Scoping Review for Research Gaps

Chin and Chow (2023) reviewed 22 technology-based interventions to support healthy behaviors in adolescents. The most common strategies to achieve excellent outcomes were gamification and social support [3]. Nevertheless, gamification was firmly recommended to be applied thoughtfully and in the correct circumstances. Concerning social support, the authors also mentioned a project similar to Snack & Track. “For example, Saksono et al. [110] developed a fitness app targeted to families, as opposed to an isolated person”. [3]

[3] Grace H.Y. Chin and Kenny K.N. Chow. 2023. Technology-Enabled Interventions for Sustaining Behaviour Change in Adolescents: A Scoping Review for Research Gaps. Proc. ACM Hum.-Comput. Interact. 7, CSCW2, Article 362 (October 2023), 30 pages. <https://doi.org/10.1145/3610211>

1.4. Gamification in Public Health: The Dark, Bright and Grey Side

Buchberger (2025) examines gamification in public health, highlighting both benefits and potential risks. While rewards, leaderboards, and progress tracking enhance motivation, concerns include excessive self-monitoring, pressure, and privacy risks associated with data collection. For our project, this underscores the need to balance engagement with ethical design, ensuring motivation without stress and prioritizing data privacy for a sustainable, user-friendly app.

[4] Buchberger, B. (2025). Gamification in Public Health: The Dark, Bright and Grey Side. In: Richter, O., Drewitz, U., Haux, R., Heuser, S., Kacprowski, T., Steil, J. (eds) Zusammenwirken von natürlicher und künstlicher Intelligenz: Beurteilen-Messen-Bewerten. Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-45845-4_10

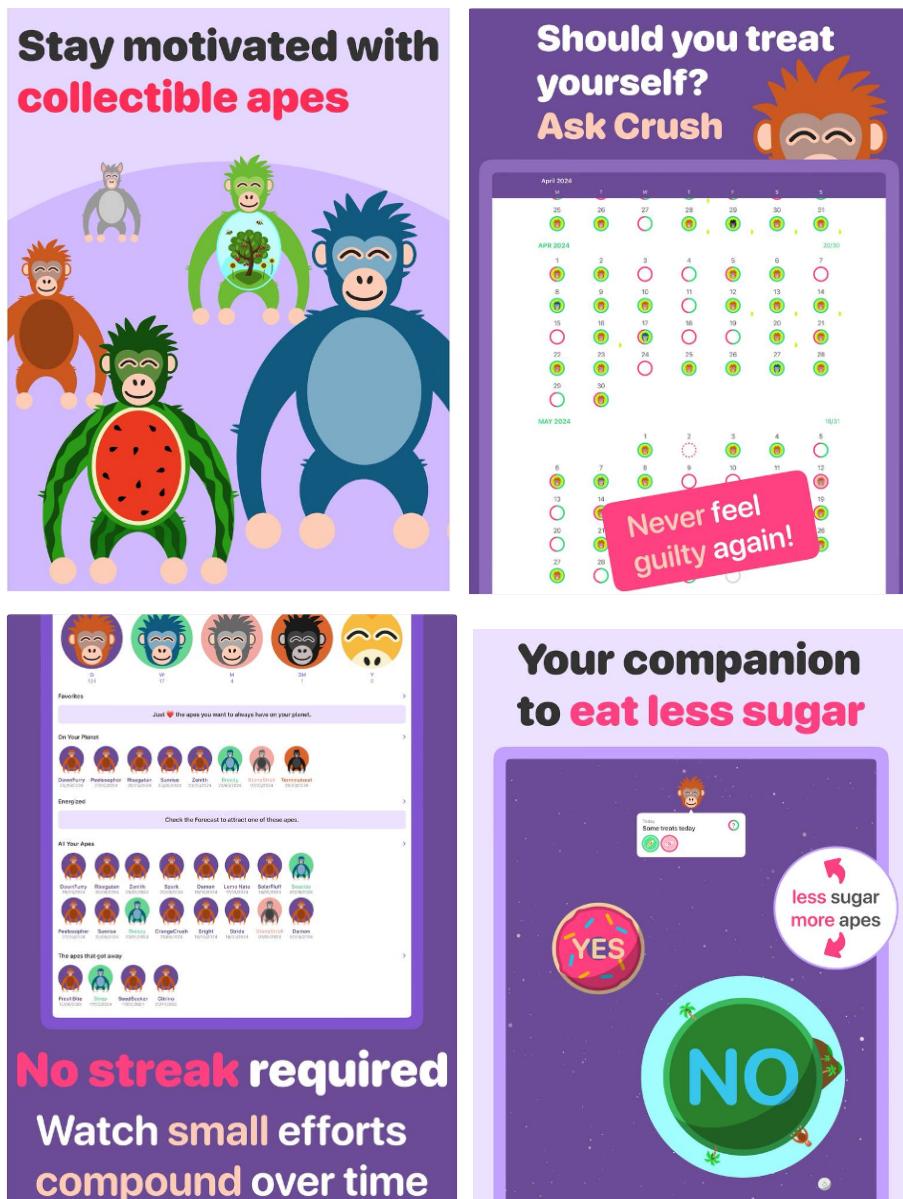
2. ANALYSIS OF COMPETITOR PRODUCTS

2.1. No Treat Today: Track Sugar

The app No Treat Today: Track Sugar motivates people to consume less sugar. It is a great example of gamification, collecting different orangutans to meet the challenge. To track progress easily, there is a calendar that visually displays the proportion of sweet and healthy foods eaten per day. Moreover, the main philosophy of the app is to inspire and reward people, not demoralize them, so there are no strict conditions. Pre-obtained orangutans easily return after breaking the challenge, which avoids the feeling of guilt for failures.

The disadvantage of this app is that it has a very “childish” interface that will not appeal to all users. In addition, there is no function for sharing achievements on request, which would be relevant for a certain group of people.

The system of gamification, philosophy, and progress display is also relevant to the Snack & Track app.



2.2. Yazio

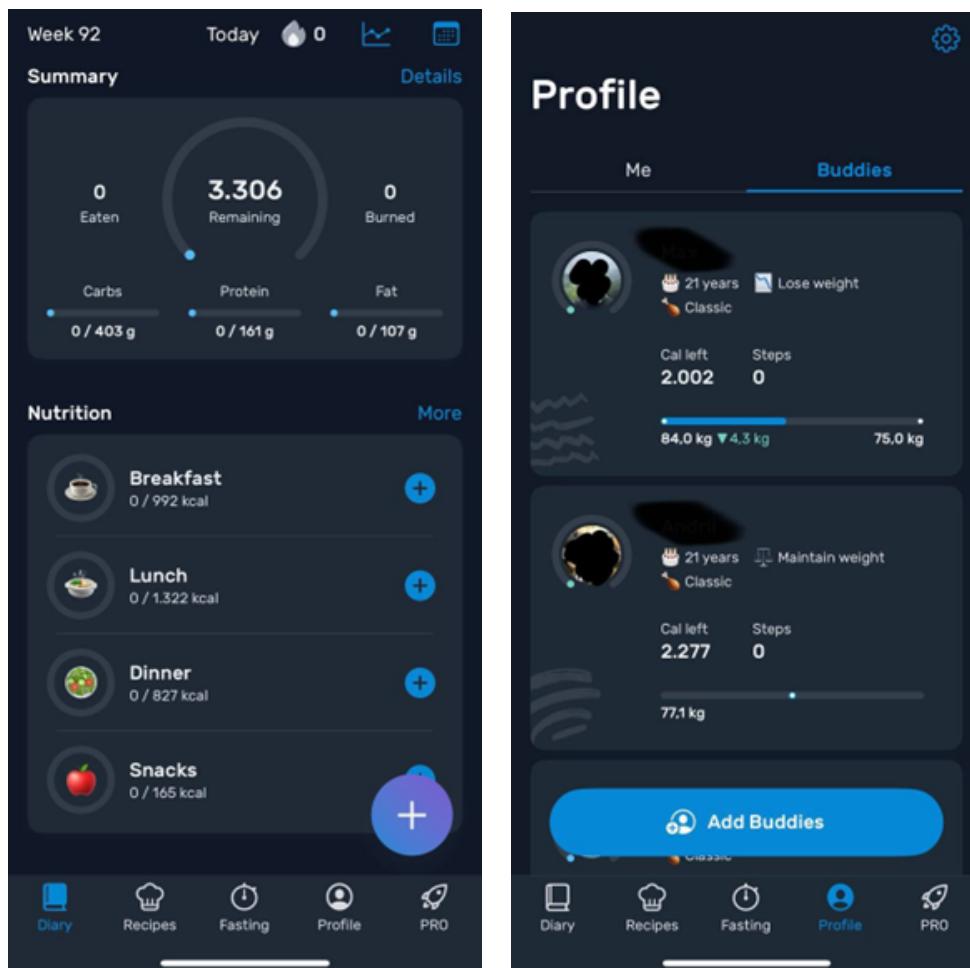
It is a food tracker/calorie counter app that helps users stay informed about their calories and maintain a balanced diet. This is a good example of using gamification to encourage healthier eating habits.

Advantages:

- Goal Setting: At the outset, the app prompts users to set a goal, which emphasizes the reason to track nutrition.
- Gamification: a calendar with win streaks and visualizations of progress keep users motivated and engaged.
- Social networking element: Users can add friends, share their progress, and monitor each other's achievements.
- Barcode scanning: Scanning product barcode automatically adds protein, fat and carbohydrate content, saving time

Disadvantages:

- Scanning barcode inaccuracies: The barcode scanning feature may add incorrect nutrition data
- Time-consuming without scanning barcodes: Users should manually weigh products and add nutrition data if the products are not available in the quick scan.
- Gamification techniques and social network elements are relevant to the Snack & Track app



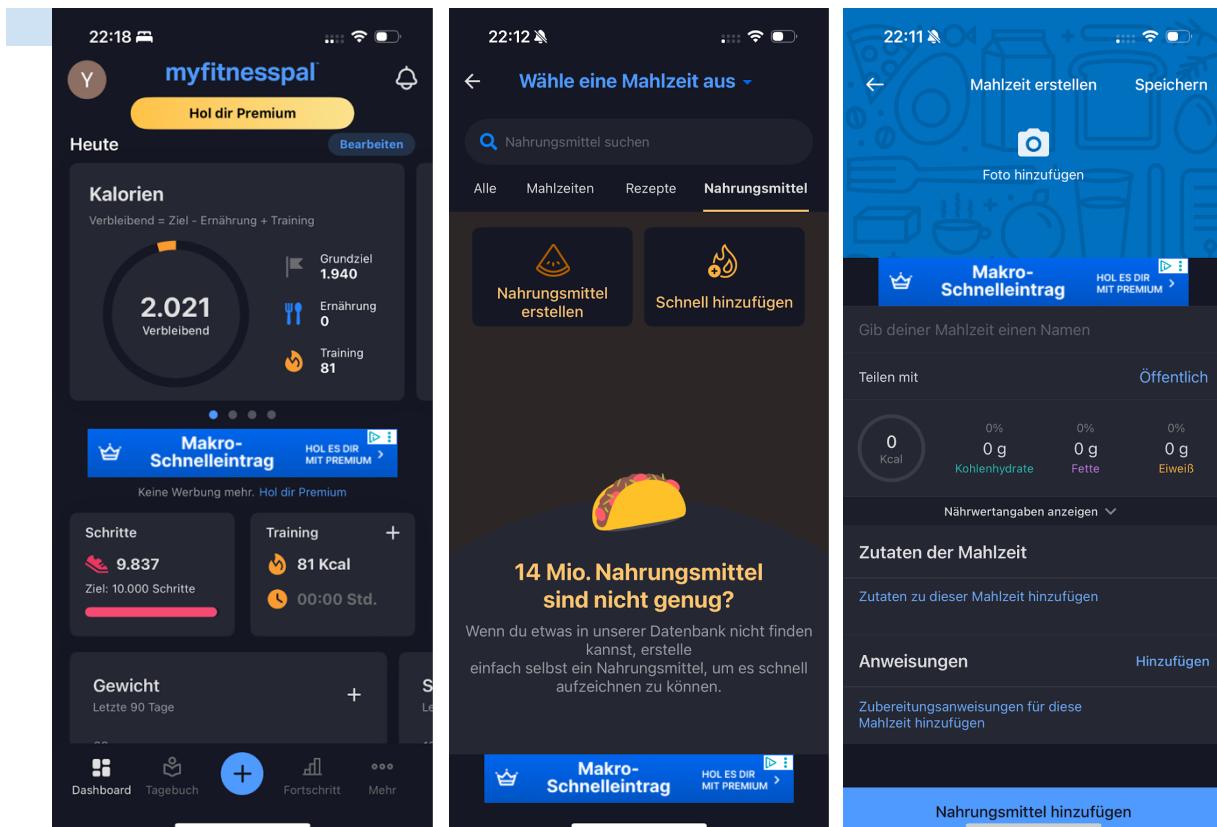
2.3. MyFitnessPal

MyFitnessPal competes with Snack & Track as a platform for nutrition support and improving fitness. Unlike MyFitnessPal, Snack & Track is explicitly designed for students, focusing more on motivation, gamification, and community support.

The program offers a list of trackers: steps, calories, workouts, weight, and water. This wide variety is an excellent advantage for ensuring the multi-functionality of MyFitnessPal. The methods of collecting user nutrition data are divided into three categories: daily meals (breakfast/lunch/dinner/snack), recipes, and products to satisfy the user's preferences. Thus, MyFitnessPal provides easy system adaptability for different levels—from beginners to advanced users.

Regarding usability, a noticeable disadvantage of MyFitnessPal is the interface overload, which confuses and distracts the user. For example, the user can find their step number twice in the toolbar folder Dashboard and the exceptionally crafted folder Progress. This irrational usage of space drags MyFitnessPal's interface down. Despite the pleasant colors and aesthetic images, the application lacks natural flow and interactivity, so documenting your activities becomes boring and monotonous. In addition, MyFitnessPal does not motivate the user to improve but serves exclusively as notes.

Limited access to MyFitnessPal's features hampers its usefulness for users interested in proper nutrition. Conventional calorie counting is not relevant and appropriate without a clear understanding of the number of macros consumed; unfortunately, the latter is available only in the paid version. Since one of the goals of Snack & Track is primarily to promote proper nutrition for our users, high-quality and complete nutrition analysis is the basis of our app.



2.4. Nike Training Club

Nike Training Club (NTC) is a fitness-focused app that helps users achieve their workout goals through structured exercise programs, video tutorials, and expert-led training plans. The app offers a variety of workouts, from strength training and yoga to endurance exercises, making it a versatile tool for fitness enthusiasts.

NTC competes with Snack & Track in the area of fitness motivation and workout tracking. Users can select from beginner-friendly exercises to high-intensity training sessions, making them appealing to a broad audience. Unlike Snack & Track, which integrates both fitness and nutrition tracking, NTC primarily lacks a dedicated nutrition component. However, it excels in delivering high-quality instructional content through professional trainers and well-structured programs.

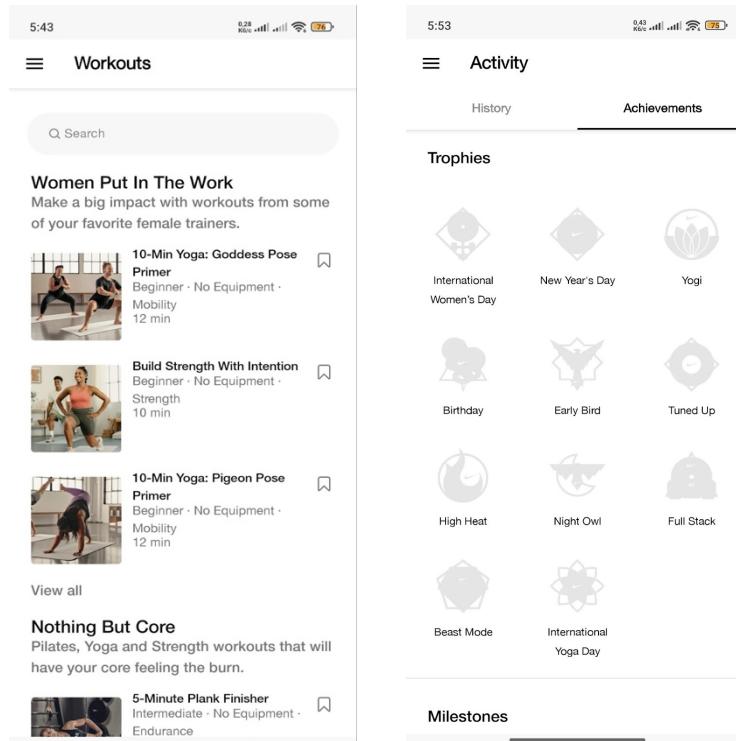
Strengths:

- Diverse Workout Plans – Includes strength training, yoga, mobility exercises, and cardio, offering variety.
- No Subscription Required for Most Features – Unlike many fitness apps, NTC provides a wealth of content for free.
- Integration with Fitness Devices – Works with Apple Health and Google Fit for seamless tracking.

Weaknesses:

- Limited Social Engagement – Unlike [Strava](#) or other community-driven fitness apps, Nike Training Club lacks interactive challenges, leaderboards, or strong social motivation features.
- No Nutrition Tracking – Since the app only focuses on workouts, it does not support meal tracking or dietary recommendations, making it less comprehensive for overall health management.

Nike Training Club offers an excellent fitness experience, but its lack of nutrition tracking and community-driven challenges present opportunities for our project. Snack & Track can differentiate itself by combining fitness and nutrition gamification into a single app, enhancing user engagement through social challenges and interactive rewards.



3. DESCRIPTION OF USER GROUPS

Users with an active and healthy lifestyle

The users are most likely to work out regularly, take care of nutritional habits and are more informed about nutrition topics.

Goals:

Users aim to precisely log all nutritional data to advance health levels to above-average
Users aim to connect with a community of like-minded individuals

Potential problems:

Users may outgrow basic app features, needing more advanced tracking and analytics
The app might lack specialized dietary or fitness plan options.

Users with a moderately active and healthy lifestyle

The users are likely to take care of their physical form and eat balanced food, but not regularly. They sometimes lack motivation and information about how to make life healthier.

Goals:

Make consistent exercise and balanced eating a regular part of daily life.
Acquire practical tips and motivation to stay on track.
Users aim to maintain or slightly improve current health and fitness.

Potential problems:

Users could lose interest if the app seems to require extensive data entry for each meal.
Users might expect fast results; if the app's progress indicators seem slow, they can lose interest.
Users may have difficulties with understanding data or interpreting recommendations if they are presented too complicatedly or not adapted to real-life situations.

Users with an inactive and unhealthy lifestyle

The users feel unmotivated to make significant lifestyle changes, rarely engage in physical activities and have minimal awareness of balanced nutrition

Goals:

To start small with basic, achievable steps toward healthier eating
To incorporate simple workouts that fit into a busy or sedentary schedule

Potential problems:

Users may find calorie or macro logging too complex and give up quickly.
The app may set inflated goals or recommendations that are difficult to meet, which over time can lead to frustration and even greater feelings of powerlessness.
Constantly comparing his/herself to others in a chat community or being reminded of his/her "inadequacy" can lower self-esteem or cause stress

4. CONTEXT ANALYSIS

The target segment that will use the Snack & Track app is students. They will interact with the app throughout the day using the app via phones, tablets and smartwatches. The app will be integrated with services such as Apple Health and Google Fit to receive data about the user's physical activity. Snack & Track will periodically send reminders to do a little exercise, replenish water balance, or the results of a challenge. When users use the app, they should experience positive emotions associated with discovering new, interesting, useful information, achieving goals, and receiving rewards. All results, trends, and other statistics should be displayed for better self-analysis.

The application will be adapted to regional cultural traditions and habits, so nutritional recommendations will include traditional dishes, and sports activities will be offered depending on the landscape and infrastructure.

Not only the lack of specialized sports centers but also bad physical well-being and intense learning process can hinder students' ability to complete their healthy tasks. Students expect that the app will be one of the keys to adopting a healthy lifestyle in the long run thanks to personalized recommendations, motivational tasks, and an active community. Through thematic groups, students will be able to find new friends and spend time with each other in interesting ways.

5. USER PERSONAS

Primary Personas



https://www.freepik.com/free-photo/smiling-female-student-writing-essay-sitting-with-laptop-floor_9798946.htm#fromView=keyword&page=1&position=1&uuid=e4012008-ded3-4482-b478-797372630236&query=Girl+Computer

Name: Dubois Olivia

Age: 22

Gender: female

Location: Vienna, Austria

Occupation: Student of Computer Science at the University of Vienna

Motto: A healthy lifestyle is the key to a successful life

Relevant Patterns of Behavior: Olivia is actively interested in the topic of nutrition and listens to a lot of podcasts about healthy eating. She also regularly exercises at home 1-2 times a week using various YouTube videos or special apps.

Social life: Olivia is an active participant in university life and keeps in touch with her classmates. However, most of her meetings are related to classes or student parties. Olivia is lacking in like-minded people with whom she could discuss nutrition, and fitness, or attend sporting events together

Goal and needs:

- Supporting motivation for a healthy lifestyle in difficult and busy periods of life
- Meet new people who are interested in sports
- Opportunity to try new kinds of sports

Pain points:

Lack of motivation during busy study periods: when Olivia is in the phase of exams, she neglects healthy eating and exercises irregularly because she gives priority to her studies, which makes her overall well-being significantly worse.

Financial constraints: the girl wants to try new activities to support her desire for sports, but due to a limited budget she cannot afford it.

Typical usage scenario:

Olivia uses the Snack & Track app to join various sports competitions, challenges, free master classes and projects to keep her motivated. She also uses the app to find new friends who are interested in a healthy lifestyle.



https://www.freepik.com/free-photo/smiling-young-man-holding-take-away-coffee-slice-tasty-pizza-having-snack-wearing-maroon-t-shirt_9013939.htm#from_element=detail_alsoleike

Name: Schneider Alexander

Age: 21

Gender: male

Location: Vienna, Austria

Occupation: Student of Computer Science at the University of Vienna

Motto: A balanced lifestyle – the way to success

Relevant Patterns of Behavior: Alexander knows about the importance of healthy nutrition but eats healthy 2-3 times per week. He works out, but not regularly, 1-2 times per week. Sometimes he is lazy and skips the whole week to play video games.

Social life: Alexander is active in social life. He has friends and sometimes walks with them but mostly he speaks with them through social media or meets them at a bar to drink beer. Sometimes they work out together.

Goal and needs:

Motivation to change nutritional habits and to eat healthier

Exercise more regularly

Involving friends more actively in healthy eating and sport

Pain points:

Time management: Alexander thinks that cooking healthy and working out is very time-consuming. When he has a lot of work to do, he opts for fast food or low-intensity activities instead of healthier choices

The social environment: The friends of Alexander are very competitive. They often prefer gaming to exercising after a long day of studying or work. They frequently compare gaming achievements.

Typical usage scenario:

Alexander uses the Snack & Track app to track his progress and invites friends to compete with him in sports activities or healthy nutrition (e.g., “Who can adhere more closely to their recommended daily nutrition today?”)

He searches for fast, healthy food preps and minimalistic workout routines that fit his schedule, balancing study and healthy lifestyle



<https://unsplash.com/photos/girl-in-blue-jacket-holding-white-and-brown-short-coated-puppy-Rn9HYremvBI>

Name: Steiner Diana

Age: 24

Gender: female

Location: Vienna, Austria

Occupation: Student of English Language and Linguistics at the University of Vienna

Motto: If you don't feel ready, just take one step forward

Relevant Patterns of Behavior: Diana knows eating better and moving more would help her feel more assertive, but she often lacks energy. She usually eats quick and comforting meals like instant noodles or orders takeaways to save her time studying. Physical activity may count as short walks with her dog every morning.

Social life: Diana has a small group of friends, but they are not interested in doing sports together. Most of their activities involve studying in the library or gaming. Diana feels uncomfortable going to the gym alone or joining structured fitness programs.

Goal and needs:

- Build tiny, simple health habits without pressure
- Get reminders and “gentle nudges” to stay on track
- Connect with others without leaving her comfort zone

Pain points:

Lack of belief in herself: Diana struggles with even starting healthy habits because she has failed a lot in the past. She needs support and motivation from others to spark a positive change.

Overwhelming feelings: A healthy lifestyle seems to have too many rules and restrictions that feel like a massive life shift.

Typical usage scenario:

Diana enjoys low-pressure tasks and weekly challenges like “walk 10 minutes today” or “try one healthy snack this week.” Thanks to the encouragement that Snack & Track provides, she can see the difference and keep engaged by earning rewards. The social component of Snack & Track helps Diana feel included without much effort.

Secondary Persona



<https://www.shutterstock.com/image-photo/mobile-cam-view-happy-asian-dad-2136478887>

Name: Daniel Wong

Age: 27

Gender: male

Location: Vienna, Austria

Occupation: PhD student at the University of Vienna

Motto: Energy starts with joy — and a good meal.

Patterns of Behavior: Daniel enjoys homemade meals and has mastered his cooking skills to always fill his body with nutritious and yummy food. He is not interested in tracking his calories or receiving motivation from Snack & Track.

Social life: Daniel loves hosting dinners for his friends, as food is his way of connecting with others. He often goes hiking with a group of like-minded people he once met during his solo trip.

Unsuitable for Snack & Track due to:

Lack of need for tracking: Daniel finds calorie and macro tracking unnecessary.

Too much structure feels limiting: Fixed challenges or rigid goals reduce the fun of his health routine.

Already highly motivated: Daniel doesn't need external nudges — he's already consistent in his healthy lifestyle.

Typical usage scenario:

Daniel tries Snack & Track after a friend recommends it, but he quickly realizes that he doesn't need structured reminders or gamified rewards. Instead, he might casually join a cooking challenge now and then — just to share his passion and connect with others. The app is not essential for his health journey but could be a light, fun extension of his lifestyle.

Negative Persona



<https://stock.adobe.com/at/search?k=bodybuilder>

Name: Schmidt Thomas

Age: 32

Gender: male

Location: Vienna, Austria

Occupation: Fitness Trainer

Motto: Hard work always pays off

Patterns of Behavior: Thomas follows a strict training and nutrition plan. His day is structured around his fitness routine and he needs neither external motivation nor additional tools to succeed.

Social life: Thomas mostly surrounds himself with other athletes and coaches. His community is already fitness-focused.

Unsuitable for Snack & Track due to:

Irrelevance of main app features: Thomas doesn't look for buddies or motivation because his life is the definition of a strict and firm lifestyle.

Simplicity of the app: He finds gamification childish and isn't satisfied with a limited metrics system.

Typical usage scenario:

The clients of Thomas tell him about Snack & Track, so he installs it to check the relevance of the app for himself. Snack & Track does not cover his needs and seems unnecessary, therefore there will be no further usage from Thomas.

6. TASK ANALYSIS

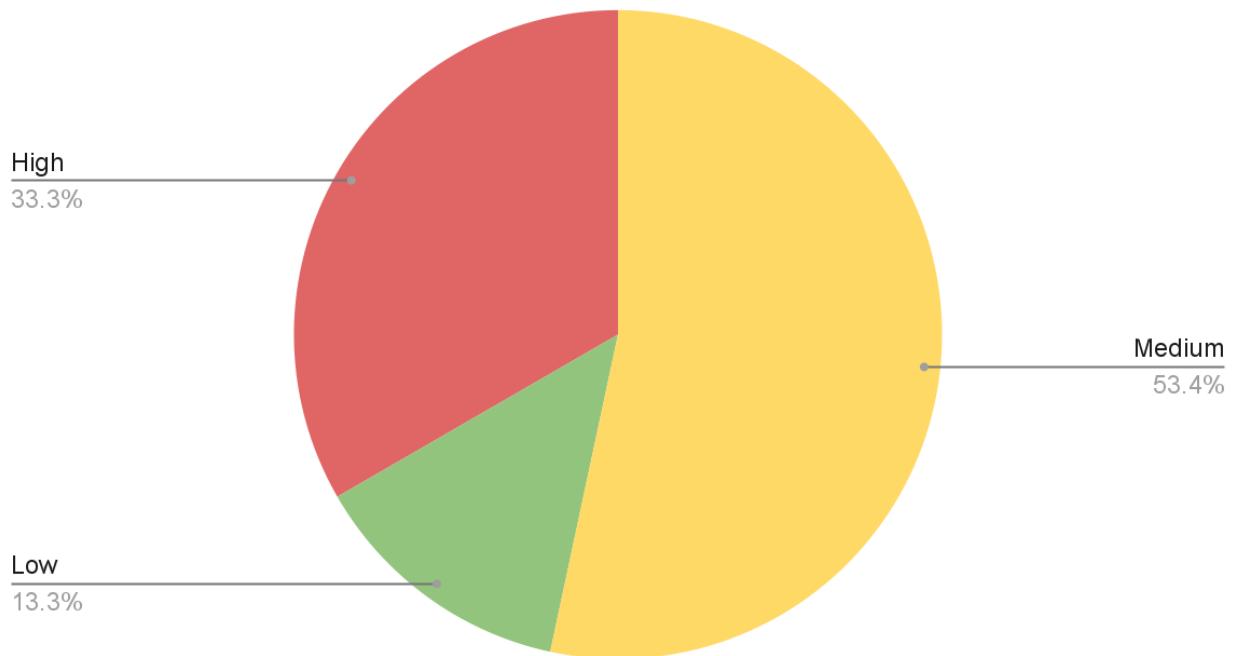
Tasks	Persona					
	Olivia		Alexander		Diana	
	IL	FL	IL	FL	IL	FL
Create an account	1	3	1	3	1	3
Set a goal	1	3	1	3	2	3
Nutrition tasks						
Calculate calories & macros	2	2	1	2	3	2
Find cooking workshops nearby	1	1	3	1	3	3
Find like-minded people	1	1	1	1	1	1
Log nutrition	1	2	1	2	2	2
Receive motivational notifications	1	2	1	2	1	1
Plan daily/weekly meals	2	1	1	1	2	3
View recipe suggestions	2	2	1	2	1	2
Fitness tasks						
Find a fitness buddy	1	1	1	1	2	1
Find fitness recommendations	1	2	2	2	2	2
Join weekly challenges	1	1	1	1	1	1
Set a timer for an activity	2	2	2	2	3	2
Track steps	2	2	1	2	2	2

Table Notes:

IL - Importance Level (1 - high, 2 - medium, 3 - low)

FL - Frequency Level (1 - weekly task, 2 - daily task, 3 - one-time task)

Task Importance Distribution



Based on the chart, one-third of the tasks have a high importance for the users and will be implemented in Snack & Track first. That includes such tasks as “Create an account”, “Find like-minded people”, “Receive motivational notifications”, “Join weekly challenges”, “Log nutrition”, and “Find a fitness buddy”.

7. PROJECT MANAGEMENT ASPECTS

Our team

My name is Sofia, and I am a member of the Snack & Track project team. My strength lies in designing intuitive user interfaces and UX design. In addition to my technical skills, I also pay attention to organizational aspects. I need to plan tasks efficiently and respond quickly to changes using agile methodologies. Through my participation in this project, I aim to enhance my knowledge in prototyping with modern tools and gain skills in UI implementations.



My name is Denys, and I am a member of the Snack & Track project team. My main focus is on the technical aspects of the project, including app development and implementation. I am particularly interested in learning about user-friendly UI design and the technologies required for mobile app development. Through this project, I aim to enhance my technical skills, explore modern development frameworks, and gain hands-on experience in creating a seamless and engaging user experience.



My name is Ivan, and I am a part of the Snack & Track project team. I have a passion for data analytics. I have a problem-solving mindset, strong communication, and teamwork skills. I thrive in collaborative environments and always strive to learn and adapt in dynamic, fast-paced settings. I'm eager to learn user analysis and use data to improve software and app experiences.



My name is Yeva, and my key contribution to our Snack & Track project is a detailed analysis of the tasks that our application will offer users. I strive for my work to be valuable and high-quality, so I approach its implementation with perseverance. Thanks to the project, I'm improving my attention to detail and focusing on usability, which I didn't attach much importance to before. Collaboration in our team teaches me to trust other participants, work on effective communication and division of labor, and not only rely on myself.



Context

The Snack and Track app is designed to be a great tool for students to help them adopt a healthy lifestyle on a long-term basis. The application will motivate, provide advice on physical activity, and healthy eating, and inform about interesting sporting events. The implementation of gamification will create additional motivation to keep up with the challenges, and the online forum will be a great source of information exchange between students and support.

Currently, the project has gone through two stages of new product development: idea generation and idea screening. Through literature analysis and comparison of competing apps, the features to be implemented in the Snack & Track app were selected. In addition, by creating primary, secondary, and negative personas, we identified the key needs and existing problems of students that should be solved by using the app. The next stage in the product development life cycle will be the creation of Low-fidelity Prototypes.

Motivation

The goal of the Snack and Track project is to help students improve their overall well-being and reduce the risks of diseases and psychological problems by adopting a healthy lifestyle. The main idea is to develop habits of sport and balanced nutrition that users can carry throughout their lives. The creation of small, achievable goals will help to form sustainable habits in the long run.

Goals

1. Create an intuitive interface to display trends, progress, and results
2. Implementation of a reward system to keep people motivated
3. Implementation of artificial intelligence for nutrition analysis, calorie counting, and the proportion of proteins, fats, and carbohydrates
4. Integration with Google Fit and Apple Health fitness services to track user activity.
5. Creation of thematic chats and forums
6. Friendly reminders to exercise, replenish water balance and participate in sports events

Non-goals

1. It should not replace nutritionist consultations in case of obesity and other metabolic diseases
2. Does not provide a comprehensive health analysis, as access will only be to physical activity and calorie intake
3. Not aimed at professional athletes

Hriazin Ivan	1 example of analysis of relevant literature, analysis of 1 competing app, analysis of 1 persona, overview and description of user groups
Shevkoplias Sofiia	1 example of analysis of relevant literature, analysis of 1 competing app, analysis of 1 persona, context analysis, description of the project management aspects
Denys-Lev Gusti	1 example of analysis of relevant literature, analysis of 1 competing app, analysis of 2 personas, description of work distributions
Sokyruk Yeva	1 example of analysis of relevant literature, analysis of 1 competing app, analysis of 1 person, task analysis