Software Requirement Specification

Group members	Lanre Ogungbade
	Krishna Patel
	Jacob Ferguson
	Yash Upadhyay

1. Project Description

This document outlines the Software Requirements Specification (SRS) for the Diet & Nutrition Tracker, a mobile and web application designed to help users track their daily food intake, monitor their macronutrient goals, and improve their overall health through personalized diet plans and nutritional tracking. This system will support users who are focused on weight management, muscle building, and improved dietary habits.

2. Functional Requirements

FR01	The software must allow users to create and manage personal profiles, including age, gender, weight, height, dietary preferences (e.g., no pork), and fitness goals (e.g., fat loss, muscle gain).
FR02	The software must enable users to log their meals by adding foods from a predefined database or manually entering custom meals (e.g., eggs, turkey bacon, rice).
FR03	The software must track daily macronutrient intake (proteins, carbohydrates, fats) and compare it to the user's personalized goals.
FR04	The software must generate meal suggestions based on the user’s preferences, dietary restrictions, and fitness goals.
FR05	The software must provide visual progress reports on calorie consumption, macronutrient balance, and weight trends over time.
FR06	The software must allow users to set reminders for meals, water intake, and workouts.
FR07	The software must allow users to generate personalized diet plans and export them to a PDF or share via email.
FR08	The software must offer users access to a library of high-protein, easy-to-make recipes that align with their goals.
FRN	The software must allow users to compare and contrast recipes with one another to choose one that relates the most to their dietary needs.

3. Non-Functional Requirements

NFR01	The application must be responsive across all devices, including iOS, Android, and web browsers, with a maximum load time of 2 seconds.
NFR02	The system should encrypt user data (profile, diet logs, etc.) using industry-standard encryption methods (e.g., AES-256) to ensure privacy and security.
NFR03	The system should handle up to 1,000 concurrent users with minimal degradation in performance.
NFR04	The application should achieve a 98% uptime monthly.
NFRN	

4. Use Case Specification

*<< Select **three** functional requirements and describe them in detail using use cases.>>*

UC01 Name:	Log Meal
Description:	The user logs their meals by selecting foods from the database or entering custom meals.
Actor:	User
Entry condition:	The user is logged into their account and has selected the "Log Meal" option from the home screen.
Basic path:	● The system presents the Log Meal screen containing **[PRO01]**: -table - Food name - Calories - Protein - Fat - Carbs - - - add - - - remove - - - back ● The actor chooses the add option ● The system verifies if the information is valid **[E01] [BR02] [BR01]** ● The system includes the new meal on the table **[PRO02]** -Table - Food name - Calories - Protein - Fat - Carbs - - - add - - - remove - - - back

	● The actor chooses the back option **[A03] [A02]** ● The system changes the screen back to the home screen
Alternative paths:	**[A01] The actor selects the back option** ● The use cases are concluded and the system changes the screen back to the home screen **[A02] The actor selects the remove option** ● The system presents a new screen containing:**[PRO03]** - The table of the list of meals - - - The removed index ● the actor chooses The removed index option **[E02] [BR01]** ● The system verifies if the information is valid ● The system updates the table's information**[PRO04]** ● The system presents a new screen of stage 1 of the basic path ● The actor chooses the back option **[A02] [A03]** ● The system returns to the home screen **[A03] The actor selects the add option [PRO04]** ● The system verifies if the information is valid ● The system includes the new meal on the table -Table - Food name - Calories - Protein - Fat - Carbs - - - add - - - remove - - - back ● The system screens the updated table **[PRO03]** ● The actor chooses the back option **[A03] [A02]**
Exception paths:	**[E01]** Invalid Entry: If the food entry is incomplete or invalid, the system prompts the user to correct the input before proceeding. **[E02]** Invalid Entry: The index is out of range
Business Rules:	**[BR01]. All attributes are mandatory.**

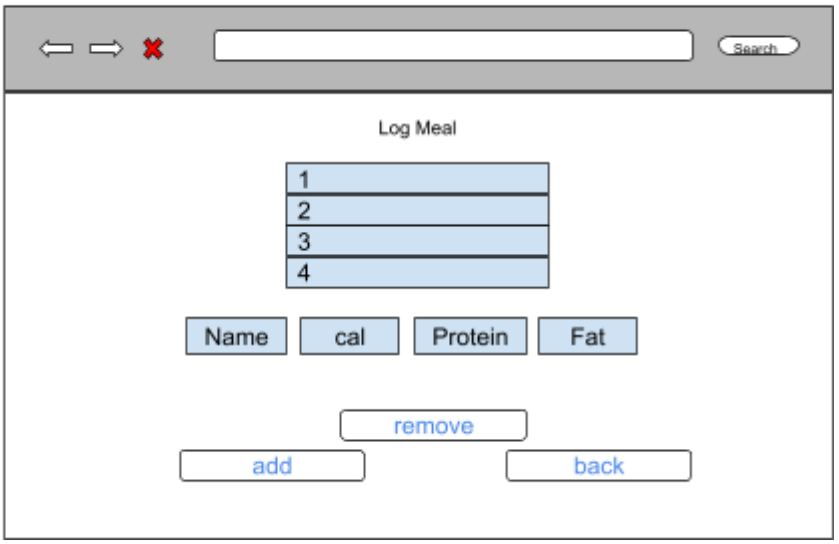
	[BR02]. Food items logged must be accurately recorded with macronutrient and calorie information, whether pulled from the database or entered manually.
Data description	

Name	Type	Length	Mask	
foodItem	String	50	-	
Protein	int	3	###	
Calories	int	5	#####	
Carbs	int	3	###	
Fat	Int	3	###	

Prototype:

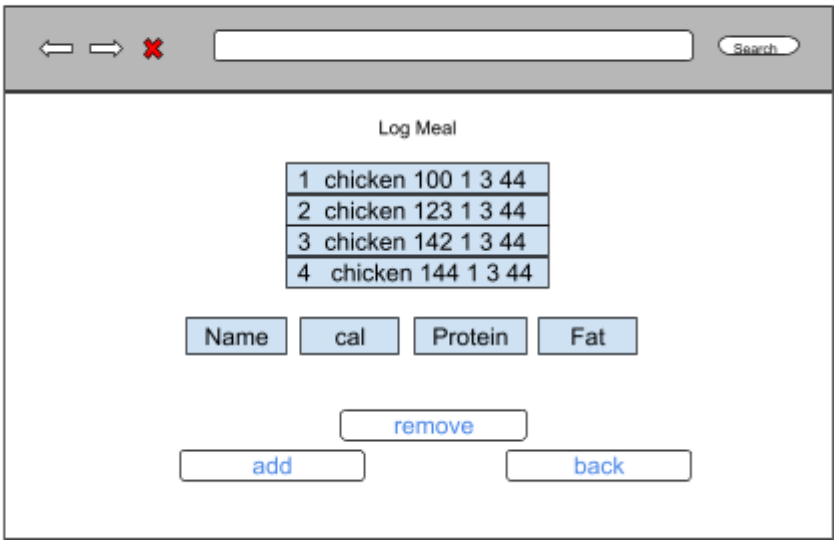
[PRO01]

chicken 100 1 3 44



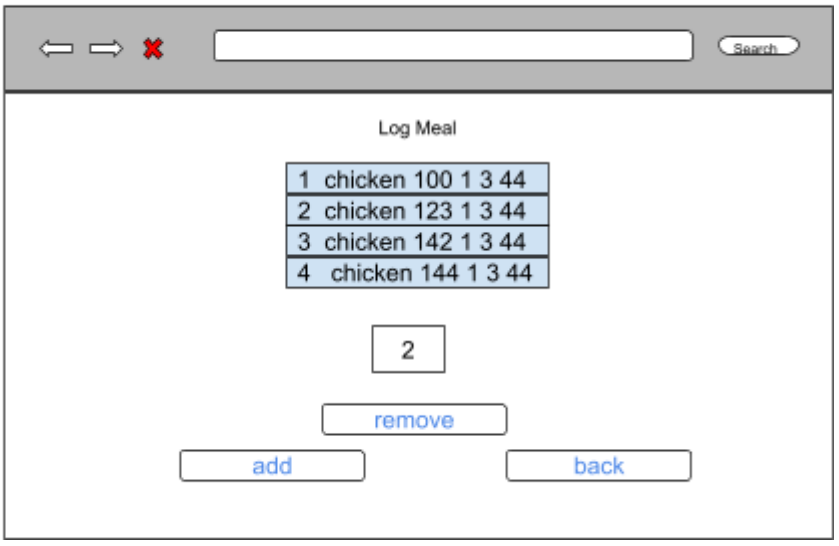
[PRO02]

chicken 100 1 3 44



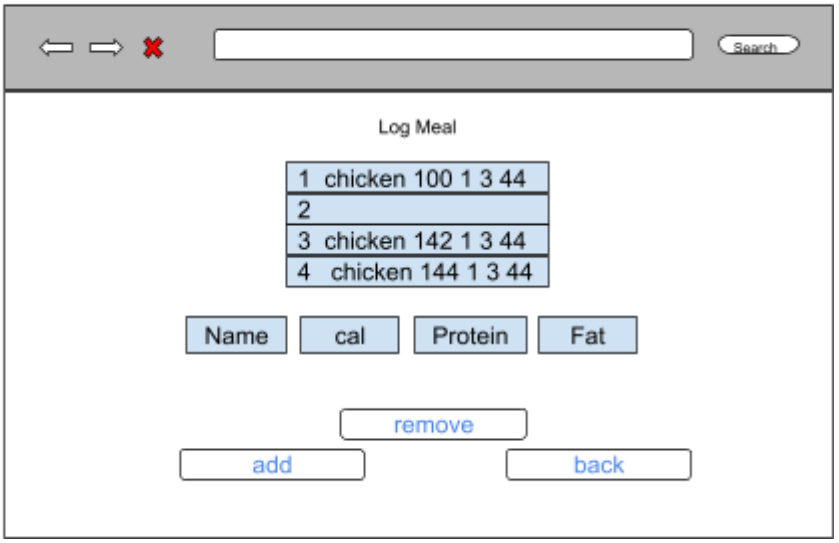
[PRO03]

chicken 100 1 3 44



[PRO04]

chicken 100 1 3 44



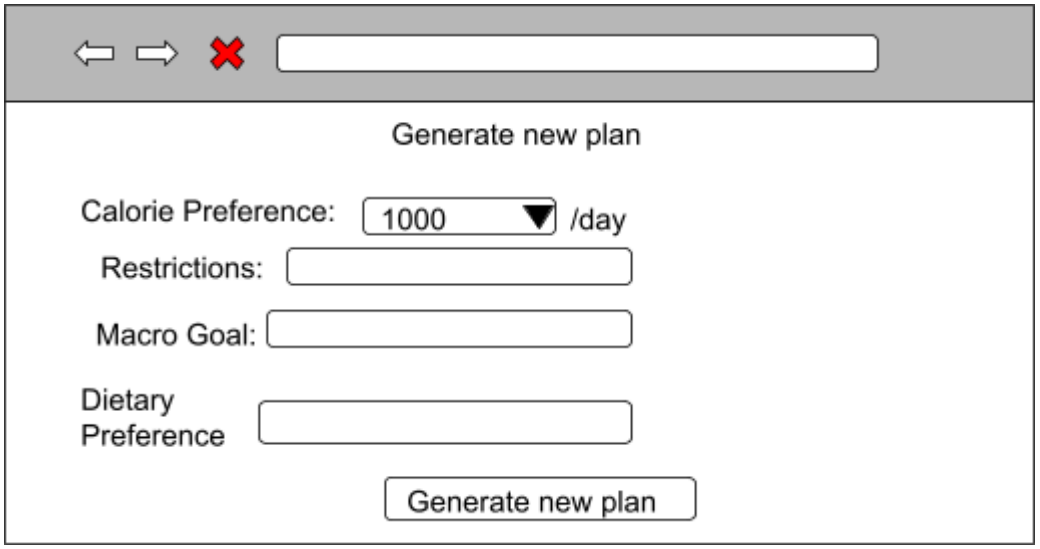
[PRO05]

UC02 Name:	**Generate Personalized Diet Plan**
Description:	The user generates a personalized diet plan based on their fitness goals and dietary restrictions.
Actor:	User
Entry condition:	The user has logged into their account and has completed their profile with fitness goals, dietary restrictions, and personal details.
Basic path:	1. o - The user selects the “Generate Diet Plan” option from the menu. o The system prompts the user to update their fitness goals and dietary preferences. o The system generates a diet plan aligned with the user’s profile (e.g., no pork, high-protein focus). o The diet plan is displayed on the screen, and the user is given the option to export it to a PDF or share it via email.
Alternative paths:	**[A01]** 1. . Adjust Plan: The user can adjust the diet plan by specifying different calorie/macro goals. **[A02]** 2. Request New Plan: The user can request a completely new plan based on different preferences.
Exception paths:	**[E01]** 1. . No Input: If the user does not provide sufficient input, the system will display an error message and return to the goal update screen.

<table>
<tr><td>Business Rules:</td><td>[BR01]. All necessary information pertaining to preferences and fitness goals must be filled out to receive a generated diet plan.

[BR02]. Information must be changed by the user for the user to receive a modified/new diet plan.</td></tr>
<tr><td>Data description</td><td>
<table>
<tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr>
<tr><td>Calorie goal</td><td>int</td><td>5</td><td>#####</td><td></td></tr>
<tr><td>Macro goal</td><td>int Array</td><td>3</td><td>{protein goal, fat goal, carb goal}</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Prototype:</td><td>[PRO01] The system must only generate a diet plan for the user once necessary information is inputted by the user.
 

[PRO02] The system must allow for a modified or a completely new diet plan to be generated if the user chooses to change any information regarding their current diet plan.</td></tr>
</table>


Generate new plan
Calorie Preference:
1000
/day
Restrictions:
Macro Goal:
Dietary Preference
Generate new plan

UC03 Name:	Create or manage personal profile (FR01)
Description:	The software allows the user to create or edit their profile in the software.
Actor:	User
Entry condition:	The actor selects the option Create or Manage personal profile from the homescreen
Basic path:	● The system presents the login screen containing (step 1) **[PRO01]:** -Username (editable) -Password (editable) -The Options: - - - Login - - - Create account - - - Forgot Password - - - Forgot Username - - - Cancel ● The actor selects Create Account **[A01] [A02] [A03] [A04]** ● The system presents a new screen for creating the user's account (Step 2) **[PRO02]**: - Username (editable) - Email (editable) - Password (editable) - Re-entry Password (editable) - The Options: - - - Login - - - Cancel ● The actor enters a username, email, and password and chooses the Login option **[A05]** ● The system verifies if the information is valid **[E01] [BR01] [BR02] [BR03]** ● The system adds the new actor account to the system ● The System presents a new screen of the user's details for their account (step 3) **[PRO03]**: - Name (readable) - Age (readable)

	- Gender (readable) - Weight (readable) - Height (readable) - Dietary preferences/Allergies (readable) - Fitness Goal (readable) - The Options: - - - Edit - - - Back ● The actor chooses the Edit option **[A04]** ● The System presents the same screen for entering the user's details for their account (Step 4) **[PRO4]**: - Name (editable) - Age (editable) - Gender (editable) - Weight (editable) - Height (editable) - Dietary preferences/Allergies (editable) - Fitness Goal (editable) - The Options: - - - Confirm Changes - - - Cancel Changes ● The actor chooses the Confirm Changes options **[A06]** ● The system verifies if the information is valid **[E02] [BR04]** ● The system updates the actors information ● The same screen from step 3 of the basic path presents and the actor chooses back ● The use cases are concluded ● The system returns to the home screen
Alternative paths:	**[A01] The actor selects the login option** ● The system verifies if the information is valid **[E03] [BR01] [BR04]** ● The System presents a new screen of the user's details for their account **[PRO4]** - Name (readable) - Age (readable) - Gender (readable)

	- Weight (readable) - Height (readable) - Dietary preferences/Allergies (readable) - Fitness Goal (readable) - The Options: - - - Edit - - - Back ● The actor chooses the Edit option **[A07]** ● The System presents the same screen for entering the user's details for their account: **[PRO05]** - Name (editable) - Age (editable) - Gender (editable) - Weight (editable) - Height (editable) - Dietary preferences/Allergies (editable) - Fitness Goal (editable) - The Options: - - - Confirm Changes - - - Cancel Changes ● The actor chooses the Confirm Changes options **[A08]** ● The system verifies if the information is valid **[E02] [BRO4]** ● The system updates the actor's information ● The use case returns to step 3 of the basic path **[A02] The actor selects Forgot Password** ● The system presents a recovery screen containing**[PRO06]**: -Email (editable) - - - Send - - - Back ● The actor chooses the send option which sends a confirmation code to the actor **[A09]** ● The system verifies if the information is valid **[E04] [BR01] [BR05]** ● The system presents a screen containing **[PRO07]**: -confirmation code (editable)

- - - confirm
- - - back

- The actor chose the confirm option **[A10]**

- The system verifies if the information is valid **[E04] [BR06]**
- The system presents a screen containing **[PRO08]**:
  - password (editable)
  - password re-entry (editable)
  - - - confirm
  - - - back
- The actor chooses the confirm option **[A11]**

- The system verifies if the information is valid **[E04] [BR02]**
- The system updates the actor's information
- The use case returns to step 1 of the basic path

[A03] The actor selects Forgot Username

- The system presents a recovery screen containing **[PRO09]**:
  -Email (editable)
  - - - Send
  - - - Back
- The actor chooses the send option **[A12]**

- The system verifies if the information is valid **[E05] [BR05]**
- The user gets sent an email about their username that is linked to their email

- The use case returns to step 1 of the basic path

[A04] The actor select cancel

- The use case returns the screen back to the home screen

[A05] The actor select cancel at step 2

- The use cases return the screen to step 1 of the basic path

[A06] The actor select cancel at step 4

- The use case returns the screen to step 3 of the basic path

[A07] The actor selects back at step 1 in [A01]

- The use cases return the screen to step 1 of the basic path

[A08] The actor selects back at step 2 in [A01]

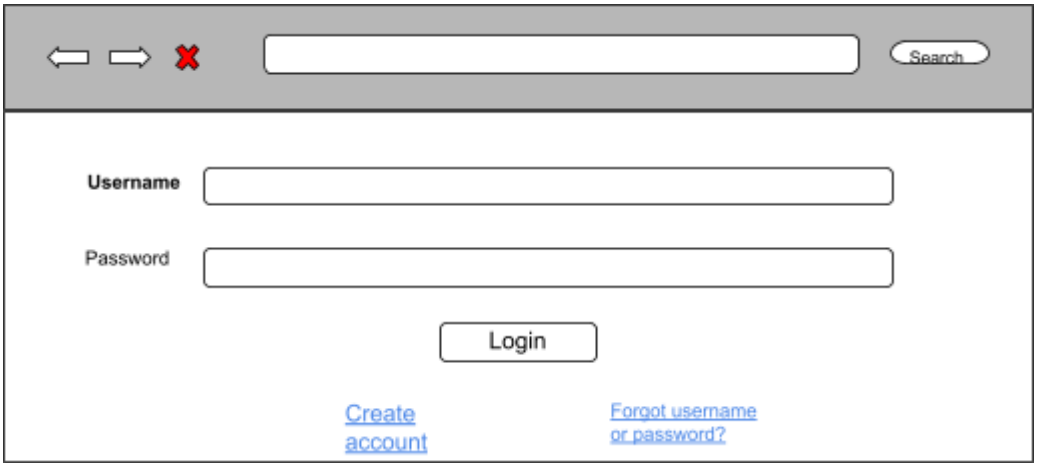
- The use cases return the screen to step 1 of the **[A01]** path

	[A09]The actor selects back at step 1 in [A02] ● The use cases return the screen to step 1 of the basic path **[A10] The actor selects back at step 2 in [A02]** ● The use cases return the screen to step 1 of the **[A02]**path **[A11] The actor selects back at step 3 in [A02]** ● The use cases return the screen to step 1 of the **[A02]**path **[A12] The actor selects back in [A03]** ● The use cases return the screen to step 1 of the basic path
Exception paths:	**[E01] Invalid registration information** ● **System displays message indicating the existence of invalid information.** ● **The use case returns to step 2 of the basic path** **[E02] Invalid registration information** ● **System displays message indicating the existence of invalid information.** ● **The use case returns to step 3 of the basic path** **[E03] Invalid registration informatiom** ● **System displays message indicating the existence of invalid information.** ● **The use case returns to step 1 of the basic path** **[E04] Invalid registration information** ● **System displays message indicating the existence of invalid information.** ● **The use case returns to step 1 of the [A02]** **[E05] Invalid registration information** ● **System displays message indicating the existence of invalid information.** ● **The use case returns to step 1 of the [A03]**
Business Rules:	**[BR01] All attributes are mandatory.** **[BR02] The password and the Re-entry password must be the same** **[BR03] used username or email** **[BRO4] input(s) name must be less than 50, age must be less than 100, weight must be below 1000, height must be less than 8 ft. goals must be less than 500 characters, and allergies must be less than 10 items**

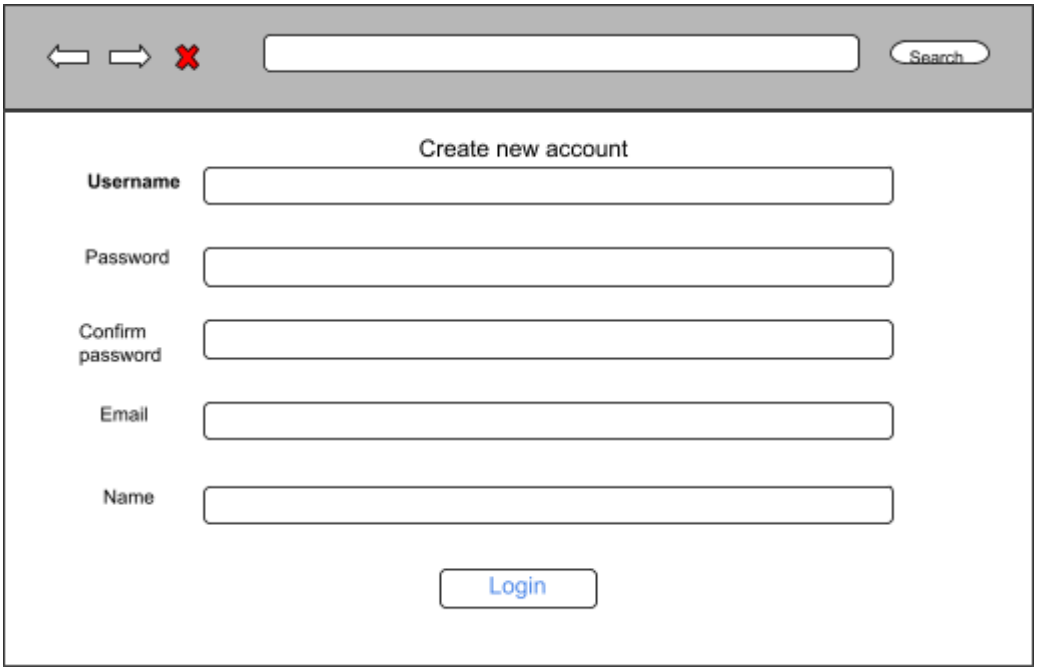
	[BR05] Wrong Username or email **[BR06] Wrong confirmation code**
Data description	

Name	Type	Length	Mask	
username	String	4-24	XXXXXXXXX##	
password	String	8-24	XXXXXX##@@	
name	String	50	-	
email	String	50	XXXXXXX@XX.com	
age	int	3	###	
Gender	String	25	XXXXXXX	
weight	int	3	###	
height	String	13	#XXXX##XXXXXX	
goals	String array	500	{XXXX, XXXX, …}	
allergies	String array	10	{XXXX, XXXX, …}	

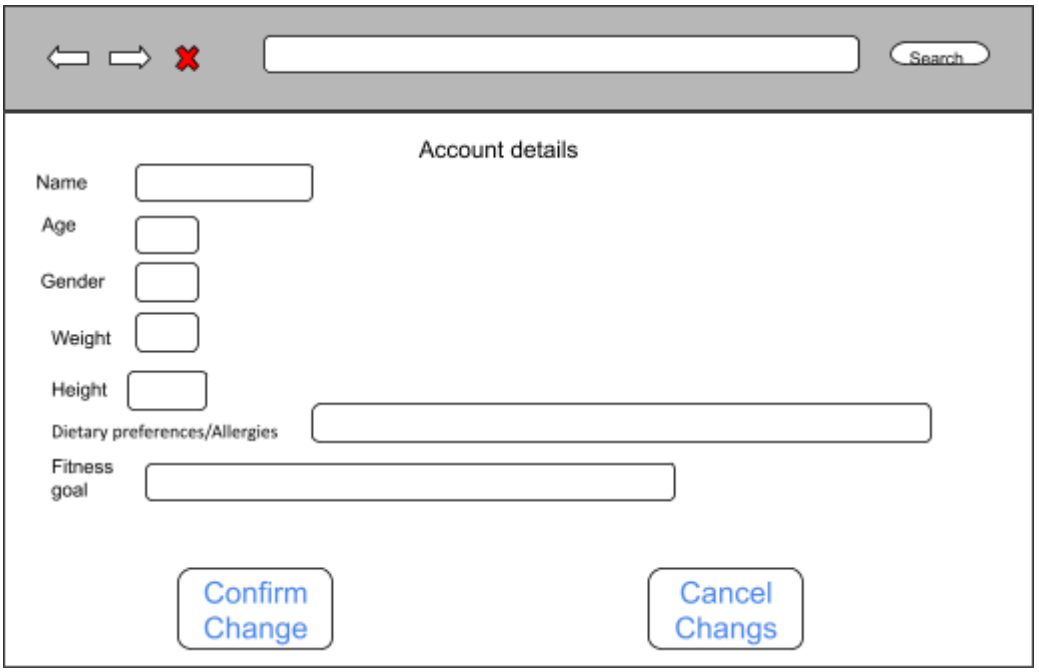
Prototype: **[PRO01]**



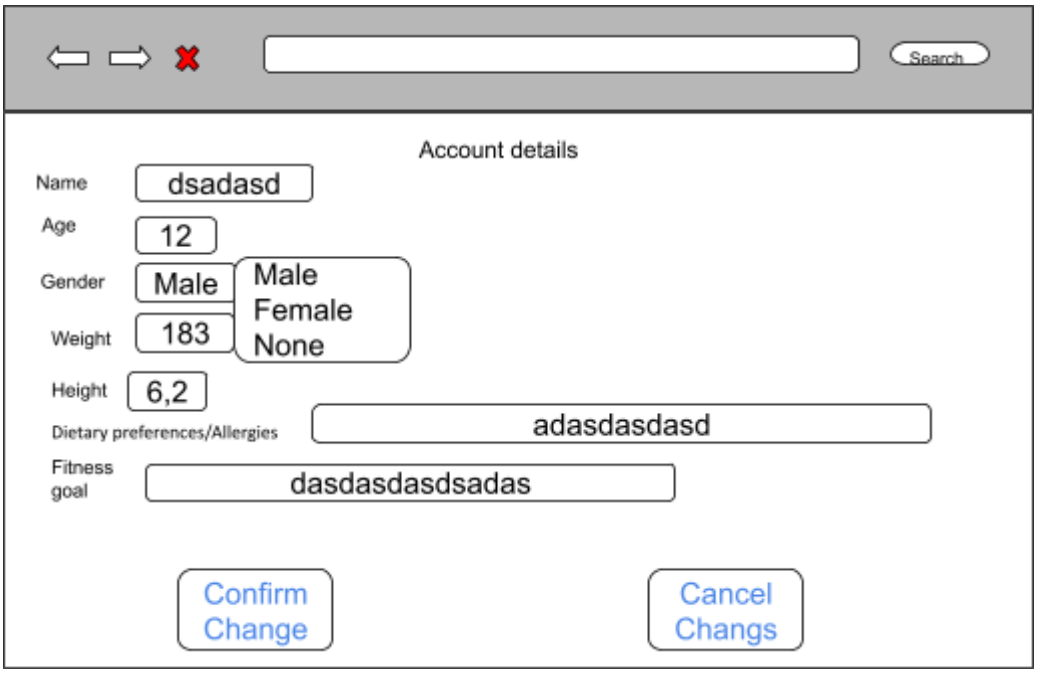
[PRO02]


Search
Create new account
Username
Password
Confirm password
Email
Name
Login

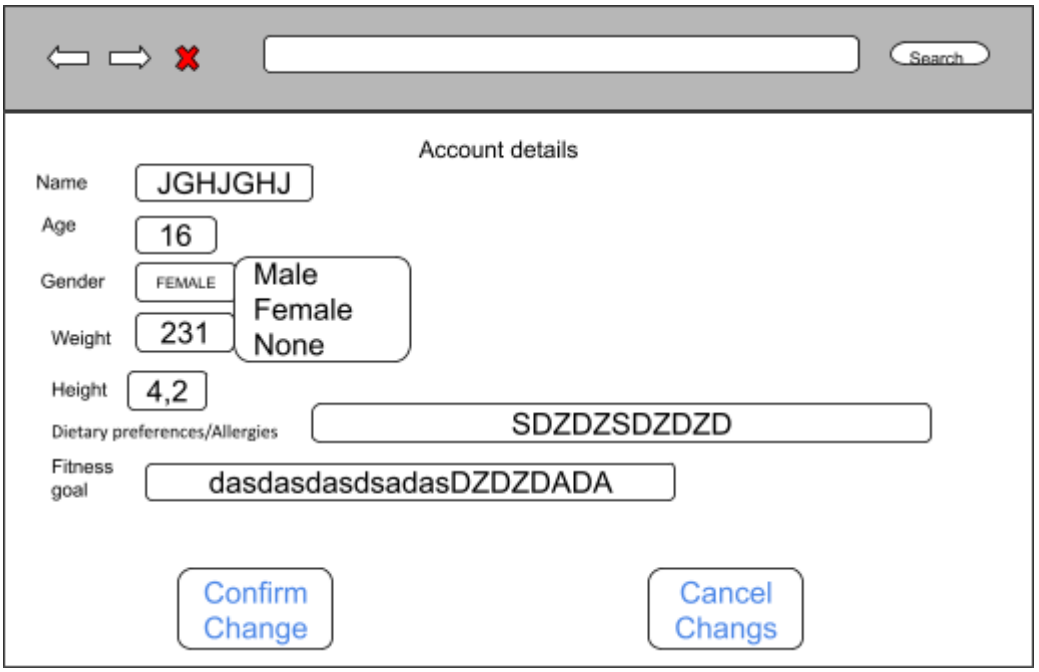
[PRO03]


Search
Account details
Name
Age
Gender
Weight
Height
Dietary preferences/Allergies
Fitness goal
Confirm Change
Cancel Changs

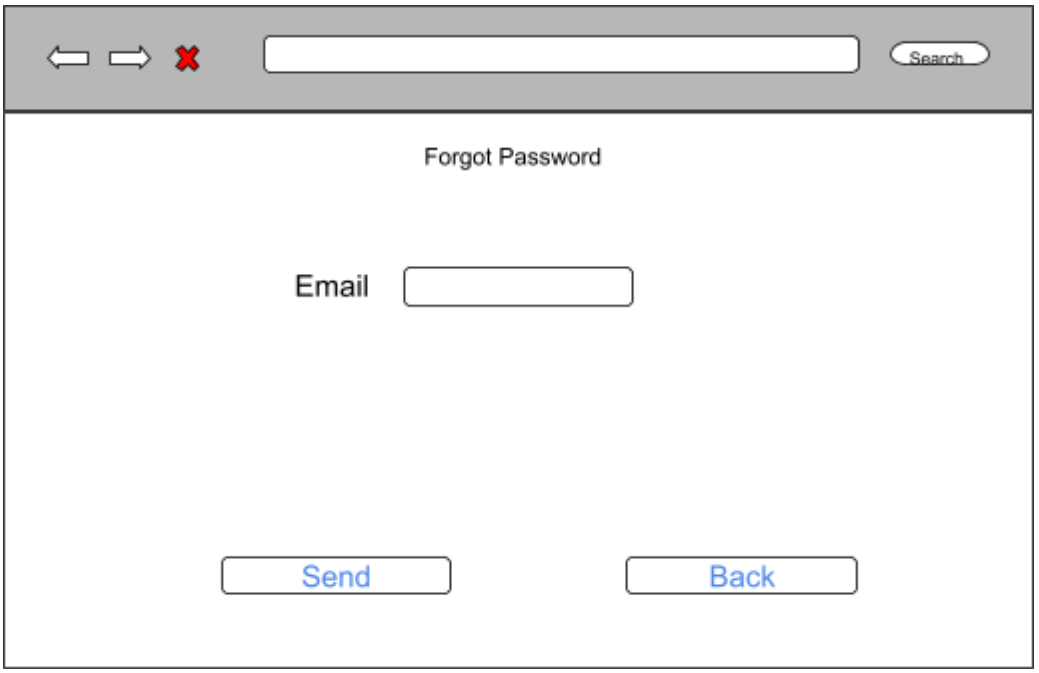
[PRO04]


Search
Account details
Name
dsadasd
Age
12
Gender
Male
Male
Female
None
Weight
183
Height
6,2
Dietary preferences/Allergies
adasdasdasd
Fitness goal
dasdasdasdsadas
Confirm Change
Cancel Changs

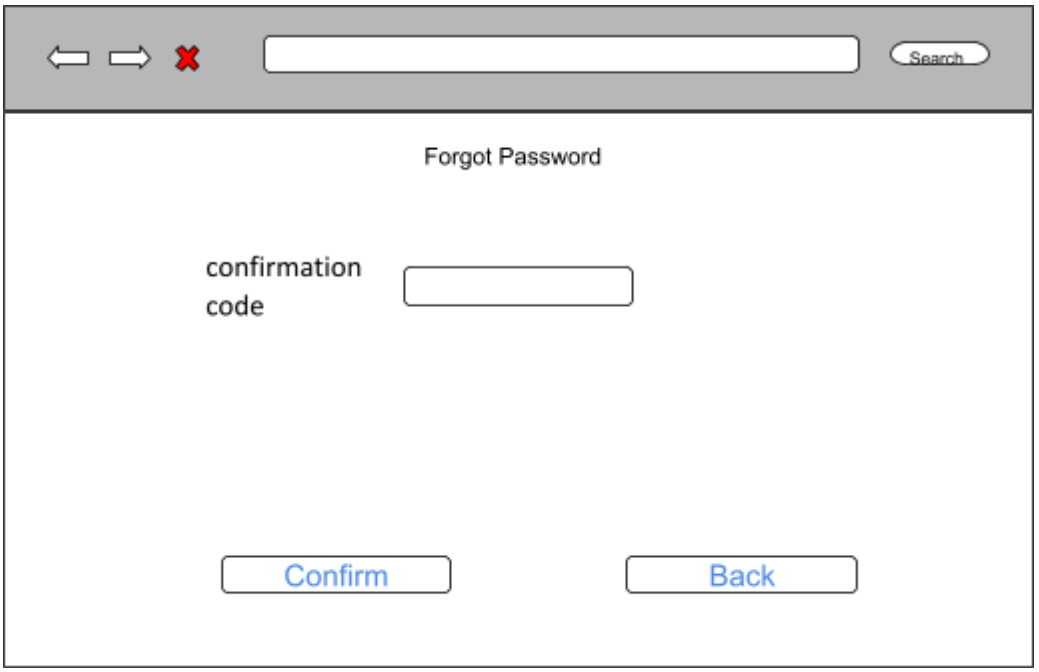
[PRO05]


Search
Account details
Name
JGHJGHJ
Age
16
Gender
FEMALE
Male
Female
None
Weight
231
Height
4,2
Dietary preferences/Allergies
SDZDZSDZDZD
Fitness goal
dasdasdasdsadasDZDZDADA
Confirm Change
Cancel Changs

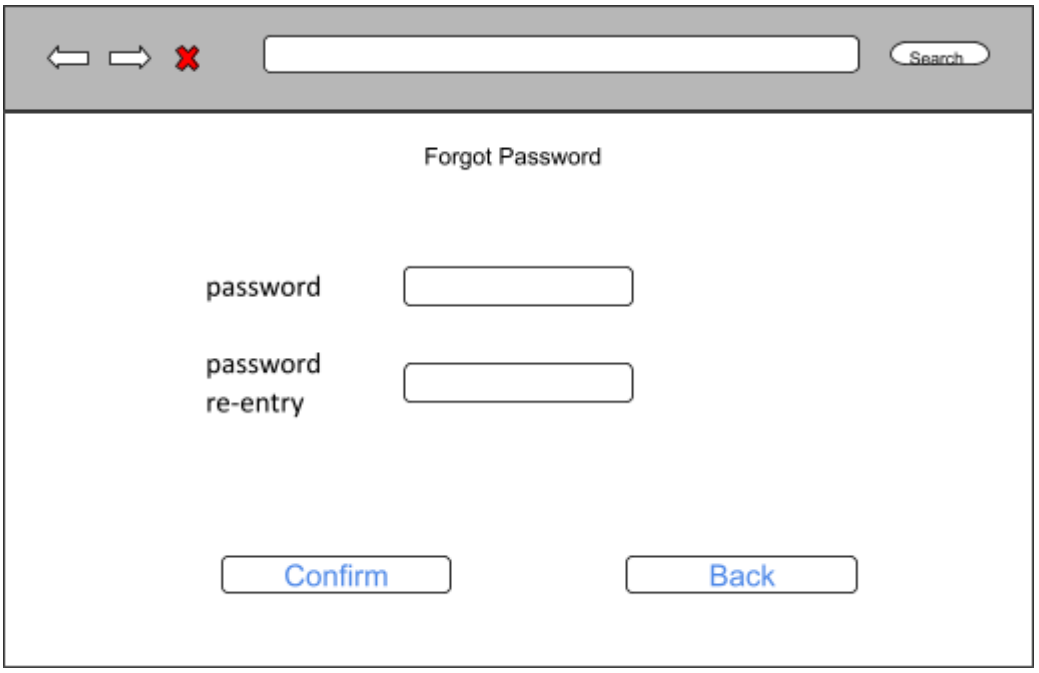
[PRO06]


Search
Forgot Password
Email
Send
Back

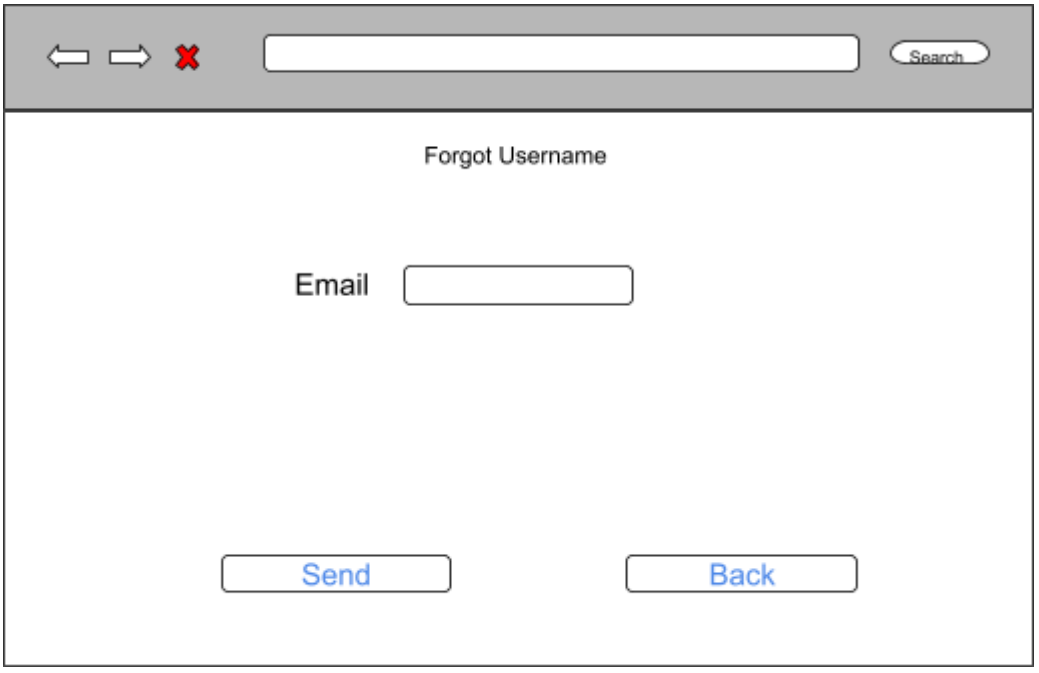
[PRO07]


Search
Forgot Password
confirmation code
Confirm
Back

[PRO08]


Search
Forgot Password
password
password
re-entry
Confirm
Back

[PRO09]


Search
Forgot Username
Email
Send
Back