Needs Analysis for Recipe Suggestions App.

Project acronym: mFit

Project title: Mobility application for smart Recipe suggestions and Fitness tracking.

**Change History**

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**Document Approvals**

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13. **Introduction**

The proposed ***mFit*** mobility app is a reverse fitness and recipe suggestion app. The main goal of this app is to suggest you recipes based on your ingredients preferences and calorie/weight goal, rather than it suggesting you some pre-designed recipes, you would get to select the ingredients you might have in your fridge or according to your cravings, and the app would suggest you the right recipe to match your calorie goals.

* 1. **Purpose**

Most of the fitness and calorie tracking app, keep suggesting menus/recipes based on the user’s calorie goals. But most of the time, it becomes difficult to eat as per the suggestions given by the app, as the user may have a few or most of the ingredients missing, as needed for that recipe. As a result it becomes difficult to jeep the calorie goal on track and the app loses its purpose. Hence, ***mFit*** aims to bridge this gap and helps user to stay on the calorie/weight loss goal in an easier way.

For Example: When the user first login to the app, it would ask for the user’s height/ weight, age, sex, and weight loss goal and the time period to achieve that goal. It would be able to track the user’s activity level and heart rate and other standard health data logged through the fitness watch/wearable device. Using these data, instead of the app suggesting the user meal preps, the user would select the ingredients that he/she might have in his/her fridge on a daily or weekly basis. User can select from a list of ingredients in the app and get recipes suggestions. It would also suggest each of the serving size to match the daily calorie intake.

* 1. **Proposed solution**

Focusing on the machine learning possibilities, the ***mFit*** would be able to help its users to develop a healthy eating habit and save effort of thinking and browsing for food that can be prepared at home.

1. **Design Thinking**

There are numerous fitness and recipe suggestions apps are available both on PlayStore and AppStore. Therefore, to understand the gap between the services provided by the existing apps and the user needs or pain-points design thinking approach was taken. During this process, 5 different users were interviewed, whom the author knows to be the users of fitness watch and app. The users were asked a set of questions for gathering more insight on the requirements and innovation or improvements.

* + **Empathy**

As part of the case study 5 different fitness watch users were engaged in a structured interview process. The interviews had a few fixed questions as well as open ended questions to uncover the profound need of the users that are not solved by the existing apps and ***mFit*** can be designed to solve those problems.

* The following sets of questions were asked to each of the users:

1. What is your first reaction to the service?
2. Very Positive 2. Positive 3. Neutral 4. Negative 5.Very negative
3. Do you already use any such app?
   1. If yes, what is/are the feature(s) that you like/dislike in that app?
4. What is your primary reason to use such an app?
5. On a scale of 1 to 10, how likely you would use this app?
   1. If response is >= 6 .. why?
   2. If response is <=5.. why not?
6. Based on the description of the app, which other functionalities you would want to be included?
7. If the app was available now, would you be recommending it to your friends/colleagues? By saying what?
8. How much would you be ready to pay for this app?
9. Do you have any further suggestions to improve the app?

The following tables record the responses of each users:

**Participant 1:**

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| --- | --- |
| Name: | Lakshay Sharma |
| Age: | 27 |
| Profession: | Civil Engineer |
| Activity level: | Fair |

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| --- | --- |
| Questions | Responses |
| 1 | Positive |
| 2 | Yes- FitBit. But that app needed to log all the calorie consumption manually, and that was mundane. Hence I no longer use it. |
| 3 | 1. It is stressful to think about the recipe at the end of a hectic day. 2. It would lead to less eating out. 3. It would be helpful to build a healthy eating habit. 4. It would be helpful in keeping the calorie goal on track. |
| 4 | 9. Would like to see the final product. The idea seemed useful, especially for the lifestyle I lead. |
| 5 | 1. It should be able to suggest different type of cuisine. Like it should let me select options like if I want Thai/Mexican/Indian/Italian etc. and based on that it should suggest me the recipe. 2. Based on my previous selections, it should suggest me new recipes and again, that should be different kind of cuisines. |
| 6 | Yes. |
| 7 | If it is one time then $20.00. And if subscription based, then $3.00 p.m. |
| 8 | 1. It should be available for all mobile OS platform. 2. Integration with PS4/XBOX. 3. Login should be easy- like just FB or Google ID. 4. Social Media connectivity. |

**Participant 2:**

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| --- | --- |
| Name: | Rohan Patil |
| Age: | 29 |
| Profession: | Software Engineer |
| Activity level: | Fair |

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| --- | --- |
| Questions | Responses |
| 1 | Positive |
| 2 | Yes- FitBit. The app tracks sleep, steps, calorie, reminds on water consumption. |
| 3 | To keep a check on calorie consumption and weight-watch. |
| 4 | If the ingredients needs to be selected manually every time, then very less likely to use it. |
| 5 | 1. Scan the grocery receipt for the week and the app should take the ingredients from it and suggest recipes based on it. 2. Multiple cuisine selection options. 3. Based on historical preferences, it should suggest new recipes and ingredients list. 4. Monthly and weekly summary or calorie intake and goal achievement. |
| 6 | Yes, by saying there is no manual entry required. |
| 7 | $0.99 p.m |
| 8 | 1. If the user is registered to a gym and the gym has its workout app, then it should connect and keep all the activity record in one place. |

**Participant 3:**

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| --- | --- |
| Name: | Prerit Datta |
| Age: | 28 |
| Profession: | Graduate Student |
| Activity level: | Fair |

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| --- | --- |
| Questions | Responses |
| 1 | Positive |
| 2 | No menu app as yet. |
| 3 | To keep calorie consumption under watch |
| 4 | 9.No such app in knowledge, and the utility it could provide is very helpful to keep calorie under control and think less about what to cook. |
| 5 | 1. Workout suggestions. 2. Reminders to stand up, drink water. 3. Offers at nearby gym or healthy food options. 4. Sharing the fitness data and menus with friends/ social media. |
| 6 | Yes. By saying “you don’t need a personal nutritionist”. |
| 7 | $2-$5 for limited lifetime. |
| 8 | 1. The app should provide data security and privacy and not let the data to be used by any third party. 2. Ask for user consent before sharing data. |

**Participant 4:**

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| --- | --- |
| Name: | Shuva Dass |
| Age: | 27 |
| Profession: | Graduate Student |
| Activity level: | Average |

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| --- | --- |
| Questions | Responses |
| 1 | Neutral |
| 2 | Yes- FitBit. Not much into fitness. It was a gift, hence exploring. |
| 3 | So far has not utilized all the functionalities of fitness apps. |
| 4 | 5.Busy Schedule and making time for fitness goals are impossible, moreover, does not have patience to wait for the results. |
| 5 | 1. There should be options to have cheat days without affecting the calorie goals. 2. Inspirational notification (like some success stories) 3. Some competition to upload before and after picture. 4. Should be able to suggest menus and keep track of calories in a way that the need of personal trainer should become obsolete. 5. Some in-app coin/discounts/coupons for achieving monthly goals. 6. Should consider medical history and while suggesting menus, take that into consideration. |
| 6 | Yes. If coin/discounts/coupons then that would be the keyword to tell friends about it. |
| 7 | $5-$6 p.m. |
| 8 | - |

**Participant 4:**

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| --- | --- |
| Name: | Sara Sartoli |
| Age: | 29 |
| Profession: | Graduate Student |
| Activity level: | Fair |

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| --- | --- |
| Questions | Responses |
| 1 | Positive |
| 2 | Yes- FitBit. It changes calorie goals from step counts. Once calorie consumption from one meal is entered, it adjusted the calorie goal automatically. |
| 3 |  |
| 4 | Cannot tell. If the recipe repository is very diverse then most certainly. |
| 5 | 1. Cuisine selection. 2. Vegan/ NonVeg/ allergy etc selection. 3. Options showing add two more or so ingredients and get another recipe. 4. Remember favorites and suggest new. |
| 6 | Yes. If you don’t want to stress yourself by thinking what to cook and yet stay on diet. |
| 7 | Check the trial version and then decide. |
| 8 | Most of the features from FitBit should be incorporated. |

* + **Define**

Having collected data from these 5 different users, the core problems could be identified: all the current fitness and recipe app do track a user’s calorie count and other health data and can suggest app. However, they do not let the user select the type of cuisine a user is inclined to try on a specific day, based on the available ingredients. Also, if a user can leverage the process of scanning his/her grocery bill through the app, and just select the type of cuisine he or she wants to eat during a particular week and the app can track it and be able to suggest recipes. If one or two ingredients are missing, it can suggest the user to buy that ingredient. Some user easily loose motivation to stay on calorie goals. So, if the app provides points system, that would allow a user for in-app purchases or some discount coupons that can motivate the user more to use the app and stay on calorie goals. The app should also, suggest workout and offers at nearby gyms and work as a replacement of nutritionist. ***mFit*** should also be able to suggest new recipes based on previous selections by the user.

1. **Constraints**

* Management, Developers, and Marketers need the first version of ***mFit*** to be brought to market within one year of the development project start. (3)
* Management, Developers, and Marketers need ***mFit*** to maintain core architecture for fitness tracking and menu suggestions for use in later upgrades. (2)
* Installers need ***mFit*** software to be available on all platforms like Android, iOS etc. through app store or play store. (5)

1. **Functional Requirements**

* **API:**

1. Required meta-data: age, height, sex, calorie goals, time frame. (5)
2. Optional meta-data: activity data pulled from activity app. (3)
3. Filter data: ingredients list like veggies, meat, spices, herbs etc. (5)
4. Link Filtered items: Link each of the selected item to different recipes and return the recipe with maximum number of items matched (5).

Return recipes in order of highest number of ingredients match and lowest amount of calorie contents. (5)

* **User Database:** The database is responsible for storing persisting user information.
* **Application:**

1. Collect recipes from different websites and blogs. (5)
2. Provide suggestions to users. (1)
3. Filter on categories, preferences, past selections. (3)
4. Export to external social sites like Facebook, Twitter etc. (2)
5. Providing summary. (3)
6. **Non Functional Requirements**
7. Developers need ***mFit*** to be developed to be maintainable and upgradable to increasing user needs. (1)
8. Installers need ***mFit*** to be available on all the mobile platforms and be able to connect it with social media and be able to change various personal data. (3)
9. Management, Purchasers, and Marketers need ***mFit*** to be able to scalable to accommodate large number of users without affecting the service. (5)
10. ***mFit*** requires to be sync’d with other fitness app in real time. (3)
11. ***mFit*** should be easy to use and update/maintain for a user. (4)
12. ***mFit*** aims to be zero user interface- meaning it should suggest the user than the user manually providing/selecting options. (3)
13. **Data needs prioritized**

* Installers need ***mFit*** to connect to their Activity App and stay in sync for real time calorie updates. (5)
* ***mFit*** to record age, height, weight, calorie goal and time frame for achieving that goal. (3)

1. **Interface needs**

* On startup ***mFit*** would have a login screen***.*** (5)
* For the first time user would need to register using email id password or google id, or Facebook. (5)
* Upon registration, user needs to provide age, sex, height, weight, calorie goal and time frame to achieve calorie goals. (4)
* User should have options to change calorie goals, weight and time frame changing options at any given point of time. (3)
* ***mFit*** should provide the users with check boxes of ingredients as well as a textbox to provide the ingredients not listed. (5)

1. **Security needs**

* ***mFit*** requires users to sign up for the service. (5)
* ***mFit*** would need secure logins for each users (face Id, finger prints or email/password). (5)
* Personal data of the users would not be shared with the friends or on social media or any other third party vendor without explicit user consent. (5)
* Encryption, for all data that is privacy sensitive, but must be persisted on the server in order for basic functionality. (4)

1. **Assumptions**

Instead of human interaction, the app would leverage machine learning techniques to automate ingredients to recipe mapping as well as recipe to calorie mapping.

1. **Scope of the project**

The app development aims at ingredients to recipe mapping and recipe to calorie mapping mainly. However, the fitness tracking and collecting other health data is not within the scope of the development of the app. However, the app would be enabled to sync with other fitness app to gather necessary health data.

1. **References**

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