Assignment M2, Health and Fitness Dashboard

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Abstract

Introducing a health/fitness dashboard interface for Apple's health monitoring and fitness application to track various human health focused activities including workouts, outdoors, sleep, eating, sitting, breathing and vitals including glucose, blood pressure, BMI, ECG, pulse rate, heart rate, respiration, mindfulness and mental health. Enhanced Dashboard will help to view customized feed on a different spectrum of users in one touch based on factors, including age, fitness levels, medical conditions, help users to feel comfortable, confident and motivating to focus on their health and fitness, an ease-of-use interface, guided tutorials, additional health resources, customized nutrition plan.

Needfinding Execution 1, Naturalistic Observation

Observations

Naturalistic observation helps watching people, their activities of a different kind, understand how a *fitness dashboard* could benefit them. Walking around the community, going for an outdoor run, a gym, watching sports, tv, driving to groceries, construction sites, bank, public park, swimming pools, these are some of the interesting areas that helped in observing and executing needfinding. During a different time of the day, gym enthusiasts or outdoor activists are mostly active during the morning and late evening while a few percentages do during mid noon. Workmanship individuals do high intense physical activities in terms of labor between 10 am – 5 pm. Seniors relax in public park or communities or go for low intense outdoor activity. Employees at stores or shopping mall, nurses are moderately active due to their job demand. Bankers, receptionists, IT professional, they all have less physical activity during the day while some are health conscious to walk around and stretch, others sit at their desk for long hours. Athletes, actors, trainers go to a next level and focus on fitness as their prime goal and do high intense training for their profession.

Summarization

In accordance with the above observation, the fitness dashboard could serve as an added advantage for tracking activities efficiently, self-motivation, obsession and competence mindset for above individuals. For example, gym enthusiasts or outdoor activists can track their activities under one widget on the steps, calories, exercise and try to compete themselves or like-minded people. Manual labor who does strenuous work can take this as an opportunity to self-realize how their work helps in their fitness. Athletes can get obsessed with their results and focus more on their goals. Basically, the fitness dashboard by default can have activities, active energy, steps, calories, exercise time and can customize advance metrics based on their needs like breathing patterns, foot movement for running, stretching patterns, sitting/standing hours. Naturalistic observation helped to frame ideas on the fitness needs in an interface but not at health level like showing vitals and other health metrics. The design of health dashboard would go with basic vitals and customize based on user needs; survey questions might help in understanding the aspect more.

Biases

During naturalistic observation, consensus bias came along the way while determining factors for fitness widgets, I was preconceived with a thought that everyone would be doing a workout to stay healthy, to mitigate this bias, I included the fact that there could be users who can stay fit without or less physical activities and follow a diet plan.

Needfinding Execution 2, Surveys

Observations

Survey questions were precise to 16 and they are tied to the inventory needed. Questions are organized concisely by looking for non-sensitive user information, usage of health application, importance on fitness and health, a dashboard interface and its important features, and features for disabled individuals. Out of 26 surveyors, about 80% are interested in the health or fitness application who do a fitness activity like walk, run, cycle, swim, sports, and workout. About 95% are interested in a dashboard interface that can show basic vitals, activities, nutrition,

and hydration by default with vitals includes heart rate, glucose, blood pressure and respiratory rate by default. About 95% are interested in getting nutrition tips, eye-health, mental-health awareness and think a health monitoring application is not annoying, but it is helpful in staying track on their health/fitness. People with disabilities can benefit by some of the important features like track over stretching on activities, fall detection, irregular heartbeat, time sensitive reminders, tailored fitness activities and goals, diet and exercise recommendations. 90% of survey responders are sitting in a desk for long hours due to their profession, but still, they do a physical activity between 4-7 days a week.

Summarization

Based on the needfinding execution on the survey, health/fitness dashboard interface would be a great enhancement from the current apple health/fitness application in the market. The current application is great in collecting data from a fitness tracker and show health information, but having a centralized dashboard and customizing it would benefit most people. The dashboard can be modularized with basic information, vital, activity, nutrition, tips and emergency. Vitals can show heart rate, blood pressure, glucose, a respiration rate by default and customize features like temperature, ECG, alertness. Activity widget can show active energy, outdoor activity, exercise, breathing exercises, steps climbed, miles run and more. Nutrition can show intake of calories, protein, fat, carbohydrates and hydration. Basic information like the name, medical id, height, weight, and emergency contact can be a top widget in the interface. Haptic sensation can help alert people with disabilities on fall detection, an irregular heart rate, over stretching and be aware and call emergency if required.

In the survey, the question about problems with existing interfaces are not framed and did not target kids or women centric questions because the scope gets wider, so limited questions to unisex with an age group of above 21.

Biases

Observer bias was one of the biases that I was able to mitigate during the planning process by framing the questions clearly and concisely and to reach a wide spectrum of users, unfortunately this happen to be not fully successful as most of

the users are people who sit in front of computers and couldn't get diverse requirements from other occupational perspectives.

Needfinding Execution 3, Evaluation using existing user interfaces

Observations

MyfitnessPal, Fooducate application help in tracking diet, macro-nutrient information, it provides tailored diets based on the person needs. Logging food has become easier than ever, by scanning an image application can log calories, protein, carbohydrates, fat and other nutrition into user chart. Runkeeper, Nike training, Strava provides outdoor activity tracking, Glo provides tracking for yoga, meditation, pilates, whereas Jefit focuses on strength training. A sleep cycle helps to track sleep patterns, sleep activities based on motion and noise level like sleep talking, snoring, and coughing. Apple's health and fitness application has a good interface to track fitness and health at a basic level, but there is no option to integrate a nutrition tracker and make it work efficiently with tailored needs. This application has different goals and context, the data they collect has different needs. For example, myfitnesspal's primary focus is to track nutrition and it has more advanced features like scanning food to add calories and nuances on nutrition. Exercising application focuses on each user's interest on any physical activity.

Summarization

All above applications has different goals and contexts for users, today, some of them can be integrated into the health and fitness application to collect data points, but users switch application to view health log, fitness log and diet log. To enhance this subpar user experience, all these can be integrated together, and key nutrition can be shown in the dashboard interface in a separate widget. There can be information on calories, other nutrition, and water intake. People with any profession can view basic vitals, activity and food nutrition to understand their health goals. Showing achievements on the progress, historical data views can help motivate or realize where they are with fitness goals and how they can be achieved. Sleep patterns can be tracked on a separate widget which would help in improvizing sleep health.

Biases

This needfinding exercise focused mostly on nutrition information, and I was not able to think about the interface gets integrated with a third-party application and show it on a widget, confirmation bias came along the way thinking that users would be open the widget within the same interface and log nutrition rather in reality they could open the other application too to log nutrition information. I need to find a solution to mitigate this bias.

Data Inventory

Users

Basically, any users beyond age 21 who are interested in tracking their healthy lifestyle for their betterment of health can fit into this use-case (with parental monitoring ages above 12 can also use the interface as it is a child friendly interface too). The interface is designed specifically to enhance apple's health and fitness application. The same interface can be implemented or extended for android or other OS users in the future.

Environment

There are no restrictions on demographics using the interface, based on the sensors in the fitness tracker, the health information is logged seamlessly into the application. Logging food and water could be challenging based on the environment, but the user could also do it leisurely. The time sensitive notification from the interface needs attention on any environment say, for example, fall risk for vulnerable users, irregular heartbeats, change in running stride could lead to fall, higher noise levels, increased eye strain, over stretching a workout, unstable vitals, emergency notification can have a different haptic sensation to alert the users so they provide immediate attention whereas notification like time for walk or stretch, drink water, breathing exercises could use a different rhythm in notifying, so the user don't get panic.

Context

The context would be to peek into the interface on the vitals, activity, nutrition and tips during different times of the day, it could be during their work, sleep, physical

activity, sitting, travel, driving and any place where a user needs access to health, fitness and nutrition data. Driving can be detected by the application and warn user not to use the interface if they tend to use.

Goals

The user's goal here is to monitor their health frequently to live a healthy lifestyle by following a specific set of logs and metrics on their health, fitness and nutrition. Stay informed on emergency so the user can be proactive about it.

Needs

For this the user would need a cellphone, smart watch so the inbuilt sensor can track the human body based on the haptic, thermoception, sound sensation. They should be moderate to expert in using the health and fitness dashboard, novice users can get handheld tutorials on how to use customize the interface. If the user needs assistance, caregiver or well-wisher could help them on the learning curve for the interface. For tracking or report health data, some third-party application might have to be integrated.

Tasks

Peeking into the features, customizing them based on user needs, log nutrition information, other health emergencies or non-emergency alerts are some of the primary tasks for a user. For example, an athlete wants to view heart rate, blood pressure, a respiration rate in vitals, and activity information like swimming laps, speed, pace, time taken and nutrition information (identify actions), they go into the interface click on settings to customize the dashboard (execute the interface). Then interface is finalized to show it to the user, and they interpret and evaluate the output.

SubTasks

Subtasks would be to understand and learn, how to configure settings for the interface on vitals, activity and nutrition widget. Integrate the application with third-party application like myfitnesspal. Starva, collect medical records to stay informed on the latest health metrics. Configure the notification style for emergencies or non-emergencies. Updating emergency contact information.

Defining Requirements

Some of the functionalities, the interface would provide is to show the vitals, fitness, nutrition and medical history information in standard widgets.

- Vitals widget would provide heart rate, blood pressure, glucose, a respiration rate by default and can add more by clicking on Edit button.
- Activities widget can show active energy calories, exercise minutes, steps climbed, relaxing energy, sleep pattern by default.
- Nutrition widget can show intake of calories, protein, fat, carbohydrates and hydration.
- Medical History widget can show eye health, ear health, mindfulness, emergency alerts.

Learnability is required for novice users as the interface varies to a wide range of users from age 21 to greater than 70, whereas expert users on can understand the tasks and context easily and the gulf is narrower for the. Handheld tutorial or intuitive information in the widgets could help them to configure the widgets.

In terms of accessibility, all users who are interested in monitoring their health can access. Voice recognition can be integrated within the interface for users with disabilities. Caregivers can help in accessing the interface for elderly. In terms of compatibility the interface is an extension of Apple's health/fitness dashboard, so it is compatible only for Apple Os. There is no personal information shared outside of the interface, there are medical, fitness and nutritional information are used to show historical data, but it is used only after the consent from the user and are within the compliance limitations.

Success metrics on the prototype can be weighed based on the how the user is kept engaged within the interface, how additional health or fitness metrics are configured, some of the alerts that helped a user to understand the health risk. These can be tracked based on usability of features implemented, web-analytics and the internet of things can help to track these metrics.

Continued Needfinding

Apple uses third-party application to track nutrition information, they are being integrated to health. The new dashboard interface can leverage that but logging

food within the interface could be challenging. *Hacks and workarounds* needfinding could help find out how this issue can be mitigated. The user might be using the application together to enter the details.

Application usability metrics has been added as part of the requirement, Needfinding exercises with *Errors* on those metrics could help on how the user made that error, how they were able to come out of it and proceed to the next task. These steps can be found out to mitigate those errors.

Needfinding with *Interviews* by reviewing prototypes or actual interface with a demo session to a certain set of users can help improvise the interface experience.

References

- https://www.apple.com/ios/health/
- https://www.apple.com/apple-fitness-plus/

Appendix

Appendix: Health/Fitness Dashboard