HEALTHIZENS: Mobile Health Tips 101

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Abstract. Mobile health and wellness applications are an ideal companion in managing health-related activities. Hence, it is essential for consumers who are always busy in their work and school related agendas. Moreover, it will be efficient and convenient since all the information is accessible anywhere and any time of the day. HEALTHIZENS is a mobile application developed to promote health and wellness designed for Android smartphones. This application provides helpful Body Mass Index (BMI), Basal Metabolic Rate (BMR) and calorie need calculator. The application provides a list of healthy food and nutrition information to the user as a reference. Thus, the development of this mobile application provides tools and resources to educate and to promote health and wellness to empower the users to take control of their lifestyle. An iterative and incremental methodology was used in the design and development of this project. Consequently, from testing and evaluation of the application it suggests that the HEALTHIZENS mobile application is useful in providing health and wellness information in spreading awareness to encourage people to live a healthy lifestyle.

1. Introduction

Health, by definition, is a state of physical, mental and social well-being. It implies the absence of infirmity or disease, but their mere absence does not imply being healthy. Earning and maintaining health is an active process. Good health is a result of proper nutrition, regular exercise, good health care, and hygiene [1].

In the past, the only function of a mobile phone is for communication but nowadays, mobile technology evolved and it functions just like a computer. People use smartphones for communication, managing activities, and e-commerce. There are many applications developed for smartphones practically for almost anything and one area is healthcare applications.

Healthcare application is a combination of mobile technology and health information. One of the most common healthcare mobile application today is health and wellness management. It is the ideal companion in managing health-related activities to stay fit and healthy in today's fast-paced world.

2. Objectives

The project aims to address the following objectives:

- 1. To provide general health and wellness information through mobile application.
- 2. To provide tools in calculating Body Mass Index (BMI), Basal Metabolic Rate (BMR) and caloric intake.
- 3. To provide food and exercise information.

4. To provide exercise recommendations to guide the users in establishing a workout routine.

3. Literature Review

3.1. Mobile Health

mHealth (mobile health) is a general term for the use of mobile phones and other wireless technology in medical care [2].

One of the most common applications of mHealth is Wellness App. Wellness apps help users with exercise, nutrition, and activity tracking. These apps provide training programs and nutrition plans to help users reach their health goals. Most of these apps require a connection to a wearable device and apps like Health that allow users to store data from various devices and third-party apps in one place [3].

Some of the sample mobile application includes LG Health App (by Lg Electronics, Inc.) which according to the description on Google Play Store, LG Health tracks your activity levels and provides an interface and related content based on that information, so all types of users can customize the app to fit their own activity levels, this application runs based on the Android platform. Another app is Nestle Wellness app (by Nestle Philippines) – this application provides information to the user about physical activity, nutrition and general wellness tips based on the BMI that is saved in their profile. This application runs on iOS devices.

A similar study entitled "A Design of Mobile Health for Android Applications" In this paper, a mobile health application is developed to recommend healthcare support referring to exercises on the Android Smart Phone. This application has been designed to provide exercise advice depending on Body Mass Index (BMI), Basal Metabolic Rate (BMR) and the energy used in each activity or sport [4].

3.2 Health Calculators

There are many health-related calculator applications available today. Common calculators are Body Mass index (BMI), Basal Metabolic Rate (BMR), and calorie intake calculator which helps in determining ideal weight and calorie need.

Some of the application available includes a BMI calculator app (by Splend apps), this is a free application that calculate your Body Mass Index (BMI). This is very useful to determine your ideal weight estimates. According to the description it uses the D.R. Miller formula to compute for BMI. This application is mainly use for computation to track BMI. Another application is Calorie Calculator App (by Danie Bester), according to the description, it calculates the nutritional information for any meal, it has over 500 food to choose from, can track how much calories burned with over 300 exercises.

3.3 Synthesis

The researcher reviewed and learned the important and relevant components of different health and wellness app available today. Combining the application with health tools and calculator can help the user in tracking and monitoring health-related activities. Similar to other wellness application, "HEALTHIZENS" is a mobile application with calculator features such as Body Mass Index (BMI), Basal Metabolic Rate (BMR) and calorie need. The app also features a list of exercises and a food list with nutrition and health benefit information that will serve as a guide to users. In contrast, the design of this application is simple and efficient which make it more convenient in a way that users are not required to connect to the internet in using this app. Moreover, that makes the

application an ideal companion in providing fundamental knowledge which is the main foundation in establishing a healthy lifestyle.

4. Methodology

The researcher used Iterative Incremental Model in the development of the project. This methodology allows the developer to partially finish a product at a deliverable state in a short period of time and using iteration to complete the development of the software.

In an Iterative Incremental model, initially, a partial implementation of a total system is constructed so that it will be in a deliverable state. Increased functionality is added. Defects, if any, from the prior delivery are fixed and the working product is delivered. The process is repeated until the entire product development is completed. The repetitions of these processes are called iterations. At the end of every iteration, a product increment is delivered [5].

Below is the use case diagram of the project.



Fig. 1 Use case diagram

In Figure 1, the use case diagram was used to illustrate the interaction of the user to the application. The user can view health tips, exercise, food list. The user can also calculate Body Mass Index (BMI), calorie intake, Basal Metabolic Rate (BMR).



Fig. 2 Mobile application user interface

Figure 2 shows the main user interface of the mobile application. All tools and features of the application can be found here.





Figure 3 shows one of the calculator features of the app. The BMI calculator calculates Body Mass Index (BMI) by entering height and weight.

←	Profile	EDIT	MONITOR BMI		
Juar	Juan Dela Cruz				
Gender Male Female Activity Level Sedentary:Little or No Exercise					
	Aoderate:Exercise 4-5	times/we	ek		
39	39 Age				
🔘 k	g/cm 🔘 lbs/in				
168			Height		
65			Weight		
SHOW RESULT					
Your BMI result is Normal 23.03 Your BMR result is 1.510 Calories/day					
Based on your activity level, you need 2,322 Calories/day to maintain weight, 1,822 Calories/day to lose 0.5kg/week					
000		kercise/a			

Fig. 4 User profile

Figure 4 shows the user profile module where the user can input name, gender, activity, age, height and weight which can be saved and can be used by the application in computing the BMI, BMR and calorie need.

5. Results and Discussion

A survey was conducted to evaluate the HEALTHIZENS mobile application in terms of delivering health and wellness information to users. There were eighty-nine (89) respondents participated in the survey.

Below are the results of the evaluation from respondents.

General Statements	Agree	Disagree
The Body Mass Index (BMI) provides precise results	100%	0%
The Basal Metabolic Rate (BMR) provides precise results	100%	0%
The calorie calculator provides precise results	100%	0%

Table 1 Results of the survey: Accuracy of computed results

Table 1 illustrates the evaluation of the survey from eighty-nine (89) respondents. The result shows one hundred percent (100%) agreed in accuracy on the precision using the calculator of the mobile application while zero percent (0%) disagreed.

Table 2. Results of the survey: Completeness of health and wellness information

General Statements	Mean	Interpretation
Substantial health tips are provided.	4.53	Strongly Agree
Contents being provided is well explained	4.54	Strongly Agree
Total	4.54	Strongly Agree

Legend: 1.00-1.80 strongly disagree 1.81 - 2.60 disagree 2.61 – 3.40 neither agree or disagree 3.41-4.20 agree 4.21-5.00 strongly agree

Table 2 presents how well the information is presented on the mobile application. The overall interpretation of the result shows that respondents strongly agree that item one (1) with a mean score of 4.53 suggests that the information provided on the application is useful while item two (2) with a mean score of 4.54 suggests that the contents are easy to understand.

Table 3. Results of the survey: Sufficient food and exercise information

General Statements	Mean	Interpretation
Commonly consumed food and its nutrition information are provided	4.51	Strongly Agree
The exercise videos are not confusing and complicated to follow	4.56	Strongly Agree
Total	4.54	Strongly Agree

Legend: 1.00-1.80 strongly disagree 1.81 - 2.60 disagree 2.61 - 3.40 neither agree or disagree 3.41-4.20 agree 4.21-5.00 strongly agree

Table 3 illustrates the results of adequacy of food and exercise list to users. The overall interpretation of the results shows that respondents strongly agree that the app provides useful information they need in terms of nutritional information with accumulated mean of 4.51. While in item two (2) with a mean score of 4.56 suggests that the video/animation demonstration provided on each exercise is very helpful.

Table 4. Results of the survey: Relevance of exercise recommendations

General Statements	Mean	Interpretation
The exercise suggestions include simple but complete instructions	4.69	Strongly Agree
that are easy to follow.		
Appropriate workout regimen for each body type is provided	4.63	Strongly Agree
Total	4.66	Strongly Agree

Legend: 1.00-1.80 strongly disagree 1.81 - 2.60 disagree 2.61 - 3.40 neither agree or disagree 3.41-4.20 agree 4.21-5.00 strongly agree

Table 4 presents the importance of exercise suggestions provided by the mobile app. The overall interpretation of the results shows that respondents strongly agree that item one (1) with a 4.69 mean score which means that the exercise suggestions is helpful in terms of ease of use while the item two (2) with a mean score of 4.56 suggests that it is helpful in building exercise routines for the user.

SUMMARY OF THE RESULTS

The categories that were evaluated include:

- 1. Accuracy of computed results
- 2. Completeness of health and wellness information
- 3. Sufficient food and exercise information
- 4. Relevance of exercise recommendations

Table 5. Summary from calculator results

Category	Agree	Disagree
Accuracy of computed results	100%	0%

Table 5 presents the summary from calculator results as part of the four (4) categories evaluated by the respondents. A 2-point scale was used in this category to show the capacity of the application in supplying exact results. The overall result shows that one hundred percent (100%) of the respondents agreed that the calculator found on the mobile app provides accuracy in calculating results while 0% disagreed.

Table 6. Summary of the mean scores

Category	Mean	Interpretation
Completeness of health and wellness information	4.54	Strongly Agree
Sufficient food and exercise information	4.54	Strongly Agree
Relevance of exercise recommendations	4.66	Strongly Agree
Total	4.58	Strongly Agree

Legend: 1.00-1.80 strongly disagree 1.81 - 2.60 disagree 2.61 - 3.40 neither agree or disagree 3.41-4.20 agree 4.21-5.00 strongly agree

Table 6 shows the summary of the mean result from the evaluation. A 5-point scale was used for the rest of the categories being evaluated to gauge the level of agreement by the respondents. The result obtained from item one (1) shows that respondents strongly agree with 4.54 weighted mean which indicates that the information provided a well presented on the mobile application. While item two (2) has also 4.54 weighted mean which shows that the respondents strongly agree that the mobile application provides an adequate list of food and exercises information to the user. On the other hand, item three (3) shows that the respondents strongly agree with 4.66 weighted mean that the suggestions made by the application helps the user in establishing exercise routines.

6. Conclusion

- 1. A mobile device is a great tool not just for communication but it is also a great source of information with the use of a mobile app such as HEALTHIZENS mobile app in providing health awareness information to people.
- 2. The calculator on the app generates a helpful result to guide in providing knowledge on the users' ideal body weight.
- 3. Searching for exercise and food list on the internet can be a daunting task and time consuming; respondent agreed that this application provides substantial food information and exercise list that users can easily follow.
- 4. The suggestions on the recommended exercise of the application are helpful in establishing exercise regimen.

7. Recommendations

- 1. The project can be enhanced for future development by including a module that will support external devices such as (heart rate monitoring, to track runs, weight scale and the like).
- 2. The study can also be used by researchers as a reference in their projects relating to the same study.

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