Software Architecture, Advance Master Units for IT44

Science and Engineering Faculty

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Health Activity Software Evaluation

By

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**Title**

Health application evaluation is an important process to collect and analyze data from user’s activities, outcome and feedback. The objective of evaluation is to support and improve program in terms of design and implementation.

**Introduction**

In today’s software application are becoming more popular and essential in people life. For example, it can help an organization to manage a thousand of bank account to do several activities such as transfer, withdraw and deposit money. According to these example activities, software is a middle tool of communication between organization and user which mean it can effect direct to an organization if the software provide an low quality and unexpected information to what user needs. In term of creating a high quality of software, software evaluation can identify what to improve and what to change based on user experience and usability. There are several sections to evaluate software, in this project will focus on performance, usability and maintainability. In addition, evaluation cannot be done only on a user, there are some part of technical problem such as software architecture, process flow and environment usage. The evaluation need to cover in perspective of variety of users, general user, user developer and developer. Lastly, there are several health application has been published public and also they have a similar feature which is acceptable. On the other hand, evaluation will be a useful methodology to explore an idea how to create the same feature in a different way, support developer to identify barrier of feature’s usability. This health evaluation will be a evaluate food and sleep features of heath activities after the first prototype of health activity challenge complete around a mid of semester one and then when the evaluation success, the application will use those information outcome from the evaluation to implement the second prototype and make a comparison at the end of semester to use in oral presentation.

**Purpose and aims**

This evaluation will focus on three main quality approach on food and sleep features. Firstly, the evaluation of performance is a high quality of software process to produce an accuracy information and smoothly. For example, food feature will motivate people to take a photo of what they eat and automate generate a calories for each type of food. On the other hand if the software provides an incorrect calories amount so that user can notify developer to improve this part of a feature. Secondly, the evaluation of usability will focus on complexity of a user interface and user experience. For example, sleep feature will ask user to input several type of data before they start this activity such as how long will you expect to sleep, day time or night time, full sleep or take a nap. According to this input requirement, there are some users might stumble and confuse with a complex user interface to complete this feature, they will be able to comment direct to a developer to combine every single data into one page or use system driven which have less input to get a correct result. Lastly, the evaluation maintainability is the most significant part for future development. This evaluation will focus on technical terms to support a developer. For example, the application will use a pulse rate function to count a heart rate while user sleeps. After that, developers create their own function to calculate a heart rate from a beginning and at the end of process they find that it takes more time than using the API that was already provided online. The maintainability will collect this information to suggest the next developers in the future part.

This project will focus on social sharing health information to friend list. Users aim to invite friend to complete health activity challenges such as walking a hundred steps within one day or eating good foods by taking a photo and post to friend list invitation to challenge to another person. In today’s technology, social network become more powerful of sharing data, people can post their activity such as image or statement to their friends list and listen to a feedback. Social activity is an essential methodology to motivate people to continuing use the application. Move to the next point, the main parameter is a number of calories burning. The application will use this data to analyze how often people interact with their health activity, at the end of a stage the data will convert into a score to show every day ranking. Lastly, the application aim to use a strategy of system driven to motivate people of collecting data and support them to answer themselves about health questions and also keep people use an application longer by using social sharing and game strategy to make an application to be more simple to use.

**Significance**

Currently, previous health applications that published online, there are several applications which does not generate appropriate information needs. After that people decide to begin with another tool and face another problem with a different data format. This project expects to develop a distinction of health application that already provided in public. Create a simple interface for user to collect data in long term use. When data are collected properly so that the system will be able to generate appropriate information needs for user and use social sharing to interact more people to complete a daily challenges with an accuracy real time data.

**Project approach or design**

Health information needs are important variable to predict and help people day to day. This can be called “self-knowledge”. Health application will be effective and powerful collector tools in a future as a part of human daily life.

**Specific data requires:**

There are two main data to collect, calories burning and time. These two data will collect at the same while people start the activity challenge application will calculate calories burning depend on what type of physical activity they are prefer. At the same time, the application will collect a time whenever people start the activity. In terms of Calories burning , the application will display current calories burning up to date every day and also it will provides a ranking of friend list to see who reach a top rank. This tool is simple to understand, it can motivate people to complete a challenge to keep exercising and stay healthy. In time record, the application can generate a graph to analyses how long people will take to complete this challenge and how much calories burning per day.

**Participants require:**

This project will focuses two types of personal behavior. Firstly, healthy people will be volunteers to test an application with their daily exercise. The expectation of health people is to focus on their estimation burning calories. Secondly, working people will be another group volunteer to test this application. The objective is to motivate working people to start to take care of their health after they leave their job.

There are several previous research documents and paper related to this topic, it shows about user information needs, significance variable to achieve and risk management in within the broader disciplinary field. These are essential information needs to prepare before and learn before implement a first prototype application.

According to an ethical impact to this project, this project is a positive perspective thinking, being healthy and self-knowledge. The main purpose is to help people stay healthy. This is less ethical impact than other application that relevant sensitive information such as short cut to earn money, inappropriate images and game addiction. In addition, this prototype can be developed in the future by adding more useful feature related to user information to export data as information needs.

**Project Plan**

**Tools and Environment Setup**

Tools:

Android studio version 1.0

Hosting server

Devices:

Mobile phones with an android operation system not lower version 4.4.2 API 21

Smart watch Motorola 360

Programming skills required:

Java, PHP, parsing XML, HTML, SQLite and MySQL

Essential Methodology

This project will be used the questionnaire to collect data of users. Questionnaire is the tools to help developer to analyze data to improve current features or create a new feature in the future plan. In addition, it will help writing on a report. For example, graph is created by an accuracy data and then data come from an effective questionnaire. Graph is a simple module to present data clearly.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Week1 | Week2 | Week3 | Week4 | Week5 | Week6 | Week7 | Week8 | Week9 | Week10 | Week11 | Week12 | Week13 | Week14 |
| Discuss with supervisor to identify main target users and goals of the project approach. After that start writing a project plan | | |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Submit Project Plan |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Implementation Application | | | | | |  |  |  |  |
|  |  |  |  |  |  |  |  | Unit Testing | |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | Start to collect data from volunteers to record their feedback.  Use their feedback to analyze then start writing a report | |  |  |
|  |  |  |  |  |  |  |  |  |  |  | | Start to prepare for an oral presentation 2nd and 4th June. Submit a report at 23rd June | |

**Risk Assessment**

There are risks that can be occurring during a project progress. Firstly, the system may be unclear and confused a volunteer who will use this application. To solve this problem, the application will add a feature of basic tutorial for a new user to learn a system step by step. Secondly, this survey is long term process to complete. To collect data it may takes a week to succeed so that some volunteers may abandon from these observations during a process. This problem can be solved by arrange a meeting twice a week to see the improvement during an observation. Moreover, the open-end questionnaire will be a part of tools to collect a specific data from a volunteer to support and prove on a report at the last stage of this project. Lastly, the system may show an inaccuracy data that is an opposite of a realistic that user face in each situation. According to this problematic, the agile strategies will be included through the implementation part such as create a story board to find appropriate features to include to an application after that to ensure the system will provide an accuracy data by using several test cases to detect a particular failure that will rise up when people use.

**Communication**

The tools to use to contact the research projects supervisor will be an email. According to an email, the more details inside can be issues that occur during implementation process, new plan to change or a new feature to add. Moreover, details in an email are a brief of topic to discuss with a supervisor at a meeting.

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