KIT305/KIT607

Assignment 2

Implementation and Evaluation of a Mobile Application Healthy Living – "The need for a balanced diet"

Due Date

The assignment has three assessable components:

- The application **code** (worth 50%; pair-based work), due on Tue.17.May.2016.15:00 (week 12).
- A **demonstration** (worth 10%; pair-based work), due in your scheduled tutorial (week 12).
- A **report** (worth 40%; pair-based work), due on Tue.24.May.2016.15:00 (week 13).

Background

In assignment 1, your task was to design and prototype a mobile application that allowed a user: to easily record their daily food servings from each of the five food groups; monitor whether they are meeting the recommended nutritional daily and weekly guidelines; and provide the user with suggestions on how they might improve their diet.

Your task for this assignment 2 is to now implement and evaluate a mobile Android or iOS application that provides the functionality as outlined in that assignment 1 (also repeated for convenience below).

This is a pair-based assignment. Group members will need to agree on a target mobile OS (Android or iOS), and - after some usability think-aloud testing of the available prototypes – agree on the design that is to be implemented in code.

The goal of this assignment is to assess your ability to implement and evaluate mobile applications, and to demonstrate your understanding of the fundamentals of mobile device programming when applied to a practical context.

Code (50%)

The application that you are to implement must consist of at least:

- A main screen providing the name of your application and buttons that link to the other functionality of your application. Background images, motivational support, and current progress in fulfilling the dietary guidelines are some additional features that you may consider incorporating.

- A screen that allows a user to record his or her daily food servings from each of the five food groups. This should include the type of food, the food group to which it belongs, and the quantity (as measured in servings). Depending on your application design, this data may be entered by the user at the end of the day, or throughout the day as part of a running total. Additional functionality may focus on providing the user with information on what a serving size is for each of the food groups, or intuitively incorporating serving sizes into the manner in which quantities are recorded by the user. Additional functionality may also be to record foods that are not part of the five food groups (i.e. discretionary choices like sweets) as outlined on page 27 (NHMRC, 2013).

- A screen that allows a user to view his or her past historical data on food patterns. This screen should also indicate to the user how his/her diet compares to the suggested recommended serving guidelines for each food group. Depending on your choice of design, this summary might show a running summary (e.g. for the last 7 days) or a summary based on the past calendar week, or month.

- A screen that provides feedback on how the user can improve his or her diet. This screen might be personalised to the user or just provide generic suggestions. Similarly, the feedback might be presented to the user at a contextually relevant time in the use of the application, or simply as a screen that allows the user to find out more information.

An important feature of your application will be its usability, i.e. learnable, memorable, efficient, failure-resistant, forgiving, and satisfying. For the purpose of this assignment, particular emphasis will be placed on the "forgiving" aspect of usability. This means that your application should allow a user to correct accidental and incorrect entries.

Report (40%)

You will have been reading many articles throughout the semester that report on the design, iterative refinement, and evaluation of new mobile and ubiquitous computing applications. Your readings have also been complemented by articles on interaction design and discount usability methods. Accompanying the implementation of your application will be a report outlining how you were able to apply the process of usability testing (and specifically think-aloud evaluation) to iteratively improve the design and usability of your application.

You must write a report that is up to six (6) pages long. It must be in the SIGCHI Extended Abstracts format used for Works-In-Progress (WIPs). Both LaTeX and Word templates exist for this format and are available to download from: >> http://www.sigchi.org/publications/chipubform/sigchi-extended-abstracts-format-2016/view.

In your report, you will include the following sections: Abstract, Introduction, (Prototype) Design, (Usability) Methodology, Results, Discussion, Conclusions, and References. Sections can be combined if required. Similar to many of the semester readings, your report will also include Author Keywords and ACM Classification Keywords[1].

The Design section of your report will outline how your application can be used to provide the functionality described in the original assignment 1 specification, and it will show differences between the multiple low-fi prototypes and the final high-fi prototype that was implemented. The Methodology section will outline the usability testing that was employed. It will also include details on how the testing was conducted, including a description of the user participants and the tasks that were chosen for the think-aloud evaluation (with a table showing tasks in rows and requirements in columns). The Results section will report the results of the usability testing, in a table, and showing tasks as rows and each user's performance as columns, with each cell showing whether the user succeeded at the level demanded by the requirement (e.g. unaided, or requiring assistance, or failed). The completion times for the test tasks may also be included in this set of results. The Discussion section will provide a self-assessment critique of performance on all of the above criteria, and will include a summary of the strengths and weaknesses of the application. The report will also link to the set readings and to other literature and resources as appropriate.

Demonstration (10%)

In addition, you are required to demonstrate your application during the week 12 tutorial timeslot. The demonstrations will be limited to four (4) minutes total. All group members must participate in the demonstrations, and the 4-minute timeslots will be strictly enforced to ensure that all presentations are completed within the tutorial session. The group demonstrations will need to:

- State the goals of the work for a broad public,
- Outline the design and testing that was conducted,
- Provide a convincing example of how a person would use the prototype, and
- Provide convincing evidence that the application meets its goals.

[1] ACM Computing Classification System for Keywords (1998): http://www.acm.org/about/class/ccs98-html

Assignment Submission

The following files must be submitted via MyLO before 15:00 on Tue.17.May (Week 12):

- One zip file, containing the project files. The zip filename should start with your UTAS account name (either members' name is fine).
- A group assignment coversheet (available from the ICT website): http://www.utas.edu.au/__data/assets/pdf_file/0005/161375/GroupAssignmentCover.pdf

In addition, the following file must be submitted via MyLO before 15:00 on Tue.24.May (week 13):

- The accompanying group report, in PDF format, with a filename that starts with your UTAS account name (using the same members' name as above).

Only one group member needs to submit these deliverables.

KIT305/KIT607 Assignment 2, Semester 1, 2016: Implementation and Evaluation of a Mobile Application					
Criterion	**High Distinction (HD)**	**Distinction (DN)**	**Credit (CR)**	**Pass (PP)**	**Fail (NN)**
Code (50%) [ILO2]: Student is to implement a mobile application that: - Consists of at least a main screen; a screen that allows a user to record his/her daily food servings from each of the five food groups; a screen that allows a user to view his/her past historical data on food patterns; and a screen that provides feedback on how the user can improve his/her diet. - Allows the user to correct accidental and incorrect entries.	The application compiles and runs. Application implements all required functionality; no bugs; and all screens work as intended, providing a seamless experience. The interface is highly intuitive; provides a consistent look and feel and usage across all screens; aligns with the user-centred design principles (incl. correction of accidental and incorrect entries). Iterative refinement through prototyping and formative usability testing can be clearly seen and is very well justified.	The application compiles and runs. Application implements all required functionality; only very minor bugs; and all screens work. The interface is highly intuitive; aligns with the user-centred design principles (incl. correction of accidental and incorrect entries). Iterative refinement through prototyping and formative usability testing can be seen to exist and is well justified.	The application compiles and runs. Application has most functionality; few bugs; and all screens work. The interface is somewhat intuitive; and somewhat caters for user-centred design principles. Some improvement due to prototyping and formative usability testing and evaluation can be seen to exist and is justified.	The application compiles. Application has minimal functionality; the user can view each screen but they do not function correctly.	The application does not compile. Application has almost no functionality; many bugs; and screens do not work.
Report (40%) [ILO3, ILO4, and ILO5]: Student is to create a report up to 6 pages long and using the specified template and specified report sections. The report will: - Describe the functionality that has been implemented; and provide a user-walkthrough including images of the low-fi and high-fi prototypes. - Outline the usability testing that was conducted and the procedure in which it was conducted. - Report the results of the usability tests. - Provide a self-critique of the application's performance, including strengths and weaknesses of the application. - Link to the set readings and other literature and resources as appropriate.	Report covers all of the required sections. It is very well structured, has the required length, and has a logical flow between sections. The level of detail provided is excellent (i.e. clear and concise but with detailed coverage and design decision justifications). At least three prototypes are evaluated over multiple rounds of testing (e.g. two low-fi and then a final high-fi). The employed usability testing is well described and well founded; and accompanied by clear usability test tasks and success requirements. Results are complete (and in a concise table), and include also completion times; and a thorough discussion of the results also exists. Linkage to the set readings is excellent. English conventions of spelling, grammar, and punctuation are excellent.	Report covers all of the required sections. It is well structured, has the required length, and has a logical flow between sections. The level of detail provided is very good (i.e. clear and concise but with detailed coverage). At least three prototypes are evaluated. The employed usability testing is well described; and accompanied by clear usability test tasks and success requirements. Results are complete (and in a concise table); and a thorough discussion of the results also exists. Linkage to the set readings is good. English conventions of spelling, grammar, and punctuation are excellent.	Report covers all of the required sections. It is well structured, has the required length, and has a logical flow between sections. The level of detail provided is good, the report reads well, and the images and their descriptions are labelled and easy to follow. At least two prototypes are evaluated. The employed usability testing is described. Results are complete, and some discussion of these results also exists. English spelling, grammar, and punctuation are good.	Report covers most of the required sections. It contains an overview of the functionality and some screenshots. At least one prototype is evaluated, and most required details of the testing procedure and results also exists.	Fails to provide a report.
Demonstration (10%) [ILO5]: Within the allocated 4-minute group timeslot, students are to: - State the goals of the work for a broad public. - Outline the design and testing that was conducted. - Provide an example of how a person would use the prototype. - Provide evidence that the application meets its goals.	The demonstration convincingly covers the required objectives and holds the attention of the audience. It is clear and rehearsed; flows nicely over the different topics and speakers. The demonstration is coherent, interesting, and informative; eye contact is made; and the demonstration is complete within 4 minutes. The demonstration is not rushed.	The demonstration convincingly covers the required objectives. It is clear and rehearsed; flows nicely over the different topics and speakers. The demonstration is coherent; and complete within 4 minutes. The demonstration is not rushed.	The demonstration covers the required objectives. The demonstration is clear and rehearsed and complete within 4 minutes.	The demonstration somewhat covers the required objectives.	Fails to demonstrate.

The superscripts used above indicate the unit ILOs that these criteria map to, i.e.:

ILO2: "Apply theoretical and practical knowledge to develop applications that are mobile-device specific and that demonstrate current practice in mobile and ubiquitous computing contexts."

ILO3: "Apply standard design approaches to create user interfaces and to adapt these interfaces to the particular emerging demands of mobile and ubiquitous computing systems."

ILO4: "Evaluate mobile and ubiquitous computing applications based on discount and user-based usability techniques, and to select and to justify the most appropriate technique for a particular situation."

ILO5: "Demonstrate effective communication skills (including written and verbal) across a range of professional contexts and the ability to work independently and collaboratively with other students during the design, development, and evaluation of mobile and ubiquitous applications."