

BEACH MONITORING APP

Evaluation Assignment – 6

CS 5760 – HUMAN-COMPUTER INTERACTIONS AND USABILITY

Usability Test Report

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Introduction:

Description of system:

During the swimming season, the swimming conditions are monitored at many beaches between one and five times per week. Measurements that are taken on-site can be used to develop a model that predicts bacteria levels and they are part of a standardized sanitary survey. The sanitary survey information helps public health professionals identify potential causes of contamination. The application needs to capture observations made at the beach. Often student interns are hired to collect data and most have access to a smartphone. In some locations, WIFI or cellular signal may be limited so the app needs to be able to store the collected information until the collector is within signal range to send the data to the centralized database or beach manager who then uses the data as inputs to the model.

Usability Test purpose:

Usability Testing is a process to uncover usability problems by observing potential users performing tasks on a prototype. Usability test plan is required to meet the needed to properly structure of usability testing. This Usability testing is aimed for a Beach monitoring app to found out potential usability issues. Usability testing is also an effective way to find out bugs of the applications or the functionality errors.

Description of UI:

Since this app being developed uses the server as web interface on smartphones this app belongs to “**Mobile Data Collection App**”. Users use their smartphones’ web browser to go to application home page. From there they can navigate to different forms after creating a report and then submitting the report to send the information. Submitting the report will download “.csv” file which can be shared.

Test Goals

The goals of usability tests are as follows:

- I. Check UI of app
- II. Get User’s feedback
- III. Finding bugs which degrade/break functionality of the application
- IV. Consistency of design
- V. Finding User’s will require application training or not

Test Description:

The process of the usability testing followed the following steps:

- I. A participant came, listen to basic information about the application, read a consent form and signed it.
- II. Then the participant answered some pre-test questions.
- III. After that testing started where there were three scenarios for each participant. In each scenario, participant performed some tasks.
- IV. Test observers took notes of the whole testing process and observed user’s behavior. In the process of performing the tasks, if any problem occurs or any UI elements did not show the expected behavior, it is noted as a bug.
- V. After the scenarios were gone through, then participant answered some post-test questions and gave any comment or feedback.

Test Plans:

Test Scenario -1:

1] Test Scenario Name: Create and submit one report

2] Goals for test scenario:

To determine how much the first-time user of the app could understand the app and complete the main task. The general idea and purpose of the app would be described for the participant but no instruction or demo on the app would be shown.

3] Quantitative measurement list:

- I. The participant could finish the task or not
- II. Time to complete the task
- III. Number of times the participant asked for help/assistance
- IV. Number of wrong taps/errors in entering data
- V. Check for confirmation messages to ensure task completion.

4] Scenario description:

You are a student intern working at the beach and you need to take the measurement complete the report step by step and submit it. You are provided with a sample data set of measurements from one of the beaches. You must create a new report, complete it and submit the report.

5] Task list:

- I. Create A new report
- II. Fill the data in forms
- III. Review the data
- IV. Submit the form

6] Qualitative measurement list:

- I. The confusing pages/tasks for the participant
- II. The reason that the participant asked for assistance/help

- III. Facial and verbal expression.
- IV. Participants comfort finding the form/ menu keys.

7] Potential observations of participant:

- I. User's facial expressions while finding a form
- II. User's attention in towards task
- III. User's comfort while filling the forms

8] Bug Report Form:

Bug Number	Bug Name	Bug Uniqueness	Bug Location	Bug Description

9] Post scenario interview questionnaire:

Rate on your experience using the app 1st time.

- I. Do you understand the app? (1 is least understanding)

1 2 3 4 5

10] Test setup details:

Tests will be performed in a room on Android phone/ iPhone/ Tablet.

Test Scenario -2:

1] Test Scenario Name: View and edit past and incomplete report.

2] Goals for test scenario:

To determine if the user can recall the previous incomplete reports and past submitted reports. The test will be performed to evaluate the app design on the basis of user's effortless and fast performance of accomplishing the task. To check if all the fields, buttons, pages and their interactions work properly. To identify bugs and complexities of the app while performing the tasks.

3] Quantitative measurement list:

- I. No. of times user needed assistance.
- II. Number of wrong taps/errors in entering data
- III. Check for confirmation messages to ensure task completion.

4] Scenario description:

You are a student intern working at the beach. You are revisiting the beach and you want to see the incomplete report and add/ edit the information. Also, you want to read the past report.

5] Task list:

- I. Open incomplete report
- II. Review the information
- III. Add/ Edit the required fields
- IV. Submit the report
- V. Open Past report
- VI. Review the report

6] Qualitative measurement list:

- I. The confusing pages/tasks for the participant
- II. The reason that the participant asked for assistance/help
- III. Facial and verbal expression.
- IV. Participants comfort finding the form/ menu keys.

7] Potential observations of participant:

- I. User's facial expressions while finding a form
- II. User's attention in towards task
- III. User's comfort while filling the forms

8] Bug Report Form:

Bug Number	Bug Name	Bug Uniqueness	Bug Location	Bug Description

Test Scenario -3:

1] Test Scenario Name: Offline test

2] Goals for test scenario:

To determine if the user can use the app while there no data connection. The test will be performed to evaluate the app design based on user's effortless and fast performance of accomplishing the task. To check if all the fields, buttons, pages and their interactions work properly offline. To see the user's comfort and reaction while using the app when there is a network issue at the location. To identify bugs and complexities of the app while performing the tasks.

3] Quantitative measurement list:

- I. The participant could use the app even after no data connection availability.
- II. Number of times the participant asked for help/assistance
- III. Functioning of key's/ menu options
- IV. Check for error messages/ bugs while using the app offline.

4] Scenario description:

You are a student intern working at the beach. You are visiting the beach where the data connection is limited. You are working on a report like the first task while doing performing the task you lost the data connection and performing the task but offline.

5] Task list:

Offline

- I. Create A new report
- II. Fill the data in one form
- III. Save the form

Online

- IV. Review the same report in incomplete report

6] Qualitative measurement list:

- I. The confusing of the participant while using app offline
- II. Facial and verbal expression

- III. Participants comfort
- IV. Participants reaction to the offline app response

7] Potential observations of participant:

- I. User's facial expressions
- II. User's attention in towards task
- III. User's comfort while using app offline

8] Bug Report Form:

Bug Number	Bug Name	Bug Uniqueness	Bug Location	Bug Description

9] Post scenario interview questionnaire:

The difference you felt while using the app offline?

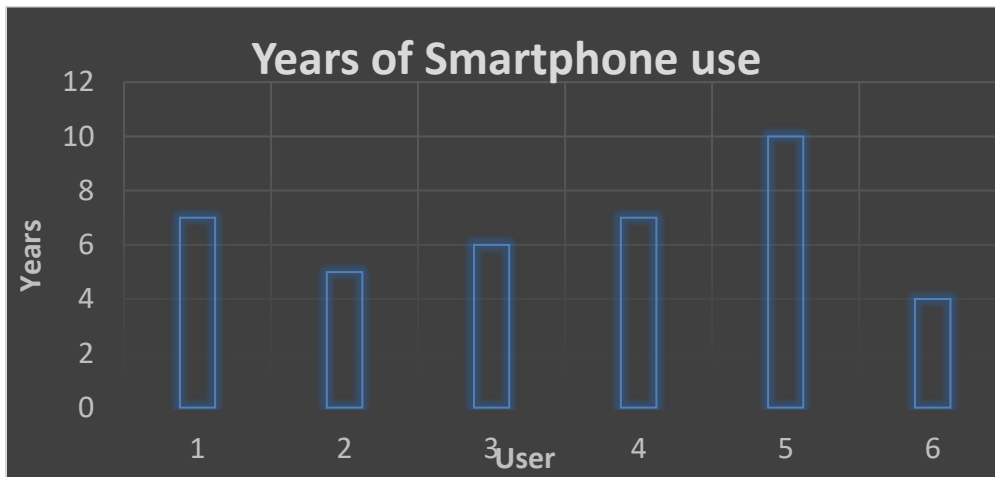
10] Test setup details:

Tests will be performed in a room on Android phone/ iPhone/ Tablet. We will use airplane mode available in smartphones and tablets to create desired offline environment to perform this test.

Results:

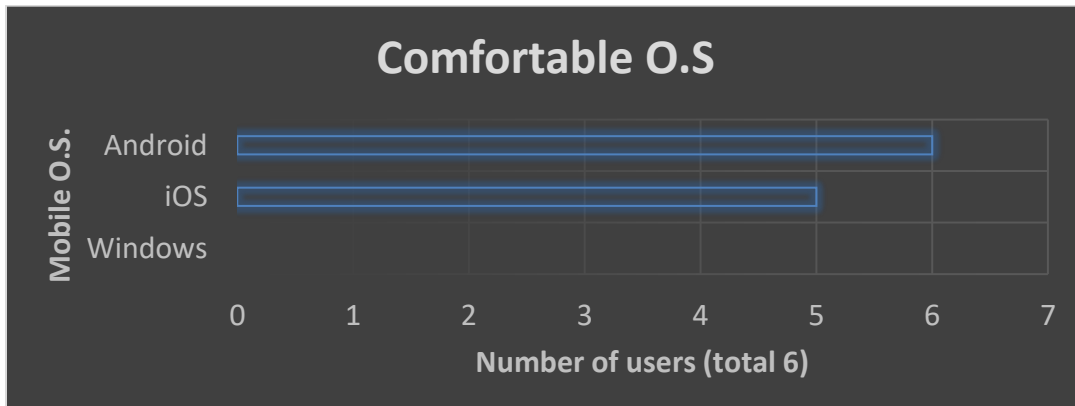
Pre-test questions:

1. **Sufficient** How many years have you used a smartphone?



The experience of using smartphone among users varied from 4 to 10 years.

2. **Which smartphone OS are you comfortable with?** Select all that apply



All users were comfortable with Android OS, and no one was comfortable with Windows.

3. **I am very interest in the testing of this application.**

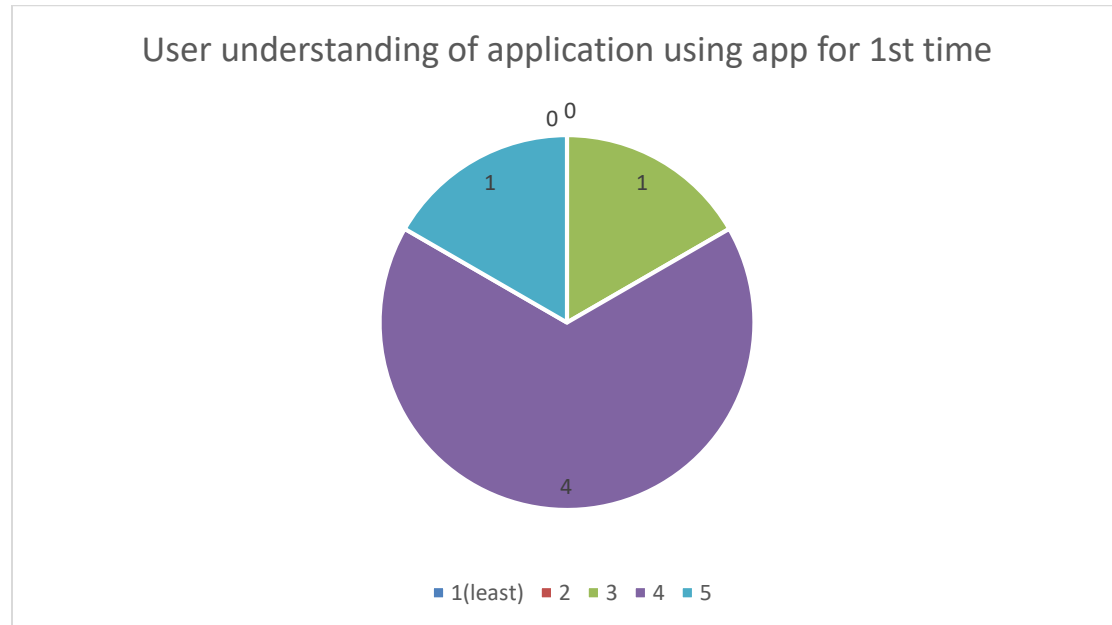
Every user strongly agreed to this statement.

Post-scenario question:

Post scenario-1 interview questionnaire:

Rate on your experience using the app 1st time.

I. Do you understand the app? (1 is least understanding)



The majority of users gave "4" rating to their understanding of using the application 1st time. That defines the application is easy to understand.

Post scenario-3 interview questionnaire:

Q. The difference you felt while using the app offline?

Review: No user found any usability difference using the application offline.

Quantitative measurements:

Time taken to complete task	<ul style="list-style-type: none">• 7 to 12 min (Scenario 1)
Ask for assistance	<ul style="list-style-type: none">• Sometimes
Doing Error	<ul style="list-style-type: none">• Very few
Task Completion	<ul style="list-style-type: none">• Everyone completed given tasks successfully

Qualitative measurements

User's Facial Expression	<ul style="list-style-type: none">• Several different expressions on different stages of app• Curious, Frustrated.
User's Attention towards tasks	<ul style="list-style-type: none">• Every user was attentive towards tasks
User's Comfort	<ul style="list-style-type: none">• Mostly Comfortable• Got some frustration filling long forms
Reasons User's ask for assistance	<ul style="list-style-type: none">• Mostly the questions was about the form contents• Saving the report

Post-test questions:

System Usability Review: I took system usability feedback from every user (total 6).

Bellow table give an analysis of all the feedback.

***Number in box represent a total number of users opted for that choice.

		<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
1.	I would like to use this app frequently.	4	2	-	-	-
2.	I thought the app was easy to use.	5	1	-	-	-
3.	I found the app unnecessarily complex.	1	-	-	2	3
4.	I think that I would need the support of a technical person to be able to use this app.	-	-	-	3	3
5.	I found the various functions in this app were well integrated.	4	1	1	-	-
6.	I thought there was too much inconsistency in this app.	-	-	-	5	1
7.	I would imagine that most people would learn to use this app very quickly	6	-	-	-	-
8.	I feel very confident to use the app now.	5	1	-	-	-
9.	I needed to learn a lot of things before I could get going with this app.	-	-	-	4	2
10.	This App is a reliable tool for assigned task.	5	-	1	-	-

Conclusion:

Usability Problems:

- I. The behavior of Checkbox weird.

This one is a most critical bug in the app. The checkbox selection does not work on many occasions.

- II. Saving was confusing.

There is no specific key for saving the report since many users got confused.

- III. Can't click on the beach name to see and edit the data.

The user has to click on edit symbol to open the report which is not user-friendly.

- IV. The function of SUBMIT key is confusing.

Pressing the submit key downloads the .csv file and does not submit the report anywhere which is confusing for users.

Suggestions:

- I. Fix the Checkbox bug.

- II. Save & Exit Key.

Include save & exit in forms.

- III. Renaming Submit Key

- IV. Removing Submit Key in past report/ Rename as Redownload

- V. Open report by click on the name of the beach.

Appendix A:

Attendance of undergraduate students (Developers) during tests are given bellow.

Test	Undergrad 1	Undergrad 2
1	Nicholas Muggio	James Roznick
2	Nicholas Muggio	James Roznick
3	Miles Martin	Michael Gryzwa
4	Nicholas Muggio	-
5	Nicholas Muggio	James Roznick
6	Nicholas Muggio	James Roznick

Appendix B:

Bug Report:

Bug Number	Bug Name	Bug Uniqueness	Bug Location	Bug Description
1	Functionality of SUBMIT Key	Once happen for only one user	Review page	Submit Key did not function. No response after pressing submit Key.
2	Checkbox	Frequent Every user encounter this bug	In every form where check box is present	Check box functioning is unpredictable. Many times, it only shows the click but does not respond and show a tick in the Checkbox.