

BEACH MONITORING APP

Evaluation Assignment – 2

CS 5760 – HUMAN COMPUTER INTERACTIONS AND USABILITY

HEURISTIC EVALUATION

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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.

UI Domain Identification:

Since this app being developed uses server as web interface on desktop as well as smartphone this app belongs to **web UI domain**. In this app, the measured data will be entered manually using keyboard there for this app also come under text UI domain. This app uses database to store measurements that are taken on-site hence it also belongs to data catalogue website UI domain

Heuristic usability principles for the design's UI domain

Sufficient information design:

The display should be designed to convey “just enough” information. Too much information cramps the display, and too little makes the display less useful.

In this app, we get information of beach name, date the data last edited and information about measurements which we are inserting.

Aesthetic and pleasing design

The display should be pleasing when it is placed in the intended setting.

Display of app and brightness should be taken care as this app is going to be used mostly outdoor in different weather conditions.

Visibility of state

An ambient display should make the states of the system noticeable. The transition from one state to another should be easily perceptible.

In this app, we get prototype views which fulfil this principle. User can in which order they would like to answer question and can see the progress at any point.

Useful and relevant information

The information should be useful and relevant to the users in the intended setting.

The information and the questions provided in app are useful for the user when they are taking the measurement.

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

In this app, we get feedback at each time when we need to login or when we are submitting data.

User control and freedom

Users often choose system functions by mistake and will need a clearly marked “emergency exit” to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

This app allows the user to make changes to the information they have entered, any time before submitting it. Application ask confirmation of user before submitting it. User can exit the app anytime and the information entered will be saved automatically this allows to prevent loss of information entered by the user if they have clicked on the exit button by mistake.

“Peripherality” of display

The display should be unobtrusive and remain so unless it requires the user’s attention. User should be able to easily monitor the display.

Error prevention

Even better than good error messages are a careful design which prevents a problem from occurring in the first place.

In this app, user can enter any numeric value or character in measurement.

Flexibility and efficiency of use

Accelerators – unseen by the novice user – may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

The Application should be efficiently designed and avoiding any lag when a new information is entered by the user or while viewing and analysing data.

Help users recognize, diagnose and recover from errors

The error message should be displayed in simple language which user can understand and solution to it. It should not display any error code.

Help and documentation

App should provide help and documentation in which user can find answers to his queries regarding the application use.

Usability problems and suggestions

- ✚ After user login, there should be option for change password if user thinks his password has been stolen then this option will help him to reset his password.
- ✚ In login view if user can login though username or also can be with email that will be more user friendly if user forgot his username.
- ✚ There is no FAQ option to help first time users in understanding the app.
- ✚ Comment box can be included before submit option if user want to comment about any conditions or special case during taking the measurement.
- ✚ In each data entry page, there should be a button for save and exit to main menu, if user want to keep the current data and want to go to another process.
- ✚ After pressing submit button there should be popup window to provide password even if the user is logged in this will improve the security.

Critical usability concerns

- ✦ There should be search menu in home screen where user can search the old submitted data by beach name/ date. Because after using this app for long period there will be large number of completed data in app in which if user want to find out old data then without search option it's going to be tedious job.
- ✦ In login view, there should be option for forgot password as user can fail to remember password.
- ✦ There should be limit for inserting wrong password, after that limit the account should go on hold for some time and to validate user some email verification or security question and password reset procedure should present.

Illustration of critical usability concerns with possible situation:

- ✦ Jenny working as intern from last couple of semester has large number of completed beach measurement files in app and she want to search for file which she has submitted couple of months before for which she is scrolling down and searching for that file manually. So, putting a search option will make the app more user friendly and reliable.
- ✦ False user is trying to login by using Jos's username and he can put as many false password till he can crack the password. In this case the username should go on hold and to login again using this username there should be secure procedure from which Jos can authenticate his identity reset password and can login though his account securely.

Appendix

Undergraduate team's page for documentation:

<http://www.csl.mtu.edu/classes/cs4760/www/projects/s17/group4/www/>

Heuristic evaluation resources:

<http://cs4760.csl.mtu.edu/2017/resources/HE2.pdf>