

Smart Health Emotions Tracking System

PROJECT PHASE 3: DATA ANALYSIS AND EVALUATION

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COURSE: | CS630: CURRENT TOPICS IN HUMAN COMPUTER INTERACTION

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1. Abstract:

This document aims at reporting the data analysis and evaluation on the usability of smart health emotions tracking system. Initially goals are determined and questioned. The chosen evaluation methods along with the usability protocol and evaluation methodologies employed are cited. Then the practical issues in the implementation are identified with focus on ethical issues. Copies of user reviews are attached.

2. Goals to be attained:

The primary goals of the system are as follows:

- a) User/Student Login
- b) Administrator Login
- c) Administrator should be able to add the activity
- d) Administrator should be able to view the activities existing in the system
- e) Administrator should be able to set the initial emotion.
- f) User should be able to register the activity of the system with changing emotional rating.
- g) The date and time of initial emotion as recorded by the admin and the emotion rating change time and date should be registered.
- h) History of the scheduled activities along with the archive option should be provided.
- i) Emotional analyzer page helps in providing plot with the recorded ratings.
- j) Appropriate authentication for admin and user.

All these goals are achieved by the application that is designed.

3. Design goal questionnaire:

- Will the system be able to track the emotions of the student in time?
 - Yes, the system designed will be able to track the time and date at which the activity is added to the system by the admin along with the initial emotion rating. At the same time, the time and date at which the initial emotional rating is changed and added into the system.
- Will the system be able to archive the data the user wants to delete?
 - Yes, the user can opt to archive the data that he feels is not necessary in his user profile. At the same time, the administrator also has the capability to delete the activities at any time.

- Can emotions be captured?
 - Yes, the emotions are categorized and assigned ratings ranging from the 0 to 10. The initial emotion for the activity is logged by the administrator with the help of previous feedback that he received. While the users/students can change the initial emotion to the one that he prefers to assign to the activity.
- Does the system maintain the log of events?
 - Yes, the system does maintain the log of events. The system stores the date and time at which the initial emotion and activity is logged by the admin. Also, the user changes the emotion rating, the same date and time is also captured and is stored into the table.
- Additional Functionality: Additionally, the emotional analyzer page has been designed to get the visualization of the ratings.

4. Evaluation method:

The evaluation method followed is **Controlled Settings** involving users where the activities are controlled in order to test the initial measures and hypothesis. Under controlled settings, the methodology used is usability testing and experiments.

- The data is collected with the help of questionnaires and interviews conducted over 10 subjects in a natural setting.
- The primary goal of this evaluation is its usability by intended users to carry out the tasks.
- The evaluation is done in the way that the number and kinds of errors are recorded.
- Observed the interaction of the users in understanding the usability issues that are difficult to be identified with the help of just documentation.
- The findings are summarized, and copies of data are presented.

5. Practical Issues Identified:

Below are the practical issues identified in the smart health emotion tracking system once the interviews and conducted in a controlled natural setting environment.

- Practically the system needs a dynamic user and admin registration. For this prototype, static users and admin profiles are used to concentrate more on the reaching the primary goals.

- The application is extensible in the way that when a user logs in and see his schedule, instead of selecting the activity type and adding the course name and then giving the rating, a drop down beside each activity with rating can be provided.
- Dynamic delete option can be added to each column of history page to make the delete preference of the admin and the user dynamic.
- Redirection and login user profile can be made automatic.

6. Ethical Issues:

- The ethical issues of concern are at great deal with respect to the user.
- The data stored must be secured and should ensure that the user consent is taken before sharing any user related data to the users.
- The user collected data used for system evaluation and the user given data should be secure and ethically immoral to be shared with any of the outsiders.
- The users i.e. subject that participate in the system evaluation should keep the system information and design as a trade secret and they should be aware that sharing any information that is related to the smart health emotion tracking system would put them in trouble by penalizing them.
- The developers also should be ethical in the way that they should provide a quality solution to the users and should take a owe that they would follow standard protocols and frameworks in their design.
- They should be aware that any code that is written for the design of smart health emotion tracking system does belong to the client.

7. Collection of data:

- The interviews and recording of 10 users along with their age and submitted evaluations are as attached in the spreadsheet. Each evaluation is added to the excel document below in tabs.
- The data has been collected from 10 subjects who are college going students, 8th grade, 4th grade, 6th grade, a novice college going student, a parent, an administrator, Personal review, a manager, a master's student and a 3rd grade completed students.
- They have been advised to provide their feedback about the application in a category of 9 questions as below.
- Attached below is the document of evaluation 1 to evaluation 10 attached below.



Evaluation Sheets of 10 subjects.xlsx

- Below is the sample of the evaluations in the attached spreadsheet.

Questions on Application Functionality	Overall	Satisfaction (Scale 10)
1) How did you feel about application aesthetics?	Satisfactory	5
2) How was the navigation?	Good and Easy	9
3) Authentication working	Can be improved	4
4) Activity List functionality	Good	8
5) Emotional Analyzer page	Good and nice	9
6) Delete operations	Works fine	8
7) Add activity	Working	8
8) Emotion logging	Nice and useful	9
9) Grades allocation is genuine	Yes	10
Provider: A College going student review		

Figure 1. Sample evaluation sheet of a subject

8. Evaluation of data:

The questionnaire conducted over a 10-point scale and evaluated provided high level insights of the subjects i.e. users of different levels. The factors mentioned primarily evaluated the three dimensions of usability of the smart health emotion tracking system namely usefulness, satisfaction and Ease of use.

a) Usefulness:

- ✓ Many of the user's ratings indicated that the system is useful.
- ✓ The application has given the control over the activities.
- ✓ It met the student needs.
- ✓ The application functionality has been fine.
- ✓ It helped the users by giving the schedule table with the list of activities.

b) Satisfaction:

- ✓ The users weren't satisfied with the aesthetics of the application and have said that it can be improved more.
- ✓ They were not satisfied with the authentication functionality and have reported that it needs improvement.
- ✓ Some of them felt it is good.
- ✓ Many subjects have reported that the emotional analyzer was effective.
- ✓ Many ratings indicate that the users felt that application is recommendable.

c) Ease of use:

- ✓ The students mentioned that the application is easy to use.
- ✓ The navigation has been reported to be effective.
- ✓ The users said they could use it without written directions of usage.
- ✓ They felt the application is user friendly and effortless to use.

9. Analysis of data:

- From typical analysis and conversations with the subjects used for evaluation, it can be understood that the smart health emotions tracking system that is designed lacked in authentication.
- Although the application mimicked the important functionalities with respect to the student perspective, the logging system can be designed much more effectively. Statically, having a registration page and a user and admin tables can provide the feasibility for the users to register themselves and use the application. It also helps in secrecy and maintains user privacy.
- At the same time the aesthetics can be improvised more effectively such that the background color complexities can be made lighter so that data can be visualized in a better way.
- Emotional analyzer page can be appropriately designed to have the graph reflect the emotions of the students over the course more vigilantly.
- Navigation and learnability of the application were the much satisfying factors for the users besides activity list functionality and the schedule list functionality.
- The delete operation can be made more effective in the way by providing the delete operation as a button to delete an activity i.e. assignment, quiz, discussion or club meeting.

10. Interpretation of data:

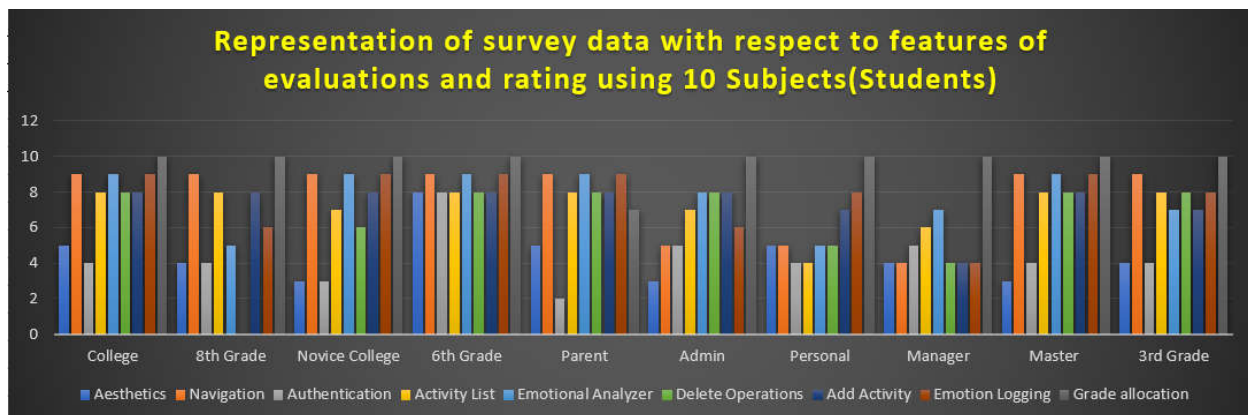
➤ From the data collected, we can clearly interpret that the top rating has been provided for the below factors in sequence.

- ✓ Navigation
- ✓ Grade allocation
- ✓ Activity list functionality
- ✓ Emotional analyzer page
- ✓ Delete operations
- ✓ Add activity functionality
- ✓ Emotional logging
- ✓ Aesthetics
- ✓ Authentication working

The attributes of the application are ordered from highly ranked to low graded features.

11. Collected data representation:

The data have been attached as excel in the section 7. Collection of data. For the same data when markings are done in terms of representation, the obtained graphical representations are as follows:



12. Conclusion:

To conclude, the application fared well in terms of functionalities especially the grade allocation, emotion logging. However, it can be improved more in terms of authentication and visualization of functional pages thus while adding more weightage to the aesthetics of application design.