

# Human-Computer Interaction Project Phase Four

## Movie Recommendation App

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## **Section 1: Usability Testing**

### **1.1 Methods**

We selected our participants by inviting back some of those we have interviewed through all the stages of this project and some new participants who do not have prior familiarity. We believe it is important to obtain feedback from parties that are familiar and unfamiliar with our product. Below is a summary of our participants' demographics.

#### Participant One

Age: 21

Gender: Male

Highest Level of Education Completed: High School

TV/Movie Device Use: TV, Phone, Laptop, Tablet

Frequency of Computer Use: Daily

#### Participant Two

Age: 18

Gender: Male

Highest Level of Education Completed: High School

TV/Movie Device Use: Laptop, Phone, TV

Frequency of Computer Use: Daily

#### Participant Three

Age: 21

Gender: Male

Highest Level of Education Completed: Bachelor's

TV/Movie Device Use: Laptop, Phone, Computer

Frequency of Computer Use: Daily

## 1.2 Materials

We used our finalized prototype, participants, screening questionnaire, informed consent sheet, pre-test demographic information form, NASA-TLX, satisfaction questionnaire and a script.

- **Screening Questionnaire:** A screening questionnaire is important in understanding user need, filtering user audience, enhancing data driven decisions, and personalizing our product. These qualities are important in ensuring that the final products meet the needs and wants of users.
- **Informed Consent Sheet:** An informed consent sheet allows for transparency, legal compliance, risk mitigation, and accountability. These qualities are important to form a professional relationship between developers and users. It shows respect to both parties and is important in jurisdiction and other legal matters.
- **Pre-Test Demographic Information Form:** A pre-test demographic information form allows for demographic data collection, understanding the demographic makeup of users, and is required for regular compliance purposes. It is important to gather information on targeted users and developers can make a more inclusive and engaging app.
- **NASA-TLX:** NASA-TLX is a widely used subjective assessment tool. It is used to gain valuable insight into the usability demands of a user. It allows developers to understand what tasks are prioritized by users, integrative design improvements, and a more user center design. The is important for the success and stability of the app.

- Satisfaction Questionnaire: A satisfaction questionnaire is important in collecting quantitative and qualitative data and feedback and comprehensive feedback. It benefits the work of developers since it can provide continuous feedback, customer retention, and benchmark the performance of the app.
- Script: A script was used to ensure all developers are asking and tell the users the same guidelines and instructions to ensure consistency in the data we collect.

### 1.3 Procedure

The procedure used are as followed:

- Explain the informed consent sheet
- Asking participant to fill out the pre-test demographic information form
- Get permission to record
- State the purpose of the usability testing
- Share the four key tasks
- Explain to participant to speak out loud when executing tasks
- Be mindful of how long a task took and how accurate
- Follow up by asking the participants how long they think they took to complete the tasks.
- Have them complete the NASA-TLX and the post-test satisfaction.
- Ask the participant about any low scores in the questionnaire and about any points at which you noticed, or they told you about having difficulty while completing tasks.
- Thank the participants for their time.

The test was conducted separately and in a quiet, distraction-free environment. The tests proceeded by following the procedure stated above.

The participants were instructed to execute four keys tasks that our prototype supports which were:

- Add a Friend
- Create a Recommendation
- Find User Ratings
- Set Account Visibility

## 1.4 Results

Throughout the usability testing of the Movie Recommendation App, participants identified several usability challenges. A significant concern that came up during the usability testing of the Movie Recommendation App was the similarity between the Home page and the recommended page. Participants found the overlap between the two pages confusing as they conveyed similar results but did not have the same features or layout. The issue suggests that users may struggle to differentiate between the functionalities offered on each page, and that further features or design elements may need to be implemented to improve the distinctiveness of each page. Another concern was clicking each detail button to pull up the movie details. Users found this action troublesome as they wanted the details either shown immediately for all movies or have the movie posters selectable. Additionally, users suggested including more responsive and functional features on the Recommended and Profile page as users search for a button to generate recommendations or buttons on the profile page to have some type of response.

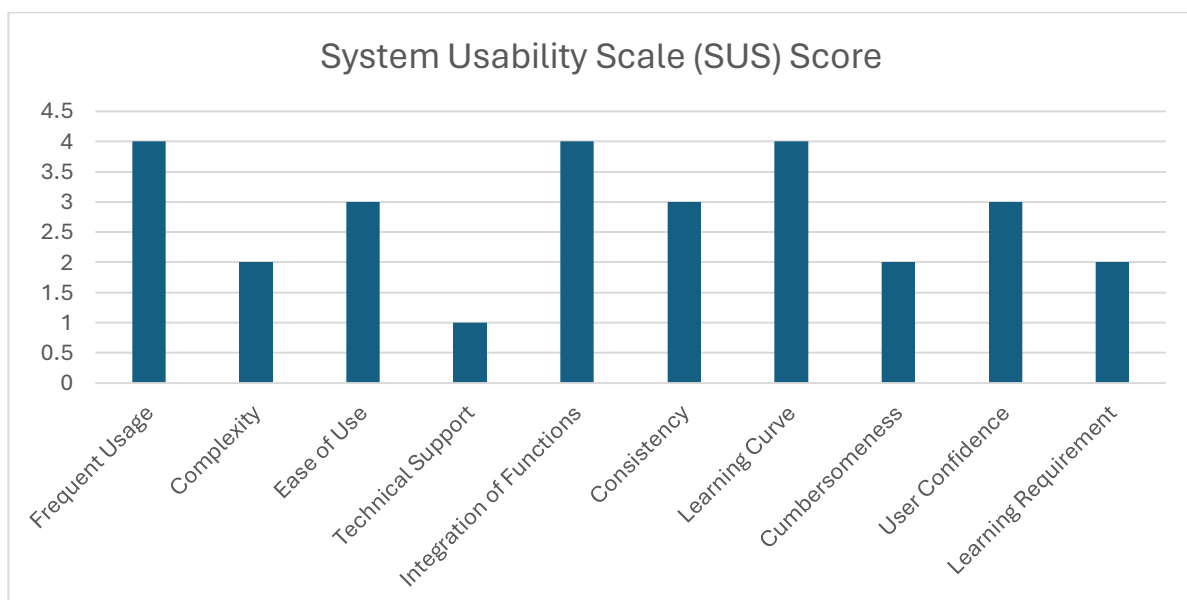
The average time to complete tasks provides valuable insights into the efficiency of user interactions within the app. These times indicate how long users typically take to perform specific actions.

- **Task 1 (Add a Friend):** The average completion time for this task is 28 seconds
- **Task 2 (Create a Recommendation):** At an average of 95 seconds, this task takes significantly longer than the others. This is expected given the complexity users faced when trying to understand how to complete the task on this page and trying to filter specific criteria to generate a movie recommendation. The longer time could also suggest areas where the user interface could be optimized to simplify decision-making processes or enhance guidance provided to users.
- **Task 3 (Find User Ratings):** Completing this task at an average of 59 seconds demonstrates moderate ease of use. This task involves navigating through movies by using the search bar or the filter settings then navigating to movie details to locate ratings, which could be streamlined or made more prominent to reduce the time needed.
- **Task 4 (Set Account Visibility):** With an average time of 27 seconds, this task is efficiently handled implying the profile page is well designed and that the privacy settings are straightforward to modify

Analysis of the task completion time revealed that interactions on the Profile page were completed faster than those on the Home and Recommendation pages. While effectiveness was generally high for straightforward tasks like navigation, it decreased for tasks that required multiple steps such as filtering and searching different movies. Overall, these times help identify which tasks are performed with ease and which may require additional refinements or simplifications to improve user experience and satisfaction.

Despite the identified usability issues, all tasks were completed successfully by the participants. This indicates that the app's core functionalities were effective, allowing users to achieve their goals without any tasks being left incomplete, but there is still room to improve effectiveness and design so tasks can be completed quicker and more accurate.

The System Usability Scale (SUS) provided participants after they had conducted all tasks and finished testing the app, provided mixed insight into user satisfaction. The average score across various aspects of system usability (shown below) suggests moderate satisfaction with much room for improvement, especially in making the system less cumbersome and more consistent. The results with the NASA-TLX questionnaire were also very similar, the measurements for mental, physical, and temporal demands, as well as performance, effort, and frustration levels all averaged in the Very Low- Moderate Range. This suggests that participants found the tasks to not be very demanding, indicating that the interface design and flow is intuitive and efficient. The NASA-TLX scores suggest that our app does not overburden the user, but the low demand could also lead to a lack of engagement for the user which should be considered when interoperating the scores into future design and improvement.



## 1.5 Discussion

The design of the Movie Recommendation App is moderately effective, as evidenced by the usability testing outcomes. The core functionalities allow users to accomplish intended tasks, although with some identified areas for improvement to increase ease of use and user satisfaction. The Profile page was highlighted positively due to its straightforward and efficient interactions, particularly in settings like Account Visibility, which users could adjust swiftly. The layout and styling of this page made different features and buttons clear and easy to distinguish which could be implemented into the other pages such as improving the styling of the filtering buttons. This ease is reflected in the task completion times and overall positive feedback on the page's usability.

A critical issue was the similarity between the Home page and the Recommended page, leading to user confusion. The pages need clearer differentiation in their functionalities and layout to help users distinguish between them more effectively. For example, the recommendations page could potentially have different recommended sections for Top Rated, New Releases, and Top Pick for you, to provide a variety of predetermined recommendations rather than generating through filtering of genre and year alone. Implementing distinct features or visual elements on the Home and Recommended pages to better separate their purposes and enhance user navigation could also reduce confusion between the pages.

While the Movie Recommendation App shows promise and functional effectiveness, significant improvements are essential for better usability and user satisfaction. Addressing the feedback from usability testing and applying these insights can transform the app from a functional prototype into a polished product ready for broader use.

## Section 2: High Level Discussion

The quality of the design is fundamentally sound, but some changes are necessary to enhance the app according to feedback from interviewees. They appreciated that the app targets a niche that is not oversaturated and found it useful. However, they suggested several improvements to make the app more complete.



On the "home" and "recommended" pages, changes are needed to reduce homogeneity. It was recommended that the home page should automatically display descriptions and user ratings, rather than requiring a click to view them. The "recommended" page should more clearly articulate its purpose and include a more prominent "generate recommendation" button.

The profile page could benefit from clearer wording by changing the 'preferences' tab to 'movie preferences' to better convey its purpose. Additionally, adding a friend should be a more reactive experience, providing immediate confirmation that a request was sent.

To prepare the app for a supposed launch, UI and design changes are necessary, along with development of the watchlist and social features. Once these improvements are made, the app would be beneficial for all three of our generated user profiles:

- Willy, the movie enthusiast, would be able to create multiple watchlists and connect with other movie lovers.
- Jonathan, our casual viewer, would find it convenient to quickly discover his next watch, though some social and watchlist features may be less relevant to him.
- Amalia, the social influencer, would be ideally positioned to use the app. She could create watchlists for her followers, expand her fanbase through social features, and discover new movies to discuss with the recommendation tool.

Coordination of tasks within our group was efficient, with roles and responsibilities clearly divided. The most challenging aspect was collaborating on code, especially learning GitHub and integrating different sections of code with unique styles. This experience highlighted the importance of thorough planning and collaboration in designing complex apps to achieve the desired outcomes.

## **Section 3: Appendix**

### **3.1 Screening Questionnaire**

**Instructions:** Please answer the following questions to help us determine your eligibility for participating in our usability test.

**1. Age:**

- Under 18
- 18-24

- 25-34
- 35-44
- 45-54
- 55-64
- 65 or older

**2. Do you have any experience using a movie streaming or apps?**

- Yes
- No

**3. How often do you watch movies online or through streaming services?**

- Daily
- Several times a week
- Weekly
- Monthly
- Rarely
- Never

**4. Do you have any visual or hearing impairments that might affect your interaction with digital interfaces?**

- Yes (Please specify)
- No

**5. Please briefly describe what streaming technologies or applications you use regularly.**

### **3.2 Informed Consent Sheet**

**Introduction:** Thank you for considering participation in our usability study. This form provides you with information about the study, and what your participation will involve.

**Purpose of the Study:** This study aims to evaluate the usability of our new movie recommendation app to enhance user interaction and satisfaction.

**Procedures:** If you agree to participate, you will be asked to perform a series of tasks on the app and provide feedback on your experience. The session is expected to last approximately 30-45 minutes.

We will be recording the session using audio recording for verbal feedback, (or using screen recording).

Your participation in this study will remain confidential, and no personal identifiers will be recorded.

Your participation in this study is completely voluntary, and you can withdraw at any time without penalty.

**Consent:** (Get Verbal Consent)

### **3.3 Pre-test Demographic Information Form**

**Instructions:** Please provide some information about yourself. This information will help us understand more about the diversity of our test participants.

1. **Age:**
2. **Gender:**
3. **Highest Level of Education Completed:**
4. **TV/Movie Device Use:** (TV, Phone, Laptop etc.)
5. **Frequency of Computer Use:**
  - Daily
  - Weekly
  - Monthly
  - Rarely
6. **Experience with Similar Technologies:**
  - Very experienced
  - Moderately experienced
  - Somewhat experienced
  - Not experienced

### **3.4 Script**

- Explain the informed consent sheet
- Asking participant to fill out the pre-test demographic information form

- Get permission to record

“Thank you for joining me today and for being a participant in this usability testing session. Before we begin, my name is [insert your name], and I’ll be instructing you through this session today. The goal of today’s session is to gather feedback on a group project for Human-Computer Interaction. Me and my group are creating a movie recommendation app that accommodates four key tasks we want our prototype to support. Your feedback is valuable to us and how we can further understand our prototype and its usability.

The four key tasks I will be asking you to do in this session are

- Add a Friend
- Create a Recommendation
- Find User Ratings
- Set Account Visibility

While executing these tasks, I would like you to speak out loud about every action you do. I will now be starting the recording.”

- Present task one: “Add a Friend” and keep track of how much time it takes to complete
- Present task two: “Create a Recommendation” and keep track of how much time it takes to complete
- Present task three: “Find User Ratings” and keep track of how much time it takes to complete
- Present task four: “Set Account Visibility” and keep track of how much time it takes to complete

After they complete all the tasks, ask the participants how long they think they took to complete the tasks. Also take note if they completed the task completely and accurately. Then have them complete the NASA-TLX and the post-test satisfaction. Ask the participant about any low scores in the questionnaire and about any points at which you noticed, or they told you about having difficulty while completing tasks. Lastly, thank the participants for their time.

### 3.5 Post Task Form

#### ***NASA Task Load Index***

*Hart and Staveland's NASA Task Load Index (TLX) method assesses work load on five 7-point scales. Increments of high, medium and low estimates for each point result in 21 gradations on the scales.*

Name	Task	Date
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Mental DemandHow mentally demanding was the task?

Very High

Very Low

Physical DemandHow physically demanding was the task?

Very High

Very Low

Temporal DemandHow hurried or rushed was the pace of the task?

Very High

Very Low

PerformanceHow successful were you in accomplishing what you were asked to do?

Failure

Perfect

EffortHow hard did you have to work to accomplish your level of performance?

Very High

Very Low

FrustrationHow insecure, discouraged, irritated, stressed, and annoyed were you?

Very High

Very Low

### 3.6 Post Test Satisfaction Form

## System Usability Scale

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	Strongly disagree						Strongly agree
1. I think that I would like to use this system frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
2. I found the system unnecessarily complex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
3. I thought the system was easy to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
4. I think that I would need the support of a technical person to be able to use this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
5. I found the various functions in this system were well integrated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
6. I thought there was too much inconsistency in this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
7. I would imagine that most people would learn to use this system very quickly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
8. I found the system very cumbersome to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
9. I felt very confident using the system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		
10. I needed to learn a lot of things before I could get going with this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	1	2	3	4	5		