

Rate My Co-op

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EXECUTIVE SUMMARY

How to find a suitable co-op job has been a problem for Northeastern Students for a long time. Rate My Co-op aims to enhance the co-op work searching and rating efficiency through optimized user interfaces and workflow processes. This report presents a comprehensive evaluation of the task-based efficiency, effectiveness, and user satisfaction of the high-fidelity prototype of Rate My Co-op. The report begins by introducing the product, with a focus on how it supports users in accomplishing various tasks. Through qualitative and quantitative tests, the report thoroughly investigated the prototype's performance in different usage scenarios, including its response time, ease of use, and user satisfaction in handling complex tasks. Overall, this report provides valuable insights into understanding and optimizing the overall efficiency, effectiveness, and user satisfaction in handling of Rate My Co-op platform, making it a useful reference for further development.

INTRODUCTION

For years, Northeastern students have struggled to find suitable co-op jobs that meet both their university education requirements and career expectations. Often, they don't land the job they want because they don't know where to start their search. It poses the question: How can a student distinguish between co-op jobs of various types, requirements, locations, and workloads when they have no one to ask or communicate with, or any means to compare the jobs they find? Currently, there are no apps available that allow Northeastern students to share their work experiences based on the company and title of their co-op job, recommend new jobs based on their areas of interest, or search for reviews and ratings of their targeted jobs. To address these issues, we have prototyped an app called 'Rate My Co-op'.

Our target audience for this app is Northeastern Students (undergraduate - PhD). To gain insights into our target users' practices with the existing similar apps, we worked on the details of contextual inquiry. To gather relevant data, we created a structured interview script and defined an observation protocol. This methodology was subsequently utilized for data collection. We engaged four distinct users who represented our target audience, involving them in the process of collecting requirements and testing the interface. The insights gained from these contextual inquiries were thoroughly analyzed and compiled. We synthesized the collected data into a Work Activity Affinity Diagram (WAAD), providing a clear overview of our findings. Utilizing this contextual information, we crafted a unique persona for each of the representative users, encapsulating their distinct characteristics and needs. This step allowed us to clearly define the primary functions that our users should be able to perform with Rate My Co-op. Subsequently, we formulated specific requirement statements.

We carried out ideation and sketching activities for our new interface based on our Contextual Analysis report. We worked on low-fidelity sketches of our proposed interface design, along with use scenarios for five main tasks - Browse and Search for Co-op Job Positions, Apply for a Co-op Job Position, Filter the Job

Search Result, Alarm subscribed Industry and User Profile Creation. Our wireframes were designed to enable users to effectively complete specific tasks. These tasks included both the completion and subsequent viewing of the results from the screening surveys, ensuring a seamless and intuitive user experience.

We undertook a formative evaluation of our wireframes using methods such as cognitive walkthroughs and heuristic evaluations, conducted independently of user involvement. This process was instrumental in critically analyzing our design, identifying usability issues, and gaining insights for improvement. Our findings, along with methodological details and recommendations, were thoroughly documented. Following this evaluation, we revised the design of our user interface to address the feedback and insights obtained. This phase was crucial in rectifying any conceptual errors and enhancing the overall design before progressing to the next stage of our prototype development. We also refined the usage scenarios and descriptions of user tasks based on the outcomes of the formative evaluation. This update ensured that the scenarios accurately reflected the improved design and functionalities. Moving forward, we utilized the insights from the formative evaluation to guide the development of a medium-fidelity prototype. This phase involved seeking inputs from experts skilled in identifying ways to enhance interface design. Their feedback was crucial in further refining our prototype, resulting in a more polished, user-friendly, and functional medium-fidelity version. This iterative process was vital in ensuring that our app met both user needs and industry standards for interface design.

Our development process began with the creation of low-fidelity wireframes, which served as a foundational tool for content planning. After establishing the core layout and functionalities with low-fidelity wireframes, we transitioned to developing high-fidelity visual prototypes. Given the importance of aesthetic appeal in user engagement, we emphasized creating and comparing multiple visual design variations. To further ensure the app's usability and appeal, we conducted a summative evaluation. This phase involved real users interacting with the app to complete a series of predefined tasks. Observing users in action allowed us to assess the effectiveness, efficiency, and satisfaction of each task within the app. The ultimate goal of the summative evaluation was to optimize the app's usability for our target audience in their specific environment. By focusing on learnability, flexibility, and robustness, we aimed to create an app that was not only functional and aesthetically pleasing but also intuitive and adaptable to the needs of our users. This comprehensive approach ensured that the final product would be as user-friendly and effective as possible.

We are confident that this app will be conducive to co-op job searching. Gradually, users will learn to post their reviews and communicate with others about the co-op jobs and get an efficient way to find a job they want. A co-op job is a small step, but a step towards their professional development.

INTERFACE DESCRIPTION

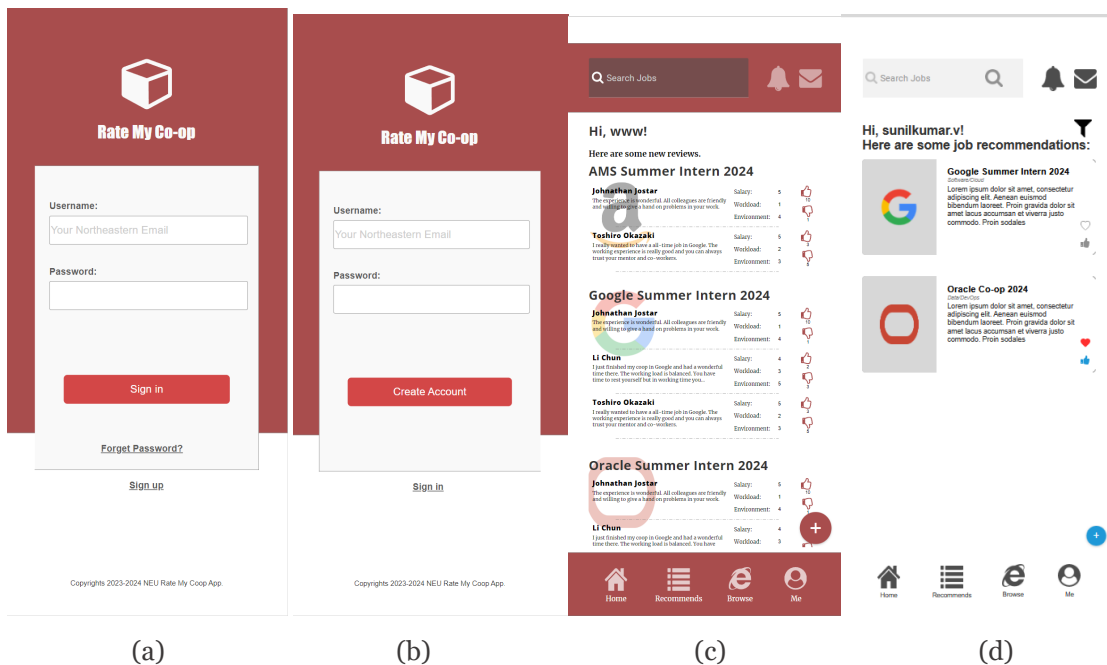
low : [HCI_FP4_FormativeEvaluation](#)

medium : [HCI_FP5_SummativeEvaluationPlan](#)

1. **The general screens** - This includes the loading, sign-up, and register screens, and the home screen. The home screen includes four buttons to let users access the other three major options - Recommendation, User Profile, and Search Jobs. There is also a 'plus' button which lets users upload their reviews on their co-op jobs.

For the overall UI framework, we designed 72px of top margin from the top screen to leave some space for the status bar from the user's phone. The framework itself was designed in 2 types of components to keep the consistency between screens.

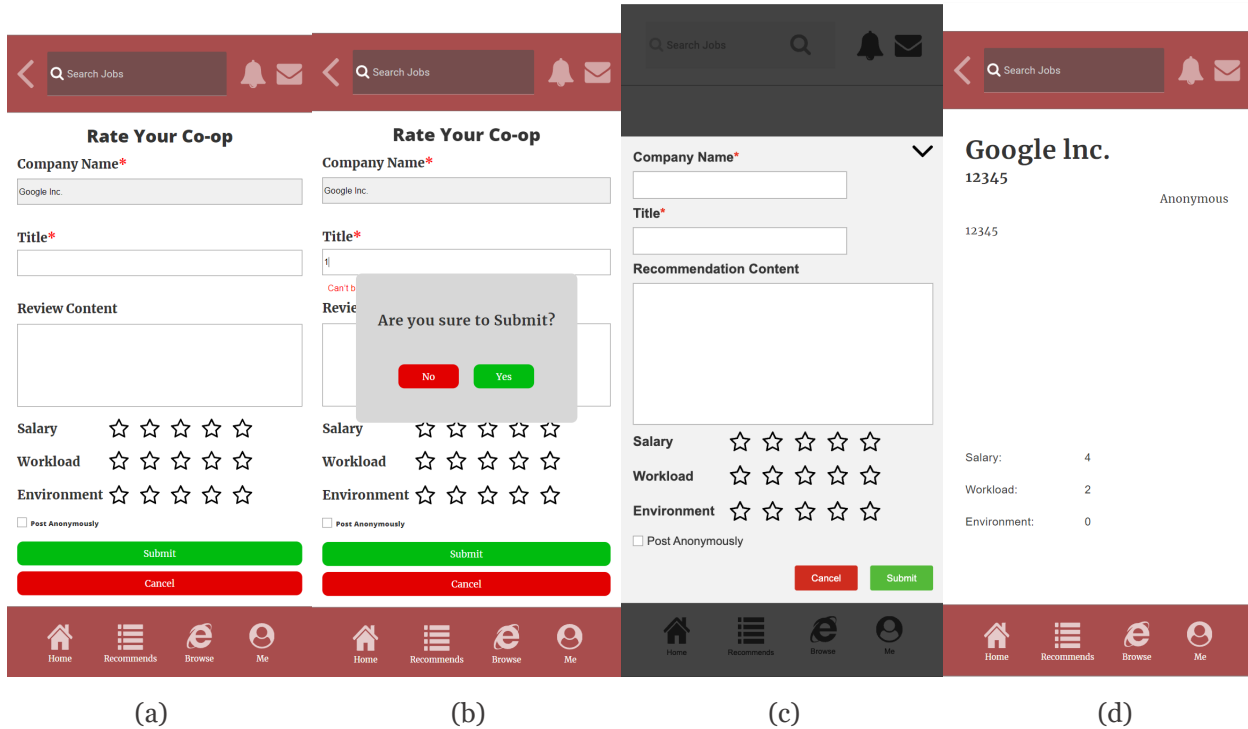
Different from 2-screens login/register design, we integrate those two functions into one single page, so that the user can stay focused on the same part of the screen, and retain the screen consistency.



(a) (b) The **Sign-In and Register screens** feature a basic design, which brings familiarity into an otherwise tedious job of signing in and registering. Users can switch the sign-in page and register page through the hyperlink below the form in the center of the page. It was discussed and agreed upon that users should be forced to register and sign in to use the service for some unwelcome person to upload meaningless content or advertisements in the app and ruin the community.

(c) The **Home Screen** features four buttons and one area. Four buttons to access pages of other functions and the area leads to the search function. We use company icons as the background of the screen to provide users with a direct impact on the content and make them notice the jobs they want easier. We also demonstrate the hot reviews of jobs on the screen directly aligned with the jobs. This design was made because of the expert evaluation. (d) shows the original version of the main screen in the medium-fidelity prototype. In the expert evaluation, one thing was mentioned: the information is too little in the main screen since it is the screen that users use most and should provide more direct information leading to other main functions.

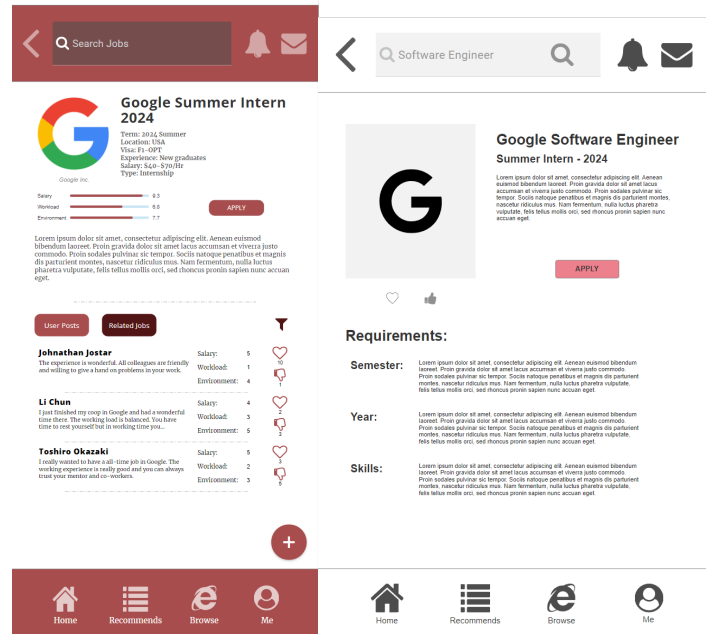
2. **Review Upload Screening** - This is the main function of the app and it allows the user to upload their reviews about their co-op jobs by filling in the form and pressing the upload button. Users are also allowed to upload the review anonymously. After uploading the review, the user will be led to a review detail page.



(a)(b) The **Rate Your Co-op Page** is designed to allow the users to upload their key feelings about their co-op as easily and as fast as possible. The elements are placed in the center of the page and the tips (labels like “can’t be empty”) are placed below the text area. This design comes from the expert evaluation, which mentions that an aesthetically pleasing layout would be essential and mirroring the sizing used in the background screen for more harmonious proportions is a good way. (c) shows the original version of the Rate Your Co-op Page in the medium-fidelity prototype, which is designed as a pop-up window at the very beginning. We also added a pop-up window after the user presses the submit/cancel button. This design was discussed to lower the rate of users making mistakes and make them avoid the potential problem.

(c) The Review Detail Page is designed to allow users to review their reviews immediately after the review is released so that they can notice the mistakes they make in the review as soon as possible and try to solve them. The design of the page is discussed so that there could be a chance for users to review the reviews and also it makes sense that the page could leave a deeper impression on the user that the review has been released. The page is also used when users want to look into the reviews released by others.

3. **Job Detail Screening** - This is the main function of the app and it allows the user to have a look at the detailed information of the job and average rates and more reviews about the job. Users can also apply for the job on this page.

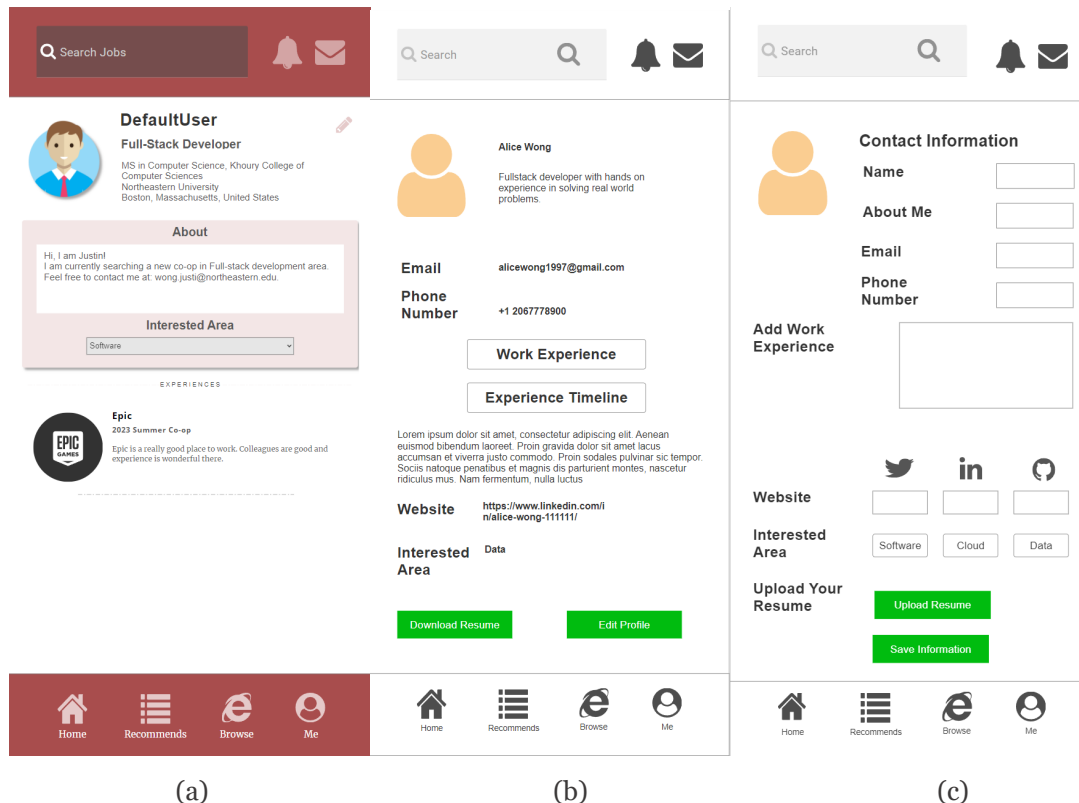


(a)

(b)

In the low-fidelity prototype (b), we design the basic layout of **the job detail page** and the function it contains. Users can directly press the heart button and the thumb button to rate the job. An apply button was placed for users to apply for the job. The page was filled with job information. In Heuristic Evaluation, one thing was mentioned that users should be able to rate the job in several aspects, and related reviews of the job should be demonstrated on the detail page so the users can check them easily. We updated the page entirely in high-fidelity prototype (a), kept the original layout of the page, but add more elements to the page, including a switchable tab panel, in which users can check the review or check related jobs. A plus button replaced the heart and the thumb. This button leads the user to the **Review Upload Screen**. The users are required to make a review in order to rate the job. The rate of the job was split into 3 parts, and the average result of the job was shown directly in the job detail page.

4. **User Profile Screen** - This is the one of the main functions of the application that the user can step in and look at their profiles. Users can edit this page if they think their profile needs to be changed. Additionally, this page shows the history of the coop that the user has participated in, and this history is presented in the form of a timeline of published reviews.



In the low-fidelity prototype (b)(c), we have only depicted the approximate layout of the profile page; in fact, this prototype is unusable and cannot be adapted to the logged-in user, nor can it modify any of the page's content. In the high-fidelity prototype (a), while applying the holistic framework of the entire application design, we have rearranged the layout of the **profile page** and redesigned its functionality to utilize global variables for storing key personal information, such as "Interested Area" and "Occupation". We also re-integrated the Modify page with the Profile page so that users can modify the corresponding area directly after clicking the "Modify" icon, which ensures user focus and conforms to the design principle of "Minimal Design, Recognize, Not Recall". This is in line with the design principle of "minimal design, recognition rather than recall". When you click the "Save" button, the changes to the corresponding area are recorded and the area becomes non-editable.

On the same page, we also integrated the user's "Timeline" function, so that whenever the user adds a review, the corresponding review will be displayed in the "Timeline". Thus, the high-fidelity prototype (a) actually integrates the functionality of the previous three pages from low-fidelity (b)(c).

5. Research & Filter - This is one of the core features of our job-finding software: the search and filter functions. It encompasses the ability to search for and filter job positions.

- Search:** When our users enter the job position they are interested in our search bar and click search, our app uses the keywords input by the user as a guide to display results from our database. For instance, from Figure (a), we can see the main page after logging into our software. This page displays dynamic information posted by various companies. For example, when we enter "SDE" in the search bar, we can see that we get a selection of options including jobs that contain the term "SDE" Figure(b).

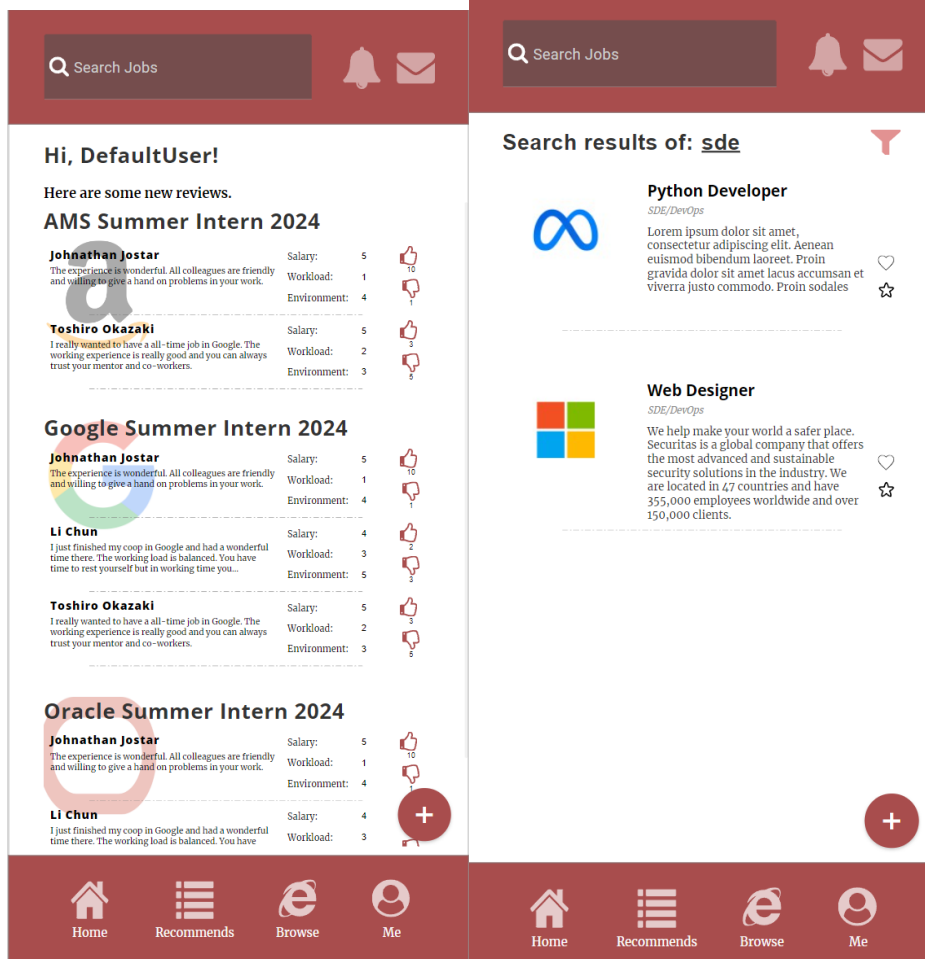


Figure (a)

Figure (b)

- Filter :** The filter function acts as a fine-tuning mechanism that follows the search function. While our search capability provides a fuzzy search targeting job titles, yielding job descriptions for positions containing that title, we need to refine the selection based on individual requirements. Thus, we can select our Filter icon, which, upon selection, reveals a panel with various filter entries available to us. We can filter by visa requirements such as F1 Visa, Green Card, or H1B, as well as by geographical location. There are also options to filter by employment type, such as Full Time or Part Time, and by job conditions, such as positions accepting New Graduates or not. For example, if we want to see only positions that accept New Graduates, we can select this option to filter accordingly. The contrast between Figures (c) and (d) and (e) illustrates this. By having the option to filter through all jobs in the database, we facilitate our ability to make a more informed selection of jobs.

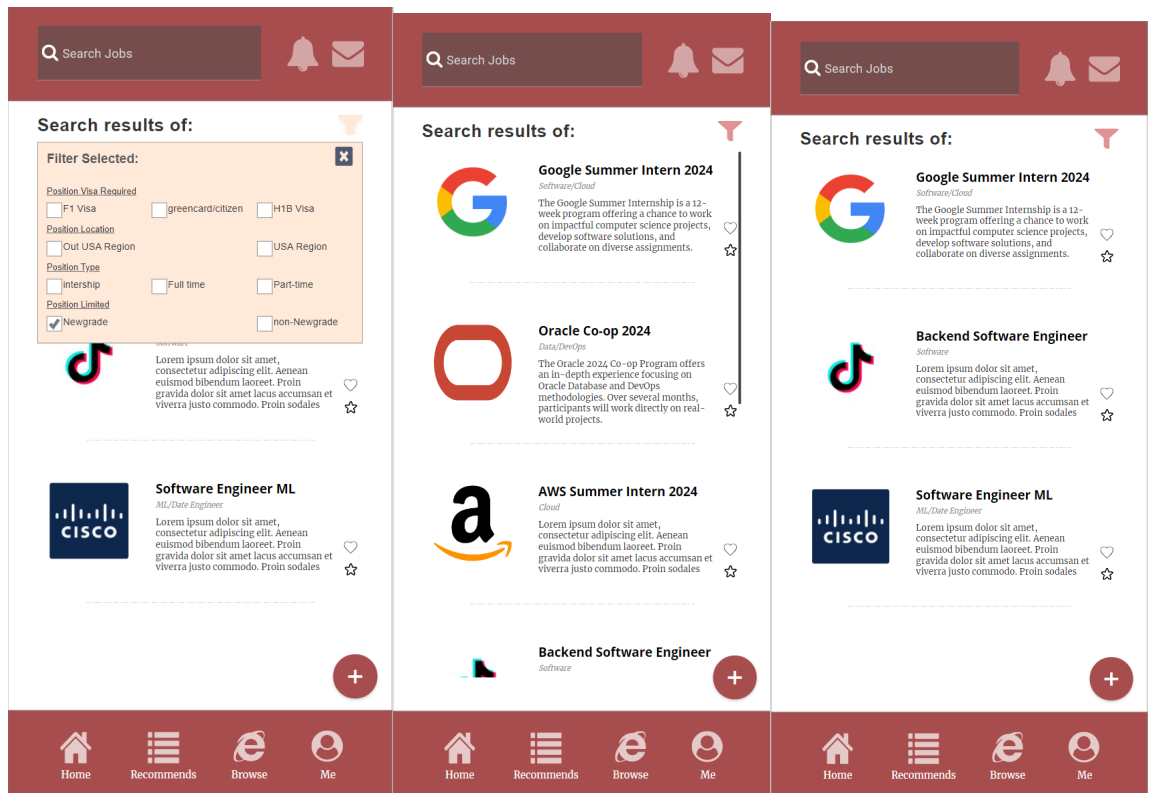


Figure (c)

Figure (d)

Figure (e)

HIGH-FIDELITY PROTOTYPE

Provide a **public** link to the high-fidelity prototype that was used during summative evaluation. Note that this isn't the final prototype.

<https://1qolbz.axshare.com/>

SUMMATIVE EVALUATION METHODOLOGY

1. Evaluation Objectives

We conduct the summative evaluation on the 'Rate My Co-op' app in order to determine its effectiveness and impact. The evaluation helps in understanding if the app effectively assists Northeastern students in finding suitable co-op jobs, facilitates the sharing of experiences, and provides useful job recommendations and reviews. The evaluation also looks into user satisfaction, a key factor for the continued use and popularity of the application.

The summative evaluation of 'Rate My Co-op' serves as a comprehensive tool to assess its overall usability and user satisfaction, guide future improvements, and ensure its viability.

2. Tasks / Scenarios

The Think Aloud Protocol Test

Test Scenario:

Assume the user has just finished his co-op job and goes back to the university. He cannot wait to share his experience with his classmates. The user is going to register our application, edit his profile and upload his first rate on his last coop company. After doing this, he would continue to prepare for his next co-op job by searching the jobs and browsing their rates. Eventually he would apply for a new co-op job.

Task Involved:

1. The user is going to register our application, edit his profile and upload his first rate on his last coop company.
 - a. Task 1: Authentication (log in with NU credentials)
 - b. Task 2: Adding and rating a coop on various parameters (anonymous posting should be supported)
 - c. Task 8: View one's own profile and timeline of past coops with company name, roles, and reviews
2. After doing this, he would continue to prepare for his next co-op job by searching the jobs and browsing their rates
 - a. Task 3: Search companies/roles and view their reviews/ratings
 - b. Task 4: Filter search results by role/location/rating
 - c. Task 5: View companies with best ratings/best hourly rate
 - d. Task 6: View a visual representation of a company's average rate
 - e. Task 7: Upvote/downvote reviews
 - f. Task 9: View recommendations for coop roles based on ratings and reviews
3. Eventually he would apply for a new co-op job.
 - a. Extra Task: Apply for new positions

* Due to the time limitation, we did not carry out the think aloud usability test.

The Qualtrics Survey Usability Test

The testers start the usability test after entering their participant ID.

1. The testers are asked to login the app with the credential we provide to them
 - Task 1: Authentication (log in with NU credentials)
2. The testers play the role of a student who just finished their co-op. They found that they would like to add a review to one of the jobs.
 - Task 2: Adding and rating a co-op on various parameters
3. The testers decide to search for new co-op job and view its reviews and rates
 - Task 3: Search companies/roles and view their reviews/ratings
4. The testers find the job they are interested in and try to apply for the job.
 - Task 9 (Extra): Apply for the job
5. The testers find it would be a good way to search for jobs based on some limitation. They decide to find the jobs with the nearest location.
 - Task 4: Filter search results by role/location/rating
6. The testers eventually find some companies and positions you are interested in. They decided to have a deeper investigation about its ratings and hourly rate.
 - Task 5: View companies with best ratings/best hourly rate
 - Task 6: View a visual representation of a company's average rate
7. The testers decide to check their profile
 - Task 7: View one's own profile and timeline of past coops with company name, roles, and review code to check their profile

8. The testers go back to the main page and view the recommendation after set their area of interest in the profile page.
 - Task 8: View recommendations for coop roles

3. Participants

Who were your participants in the usability test? Describe their key demographics. How many users did you recruit? How were they representative of the target user population for your product?

Participants 1 :

Name	Haifeng Yang
Email	yang.haif@northeastern.edu
Gender	male
Age	26
Student State	Graduate

Participants 2 :

Name	Kito Zhang
Email	zhang.xiangx@northeastern.edu
Gender	male
Age	25
Student State	Graduate

Participants 3 :

Name	Yue Xiao
Email	xiao.yue2@northeastern.edu
Gender	male
Age	28
Student State	Graduate

Participants 4 :

Name	
Email	zhang.xiangx@northeastern.edu

Gender	male
Age	25
Student State	Graduate

Participants 5:

Name	Yue Yao
Email	yao.yue@northeastern.edu
Gender	Femal
Age	30
Student State	Graduate

Participants 6:

Name	Jiaqi Liu
Email	liu.jiaqi3@northeastern.edu
Gender	Male
Age	21
Student State	Undergraduate

Participants 7 :

Name	Jie Morgan
Email	jjiemorgan881@gmail.com
Gender	male
Age	26
Student State	Graduate

4. Usability Metrics

What metrics did you collect data on (e.g., efficiency)? How did you measure them (e.g., task completion time for efficiency)? Here simply provide a description of how you operationalized the three components of usability (effectiveness, efficiency, and satisfaction) and how you measured them. For instance, you should describe what you mean by task completion rates.

You will provide the detailed Usability Metrics table under Results.

When talking about your measures, clearly identify the questionnaires you used. They should be the same ones as those used in the survey.

Efficiency: By adding a timer component to each task block in the questionnaire, we can calculate the time taken by the user from reading the questionnaire content to completing the task. We first complete the corresponding task from the perspective of the expert, and take the average of the completion times of all the experts as a benchmark for each task completion. Then we extract the timer data and compare the completion time of each user with the benchmark value to get the "efficiency ratio" of the user in completing each task (see Figure 2 in the results section). The "efficiency ratio" is the ratio of the time it takes a user to complete a task compared to the time it takes an expert to complete the task; if the value is less than 100, the user is considered to have completed the task faster, and vice versa. If the value is less than 100, then the task may be significantly easier to complete from the user's perspective, while the experts may have spent more time on it because they knew the full design and functionality of the task. However, it is also possible that the task was not fully completed by the user, but the user mistakenly thought it was. If the value is greater than 100, it is assumed that the user took longer than expected, and then the task may have a design that discourages users from completing it. If the value is much greater than 100, the task is likely to have a design flaw.

Completion rate: Completion rate refers to the percentage of users completing the task. A maximum value of 100% means that all users have completed the task, and the closer the final result of each task is to 100%, the more user-friendly the task is designed to be, and the easier it is for the user to complete the task according to the page, and the closer the value is to 0%, the more likely that the task is not easily discovered by the user, or that the interface doesn't have enough information or guidance to allow the user to complete the task. Otherwise, it is possible that the task was overlooked in the design and the designer did not notice it.

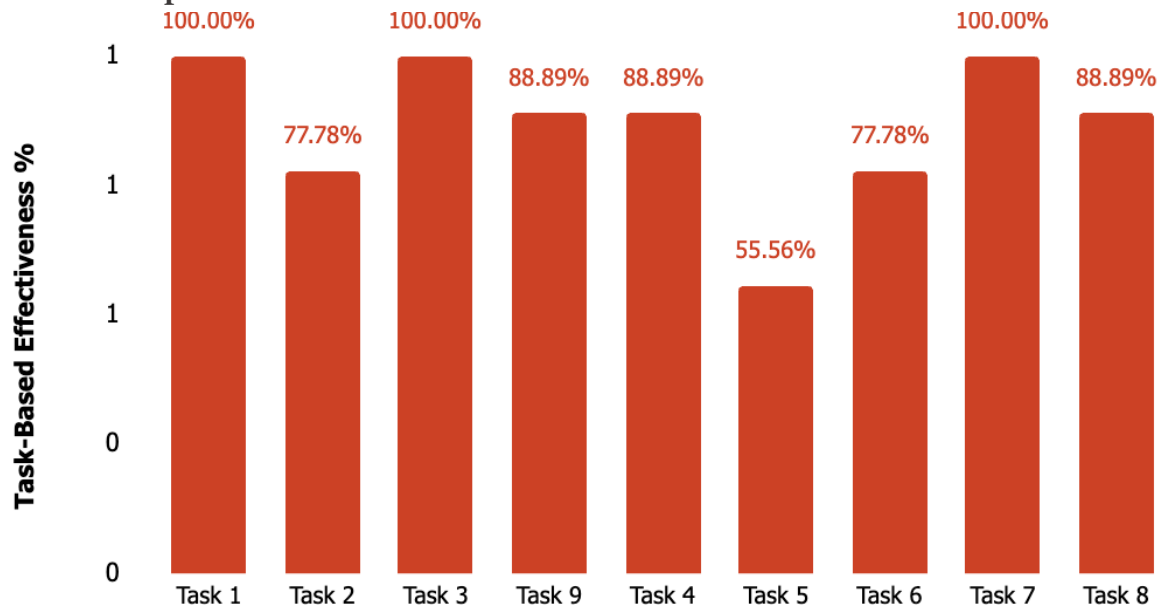
Usability: Usability refers to the degree of satisfaction of the user in completing a task. We designed this questionnaire module for some tasks that require multiple interactions. The questions include "Do you find the task easy to complete", "Do you find the task time-consuming", and "Am I satisfied with completing the task". The questions included "Did you find the task easy to complete? These questions actually ask the user how satisfied they are with completing the task, and the final rating reflects whether the task is truly user-friendly, for example, whether the user can follow the logic to complete the task easily, whether the interface is designed to be simple and easy to understand, and so on. The score is more inclined to the overall feelings of the task, and can be used as a side indicator to measure the satisfaction of a task from the user's point of view. If the score is low, we need the designer to explore more in-depth to improve the program, and the score itself does not reflect the specific design flaws.

5. Procedure

We carried out the usability test in person. The testers are led to the room we prepare. In the room, there is a desk with a laptop on it. The browser of the laptop is set full screen and split into two parts - left and right. The left part demonstrates the qualtrics survey and the right part is our application. The testers are seated in front of the desk, and the moderator would tell them in brief how the **survey** works and how to interact with it. After doing so, the moderator tells the tester their participant ID, and leaves the tester alone in the room. The moderator reenters the room after the tester finishes the test. If the tester encounters any problem when doing the test, they could call the moderator.

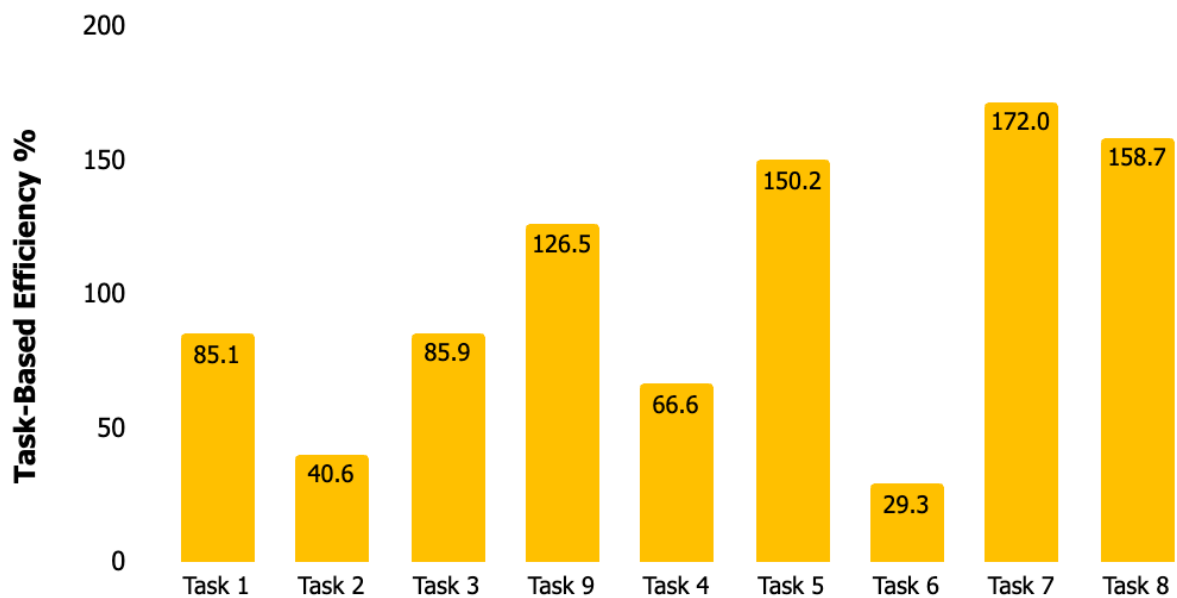
RESULTS

1. Task Completion Rates

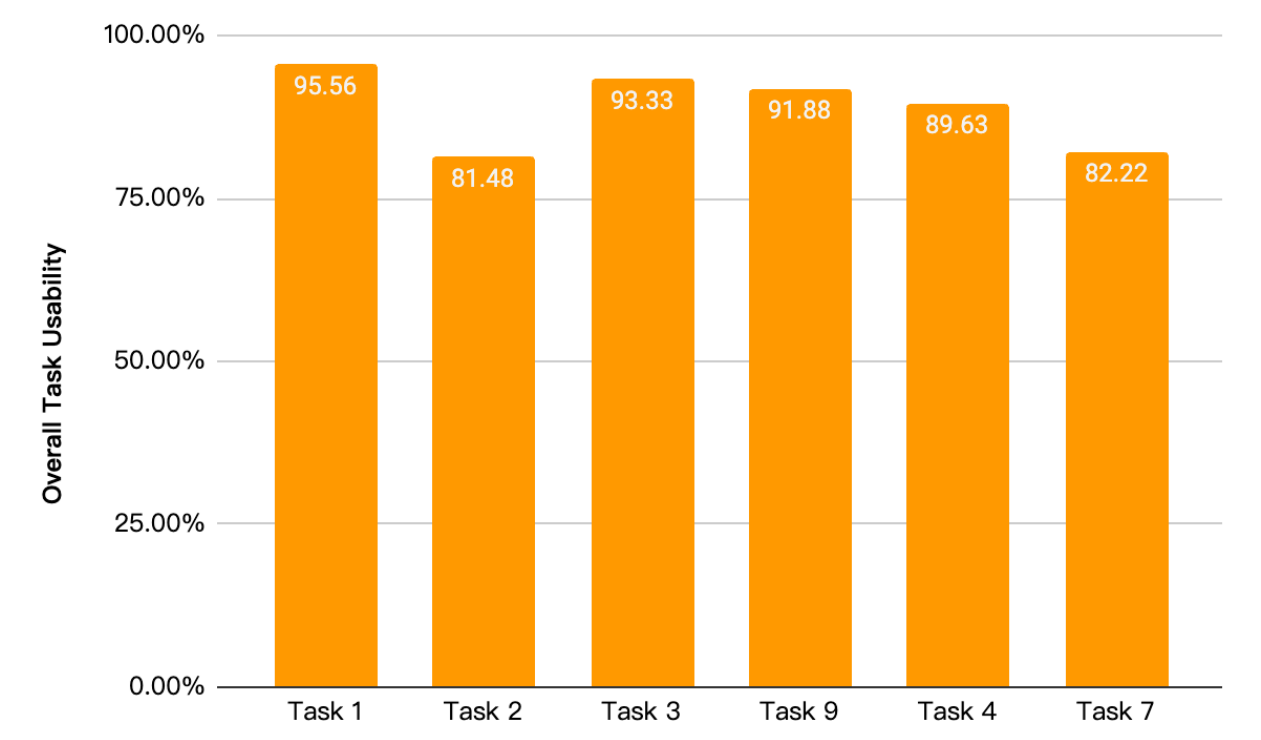


2. Time on Task

Report your results for task completion times. This should be task-based, not user-based. Refer to the examples shown during lectures. Include a well-formatted table/chart (or both).



3. Task-Based Usability



4. Overall Perceived Usability

Report your results for overall perceived usability. In most cases, you will report the SUS ratings here.

	Raw Score	SUS Score	Grade		Average SUS:
P1	40	100	A+		70
P2	36	90	A+		
P3	20	50	F		
P4	28	70	C		
P5	36	90	A+		
P6	21	52.5	D		
P7	34	85	A+		
P8	19	47.5	F		
P9	18	45	F		

5. Usability Issues

Task/Screen/ Context	Usability Issue	Design Change Recommendation	Severity
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Search function	User confused search content in search bar	User can get some Hints inside search bar	Level 3
Review Upload Page	Users can not enter the company name.	Unlock the textarea	Level 4
Filter Icon pin on main page	User can not find the filter in main screen	Add Filter in main screen	Level 1
Sort Company/Job by their pay rate/review	User cannot find the entrance/way to sort	Add the function/entrance for the function	Level 4
Inconsistency between upvote/downvote icons - Search page	Inconsistency of upvote is heart and downvote is thumbs down.	Change all icon to thumbs up/down	Level 4
Several Alignment issue - Main page	Icon should be left side and easy to understand and look	Change companies' logos to the left side.	Level 2

DISCUSSION

In our HCI class, we learned some valuable insights from a user rating test conducted with students in two different scenarios. This evaluation highlighted inconsistencies between our software's intended design and its actual content. All designer's have two testers. Both testers experienced significant difficulties with the search function, getting stuck without prompts. This issue seems to stem from unfamiliarity with job-search software, where users prefer precise job recommendations over searching for positions themselves. Hence, people unfamiliar with such software may struggle with how to conduct effective searches.

In the result section-1, there is only 55.56% completion rate for Task5, which is asking users to rank companies based on their average salary or average rating. After analyzing the results, we found that we confused this task with "Sort reviews by the number of likes", which led to the lack of design of Task5. We will remedy this in the final design.

In result section-2, both Task 2 and Task 6 are very inefficient, which corresponds to "Add a review" and "Observe the visualization chart of the job" respectively. By backtracking, we found that the entrance of Task 2 is a bit confusing for some first-time users, because we created a "plus" button in the bottom right corner of the page according to the design elements of modern apps, which we think is a simple entrance design, but for the user, especially who may not be familiar with this button, might be confused with this button, although there is a plus sign above the button, what is this button for adding? We could probably add a clearer guide to tell the user what the button does. For Task 6, we may not have told the user what a "visual chart" is in the questionnaire design, causing the user to spend a lot of time searching for the corresponding element on each page, when in fact the element exists in the previously completed task.

Regarding the UI, overall, our testers felt positive, indicating a satisfactory 70% satisfaction rate. However, there are areas worth considering for improvement. For example, in the search scenario, prompting users with suggestions like "Enter the job title you're interested in" in the search box could reduce cognitive friction and aid navigation. Another aspect needing attention is feedback on user interactions, such as clicks. Without proper feedback, users might doubt the effectiveness of their actions.

We also plan to comprehensively improve color consistency in the upcoming version, addressing the design issue where the company logos were initially placed in the right sidebar – this has already been corrected. Additionally, the design around preferences, represented by a heart for likes and a thumbs-down for dislikes, was somewhat chaotic and has been reworked in this version for better clarity and user experience.

CONCLUSIONS

This project has been incredibly enriching for every member of our team. We have come to understand that creating a product requires careful consideration; we need to prioritize core functionalities to launch the product and achieve our goals. However, due to time constraints and the focus on main tasks, some additional features were not implemented. Yet, human-centered design sometimes suggests that auxiliary designs can significantly enhance the user experience for the average software user. With the prevalence of artificial intelligence technologies today, our job-search software could incorporate features within the user's profile. For instance, after users fill out their personal information and professional skills, we could utilize big data to automatically push job positions that match their skill set, which would be more beneficial for customers using our product.

Nonetheless, user testing is imperative as it allows us to quickly gauge the general user's acceptance of a product. We need to understand user behavior through usability testing to design products that achieve high user satisfaction. For our next endeavor, we will conduct detailed product testing targeted at our intended audience. For example, if we were to create a product aimed at SDE job seekers, we would develop more SDE-focused user interfaces to expedite interaction efficiency and precisely target customers. Of course, if our aim is a mass-market product, we need to test with users from various professions to ensure our product gains widespread approval and is readily accepted by customers.

APPENDIX

Qualtric questionnaire: https://neu.co1.qualtrics.com/jfe/form/SV_bfIOME6I1TiltL8