

# Usability Report

Microsoft Wunderlist- Free Version  
October 2019 | San Jose State University

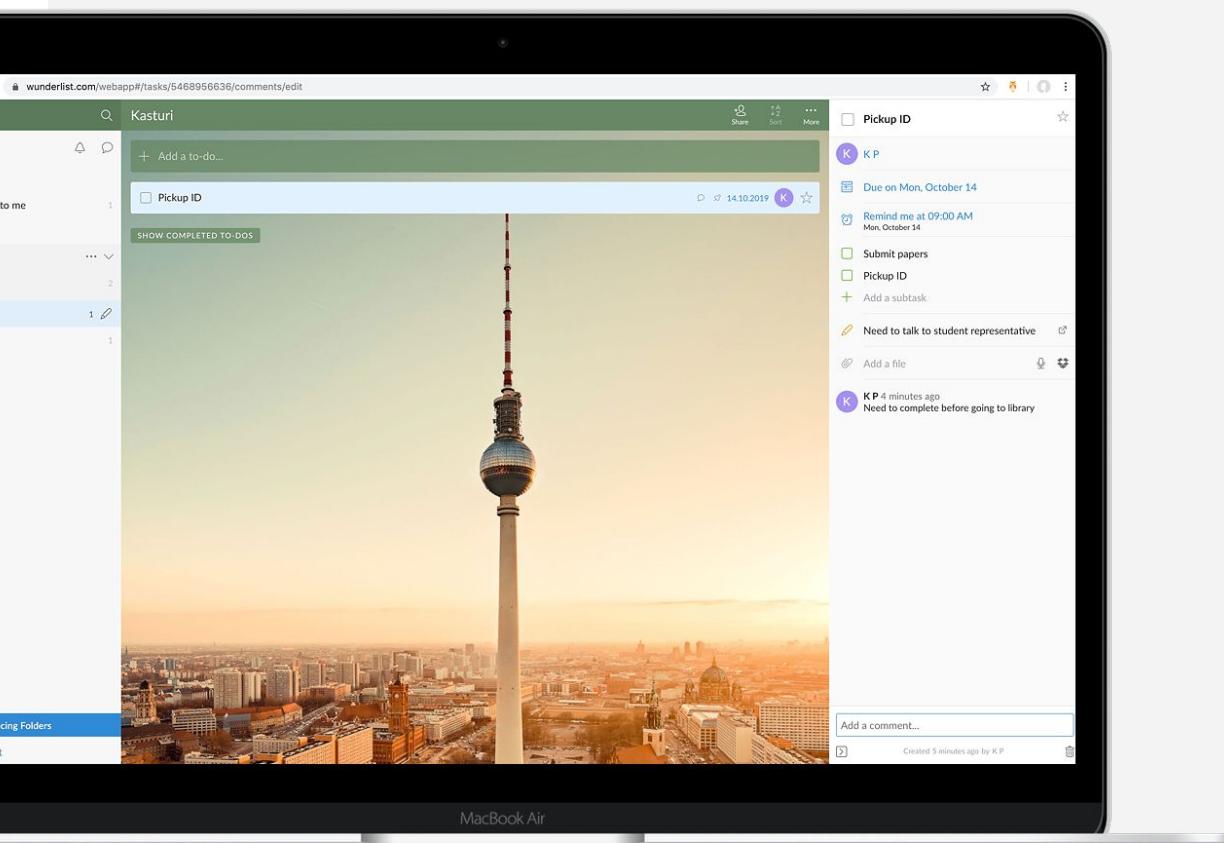
Contributors-

Kasturi Paranjpe

Nehal Sharma

Abhishek Konduri

Ei Ei Chaw



# Usability Report

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**Product:**

Microsoft Wunderlist- Web Application, Free version on iOS.

<b>Comments</b>	
Report	
<b>Team Name:</b>  F.R.I.E.N.D.S	
<b>Team members:</b>  Kasturi Paranjpe Email: kasturi.paranjpe@sjsu.edu San Jose State University Student ID: 013721019	
Nehal Sharma Email: nehal.sharma@sjsu.edu San Jose State University Student ID: 013849290	
Abhishek Konduri Email: abhishek.konduri@sjsu.edu San Jose State University Student ID: 013710645	<b>Total Score:</b>
Ei Ei Chaw Email: eiei.chaw@sjsu.edu San Jose State University Student ID: 012526631	<b>Overall rating</b>  <ol style="list-style-type: none"><li>1. <b>Exceptional</b></li><li>2. <b>Very Good Work</b></li><li>3. <b>Good</b></li><li>4. <b>Acceptable</b></li><li>5. <b>Need Improvement</b></li></ol>
<b>Quarter:</b>  Fall 2019	
<b>Course:</b>  ISE 217- COPM 217	
<b>Professor:</b>  Dr. Abbas Moallem	

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# Introduction

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Efficient task management directly translates to success stories. Whether you are running your business, leading a corporate team or managing a house, you will always need a task management help. Microsoft Wunderlist is one of the highly regarded task manager app across different form factors with 10 Million + users (recorded in 2014). In the presence of other apps like Trello and Monday.com, the Wunderlist made a special place in user's daily life. In 2015, Microsoft acquired the Wunderlist app and users expected updates in the application. The application still face limitations in usability despite impressive visual design and usefulness. This report evaluates the Wunderlist based on usability metrics and user testing to propose recommendations to improve the application.

## **Tools:**

Smartphone Timer to record user task completion.

Screen recorder

Google forms to conduct survey.

Google sheets to manage and analyze survey data and results.

Microsoft excel to record and track user survey data.

Google Slides to prepare slides and presentation.

## **Techniques:**

Conducting User surveys for comparative study.

Expert User surveys and Novice user surveys for Task Evaluation.

Recording time to complete assigned tasks.

Dividing tasks into Categories and calculating the average time required to complete that task.

Use of various Usability principles like affordances, layouts, feature availability, multiplatform support for project.

Use of various Evaluation principles like Fitts Law, Hick hyman law, Gestalt's law, Simons effect, etc.

Use of graphs to represent factors like task completion rates.

## **Quantitative Analysis**

### In-Person User Testing:

- Completion Success
- Completion Time
- No. of Errors
- Satisfaction Ratings

### Post test & Online Surveys:

- Visual Design
- Convenience
- Meet requirement
- Ease of use
- Ease of learn
- Ease of maintenance/support
- Product opinion

## **Qualitative Analysis**

### Effectiveness of information:

- Placing of components based on Fitz law.
- Quantity of items based on Hick Hyman law.
- Visual design like color, typography etc.

### Efficiency and Functionality:

- Evaluating task flow according to user's mental model.
- Ability of recognition over recall
- Evaluation based on affordances, feedback.

### Error recovery:

- Effectiveness of status, warning and error message using Shneiderman's guidelines.

# Product Description

The Wunderlist is task management application working across a number of platforms. The application comprises of features like task creation, folders, comments, offline lists etc. The unique ability of the application is the amount of details you can add in the task like subtask, reminders, notes, comments etc. The pricing model is of two types- Free and monthly payment. The free version of the application is adless and do not have any heavy restrictions. It only restricts file sharing size and customization. The users usually interact with the application with mouse, trackpad or keyboard shortcuts. Wunderlist integrates with business systems like Slack, Dropbox, Google Calendar, Bitium and 1Password. The application is available on Windows, Linux, Android, iOS operating systems. The application works efficiently for small and medium business.

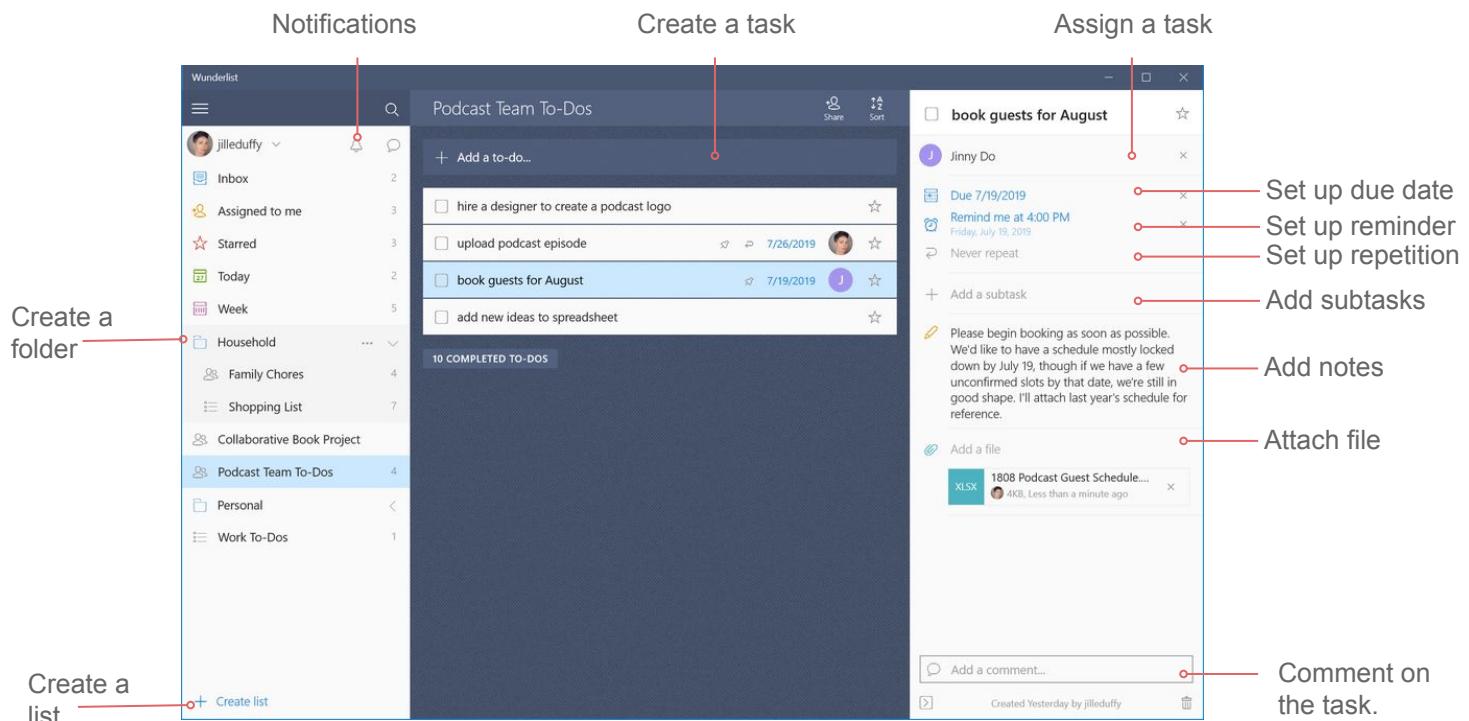


Image 1: The main Interface of the Wunderlist application.

## Technology stack used to build Wunderlist

- RequireJS- Assembles JavaScript files from different modules
- jQuery- Open Source javascript library used for event handling and DOM traversal and manipulation
- Backbone.js- Javascript library based on MVC framework used for providing RESTful services
- Lo-Dash- Javascript library which makes use of functional programming to provide utility functions
- Stylus- CSS Preprocessor
- handlebars.js- Templating Engine
- Moment.js- Open Source Javascript Library used for handling dates
- MouseTrap- Javascript library for efficiently managing keyboard shortcuts
- Mailcheck - Used to autocorrect email domain names if misspelled

# User Profiling

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## Persona 1: Ben, Chemistry student at University



**“**Being chemistry student, teamwork is important. I work with PhD students or other chemistry professional for practical labs. Able to show up teamwork meeting on time is important for me.

**Name:** Ben

**Age:** 19 years

**Marital Status:** Single

**Profession:** Student

**Lives in:** Berkeley

**Goal:** make assignments due date before assignment deadline.

**Care about :** Time management for homework assignments, and the meetups times.

**Concern:** Easy to understand, less technical errors,

**Technology used:** laptop, phone, chemistry lab equipment

Ben is a chemistry student. He needs to go to school on time for lecture every day to make sure he is not missing any important lecture. He has a tutorial for organic, inorganic, physical and analytical every week. He needs to prepare and study for those tutorial and practical labs. Ben needs to show up on time for practical lab since two students have to work together as a group. Ben needs to plan his time wisely for school lessons as well as his social life. Since chemistry students need to work with team for projects, he needs to arrange to meet up with team members to get to know each other well.

## Persona 2: Sarrah, Document Control Specialist at Business Department



**“**I work in a fast-paced and deadline driven environment so I need to arrange my task on time.

**Name:** Sarah

**Age:** 30 years

**Marital Status:** Married

**Profession:** Document Control Specialist

**Lives in:** San Jose

**Goal:** To Make a list of things to do and set a reminder to keep my schedule organized.

**Care about:** get a reminder on time

**Concern:** Easy to remember, flexibility to use, secure

**Technology used:** Laptop, printers, phone

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Sarah is a professional document control specialist she has been working in this position for 7 years. Every weekday she works from 9 am to 5pm. Every morning she needs to make sure she gets products documents on time and sends those products documents on time to her Manager and prospective coworkers. She needs to accomplish her works on time without being delayed. Sarah loves to stay organized. She believes that organize her time well is the most important for her to succeed in her job.

### **Persona 3: Ethan, Software engineer in tech company**



We work as a team so; each person has to finish on time. Follow up the updates of projects with team and separate task between each team member.

**Name:** Ethan

**Age:** 35 years

**Marital Status:** Married

**Profession:** Software Engineer

**Lives in:** San Jose

**Goal:** To make a group project task manager and give comment or discuss each other's task.

**Care about:** able to assign tasks to each project member and set a deadline for the task

**Concern:** fast, less steps

**Technology used:** Laptop, Desktop, phone

Ethan is a programmer in the web developing department he has been working for 4 years in the web developing department. He analysis the tasks after his project manager assign a task for him and his team. Ethan team need to separate tasks to each project member and each person needs to finish their task on time. Report the process every week to the project manager and need to finish assigned project before deadline.

# Interface Evaluation

## Tasks and features evaluated:

As discussed above, Wunderlist is a versatile application packed with powerful features to make task-management less stressful. The core functionalities of the application are:

- (a) being able to create a task
- (b) assigning work to team members
- (c) sharing the required to-do lists with team
- (d) setting the appropriate due date for each task
- (e) receiving notifications about the progress/completion of tasks

Since task related activities form the crux of the application and define its purpose, therefore, we have examined and analysed these core functionalities.

## Good part of the interface

### Followed Fitts's Law and Recognition vs.

#### Recall

##### Task- Signing in

The tabs labelled 'Microsoft Account' and 'Work or School Account' are designed in accordance with Fitts's law which makes it easier for Ethan to click on them because the target size is large. Since Ethan had used Microsoft products in the past, he immediately recognised the logo.

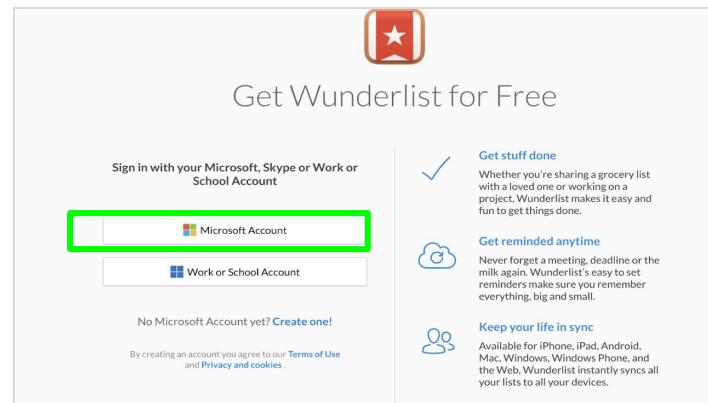


Image 8: Sign up Screen(Option to create account/login using Microsoft or School account)

### Help users recognize, diagnose, and recover from errors

##### Task-Signing in

Error message about the wrong username/password entered is expressed clearly and precisely in user understandable language, suggesting a constructive solution at the same time.

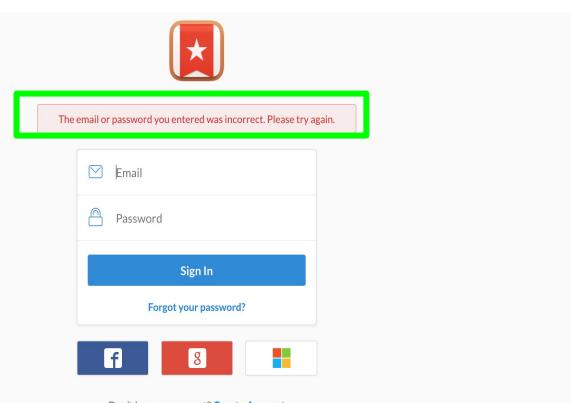


Image 9: Sign in screen (clear and concise error message displayed)

## Gestalt's Law of Proximity

### Task- Sharing Task List

Adding a note, attaching a file(audio, video and document/image formats supported) and commenting on the task are additional features which offers advanced facilities to the user.The grouping of these relatively similar functions together is based on Gestalt's law of Proximity.

## Aesthetic and Minimalist Design

### Task-Overall Application

The application screens contain only the information which is relevant and needed. This helps the user focus attention on relevant tasks and also reduces the cognitive load on his memory.

## Recognition rather than recall

### Features- Calendar and notification

The bell icon for notifications and the calendar icon for setting the due date are similar as in other applications which makes it easier to recognize their purpose.Thus, the application designers have maintained external consistency in Wunderlist.

## Error recovery

### Features- Changing task status

The task status can be easily reversed from 'To-Do' to 'Completed' and vice-versa by simply clicking on it, which makes the application safe to use as one can easily revert the status.

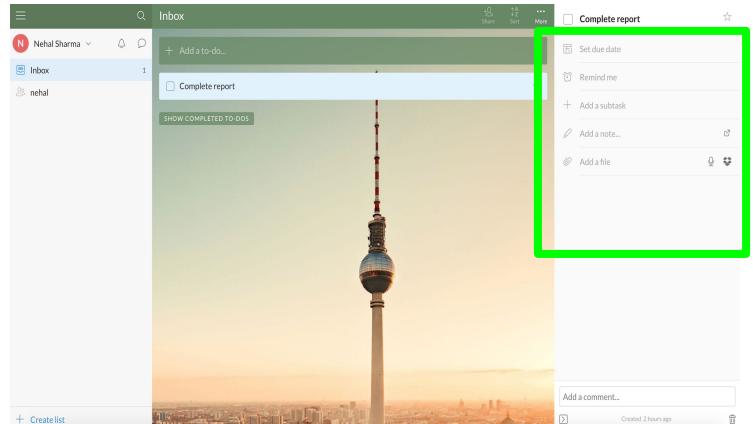


Image 10 : Task Page(All the activities related to assigning a task are grouped together)

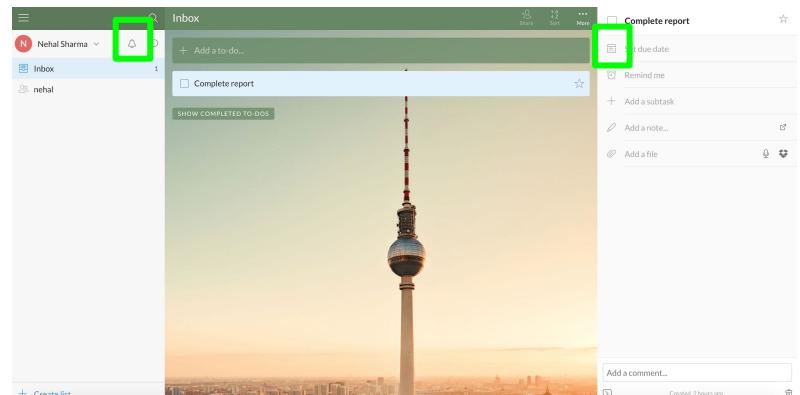


Image 11: Task Page(Bell icon for notification and Calendar icon for setting due date are examples of external consistency)

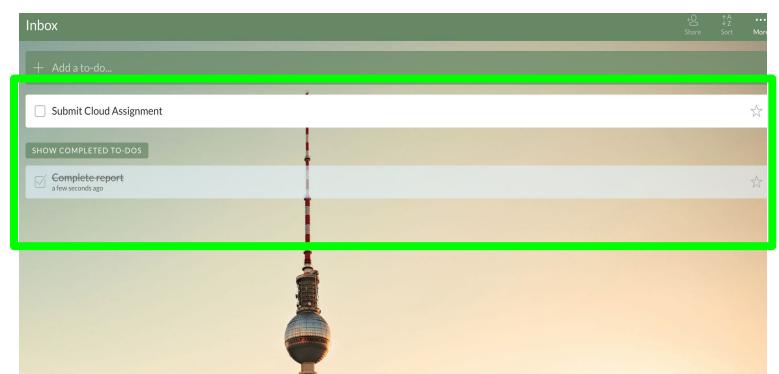


Image 12: Task Page(Clicking on the to-do item reverses its status from 'to-do' to 'completed' and vice-versa)

## Feature Evaluation- Problems

### Consistency Problem in lists

#### Feature- Task Creation

No Task tab in week folder. There is no consistency in the application.

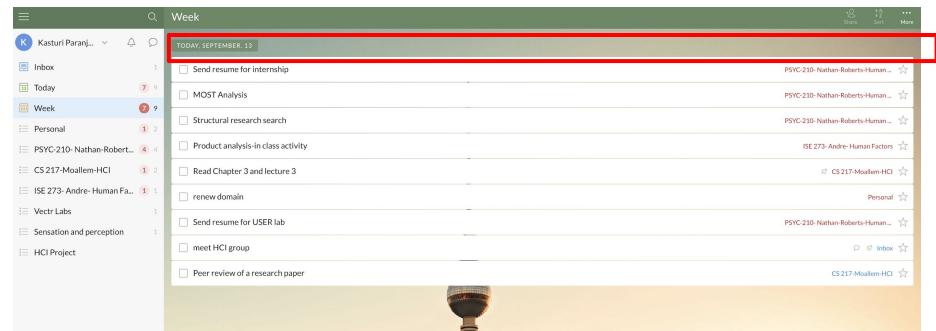


Image 2: Image showing absence of task creation in Week list.

### No system feedback

#### Feature- Task creation

When you try to create a task using text to speech feature, the user do not receive feedback that recording started.

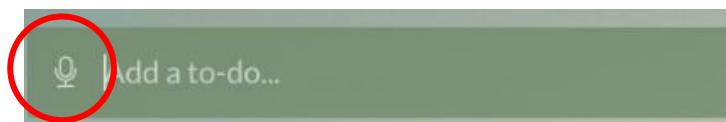


Image 3: Image showing the create task tab when you try to use speech to text feature.

### The user needs to recall the procedure instead of recognition

#### Feature- Create folder

The procedure to create folder shown only when you sign in for the first time. If user miss it, no other visual cues provided which will lead to creating folder.

### Less flexibility to users and feedback problem

#### Feature- Search in the application.

The search option enables only searching task titles, Does not help to search by list or folder name.

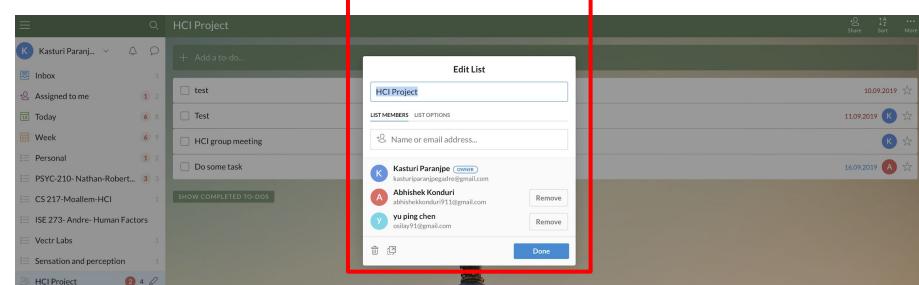


Image 4: Image showing that owner can not assign other member as co-owner.

### No error prevention or recognition

#### Feature- Task Assignment

No warning or prompts for task which are accidentally assigned to past dates. The application is not helping users to prevent or recognize the error.

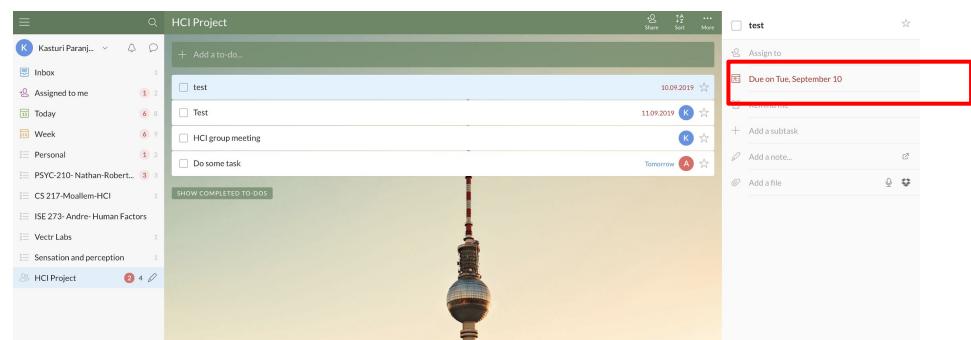
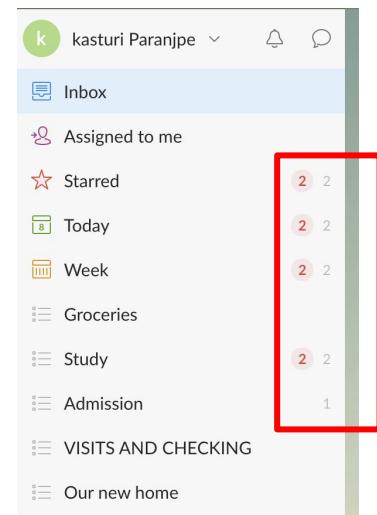


Image 5: Image showing that there is no indication that user assigned a task to past due dates.

## Misleading system status

### Feature- Lists

The numbers are confusing and misleading. The numbers in red indicates numbers of task overdue. The grey numbers indicates number of total tasks in the list. Lets consider Study list. One may perceive it as two tasks are overdue and two more tasks are in the list. That means there are total four tasks.



*Image 6: Image showing number of tasks overdue. This is misleading system status.*

## Task Evaluation- Problems

### Violated Hick Hyman Law

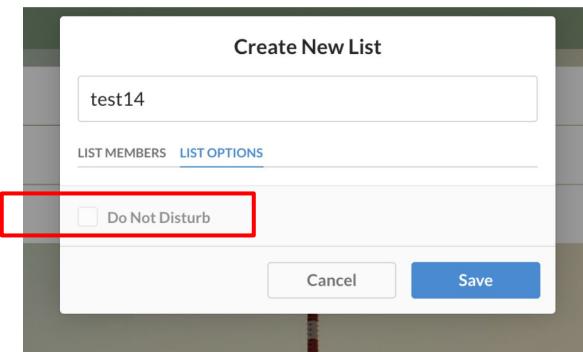
#### Task- Create a list

Unable to sort the list alphabetically. If the user creates lot of list then it will took a while to search the desired list.

### No help or documentation provided

#### Task- Create a list

While creating a list, It is not clear that what is Do not disturb mode. No information provided specifying that.



*Image 7: Image showing the modal window for creating a list with 'Do Not Disturb' as an option.*

### Less user control

#### Task- selecting multiple lists

Unable to select more than one list. Adding the lists in the group is difficult because of this problem. Also moving multiple lists or changing their order is also difficult. When there is a long list of lists then user need to take large number of steps in order to move the list.

### Limited feature option led to inefficiency.

#### Feature- Creating a subtasks

The user can not add more details to the subtask like due dates, reminders etc. Also there is no visual cue provided stating that the task contains subtask.

# Comparative Study

In this section, we have presented a comparative study of two other applications- Monday.com and Trello, which are similar to Wunderlist. The Interface evaluation is based on the affordance, application layout, feature availability and the support for different platforms.

Our Team also conducted between subject user testing on 21 participants in which novice users completed tasks assigned to them. The responses were collected based on completion success, completion time, no of errors and satisfaction rating. The post task survey was also collected to gather additional data. The results are presented in the form of graphs.



## Interface Evaluation Summary:

### (i) Affordances:

**Monday.com:** Monday.com is an extremely popular application for managing team related/personal tasks and offers great flexibility for planning and tracking task status. The unique feature of this application that distinguishes it from its contemporaries is that it allows cross-departmental collaboration. It allows users to add/delete a task, create a board and assign tasks to team members, set due date to the tasks and prioritize them according to high, medium and low priority. This app also makes it possible to keep an eye on the status of each task and view the activity log of each project. One can communicate with other team members directly on the board without relying on external tools/applications.

**Trello:** Trello is another incredibly easy to use application that is primarily used for project management, although it can be used for managing personal tasks as well. It allows one to create a board and add cards to it for each task. One can easily visualise the status of each task by moving the card from 'To-Do' list to 'In Progress' list to 'Completed' list. Like Monday.com and Wunderlist, users can communicate with one another through the agency of the Comment feature.

Image 13 : Trello tracks tasks and lets you discuss about a task through comments but doesn't have an option to prioritize tasks.

**Wunderlist:** On the other hand, Wunderlist is a task/to-do management application that offers relatively limited features when it comes to collaborating with other people for managing a team-based project. However, it is a decent app which lets the user create and delete lists for all the tasks that he/she intends to do and assign due dates and reminders for the same. One can collaborate with other team members too. However, one can neither track the progress of the tasks assigned nor have clear demarcations for setting the priority of the tasks. Members can message each other directly project related discussions.

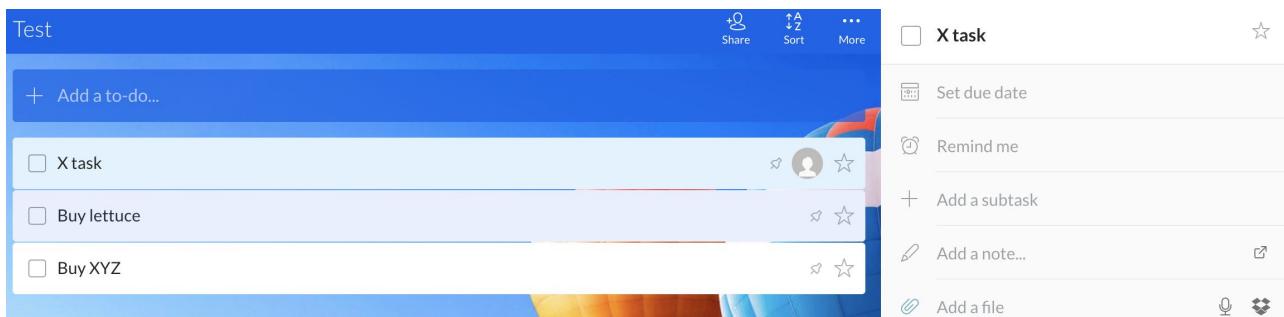


Image 14 : Wunderlist lacks tracking of a task, conversation regarding a task, status of a task if its been worked upon or if its not yet started.

## (ii) Layout:

**Monday.com:** Monday.com has an excellent eye-catching layout which is very easy and intuitive to use. It is very well structured with all the important information grouped together in a meaningful and sensible way. The graphical visualization of time-lines and task progress makes it quicker to grasp the information. The text is easy to read and icons are easily distinguishable. The spatial arrangement of components makes the application efficient and effective to use.

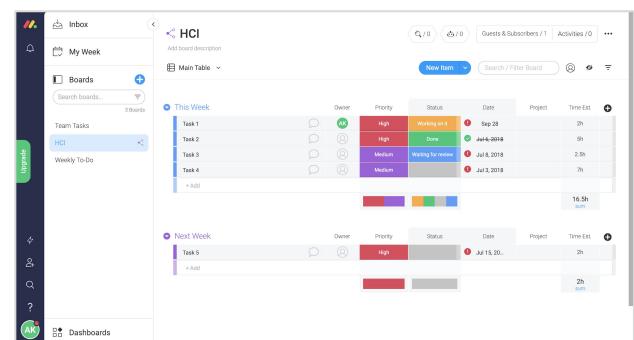


Image 15 : Layout looks eye-catching and easy to use with all the important information present on the main screen which increases task completion speed and rate.

**Trello:** Card based user interface design is an important feature of the Trello layout which enforces the application of **Fittz Law**-the bigger the size of the target, more easily it is hit. It enhances the visual appeal of the application making the interface look well-organized with better categorized lists and aesthetically appealing.

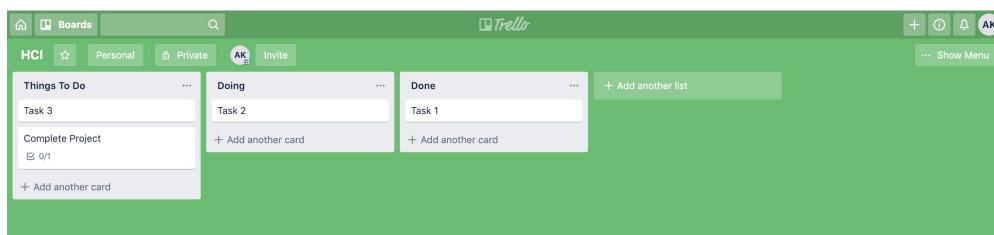


Image 16 : Very basic layout with card based interface which makes it easy for users to select that card and all the tasks related to that task are displayed there.

**Wunderlist:** Wunderlist has a slightly awkward user interface which may make it difficult to use for a novice user. The layout looks clean with the most important information presented in card UI format. The navigation paths for certain tasks can be confusing if someone is using the application for the first time. One has to look for adding due dates and reminders, which possibly increases the rate of errors and the time taken to complete a task. Also, the non text equivalents are not supported by their equivalent texts.

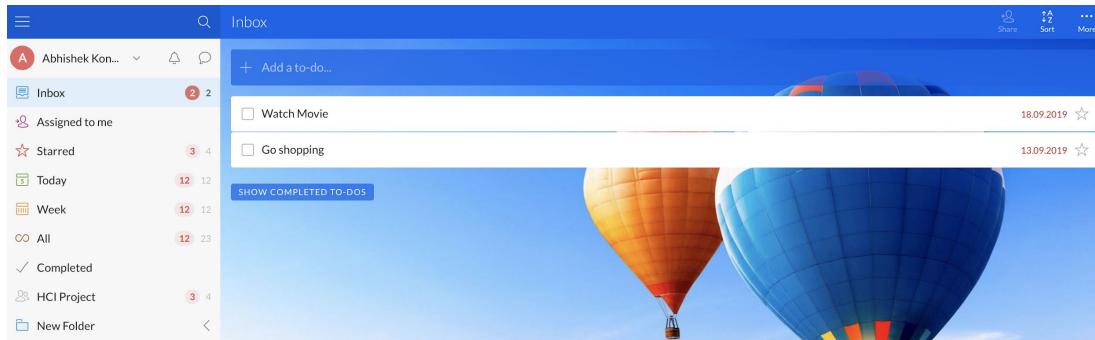


Image 17 : Overall layout looks simple at first glance but it lacks clarity of some functions like adding due dates/ reminders etc.

### (iii) Feature Availability:

**Monday.com:** On the other hand, Monday.com has access to a variety of important additional features like ability to create a public and private board, integrations with important tools like Slack, Zendesk, Trello, Github, Gmail etc other than the main task management ones, live comment feature.

**Trello:** Trello offers a wide variety of features like easy drag and drop of cards(which is in line with the direct manipulation principle), quick detailed view of the project status, color-coded labels for cards and graphic visualization of projects.Kanban methodology can be easily supported with the card style UI.

**Wunderlist:** Wunderlist covers all the important features it is expected to do but it still misses out on some prominent features like a private chat, prioritising tasks into high, medium and low categories, integrations with important project tools like Github, Jira, Trello etc., tracking the progress of project(it only has To-Do and Completed task categories).

### (iv) Multiplatform Support:

**Monday.com:** Monday.com has support on multiple platforms including Android, Windows and Mac apart from modern web browsers.However, it does not currently offer support for Linux systems and Windows mobile phones.

**Trello:** Like its counterparts, Trello is supported by all major web browsers, macOS, Windows OS, iPhones and Android OS.

**Wunderlist:** Like Monday.com, Wunderlist also supports multiple devices as well but it isn't particularly easy to use and has some awkward issues that come as a real shock if one usually uses the app on a mobile phone. Creating folders on mobile is difficult and one has to create a new list to see the option.Unlike Monday.com, Wunderlist desktop app supports Linux systems.

## In-Person Usability Test Results:

Wunderlist, Trello and Monday.com application were tested by 7 novice users (each). This was between subject test. Following are the test results.

### Task completion success rate (%) -

The 90.48 % participants were successful in completing a given task in Wunderlist. This percentage shows that Wunderlist is fulfilling intended purpose. (Appendix Table A.1, A.2, A.3 )



Graph 1: Task completion success comparison

### Satisfaction Rating-

The trello participant were most satisfied with application whereas Wunderlist participants were least satisfied with overall app experience. (Appendix table A.1, A.2, A.3 )



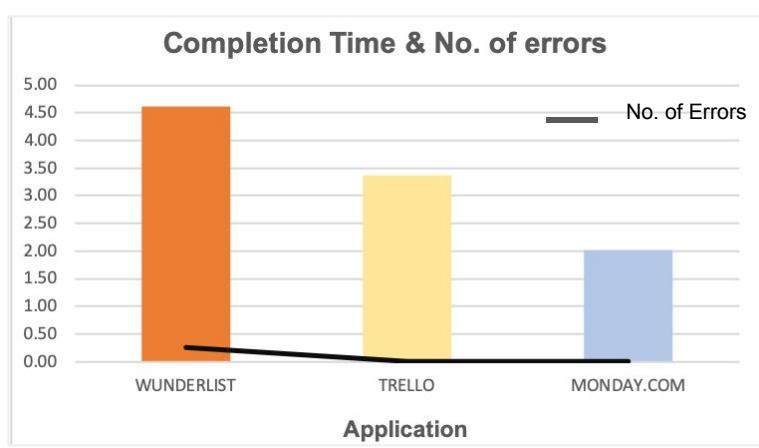
Graph 2: Satisfaction Rating

### Task completion time (minute)-

The participants using Wunderlist took the highest time to complete standard workflow. On an average, the participants using Monday.com completed the task flow in less than half time than Wunderlist participants.

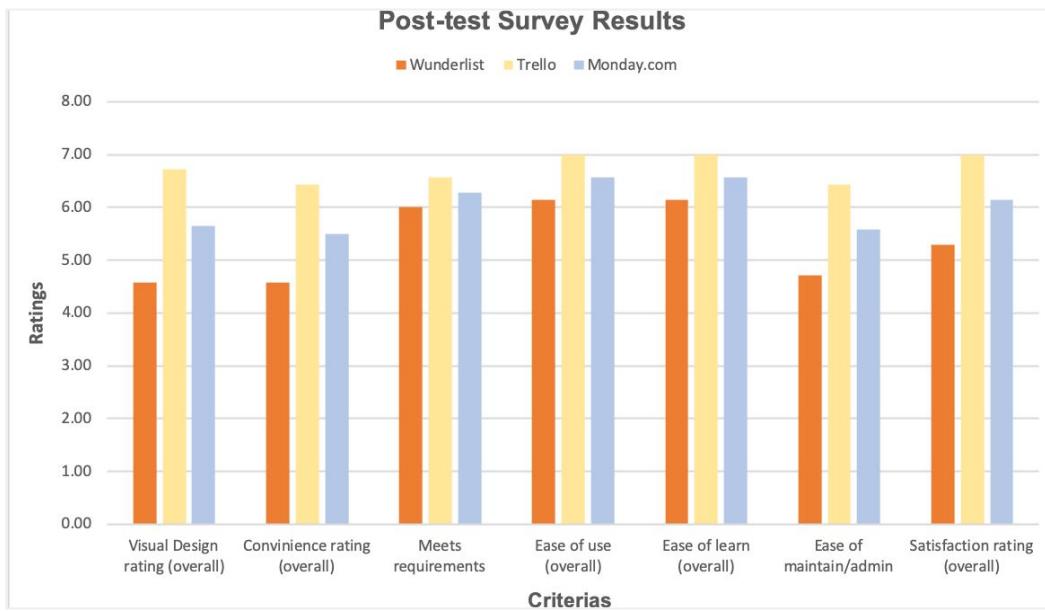
### No of Errors-

The participants using Wunderlist also did several errors. The participants using trello and Monday.com did not make any errors.



Graph 3: Completion time and number of errors.

## Post- Test Survey Results:

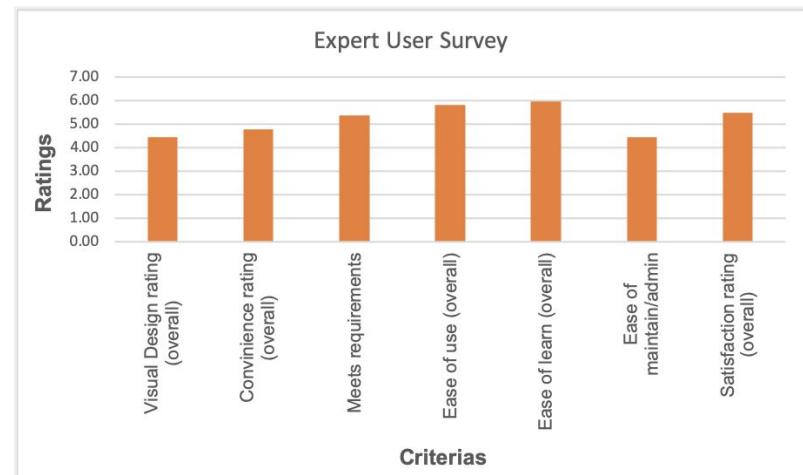


Graph 4: : Post survey Results (From Appendix Table A.4)

Overall Trello did exceptionally well and participants rated it highest in ease of use and ease of learn category. The reason behind it could be layout and core task execution on trello. The Wunderlist scored lowest in convenience and visual design category. The participants could have distracted due to excessive use of colors and failure to achieve hierarchy in terms of importance.

## Expert Users Online Survey Results:

Online survey was conducted for expert users of wunderlist application and received results from 30 users on likert scale (0- Poor and 7-Exceptional). The participants rated highest to ease of use and easy of learn category. The lowest rating was for ease of maintenance. The reason behind this could be limited grouping options, scripted backup and insufficient admin rights.



Graph 5: : Online survey Results (From Appendix table A.5)

## Usability Evaluation Summary

We have made an attempt to gather and analyze the concerns that a user using Wunderlist would typically face. The table U.1 (from appendix) considers all important features of the application and the problems associated with them(if any) have been categorized into low, medium and high priority.  
(table diagram)

From the above table U.2, it is evident that the Folders and the Notification sections have major problems that need to be fixed because they hamper the efficient completion of task. The option to create a Folder is not visible after initial sign up and the user might not be aware that such a feature exists in the application. For the notifications part, the user does not receive a notification on getting a request, which in turn might not allow him/her to join a project.

Therefore, these two are major issues which need to be fixed to make the application use hassle free.

Other moderate issues have been detected in the Comments, Share Lists and Account Settings Section, which do not interfere with the task completion. However, if these issues are fixed, it can enhance the overall user experience of the application. Having visual feedbacks/messages to inform the user that the comments have been posted and the lists have been shared are essential modifications that should be incorporated by the application designers.

The lowest priority issues are present in the Share List feature. Having more methods like WhatsApp, Mobile Number etc. to share lists with other users could make the application more customizable to the users requirements. Proper documentation about how to use features could also be helpful.

## Suggested Usability Enhancement

### Need to increase consistency :

- Consistency can be improved by making notifications consistent on all the supported platforms. Also, the notification currently received has a lot of delays which could definitely be improved to give it a more consistent look and feel.
- When you delete a list, you can still see the list in the options of assign a task to the list. Which gives a very inconsistent feel. If deleted by the user, the list should disappear from all the places in the application.
- The total number of tasks in all the lists seems to be confusing as they add up to be different which gives a very inconsistent look and feel.

### Need of better date formats :

- It could be better when it comes to features like adding due dates and remainders as we may have to look around for them if we are not experienced in using the application.

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### **Structure need to improve :**

- Application structure is minimalistic and could be improved in terms of utilizing the available area with more features like showing the status of the task or having a place to add comments on the task which is visible from the main page instead of us having to go inside the task to look at it.

### **New features need to be introduced to increase user control :**

- There can be an addition of more features like a single task can be assigned to multiple people or only certain people having the authority to assign tasks to others or making others the admin of the list/task. A private chat feature can also be considered as a good usability

### **Flexibility:**

- Once the user signs in, the application asks to choose the list option without which it is unable to get started. This makes the application less flexible as the user has to select something in order to do some other task which is completely irrelevant to the first task.

### **Feedback should be improved :**

- The microphone icon is confusing the user that we can use a microphone when we click on it there is no feedback. There should be some feedback given to such places helping the user understand it better.

Here is a list of important usability improvements in the previous design-

1. Need a prompt if user accidentally create a list or task with the same title.
2. Need to consider position of create list tab.
3. Consider adding create folder tab. Currently we have to right click on a list to create a New folder. Creating a new folder should be an independent task.
4. The user should be able to select multiple lists at a time which helps in multiple tasks like shuffling the lists, deleting lists, etc.
5. A link to add a new participant can be provided when you try to assign a task to a person.
6. There should be an indication that will suggest that a task has subtask. Currently we do not understand by looking at the task from the main page if it has a sub-task or not.
7. Need calendar view showing task overview.
8. The user should be able to mark task as complete using keyboard.
9. The user should be able to hide task lists which are completed.
10. Unnecessary information other than sign in information on the sign in page need to be removed.
11. The total number of inboxes should show up only once without repeating in other list like weekly or daily task total.
12. The user should be able to perform private chat feature to provide better communication among team members. Effective use of icon and all icon should meet the standard of common user knowledge.

# Conclusion

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In conclusion, Wunderlist is a daily supportive app for user to be able to perform better in their daily activity. Wunderlist act as a reminder app for personal use, or group task manager which can assign tasks to group members. Wunderlist is available for both Android and IOS application and it is also available for iphone application and android mobile application. Wunderlist work similar on both Android and IOS app. Moreover, there are some synchronizing task issue happened to some users between different operating system devices. On the other way round, the task created on Window devices are delay to appear on other devices. Wunderlist is able to use across different browsers; Chrome, Firefox, Internet explorer etc. However, some of the functions are only available on Google Chrome. For example, microphone icon is not showing up while using on FireFox and Internet explorer when creating new list.

Wunderlist web application is a popular for office use to assign tasks and keep the project team organized. Although Wunderlist is a simple and straightforward to use, there are some problems need to fix to perform as a better application. We come up with following idea to make Wunderlist become better application.

## What we learnt

**Nehal :** Initially before starting on the project, I was skeptical about how a reputed product, having been in the market for several years, could still have design and usability defects. But this project completely changed my perspective and made me appreciate the importance of usability studies. Communicating with real users made me more sensitive towards their struggles with the product. Therefore, as software engineers we should responsibly design products based on human centric approach so that while using it, the user should not lost.

**Kasturi:** I learnt the importance of in-person user testing in usability report drafting. The in-person user tests and online surveys helped me to understand important elements of experiment design. Working in multidisciplinary team helped me to evaluate the application considering different aspects.

**Ei Ei:** After learning the techniques of Evaluating an application features, the knowledge of theories and laws help me to be able to evaluate an application from a user aspect as well as an application evaluator. Researching user story also make me to be able to focus on the needs of our application user. We can understand more about user's concern and their expectation on an application.

**Abhishek:** Through this project, I got to know how important is it to consider human interaction principles to design and develop any computer application. It can decide if your application is a hit or a miss. I learned that it is very important to improve the interaction between users and computers by making computer applications more user-friendly and receptive to user needs. Human-computer interaction considers users of all types that include disabled as well, which we often forget to consider.

# References

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# Appendix

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## In-Person Usability Testing Result

The wunderlist, Trello and Monday.com were tested on 7 participants each. Following are the results of the test.

	WUNDERLIST			
	COMPLETION SUCCESS(IN % )	COMPLETION TIME (IN SECONDS)	NO OF ERRORS	SATISFACTION RATING (ON SCALE OF 1-7)
SIGN UP IN THE APPLICATION	100.00	105.60	0.57	2.29
CREATE A LIST	100.00	22	0	6.86
SETTING UP DATE FOR A TASK	71.43	55.17	0	4.14
CREATE A FOLDER/BOARD	71.43	42.86	0.43	1.57
ASSIGN A TASK IN SHARED LIST	100.00	42.43	0	6.43
MARK THE TASK COMPLETE	100.00	8.86	0	7
AVERAGE	90.48	276.92	0.17	4.72

Table A.1: Table showing usability test results for Wunderlist application

	TRELLO			
	COMPLETION SUCCESS(IN % )	COMPLETION TIME (IN SECONDS)	NO OF ERRORS	SATISFACTION RATING (ON SCALE OF 1-7)
SIGN UP IN THE APPLICATION	100	100	0	7
CREATE A LIST	100	8.43	0	6.86
SETTING UP DATE FOR A TASK	71.43	54.22	0.29	6.93
CREATE A FOLDER/BOARD	71.43	21.80	0.29	6.93
ASSIGN A TASK IN SHARED LIST	85.71	9.00	0.29	6.57
MARK THE TASK COMPLETE	100	8.83	0	5.86
AVERAGE	88.10	202.28	0.15	6.69

Table A.2: Table showing usability test results for Trello application

	MONDAY.COM			
	COMPLETION SUCCESS(IN % )	COMPLETION TIME (IN SECONDS)	NO OF ERRORS	SATISFACTION RATING (ON SCALE OF 1-7)
SIGN UP IN THE APPLICATION	100	55	0	4.43
CREATE A LIST	100	11.71	0	6.86
SETTING UP DATE FOR A TASK	71.43	30.6	0.29	5.43
CREATE A FOLDER/BOARD	71.43	8.8	0.43	5.57
ASSIGN A TASK IN SHARED LIST	100	9	0	6.57
MARK THE TASK COMPLETE	100	6.29	0	7
AVERAGE	90.48	121.40	0.12	5.98

Table A.3: Table showing usability test results for Monday.com application

	Post-test Survey						
	Visual Design rating (overall)	Convinience rating (overall)	Meets requirements	Ease of use (overall)	Ease of learn (overall)	Ease of maintain/admin	Satisfaction rating (overall)
Wunderlist	4.57	4.57	6.00	6.14	6.14	4.71	5.29
Trello	6.71	6.43	6.57	7.00	7.00	6.43	7.00
Monday.com	5.64	5.50	6.29	6.57	6.57	5.57	6.14

Table A.4: Table showing usability post-test survey (on Likert scale 1-7)

Expert User Survey						
Visual Design rating (overall)	Convinience rating (overall)	Meets requirements	Ease of use (overall)	Ease of learn (overall)	Ease of maintain/admin	Satisfaction rating (overall)
4.43	4.80	5.37	5.80	5.97	4.43	5.50

Table A.5: Table showing results for expert user online survey (on Likert scale 1-7)

## Usability Evaluation findings- Table U.1

Major problem

Intermediate problem

Minor problem

	Folders	Comments	Share Lists	Notifications	Account Settings
Visibility of system status	The procedure to create folder shown only when you sign in for the first time. If user misses it, no other visual cues provided which will lead to creating folder. The option to create a folder is not visible and is visible only once the user right clicks on a list.	Clicking on the enter button informs the user that the comment has been posted. No explicit post button.	Clicking on the 'Share list' option does not show any message so that the user knows that the list has been shared successfully.	The application has options to enable desktop and email notifications, apart from receiving notifications on the application. However, there is no notification on getting a request.	All options in Account Settings have a 'Done' button. On clicking on it, the tab closes. However, there is no message which indicates that changed settings have been saved successfully
Match between system and the real world			In real life, one person can work on multiple tasks. But in Wunderlist, one person can be assigned to only one task.		

Match between system and the real world			In real life, one person can work on multiple tasks. But in Wunderlist, one person can be assigned to only one task.		
User control and freedom		More options need to be included.	Lists can be shared only through e-mails which restricts the user's freedom. Other options to share the list could also be included.		
Consistency	The multiple total number of items listed are confusing to user			Notification receive delay	
Error Prevention			Message to enter a valid email address appears as soon as the user starts typing an email address.	The notification is not received instantly.	
Recognition versus Recall	No create folder button. User have to right click and find the create folder option				
Flexibility and Efficiency of Use	The option to create a folder appears only on sign-up and the user might not be aware.				Integrations with important project management tools like Github, Zendesk, Outlook etc. is missing.

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Help and Documentation	Document does not list steps for creating a folder.	The documentation provided is very technical which a user from a non technical background may not be able to understand.	No documentation provided	No documentation provided	
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