



UOW
MALAYSIA
KDU PENANG
UNIVERSITY COLLEGE

—
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OF WOLLONGONG AUSTRALIA
GLOBAL NETWORK

School of Engineering, Computing & Built Environment

Department of Computing

Diploma in Information Technology

USER INTERFACE DESIGN (DUD1204)

January 2021 Semester

[LECTURER'S NAME: Dr. Lim Chia Yean]

[Assignment 1]

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DUE DATE : [Week 6]

TOTAL MARKS : [/ 15%]

Plagiarism

The assignment is based on an individual response. The report must be **completely your own work** and you must not copy from others. Any plagiarized work will be zero-rated. Any reference material you use (books, journals, Internet, magazines etc.) must be clearly identified in your report using procedures in the Harvard System of Referencing.

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DUD1204 User Interface Design
Assignment 1 (15%)

Assignment 1: Group work (2-3 students in a group)

Due date for submission	Week 6
Marks	100% (Weighted marks: 15%)

Course Learning Outcomes

CLO1	Justify the choice of an effective interaction concept for a product.
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Question 1 (100%):

In year 2020, most of the education classes were conducted online due to campus closure. Students have to switch to various online meeting/conference apps to attend classes. Despite of the convenience enjoyed by the students to attend class virtually, some meeting/conference applications suffered from some user interface design flaws such as usability, interoperability and evolvability.

Assuming you are a user interface designer, you are assigned to study the flaws of online meeting/conference apps based on the reviews and rating given by the users on Google Play Store and your own observation. Based on your findings of the flaws issue, suggest possible solutions to overcome the flaws.

Your portfolio report should include the following parts:

Part 1: Introduction of existing online meeting/conference apps – 20%

Choose any three existing online meeting/conference apps and give brief introduction to the mobile apps' features such as usability, interoperability, and user interaction design. Your elaborations shall be supported with relevant figures, table and statistical facts to support your findings.

Part 2: User interface design flaws – 30%

Explain in detail on the user interface flaws according to the reviews and rating given by the users on Google Play Store and also your own observation. You are encouraged to point out the flaws by giving supported evidence in the form of photo snapshots, comment on reviews and comparison of rating as compared to others.

Part 3: Solutions for the flaws –30%

Based on the observations done on the three online meeting/conference apps, suggest some possible solutions to overcome the flaws issue. You are required to show the recommended amendments made on the user interface design for the online meeting/conference apps by redrawing the user interface pages.

Part 4: Conclusion – 10%

Write a comprehensive wrap up for all discussions in Part 1-Part 3. Give good conclusions on your findings which lead to the improvements of user interface design for online meeting/conference apps.

Part 5: Reference – 10%

Provide a complete reference list for all the citations that you provided in the Part 1 – 4. Please use Harvard Referencing format.

Submission

Use font type of Times New Roman, font size of 12 to present your answers. Kindly submit your assignment according to the sequence of items listed in the table:

Question	Content	Format	Submit to
	Cover Page	Softcopy in PDF format	Upload to Canvas
	Question Papers		
1	Portfolio Report		
	Marking rubric		

You are required to present your answers neatly where the indentations and alignment of text must be properly set. Kindly fill up the details of your assignment cover page with the module code, module title, student ID, and submission date. Attach the **Marking Rubric** in the last page of your report. If you have any questions regarding this assignment, kindly discuss with the module tutor for further details.

Rules

For unauthorized late submission, the standard penalty is 10 marks deduction for a full day lateness or part of it.

Portfolio Report

Discord

Discord: Part 1 - Introduction

Discord is a popular server-based online meeting app that was first released back in 2015, with the original intention to help gamers solve the problem of communicating with friends from all around the world. Today, Discord is a pocket pick for internet citizens to connect and have conversations with public and private communities easily, whether they belong to a gaming community or not. As of 29th January 2021, Discord has over 100 million active users and 13.5 million active servers per week (www.discord.com, 2021), with a wide range of support for operating systems and platforms. Discord is designed so that users can access it anytime, anywhere. Therefore, it is no shock to say that Discord is also operable using a browser, aside from the traditional method of only having its own computer program or mobile app for users to access their application. (Minor, 2020)

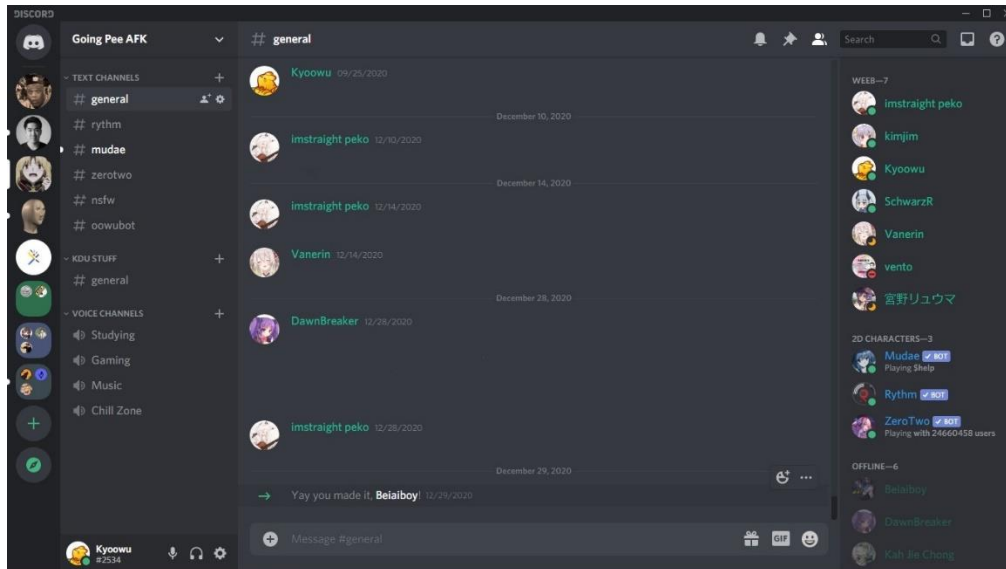


Figure 1.1.1: Discord's dark-themed user interface

In Devon's words, Discord is divided into small or big communities called servers, each of which has its own members, topics, rules, and channels (Delfino, 2020). The main actors of Discord are the servers and their channels: Servers can be split into public servers and private servers, of which the former is presented more as a platform dedicated towards a certain community that can be joined by any user that uses Discord and the latter is more of a small community of friends that were specifically invited to join said servers. Each server usually has multiple channels, being either a text channel or a voice channel and each of which is yet again dedicated to a different topic or has different rules (Delfino, 2020). The addition of "bot users" also spices up the Discord experience, as each of them provides additional functionalities that provide more entertainment and fun than the normal usages of the meeting app. Discord does not limit any of its users to create their own servers, allowing them to create and be in at most 100 servers for each Discord user. (www.discordia.me, 2020)

- **User Interaction Features & User Interface Design Principles**

At first glance, users can see that Discord has a darker theme for its background. It can be said that Discord has a more **aesthetically pleasing** user interface compared to other meeting apps, at least for individuals like gamers. Of course, Discord also has a light-themed user interface. However, considering that Discord's main communities are more based around gaming, the darker theme proves to be much better than the latter as it doesn't strain the eye too much when looking at it for long periods of time. It also allows better information transfer as anything with brighter colors highly contrast with its darker background, letting users see its contents much more easily.

When talking about Discord, users also cannot leave out the fact that the **responsiveness** of its voice call functions are one of the best among its rivals. According to an article written by John Brandon on Techradar.com, Discord puts a strong emphasis on instant voice communication and real-time collaboration, where the app truly shines with low-latency voice chats that realize these goals (Brandon, 2020). What he has said truly isn't far-fetched, as Discord enables users to easily connect and communicate clearly without any audio disruptions at the cost of a single click and a few seconds of waiting. Additionally, voice calls also has a noise cancellation feature to ensure that background noises do not get in the way of conversations. This feature cannot be found in other meeting or conference apps that seem to take minutes to even establish a proper connection, and that makes Discord the only one that has this useful and unique feature that adds more value for it to be among the meeting choices that the users can pick from.

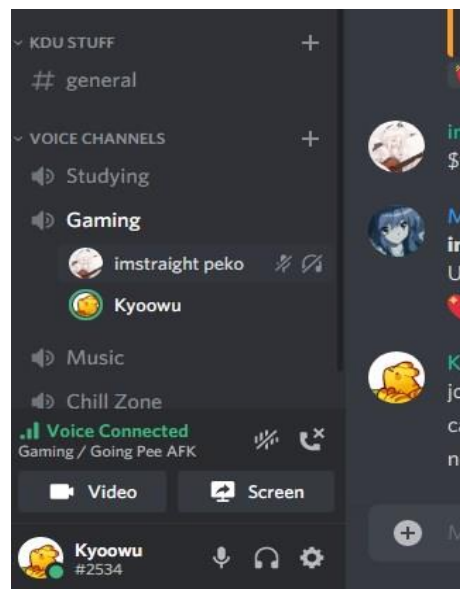


Figure 1.1.2: Discord's voice chat functions

Discord also provides **configurability** of user, channel, and server settings, allowing user customization to their own preference. Normally, application settings are quite hard to understand what they are used for if users are new to the app. However, Discord settings are designed so that users will know which settings can be found at which location straight away. Discord user, channel and server settings are categorized and separated with appropriate headers to provide clarity for these settings and let users evaluate whether any of the settings that they are currently looking at can be used to solve their problems or not. This feature is extremely important when Discord has an enormous community that can choose to enter any public servers whenever they like, and this also means that there will always be a few potential threats to look out for. To counter this, parents who have never used Discord before can easily identify which settings should be changed to protect their family, like muting, blocking, and kicking malicious users from their servers, or they can also tweak the settings so that parental control over their children's usage can be maintained. So, that's why Discord is recommended by most users as they have control over most main functions and can change them to suit their needs.

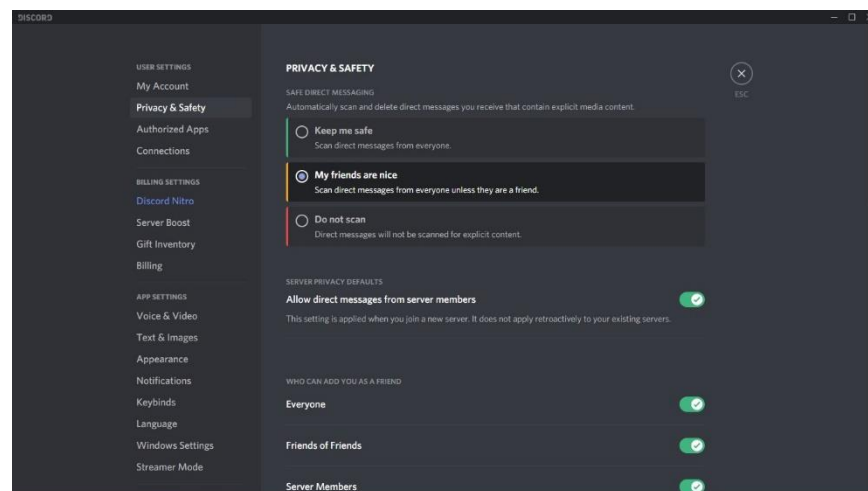


Figure 1.1.3: Discord's Privacy & Safety settings menu

However, the most important factor to Discord's user interface design is inevitably due to its **simplicity**. If users haven't notice already, simple icons are used to indicate each function available on the platform, with tooltips explaining more on those functions upon hovering an icon. Server icons are arranged neatly at the left side of the screen to allow more room for channel contents and navigation. Users of a channel are displayed at the right side of the screen too with sections separated by user-defined roles to let everyone on a channel see who's online and user activity. These are the elements that shape Discord's identity as a platform with a simple but interactive user interface. Text characters are used sufficiently enough to represent a subject and help give understanding on the subject, but not too much to give a spacious feeling to the users. Users like this kind of user interface because they aren't forced to look at long paragraphs, but rather straightforward phrases that help them understand which actions are performed. Most illustrations in the program are also meaningful and not ambiguous at all, aside from the fact that they make the program look more interesting and less cluttered.

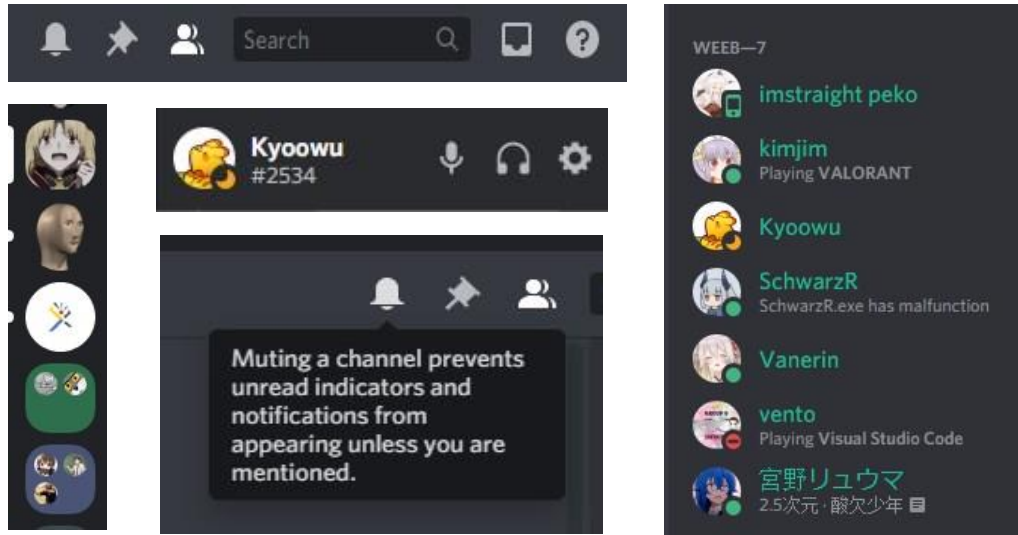


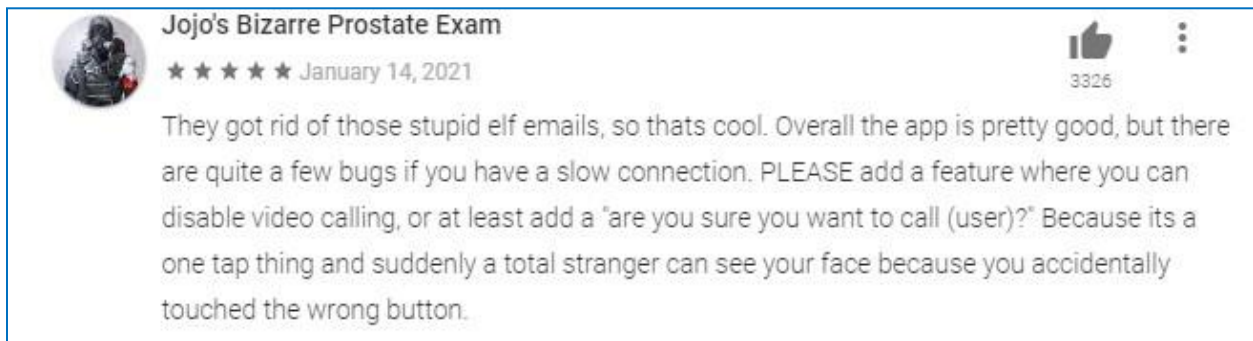
Figure 1.1.4: Discord's simple but meaningful icons and motifs

Overall, Discord sounds like a better version of meeting apps out there in the market. Not to mention that Discord is free, but Discord also contains in-app purchases to upgrade user experience. With Discord Nitro, users can enjoy more stable voice call connections, screen shares with higher quality, increased upload limits, global or in other words, cross-channel emojis, a custom Discord tag, and an animated avatar, in addition to many benefits that users can get if they decide to upgrade to Discord Nitro (Vicente, 2020). Alternatively, users can still choose to continue using the free version of Discord, as its main functions remain intact whether users upgrade to Discord Nitro or not. This shows how loved Discord is by its own community because they did not weigh towards paying customers and continues to push out features that benefit most of its users.

Discord: Part 2 – User interface design flaws

Albeit how perfect Discord is for most of the community, it also has its down sides when it comes to its user interface design. Some functions that exist inside Discord might give an uncanny feeling to some of the users based on the user's perspective, but at times some of its functions will completely defeat expectations of the user interface coming from the users as well. Whether they are server-related or not, there is no doubt that some of Discord's features have raised opinions from the Discord community and improvements should be made to make Discord usage more comfortable.

According to reviews extracted from the comment section of Discord in Google Play Store, Discord could use a few improvements on its video and voice call functions and a few minor bugs that were encountered by some users. To start things off, users by the name of "Jojo's Bizarre Prostate Exam", "xX_SkyLightz_Xx", "Rufus The Hunal Prophet" and "Bhyoop" all stated that Discord has a major privacy issue for their video and voice call functions, which is having no confirmation for them to make a video or voice call (Discord, 2021). Although it is said that Discord's responsiveness is its biggest strength, it can also prove to be a nuisance if users have no intention to video or voice call but accidentally presses on the buttons that indicate said functions. Discord has a large community and people can get to know a lot of new friends that have the same interests with them, but everyone are still strangers to each other regardless of that, and users will never know if the other person is evil or not. The absence of some sort of confirmation before making a call is a huge privacy concern because if users accidentally makes a video call to another stranger that is coincidentally evil, then said stranger will be able to memorize their faces, their background and everything about their current status, and right after that by using the technology today, they could replicate and estimate their current location, putting the users in danger. Now, even though these sorts of situations are unironically low, users shouldn't take things for granted and risk having their privacy violated.



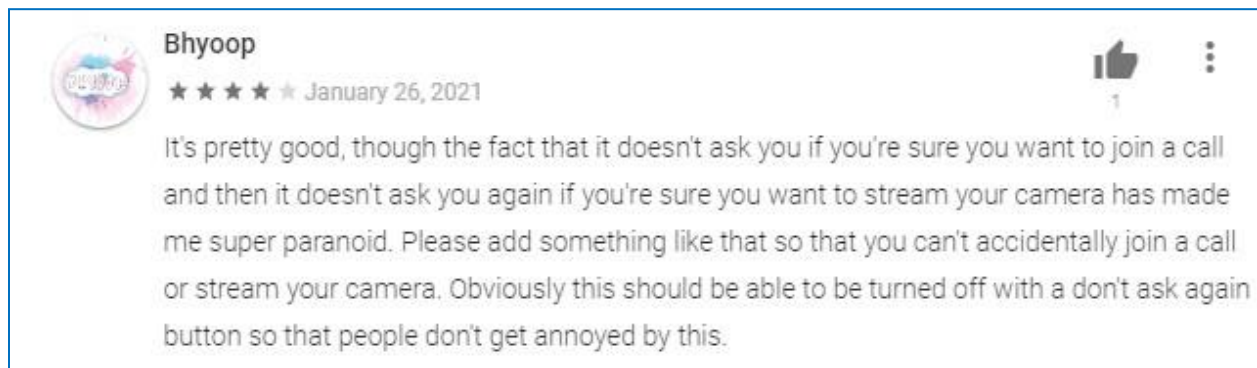
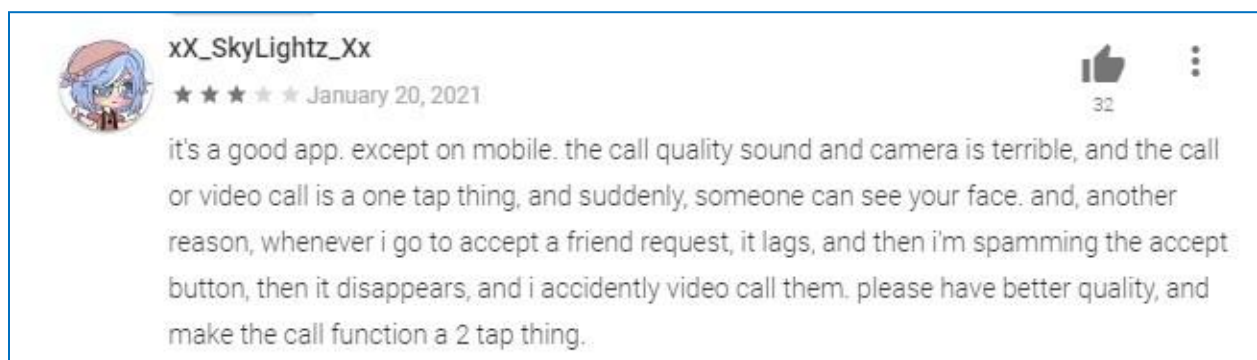


Figure 1.2.1: Google Play reviews from 2 of the 4 reviewers, Bhyoop and Jojo, regarding the over-responsiveness of the call functions

Another major flaw of voice or video calls that Discord needs to take note of is its input and output volume on the mobile version. Users “xX_SkyLightz_Xx” and “Gigi Johnson” stated that they encountered this issue when using Discord on their phones and noticed that the call quality of Discord for mobile phones are way worse than its desktop counterpart. They said that it is only when they use Discord on their phones, as the problem doesn’t happen when using Discord on their desktops. According to “Gigi Johnson” specifically, even if users try to put their output volume at maximum in every possible way, they still cannot hear anyone clearly when someone is speaking inside the voice call (Discord, 2021). Having a poor call quality affects the conversation because communication is hindered by the fact that users cannot hear what their friends are saying and vice versa. If this issue persists, users will slowly become annoyed by Discord’s behavior because it is not letting its users have conversations without technical interruptions. Discord will also leave a bad impression for other users as a dysfunctional meeting app. Since Discord’s fame thrives on the excellence of its voice and video call functions, this flaw should be fixed as fast as possible so people can still use its main functions with the mobile app when they have no access to the desktop app whatsoever.



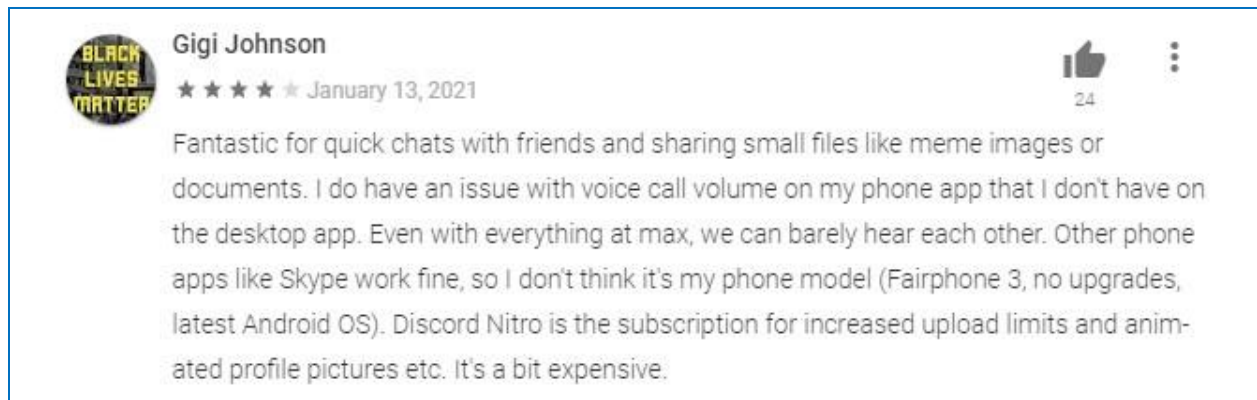


Figure 1.2.2: Google Play reviews from SkyLight and Gigi Johnson, regarding the insufficiency of output volume for mobile Discord users

It also frustrates users when Discord has a design flaw where it has a limitation on file uploads. According to a Google Play review from user “Rufus The Hunal Prophet”, Discord sets a maximum file upload size of 8MB for free users that did not choose to upgrade to Discord Nitro (Discord, 2021). Even after upgrading to Discord Nitro, users can only send files that have sizes up to 50MB to 100MB depending on the subscription that they chose (Vicente, 2020). Both free and Nitro users doesn’t seem to have enough file upload size limit to allow them to send file formats like videos that almost always surpasses 8MB directly into chat windows. There is no doubt that the 8MB file upload limit should be heighten a lot more because as a meeting app, users attending a formal meeting might require a platform to share and show their work or documents with their colleagues. The 8MB file upload limit that is imposed on most Discord users will definitely make file sharing among colleagues more difficult when they want to share larger files that may be equally important for their meeting. In this situation, they have to work around the limitations of Discord and find another way to share their larger files like using WeTransfer (www.wetransfer.com, 2021) to compress their files into a website link, sort of like a ZIP package. Though, it is better to increase the limit of file upload size from 8MB to somewhere around 25MB for free users, and from 50MB to around 100MB or from 100MB to around 200MB for Nitro users so users can just directly send their files over to other users without needing extra steps.

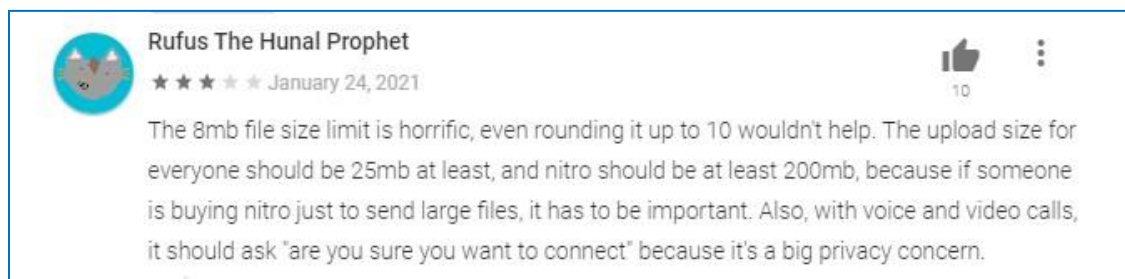
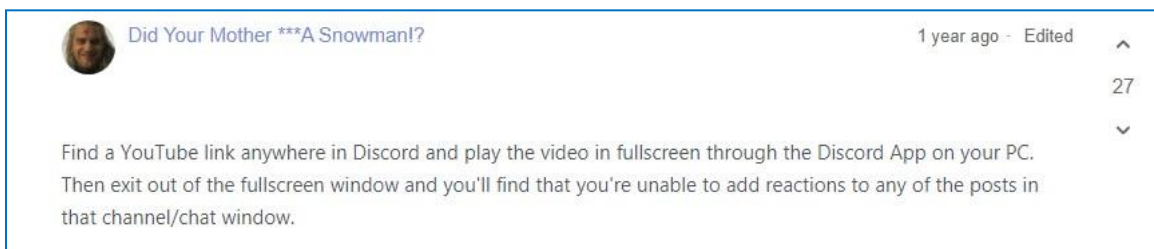




Figure 1.2.3: Google Play review from Rufus regarding the inappropriate file upload limit (top), with a picture of the error message that pops out if a sent file is over the 8MB limit (bottom)

Last but not least, there is also a design flaw with Discord's reaction system. If users play a YouTube video on fullscreen with Discord and exit out of fullscreen when the video ends, users will find that they are unable to react any of the posts in the channel that the video reside in if they wanted to. Normally, Discord users can choose to react posts with any emoji at their disposal regardless of how many emojis they want to send, and being able to react a message without having a one-emoji-only restriction is another charm of Discord. With it gone, users are sure to be left disappointed because some users that are more expressive couldn't share their feelings after seeing a post if they want to and couldn't make funny faces as a mean of starting conversations with strangers. This design flaw was discovered by user "Did Your Mother ***A Snowman!?" that provided feedback about it on Google Play Store and also reported about the problem to Discord Support upon discovering the flaw. Although it isn't a design flaw that needs high prioritization, it is still a design flaw that needs to be fixed so Discord can work as intended originally and users can enjoy this feature that more or less sums up the Discord culture that every Discord user know and love. (Discord, 2021)



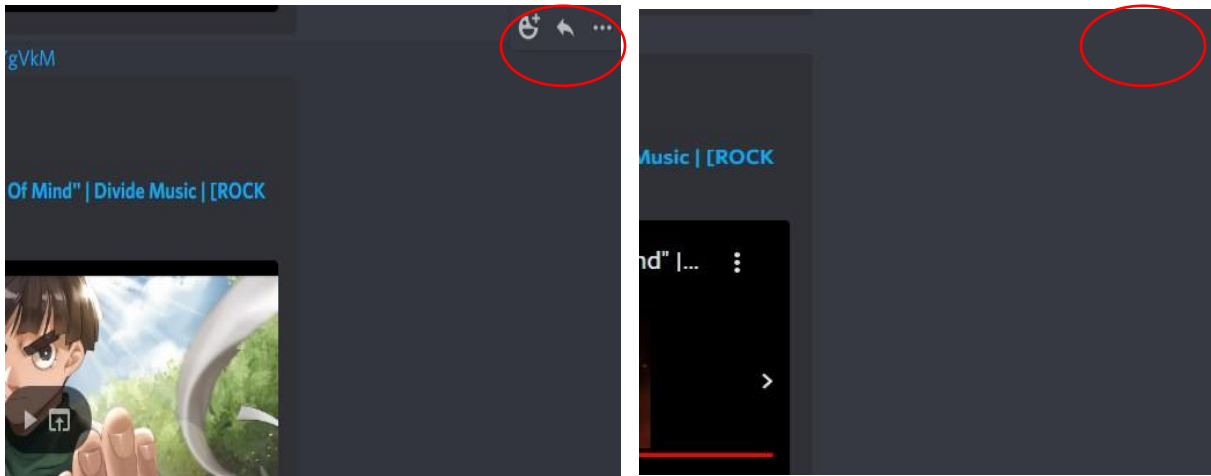


Figure 1.2.4: Discord Support review from Snowman regarding the reaction issue (top), with pictures showing the before and after of the reaction toolbar while user maintains hover state (bottom from left to right)

Now, some design flaws on Discord's user interface design can also be found by oneself through careful observation. It wouldn't be hard to find as some of its designs had also been bugging out lots of users because of different preferences. Firstly, Discord server icons listed on the left side of the screen does not look great when users group them together into a folder. Users can join more than 1 servers, and servers will get mixed up with each other if it isn't categorized neatly. Therefore, Discord implemented a feature that allow users to group servers together into a folder to facilitate users' needs. However, Discord's folder icon design doesn't actually look like one, even if it is color-coded and labelled. In fact, it gives out a feeling that server icons are cramped into a block the size of a normal server icon, ruining the normal layout of the server icon list on the left side of the screen visually. Also, the preview of the server icons that reside in the folder is way smaller than their normal sizes, making it harder to pinpoint the location of the server that the user wants to access into. This will cause confusion for users and they will waste more time finding the correct server that they intend to select, creating a bad user experience of Discord for them.

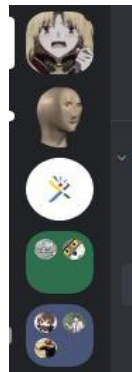


Figure 1.2.5: List of server icons with folders, of which the boxes that contain multiple server icons

There is also a problem with the inbox icon placed at the top right corner of Discord's user interface. People usually find inbox functions at a clearly visible position so they can be identified easily to check on unread messages or posts. On the contrary, Discord places its inbox icon that is already small near the top right corner of its user interface. Naturally, new users that just started using Discord wouldn't know where the inbox icon is because of this and will struggle to find it. Icons that are small and put at a location that is hard to let users notice would always give the impression that they are unimportant and are just extra functions that doesn't provide much functionality for the users. Inboxes, however, are quite important because users can instantly keep themselves notified of messages or posts that were directed to them and didn't receive when they were offline. Therefore, logically speaking, it should be put in a more visible position than it is right now to let users know that there indeed is a function like this that they can take advantage of, and not in a position where it will let the icon go unnoticed by users when they use Discord every time. On a side note, the inbox icon also needs a rework because it doesn't seem to resemble an inbox, but rather a tray that is rather ambiguous and meaningless to users. The contents of the inbox are also visually cluttered with repetitive information that isn't organized properly at all. This will cause users to be unable to interpret any information that is within the inbox and they will not be able to understand how to use the functions presented in the inbox too.

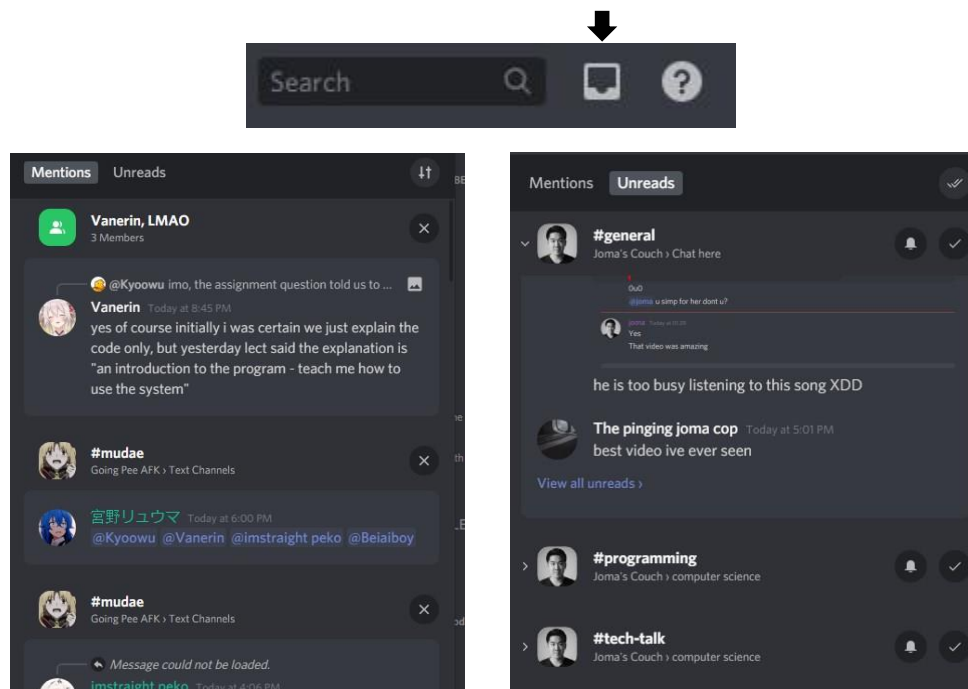


Figure 1.2.6: Discord's inbox icon (top) and its windows that contain visual clutter (bottom 2)

Finally, the location of the settings in Discord also present itself as a design flaw in the user interface design. Although the user interface design of Discord's settings was said to be easy to navigate and understand earlier, it only applies if users can actually find the settings in the Discord's main menu. User, channel, and server settings are all scattered around Discord's user interface and they are not unified using a single icon that represent it. So, users need to find each of the icons corresponding to its purpose themselves and this will pose an issue for the users because they need to waste some time to find out whether the options that they want to look for is put under user, channel or server settings. User settings can be found rather easily, but the main

problem lies in the position of the server and channel settings. Server settings, specifically, are very hard to find because of the way they are positioned in Discord. New users wouldn't know that they can access server settings by clicking on the server name that is listed on top of the app window after clicking and entering a server. This is because the server settings are hidden inside a dropdown and the server name doesn't look good enough to let users know that it is interactive. So, users often overlook the clickable server name because it doesn't seem like it can do anything at all. The icon for channel settings also appear with each channel that a server is comprised of. Frankly, it confuses users if a server has many channels because users need to ensure that each setting are set properly corresponding to the channel that the settings are enforced on. Having many channels in a server generates many channel setting icons and can lead to users losing control on which settings is directed towards which channel in the server and causes confusion.

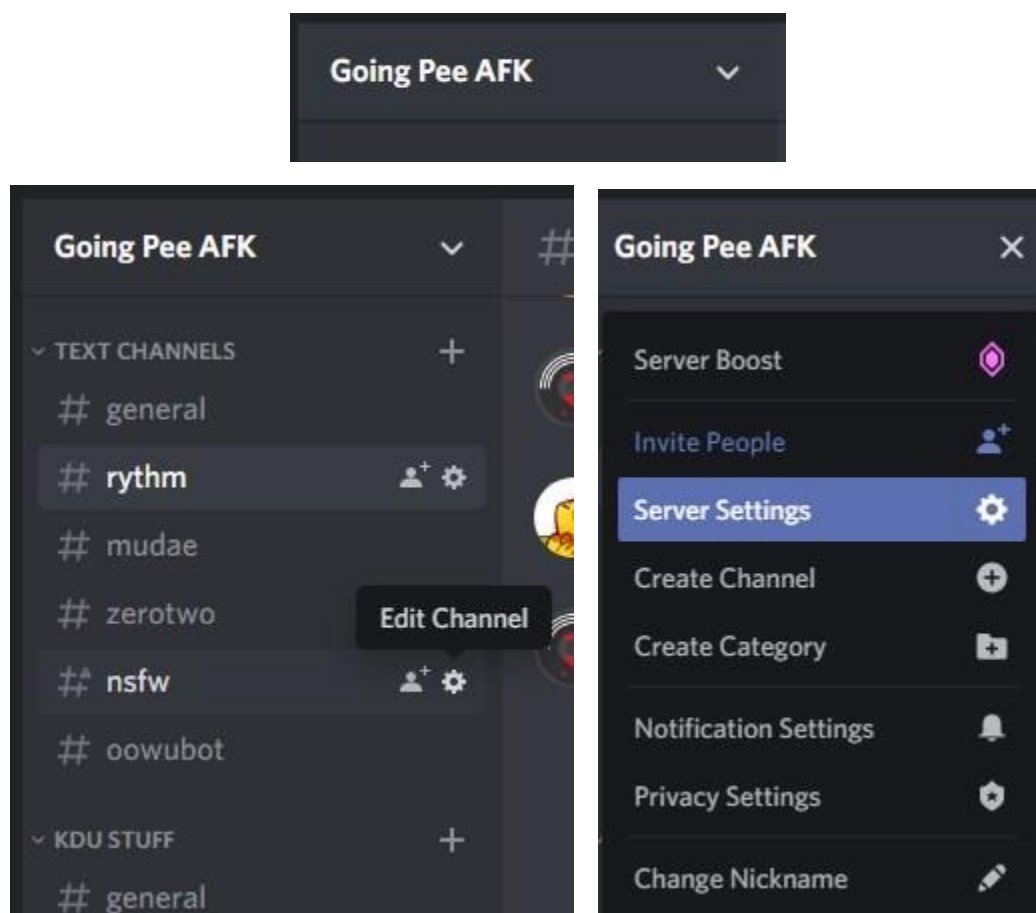


Figure 1.2.7: Discord's channel and server settings position respectively (bottom from left to right), and the hoverable title toolbar (top)

All in all, these design flaws ultimately affect the learnability of Discord for beginners and even old users. The learning curve will steadily go up and users will struggle to get use to the environment of the app. Although some users do not use the functions with design flaws and they might not discover these flaws on a daily basis, it is still recommended to fix these issues when they can so users don't need to worry of such matters when they really need to use them for urgent and important meetings. In fact, Discord needs some adapting for the users to come more into terms with the design style of Discord. With more experience of using Discord, users are more likely to discover many unknown but useful features hiding in the shadows of the app. Though, it is better if users don't need to waste their energy on memorizing the Discord layout at all to know that every feature are where they expect to be in as an account to make Discord more user friendly and have a better user experience.

Discord: Part 3 - Solution to the flaws

With all the good and bad side of Discord laid bare to their users, Discord obviously need to revamp its user interface design to be more concise and beginner-friendly to lower down the steep learning curve. These are some applicable suggestions that should be considered to make the design for a few design flaws that have been discussed earlier better and easier for users to understand. They are designed using the general principles of design as foundation to ensure that these solutions are effective and beneficial to the users:

- **Confirmation window for video or voice calls**

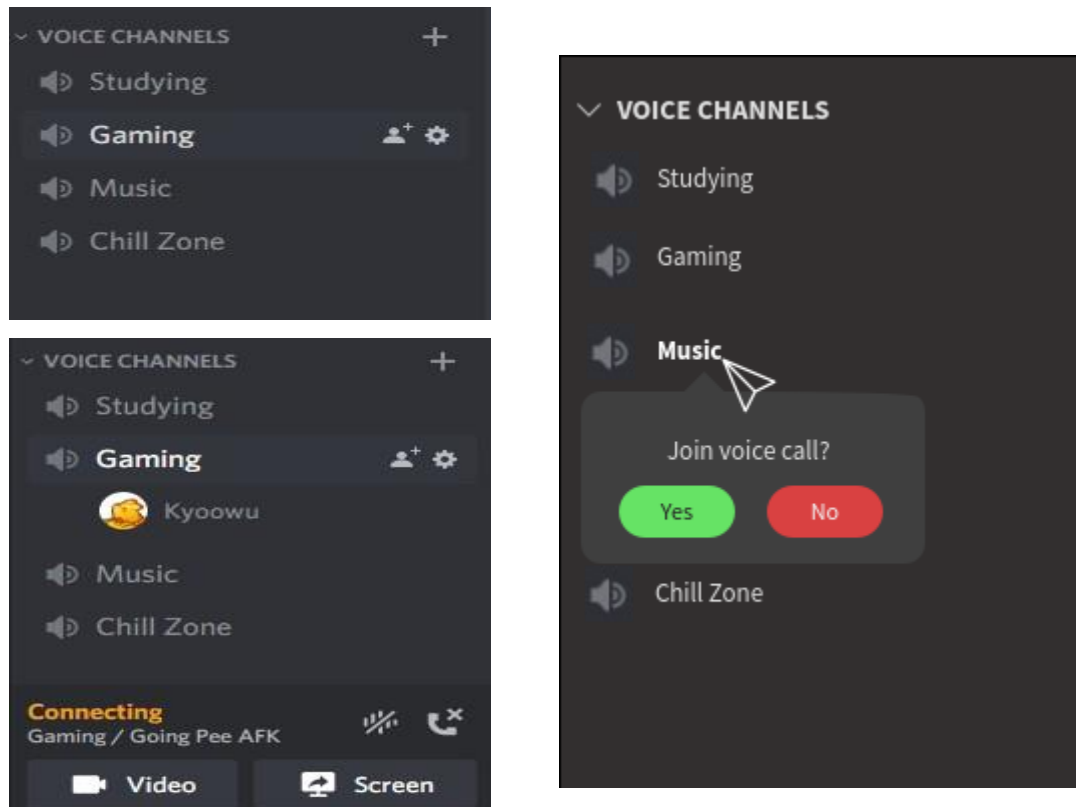


Figure 1.3.1: Before and after of the implementation of the confirmation box concept (left to right)

To refrain users from incidentally performing a voice or video call, the general principle of design, **recovery**, is used. A confirmation window will be prompted to the users when they press the buttons to either make a video or voice call. This makes it harder for users to make video or voice calls. While they can instantly hook up a connection and make a voice or video chat with other users previously, having a confirmation box before making any voice or video calls ensures that users intend to make the call and prevents accidental usage. This also means that this design uses **trade-off** from the general principles of design, seeing as it is a trade-off of the responsiveness of the feature for user privacy. Nevertheless, having extra authentication gives more control over when users want to make video or voice calls, so it can be considered as a win-win scenario.

The confirmation box is fairly simple to make it less confusing. Having a similar background color blends the confirmation box in very well. The ‘Yes’ and ‘No’ buttons are color-coded to make it easier for users to understand the options: The ‘Yes’ button is colored in green to give an impression of ‘proceed to task’ to the users, while the ‘No’ button is colored in red to give an impression of ‘terminate task’ to the users. The words are colored differently to contrast with their corresponding background color, as having the same font color will cause one of the buttons to have unnoticeable text because of inappropriate coloring. Upon selecting an option, the confirmation box should disappear and the process should be done normally according to user selection. The transitions of the appearance and disappearance of the confirmation box should be fluid so users would feel very natural when the confirmation box pops up after pressing the buttons.

- **Output device setting for Discord mobile users**

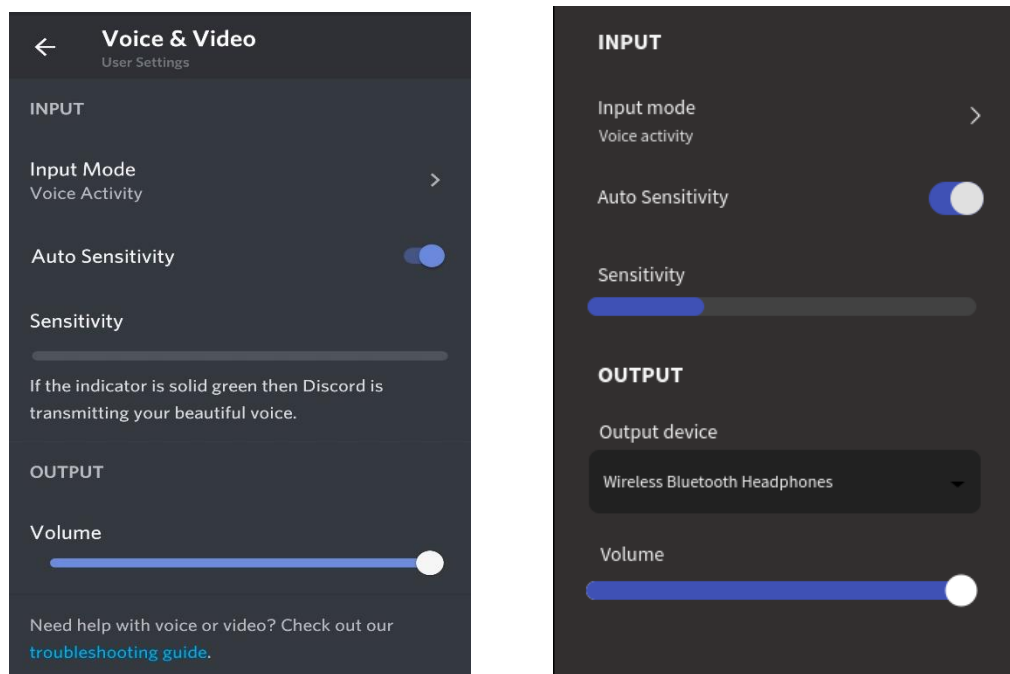


Figure 1.3.2: Before and after of the implementation of output device selector concept (left to right)

The solution for insufficient user volume in a call using the mobile version of Discord is to allow users to change their output device that are available on their phones. Using the general principle of design - **configurability**, users will be able to change their Discord output device to the one that they are going to use to output their phone audio. Being able to change the user's output device can affect the output volume because users can use other output devices like earphones to be able to listen to other users clearly if the default speaker of their phones are not that suited for the task. The devices that can be detected should also include wireless ones to broaden the choices that users can select from and lift user limitations on needing a wire-connected device to their phones.

The design of the output device selection box should be the same with the design on computers to remain consistent. The selection box is of a darker shade than the background color to emphasize the fact that there is an input field that users can interact with. The current output device chosen should be displayed as a placeholder on the selection box to let users know easily which device is being chosen by Discord to output audio to. Additionally, the most frequently used output device should be prioritized first to reduce the actions required for the users to change the output device that Discord should use.

- **Folder icons**

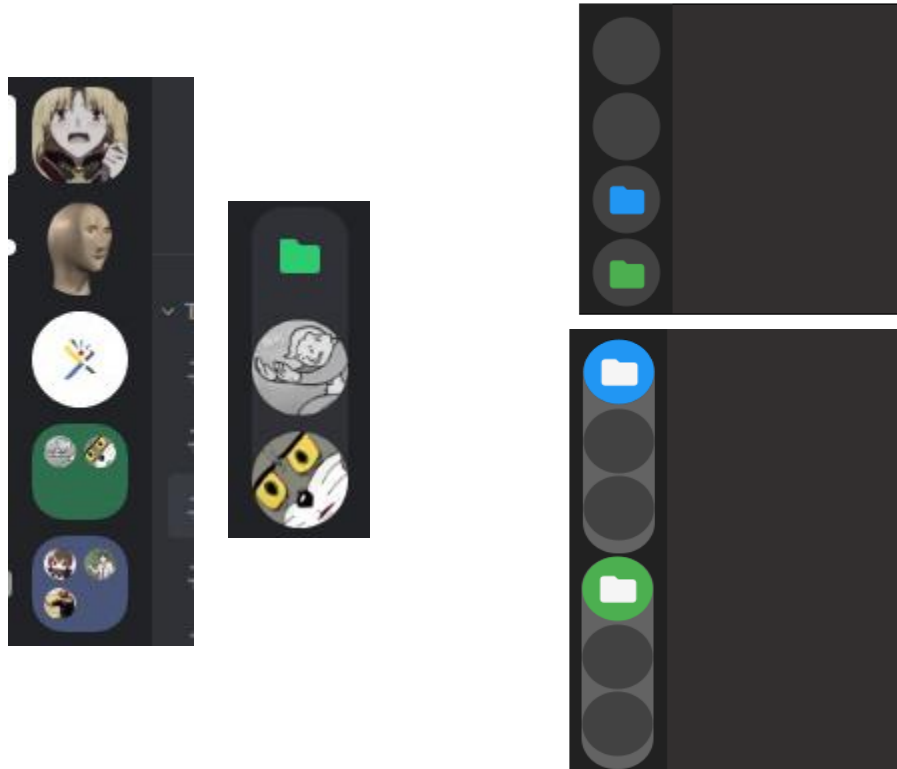


Figure 1.3.3: Before and after of the redesign of the folder icons (left to right)

To provide visual *clarity* as a general principle of design, instead of previewing the servers that exist inside of a folder, the original folder icons should replace said preview icons for each folder that exists on the server list of the user. This will make the icons on the server list appear more orderly arranged and prevent the icons that are grouped with a folder to look as if they are cramped together like the previous design. This also enable users to easily identify them as folders, as before, they couldn't actually understand what the icon represents when they are designed as a collection of a few server icons that doesn't give any clear meaning to Discord users, making them an ambiguous icon design.

Each folder that was created by users should be color-coded with unique colors to ensure that the eyes automatically interpret them as separate folders. The colors that will be used for the folders should be bright colors so that they contrast greatly with the background color that has darker color and make it more visible to the users. Upon hovering a folder, a tooltip that shows the folder name should also pop up to let users know what the folder was for. Upon clicking into the folder, the icon should change into that of the negative color of its icon previously to clarify that the folder is toggled on and the servers that is inside the folder is displayed to the users.

- **Inbox icon and layout**

Just like in the previous design, the general principle that the inbox icon should conform to is also *clarity*. Even though the inbox icon from before looks very simplistic, it doesn't actually give users the impression of an "inbox" immediately because it just looks like an ambiguous square. Instead, it can be changed to an icon that also has the same design as the old icon but is designed using a different perspective. It gives a clear image of an inbox icon because user perception will identify it as a tray that contains perspective-induced space, hence navigating users into thinking that it is an inbox icon.

The inbox window layout will be very different in comparison with the previous design. Before, unread messages are listed one by one and ordered by arrival time regardless of channel or server. So, users will usually be confused when using the feature because information are not organized properly and duplicated text and images can be seen repeatedly, making the inbox window a complicated mess.

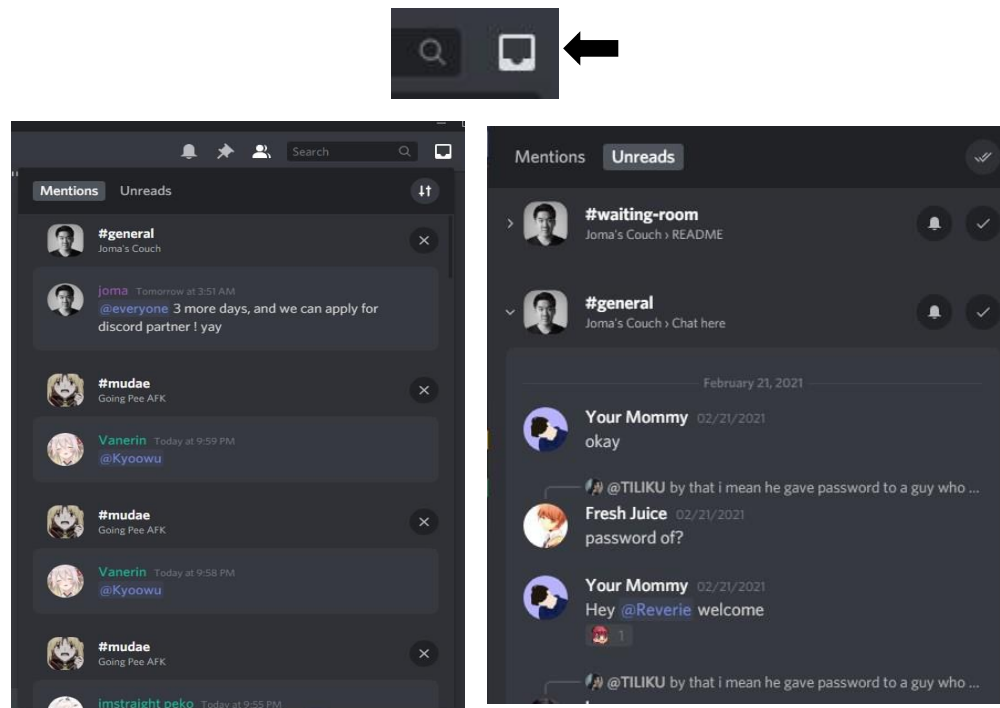


Figure 1.3.4: The current inbox icon (top) and its window layouts (bottom 2)

To solve this, using a combination of general principles of design between *clarity* and *perceptibility*, unread messages should be displayed depending on the server that users are currently selecting. The messages will be categorized again by their own channels that they were sent to, to clearly show the different groups of unread messages in different channels. The user perceptibility for the design of these categorized unread messages will be higher because they are clearly separated with different windows or sections that indicate themselves to different channels. A checkmark should be placed on each channel label to let users decide if they want to mark all the unread messages inside a specific channel as read or not. Apart from these adjustments, the rest of the functions are the same as the old design where users can choose to mark all messages as read or filter unread messages.

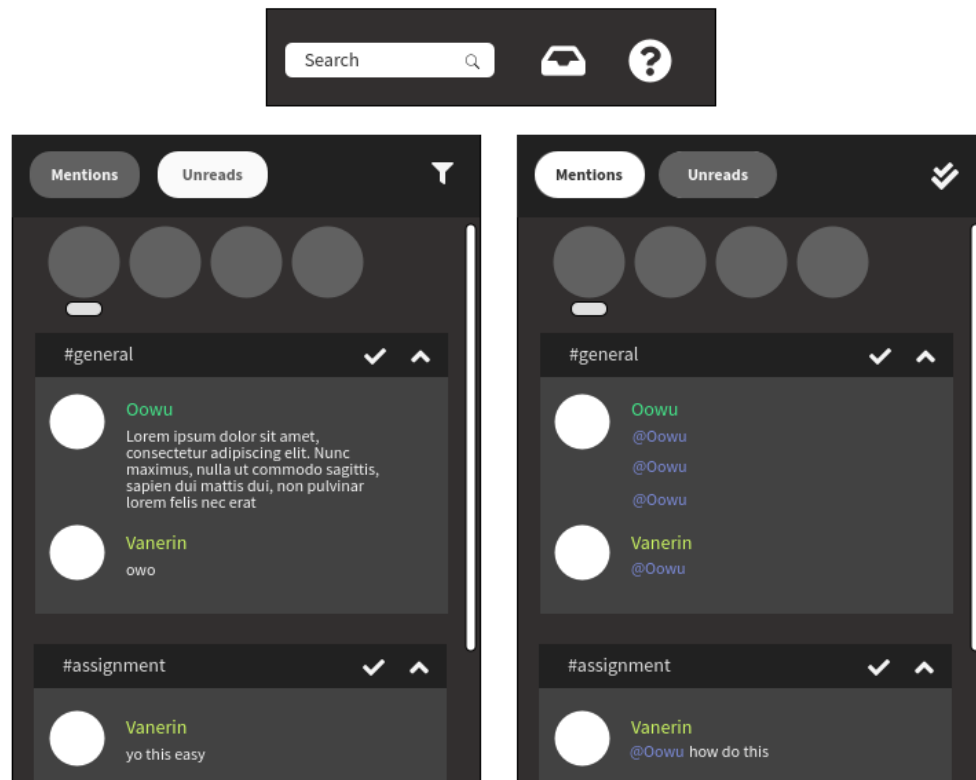


Figure 1.3.5: The inbox icon (top) and its window layouts (bottom 2) after redesign

- Server and channel settings

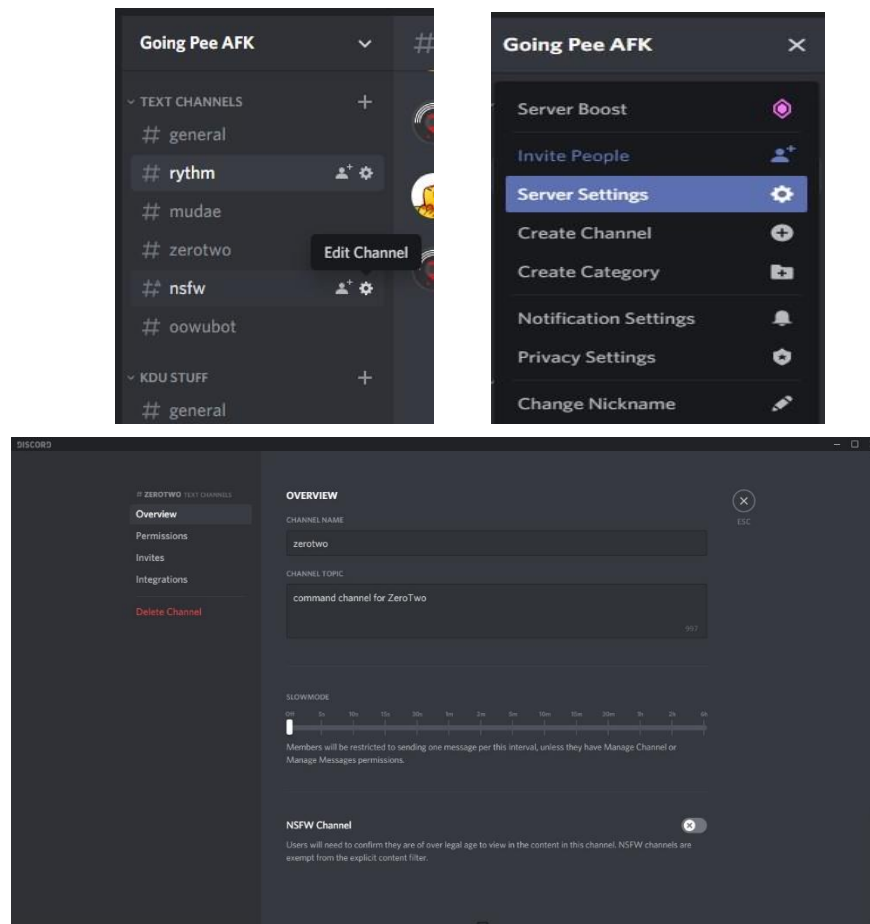


Figure 1.3.6: The current positions of channel and server settings (top from left to right) and the current user interface of Discord’s channel settings (bottom)

Previously, users will struggle to find where exactly the server settings and channel settings are because they aren’t placed near each other, while logically it should be since they are very related with one another. To reduce time invested into finding out the location of server and channel settings with the use of a general principle of design – **predictability**, both of them should be positioned together under the toolbar that displays the server name because users will tend to think that servers and channels are related together and so logically, their settings must also be near each other. Also, the fact that time will be saved will be proven because new users wouldn’t need to navigate around the entire screen to find the location of server and channel settings, as the settings are already in a position where important features that are often needed by users are placed along with them, and users will be able to find them easily if they have the knowledge of where the important features usually hide in a user interface. Additionally, the toolbar is redesigned to emphasize the interactivity of the tooltip by highlighting the downward arrow upon hovering the toolbar.

The user interface design of Discord's server settings is fine as it currently is. However, the design of Discord's channel settings could use a few improvements to make the lives of Discord users easier. Based on the general principle of design – *efficiency*, only a small feature should be added to the user interface of the channel settings, in which users can choose to switch to different channels, be it text or voice channels, directly inside the panel. Before, users must access the settings of a specific channel through a small gear icon beside the channel name. This can cause a lot of confusion for Discord users because channel settings are usually set and compared with other channel settings in the server when users are double-checking them and making sure that the level of privacy for each channel is properly adjusted. Users may lose track of which channel they are currently setting to at the time after they closed and reopened windows of different channel settings for multiple times. Therefore, this small feature can immensely improve the efficiency of the users when they are changing the settings by allowing them to keep track of which channel they are changing the settings to.

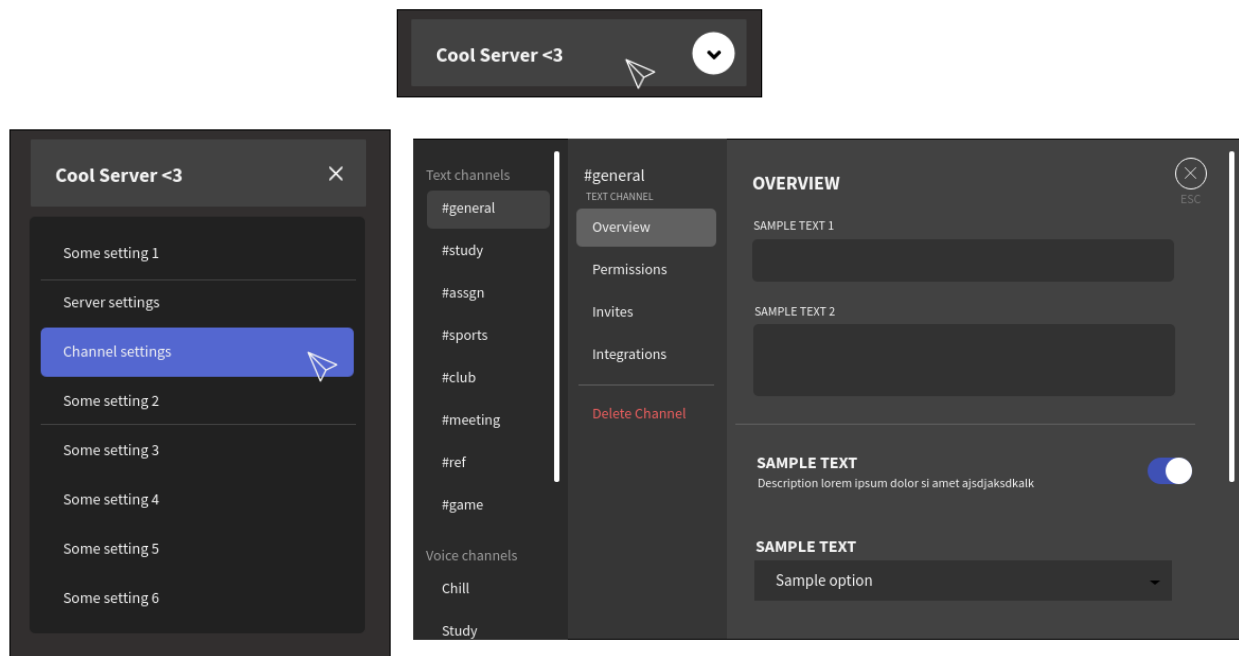


Figure 1.3.7: The design of a more interactive button (top), the design of the positions of channel and server settings (bottom left) and the design of the new user interface for Discord's channel settings (bottom right)

Microsoft Teams



Teams: Part 1 – Introduction

Microsoft Teams is a communication and collaboration platform developed by Microsoft Corporation and was launched worldwide on March 14, 2017 (Koenigsbauer, 2017). Microsoft Teams is used for chatting, video or voice calling, conducting meetings or conferences, and many other useful features for communication and collaboration. Microsoft Teams is largely used by corporations and companies for communication within the workplace, it is currently also used by many educational institutions around the world for conducting online classes and for communication between students and educators during the COVID-19 pandemic (Spataro, 2020).

Microsoft Teams is currently without a doubt one of the most popular applications for meetings and conferences. Based on an article by David Curry on BusinessofApps (Curry, 2021), as of November 2020, Microsoft Teams had over 115 million registered users and well over 500 thousand registered organizations that officially use Microsoft Teams within their workplaces. On 9 April 2020, Microsoft released a blog stating that there were at least 183,000 thousand tenants in 175 countries using Teams for education purposes (Spataro, 2020). As of February 2021, these figures and statistics have undoubtedly further increased since they were first recorded.

- **Usability**

Usability is defined as a quality attribute that assesses how easy a user interface is to use (Galitz, 2007, 64). With this definition, it can be determined that Microsoft Teams has good usability as its user interface is easy to learn, and once it is learnt, it becomes easy and efficient to use. To aid users who are not skilled or experienced with using computer programs, Microsoft Corporation has also provided a short and simple tutorial to demonstrate the basics of using Microsoft Teams (<https://teamsdemo.office.com/#/>, 2021).

- **Interoperability**

Interoperability is defined as the ability of different systems, devices, applications, or products to connect and communicate in a coordinated way, without effort from the end user (Lewis, 2019). Microsoft Teams has great interoperability, as it allows users to integrate external apps and use them within Teams. This shows that Microsoft Teams has good interoperability as it is able to easily connect and communicate with other applications. This feature will be further explained in the next subsections, “User Interaction Features” and “User Interface Design Principles”. Microsoft Teams is also compatible with various operating systems and web browsers.

- **User Interaction Features**

All features introduced in this section are explained with reference to the desktop version of the Microsoft Teams application (Microsoft Teams, 2021). The first main feature is the “**Teams**” feature, which provides the foundation for most of the other features in Microsoft Teams. Teams in this app are like groups on typical social media platforms. Teams in this app have many more features and emphasize on communication or collaboration. Teams allow team members to easily interact or communicate with one another and work together to perform tasks. Users can easily join or create teams via the “Teams” tab in the app, and they need only a team code to join a team. Figure 2.1.1 below shows the “Teams” tab in Microsoft Teams.

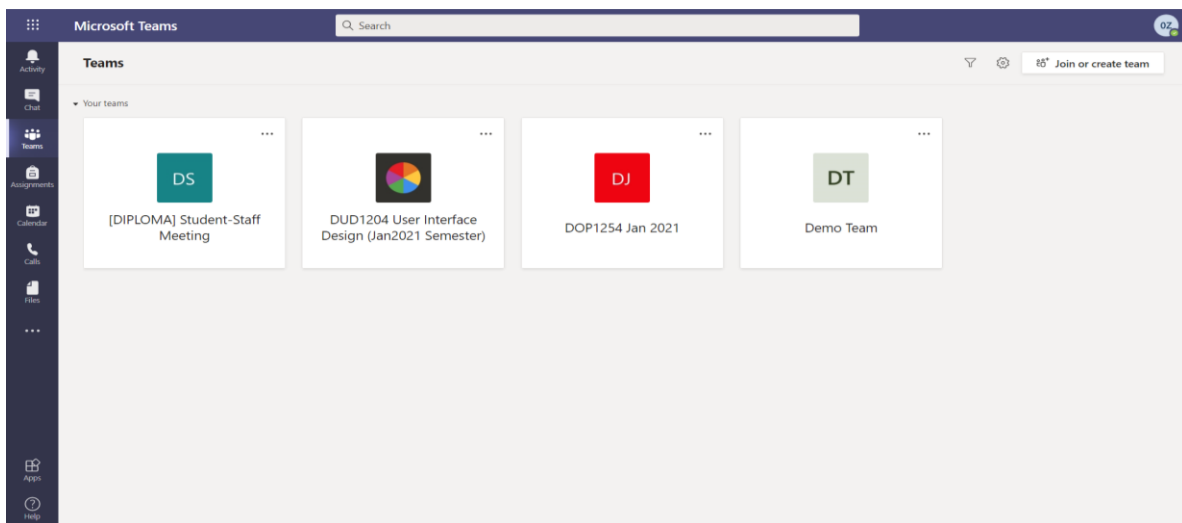


Figure 2.1.1: “Teams” tab in Microsoft Teams

Within the “Teams” tab, users may easily **access the teams** that they are in. Teams mainly consist of channels which allow team members to make posts, chat with each other, share files, and perform various other tasks within the team. This significantly eases communication between team members as all posts, chats and interactions are organized according to the topics of their respective channels. Team members can also **organize virtual meetings** or conferences, which are like group video calls on social media platforms, but meetings in Microsoft Teams are larger-scale and have much more features. Team members can also **integrate external apps** into channels for easy access to external apps that they will be using often.

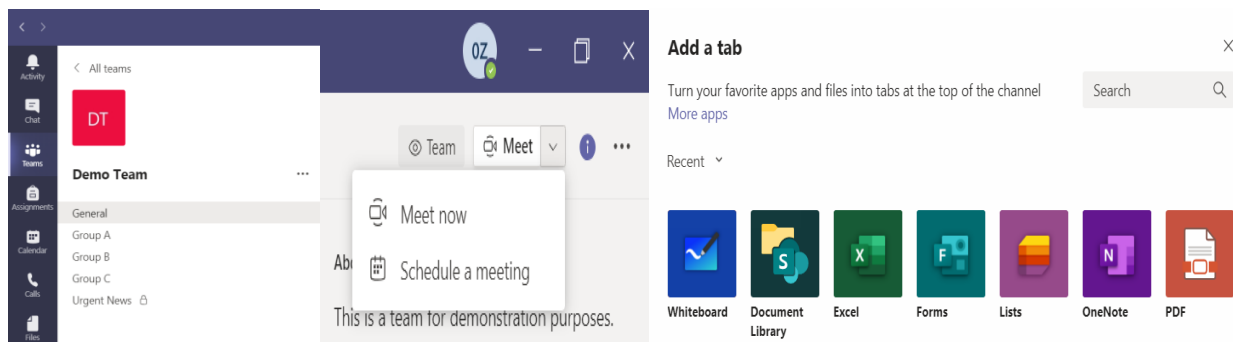


Figure 2.1.2: Team channels, meeting functions, adding external apps as integrated tabs (from left to right)

The next feature in Microsoft Teams is “**Calls**”. As the name suggests, Microsoft Teams allows users to easily **make calls** including voice and video call, with other users. Within the “Calls” tab, users can add speed dials, check or add contacts, check call history, and check voicemail. Another feature in Microsoft Teams is the “**Activity**” feature. The activity feed is the tab where users can see a list of all recent activities from all the teams that they are in. Users can also see all activities from themselves such as messages they sent or posts that they made by changing the activity “Feed” to “My Activity”. At a glance, the “**Chat**” feature may seem similar to “Activity Feed”. However, as the name suggests, the chat tab only shows a list of all chats that users are involved in, while the activity tab shows more specific activities like replies, mentions, reacts, invitations, etc.

The final features are “**Calendar**” and “**Files**”. These features are not as important as the previously stated features, as they are only for convenience purposes. Nonetheless, they are still very useful. The calendar tab allows users to check their scheduled meetings for the week, and schedule new meetings from the same tab. This is a very convenient feature as users simultaneously check their schedules and schedule new meetings, rather than having to open a separate calendar app then scheduling a meeting from Teams. In the files tab, users can easily access all their Microsoft files that are saved in their cloud storage. Users may also conveniently and instantly access all kinds of files that were uploaded or shared in their various teams.

- **User Interface Design Principles**

One of the user interface design principles followed by Microsoft Teams is **simplicity**. The overall layout of the app is simple and easy to navigate. Essentially, the app is simply split into 3 sections, the navigation bar, the page content area, and the header bar. The main tabs of the app are all arranged in the navigation bar, which is a simple vertical column of buttons on the left of the screen. The navigation bar is always visible in the app, this allows users to easily navigate around the app from anywhere within the app. All other tasks can be seen and performed in the page content area of the app. The interface is also considered simple as it has an obvious visual hierarchy. With an obvious visual hierarchy, the user interface also fulfils the criteria for another design principle, which is **obviousness**. Refer to *Figure 2.1.3*, from left to right, from the navigation bar to the team channels, to the channel contents, it can easily be seen that the priority of visual elements is highest on the left, and lowest to the right. What the user selects on the navigation bar determines what is seen on the main screen, then the team or channel that the user selects determines what is seen on the channel contents. It can also be seen that visual elements with darker background colours have highest priority and more easily catch the user’s attention, visual elements with white background have second highest priority while those with light grey background have lowest priority.

In reality, these simplistic designs also lead to great **clarity** in the app. According to an article by Thanos Dimitriou (Dimitriou, 2020) regarding UI/UX design, simplicity and clarity are 2 terms that are often used to describe the same thing, which means they are closely related but obviously not the same. Clarity revolves around transmission or communication of information (Dimitriou, 2020). Therefore, simplicity plays a crucial role in providing clarity because a well-designed simplistic layout significantly improves the clarity of information and effectiveness of communicating information to users. So, Microsoft Teams has fulfilled the criteria for both simplicity and clarity by having a simplistic design that contributes to a visually and conceptually clear user interface.

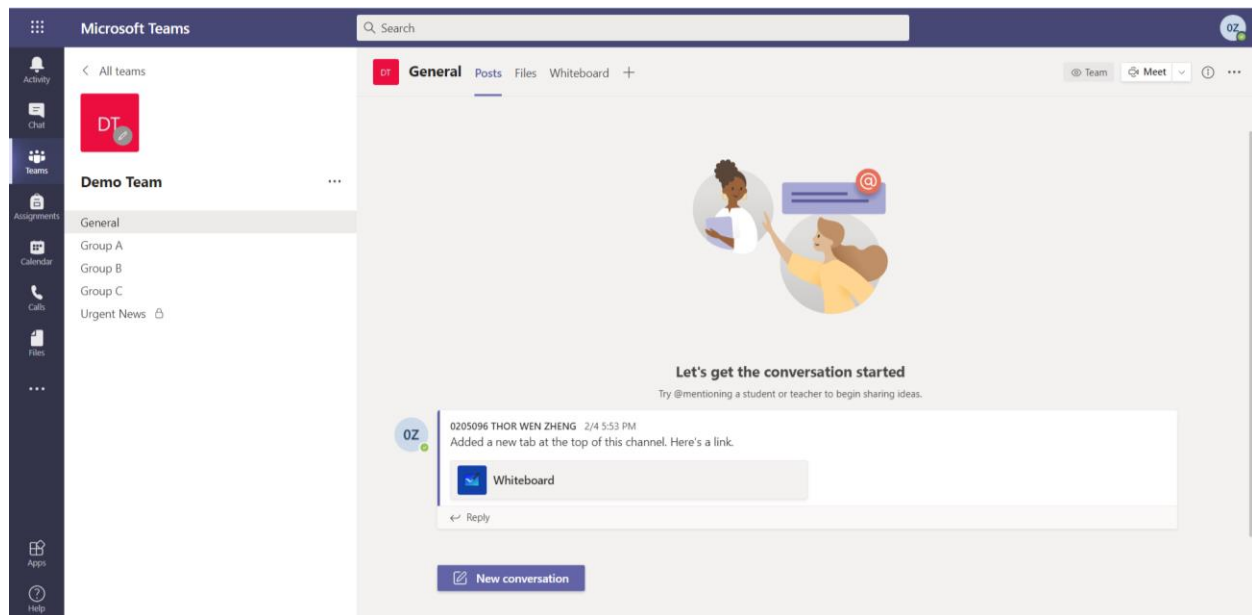


Figure 2.1.3: “Teams” tab showing simplicity, obviousness, and clarity

As almost every single human being is different from one another in terms of personality and preferences, it would be difficult to satisfy everyone at the same time. Microsoft Teams aims to overcome this obstacle by having good **configurability**. In the settings tab, users can easily find and change a wide range of personal settings. These settings are crucial for user satisfaction as they give users the freedom and ability to configure the app based on their personal preferences. Some notable settings include the colour theme, layout, language, notifications, privacy, and more. Furthermore, users can integrate their favourite external apps into the navigation bar for easy access. Aside from that, Microsoft Teams also allows users to freely configure and personalize their teams. Users can change their teams’ name and avatar, change various team settings, add and configure channels, add their favourite external apps into team channels, etc.

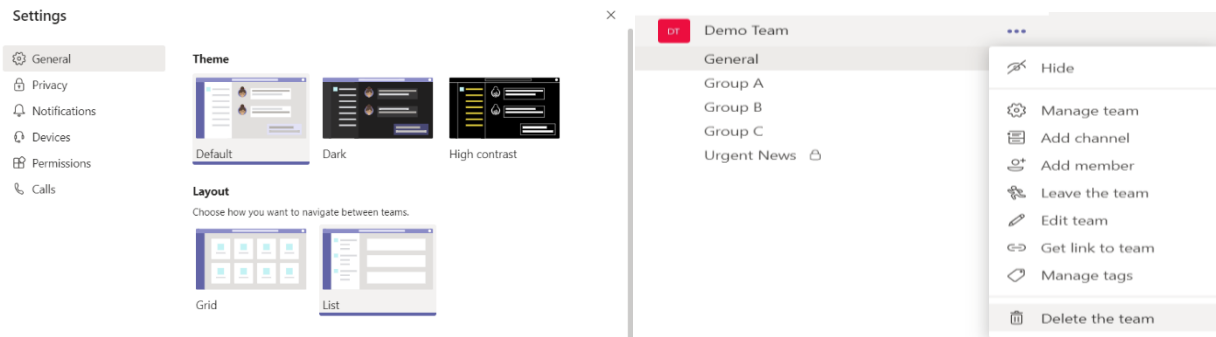
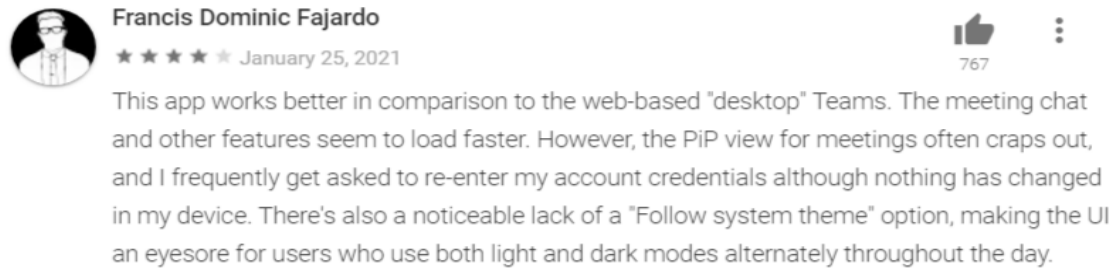


Figure 2.1.4: Settings tab and Team configurations (from left to right) to demonstrate configurability

Teams: Part 2 – User interface design flaws

- **User Reviews**

Upon reading user reviews on the store page of Microsoft Teams on Google Play Store (Microsoft Teams, 2021), only one user review has been found to provide useful information. This user review is based on the mobile version of Microsoft Teams.



User Review 1: Light mode is too bright, changing theme is inconvenient (Mobile version)

Based on the user review, the user stated that on the mobile app, the user interface can be **“an eyesore for users who use both light mode and dark mode alternately throughout the day”** (Microsoft Teams, 2021). Rather than always sticking to one colour theme, these users prefer to use light mode during the day, and dark mode at night. However, it is inconvenient to manually switch the colour theme every time, as users have to find the option in settings and to restart the app to apply the changes. This goes against a general principle for UI design – efficiency, because this costs users extra time and effort just to change the theme.

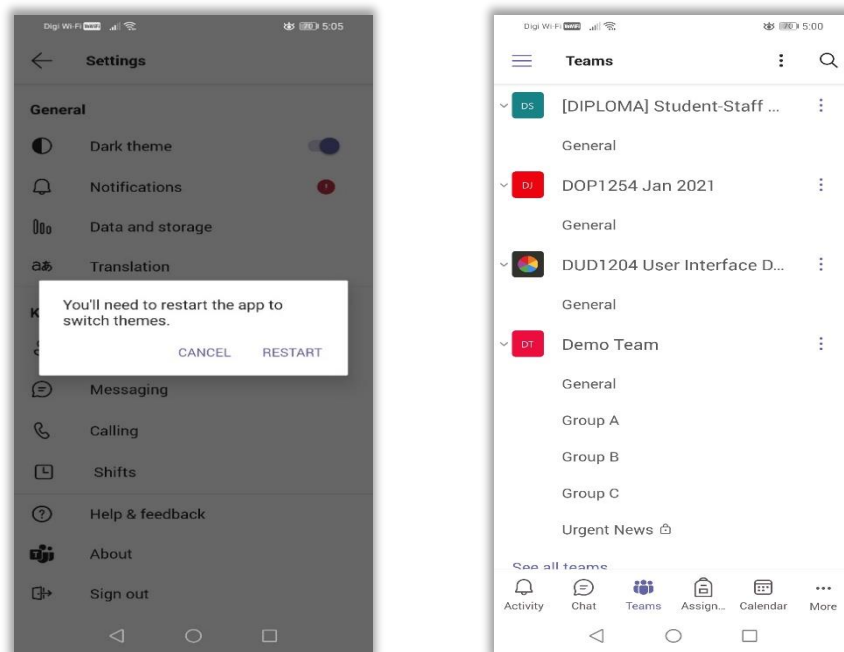


Figure 2.2.1: Inconvenient theme changing, user interface excessively bright (Mobile version)

Upon further investigation, the mobile app has a **noticeably brighter user interface** compared to the desktop version. Refer to **Figure 2.2.1**, the entire background, the navigation bar, as well as most other visual elements are bright white. Because almost everything is white, this goes against a general principle for UI design – aesthetically pleasing, as there is no meaningful contrast between visual elements. Furthermore, long term usage of the mobile app can strain and tire the eyes if the user uses light mode; it is also bad for the eyes if used in the dark.

- **Observations**

Aside from investigating the user interface based on user reviews, some user interface flaws have also been found via observations. These observations are based on the PC version of Microsoft Teams. Based on observations, the **notifications in Microsoft Teams are very obstructive** and can be annoying especially when the user is performing a task like using text chat in a meeting. Based on the screenshot below, the message notifications are almost completely obstructing the “Meeting chat”. This prevents the user from accessing the text input or looking at the messages within the chat box. The notifications can be switched off anytime, but there are users who prefer to keep their notifications on at all times in case of urgent messages, these users will have to endure frustrating and obstructive notifications if they get spammed with messages. Additionally, for reasons unclear, this problem is sometimes completely unavoidable as the notifications occasionally still appear even when notifications are turned off in the notification settings.

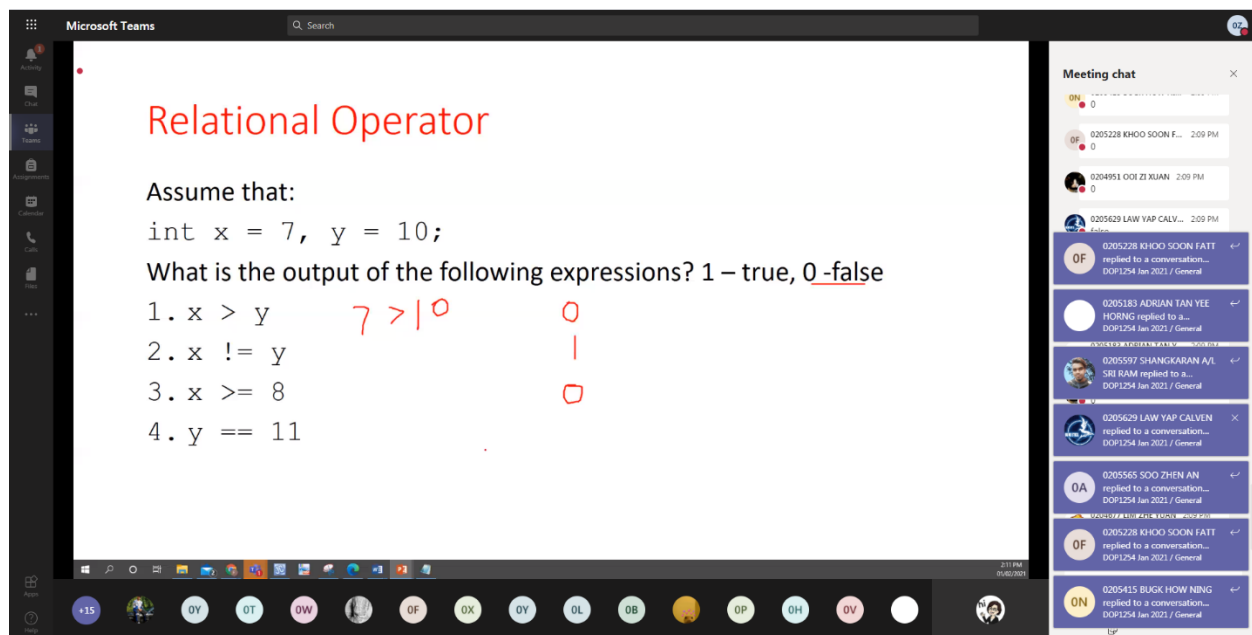


Figure 2.2.2: Message notifications at the bottom-right obstructing the meeting chat

The next flaw is found within the “Teams” tab, which is an **ambiguous visual effect** on the Team names. When there is new activity in a certain team, such as new messages, posts, etc., the application indicates that there is new activity simply by making the team name bold. For new users, this may be confusing as they may not understand why the team name became bold. If there are new activities in every single team, then the user also may not be able to notice the difference. This may also make it difficult for some users, especially those with vision problems, to identify that there is new activity because the bolded effect is not clear enough and do not catch the user’s eyes. This flaw also persists if the user is using dark mode. Of course, one may argue that bolded text is a common way of indicating “unread” activity, but it works best if the teams are arranged in “list” layout because the Team names are positioned closely to each other, so the difference between the default font thickness and bolded font thickness is much more noticeable. Conversely, the bold effect is not very effective or noticeable in “grid” layout, as the Team names are quite distant from each other. However, some users may prefer to use “grid” layout, so they should not be forced to change their preferences to avoid the flaw.

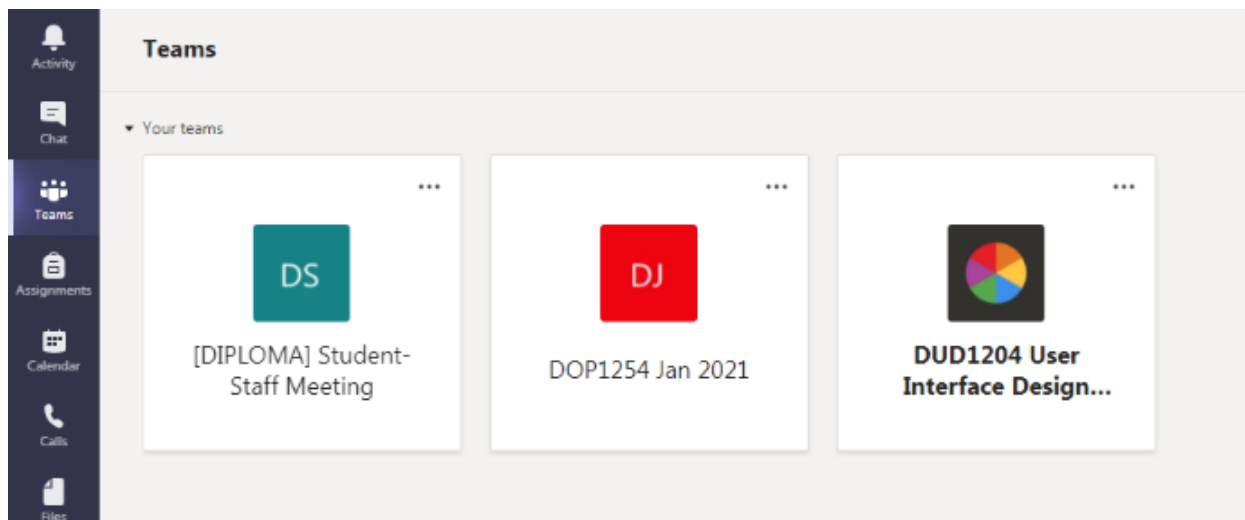


Figure 2.2.3: Unclear indicator for new activity in light mode

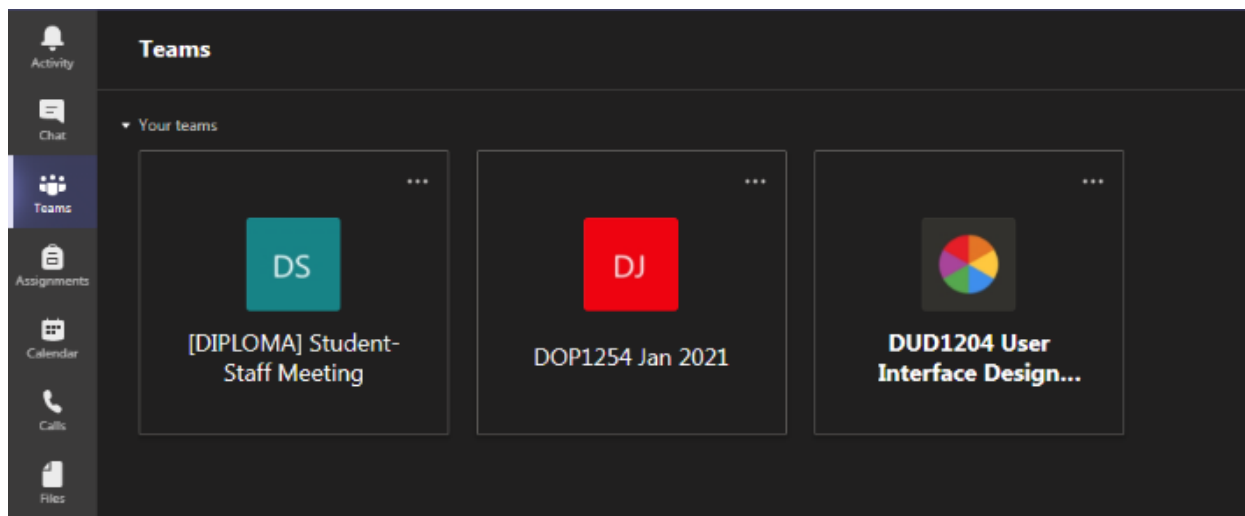


Figure 2.2.4: Unclear indicator for new activity in dark mode

Another user interface flaw is the **unattractively arranged button layout** below the chat box that is accessible during a meeting. The buttons in this box are not only poorly arranged and unattractive, but the arrangement layout also unnecessarily occupies extra screen space. If these buttons did not occupy as much space as they currently do, there would be enough space on the meeting chat box to fit in at least one more user message on screen. This button layout does not have significant negative impact on user experience, but it is visually unpleasing and looks unprofessional. Also, some of the buttons in this box have **ambiguous icons**, as the buttons' icons do not clearly portray their use or meaning. Refer to **Figure 2.2.5**, the “Stream” button and the “Send” button have very similar icons, even though they have different purposes. The “Send” button also does not seem to stand out from the rest of the buttons even though it is arguably the most important button here.

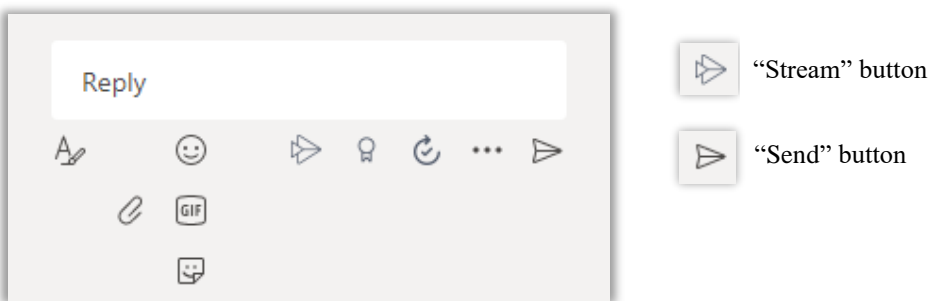


Figure 2.2.5: Unattractive and unprofessional button layout in chat box, and 2 buttons with similar icons

Another user interface flaw is the **“Hang up” button in calls or meetings is prone to accidental clicks**. Based on observations, there have been many cases where users accidentally click on the “Hang up” button, and the app immediately disconnects them from the call. For example, users might accidentally click on the “Hang up” button when they actually just wanted to click on the “See participants” button, which is inconveniently right next to the “Hang up” button. When users suddenly hang up or leave meetings, it may lead to unintentional confusion or misunderstandings between users and cause inconveniences. This violates one of the general principles for UI design – safety.

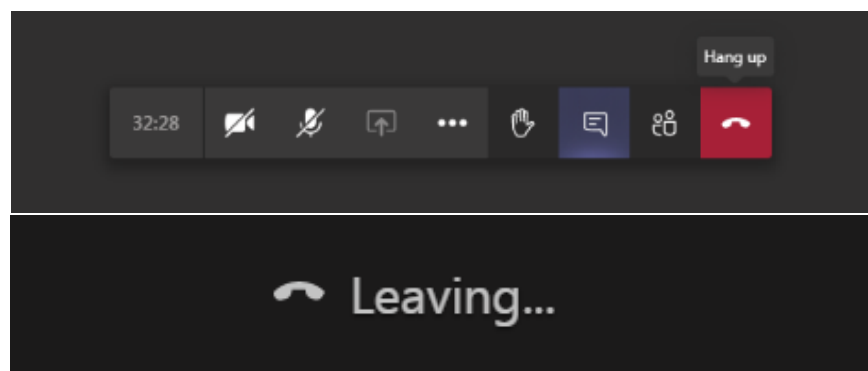


Figure 2.2.6: Hang up function does not ask user for confirmation before disconnecting

Next, the chat list in the “Chat” tab is **unorganized**, especially when there are too many chats as it may be difficult to find a specific chat because they are arranged by whichever is most recent. It may also be slightly difficult to determine what a certain chat is related to or what team the chat originated from. This violates one of the general principles for UI design – efficiency. Refer to **Figure 2.2.7**, within the chat list is a chat titled “Week 6 Tutorial”. At a glance, it would be difficult to determine what this chat is related to, especially if the user is a student involved in several “Tutorial” groups. Based on a user review on Google Play Store, a user had also complained about this issue. The user stated the chat function needs improvements as all the chats from meetings and private messages being compiled in a single list can be confusing (Microsoft Teams, 2021). This review has been rated as helpful by at least 28 other users, which proves that this issue is evidently considered a flaw for some users. Of course, this confusion is caused by the creator of the group chat, who may not have thought about giving the group chat a more unique and specific name. However, forcing users to create unique names for chats is not practical and would make it an unnecessary hassle for users.

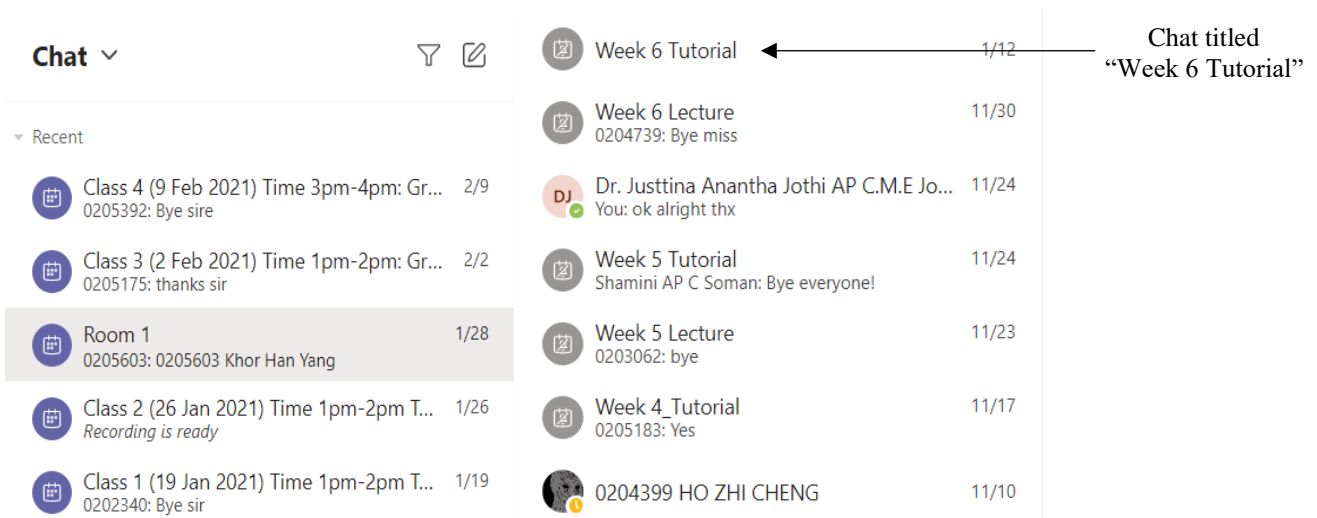


Figure 2.2.7: Unorganized chat list in “Chat” tab

Teams: Part 3 – Solutions for the flaws

For the flaw of **the light mode user interface being too bright** on the mobile app, the recommended solution is to **use the same colour scheme as the desktop version** of Microsoft Teams. When reviewing the user interface of the desktop version, the overall colour theme is much more pleasing to the eye, as it uses colours that are more comforting to the eyes, such as darker colours on the navigation bar and header bar, and light grey for unused background space. Therefore, on the mobile app, the hex colours #33344a and #464775 should be applied to the navigation bar and the header bar respectively while #f3f2f1 should be applied to unused background spaces to make the overall user interface appear less bright. This solution will help fulfil the general principle for UI design – aesthetically pleasing, as it gives meaningful contrasting colours to the visual elements and makes the user interface more pleasing to look at.

To **make changing the colour theme more convenient**, users should be given the option to switch on **automatic dark mode** based on the time of the day. For example, every day, the app will set the theme to light mode from 8 a.m. to 6 p.m., and automatically change it to dark mode from 6 p.m. to 8 a.m. on the next day. This will save users the hassle of going to the settings, changing the theme, and restarting the app to apply the changes. This also helps fulfil the general principle for UI design – efficiency.

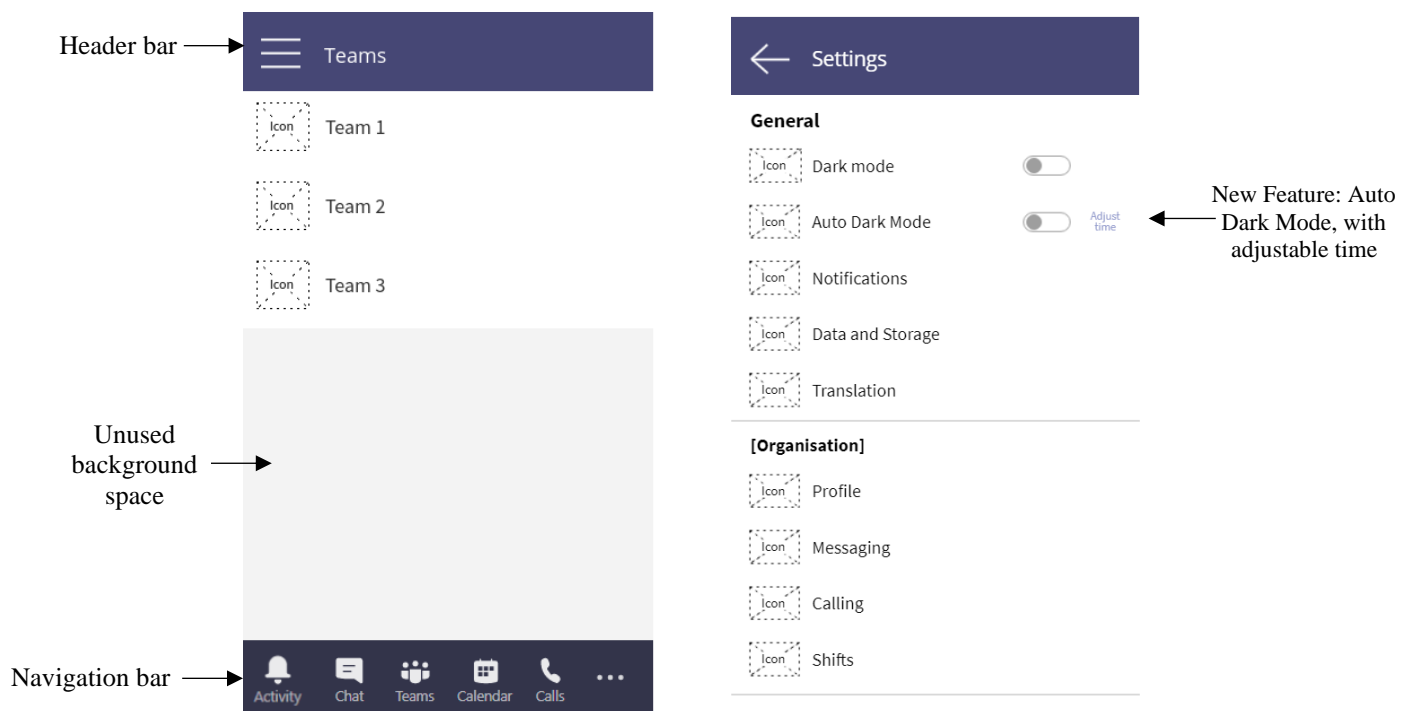


Figure 2.3.1: Left image shows the UI of Teams mobile app recoloured to look less bright and more visually pleasing; right image shows the suggested “Auto Dark Mode” feature in Settings.

The solution to the **obstructive notifications** is to provide users with a feature to **change the position of notification popups**. Currently, the current default position of notifications is at the bottom right of the screen, the notifications may obstruct certain things such as the meeting chat if they pop up at the bottom right. This suggested feature should allow users to change the position of notifications from the bottom right of the screen to the top left, bottom left, top right, etc. Another feature to further enhance this solution is **limiting the maximum number of notifications** that can pop up on the screen. Currently, there is no limit to the number of on-screen notifications, they just appear and stack on top of each other until they reach the screen border. When there are too many on the screen, the notifications can be obstructive. Users should be given the option to select the maximum number of notifications that can appear on-screen so that they will not ruin the user's experience. These solutions will help fulfil the general principle for UI design – control, as they allow the user to control how notifications should appear.

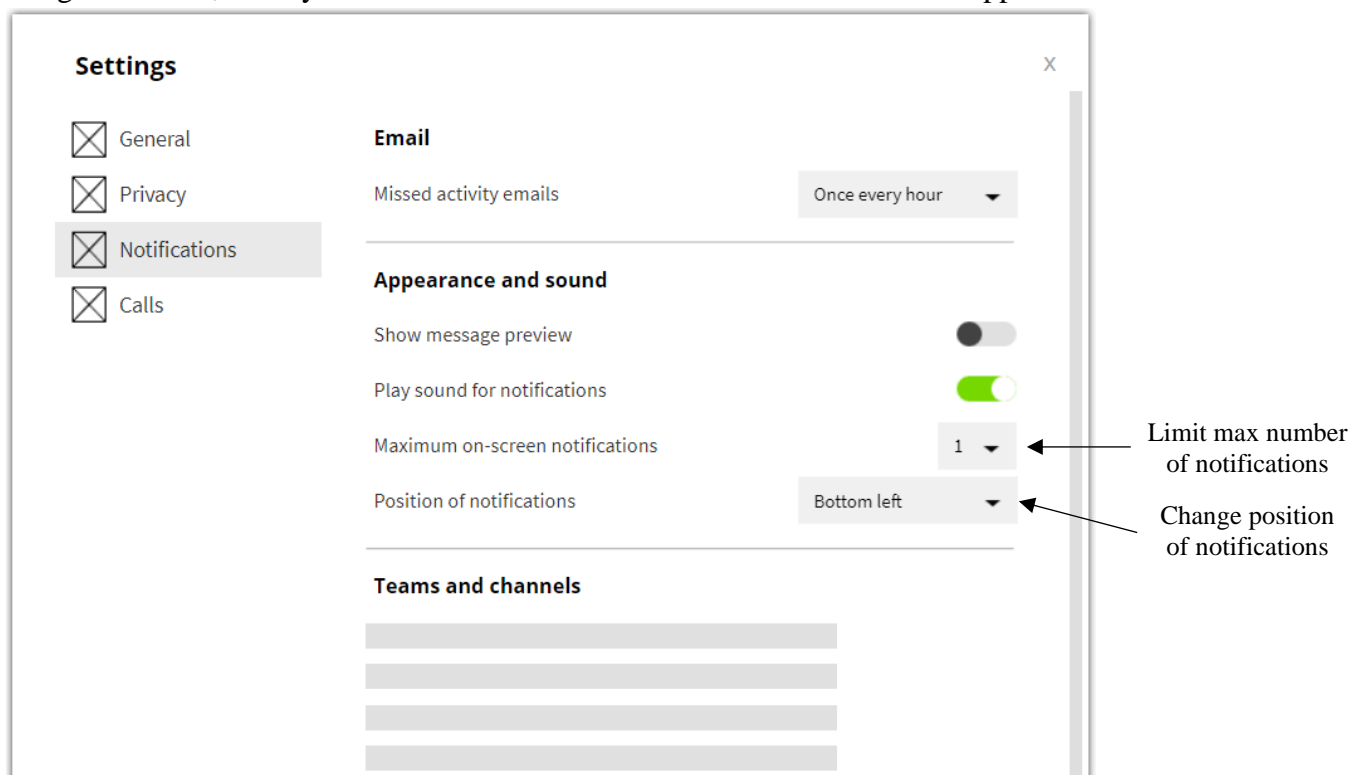


Figure 2.3.2: “Maximum on-screen notifications” and “Position of notifications” added into notification settings

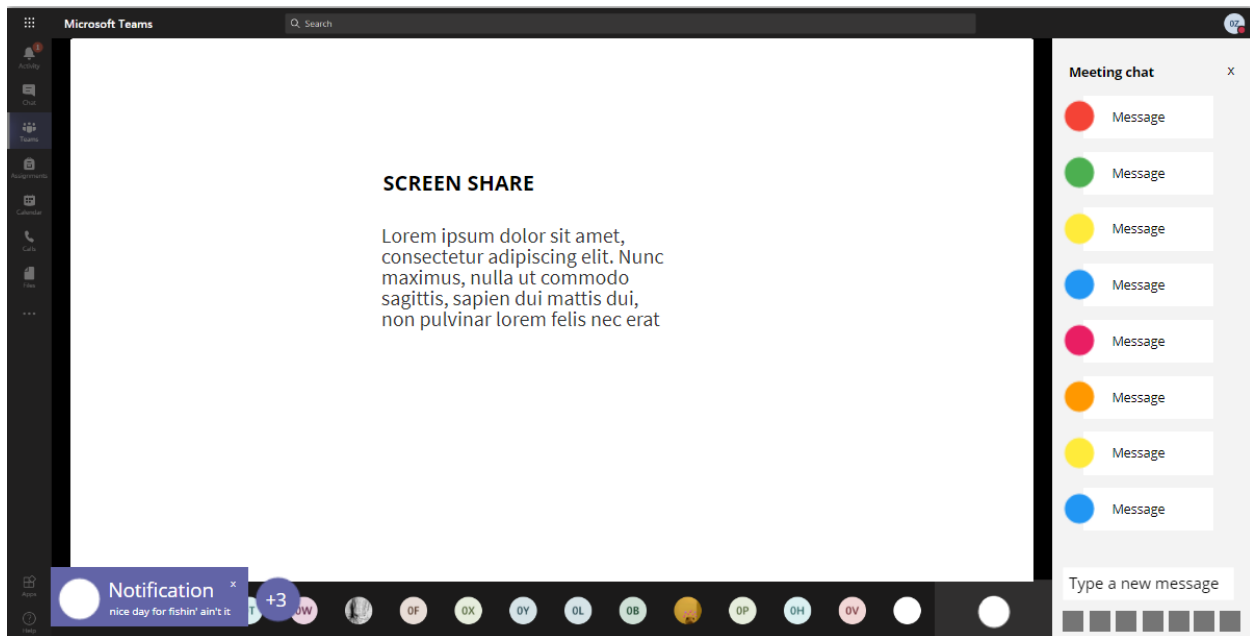


Figure 2.3.3: Notifications pop up at the bottom-left of the screen, with “+3” indicating there are 3 additional notifications after the current one

The solution to the flaw of **ambiguous visual effect on team names** is to add a more obvious and eye-catching visual effect to indicate that there is new activity in a certain team. This visual effect can be a red dot next to the team name, or any other icon that obviously indicates unread messages or new activity. This increases the clarity of the user interface by providing an indicator that is more obvious and has clearer meaning.

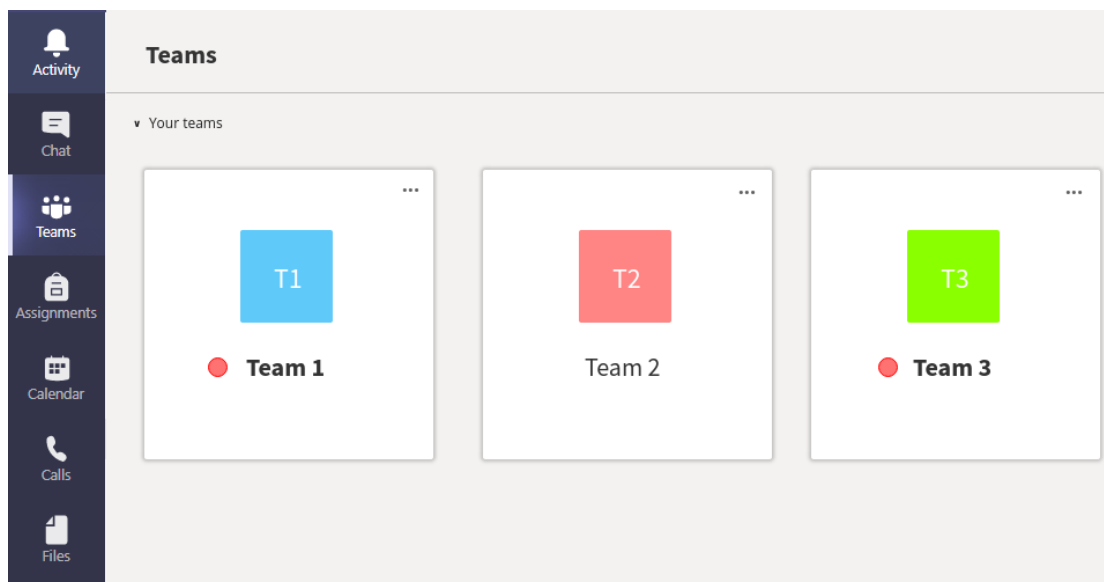


Figure 2.3.4: New activity indicated with red circle next to bolded team names

The solution to the **unattractively arranged button layout in meeting chat** is to rearrange the buttons neatly. Unimportant buttons such as the “Stream”, “Praise” and “Approvals” buttons can be arranged into “Messaging extensions” instead of listing them out as main buttons, because those 3 buttons are not used very often. Doing this will provide enough space for all the main buttons to be neatly arranged in 1 horizontal row and reduce the screen space taken up by the button list. This also helps to avoid visual clutter within the box of buttons. Regarding the **ambiguous icons**, the “Stream” icon cannot be changed as it is the logo of Microsoft Stream, which looks highly similar to the “Send” button. To fix this, the “Send” button must be altered and updated to have a more distinct difference from the “Stream” button. A simple solution is to just change its colour, this will make it look different from the “Stream” button and make it stand out from the rest of the buttons, which more easily catches the users’ eyes.

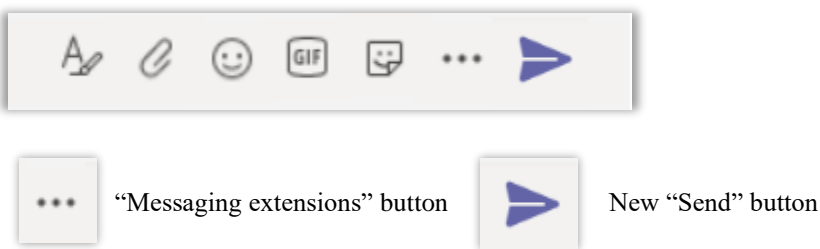


Figure 2.3.5: Rearranged button layout and recoloured “Send” button

The solution to the **“Hang up” button** flaw is simple and straightforward; when users click on the “Hang up” button, they should be prompted for a simple **“Yes or No” confirmation**. If users want to hang up, they click on “Yes”; if users do not want to hang up yet, they click on “No”. This can prevent users from unintentionally leaving calls or meetings when they accidentally click on the “Hang up” button. This will not be considered inconvenient for users who have never personally experienced accidentally clicking the “Hang up” button, because they will see it as a logical and sensible user experience improvement, which will benefit them in the future by preventing misclicks. Additionally, this solution helps to fulfil the general principle for UI design – safety, as it protects users from making a common mistake.

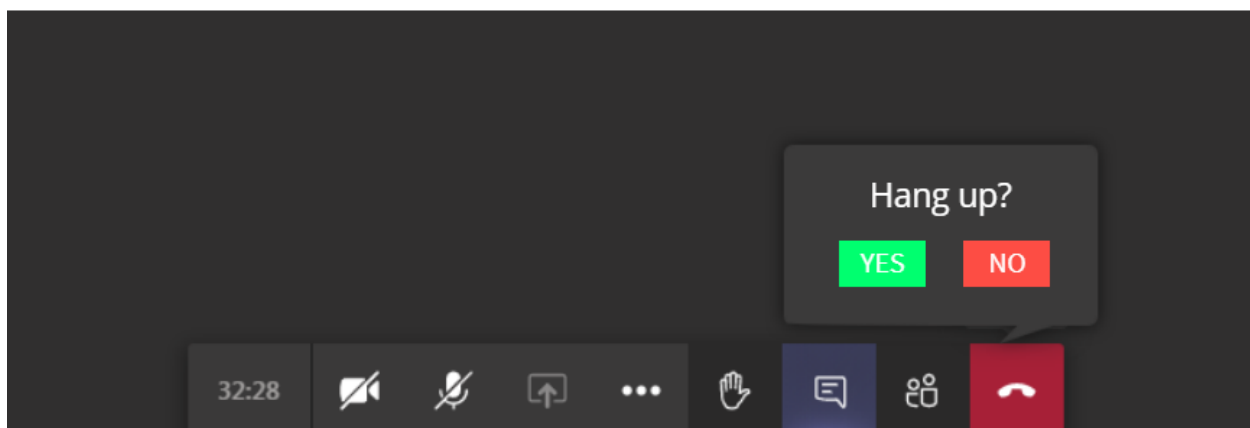


Figure 2.3.6: Confirmation popup when user clicks on “Hang up” button

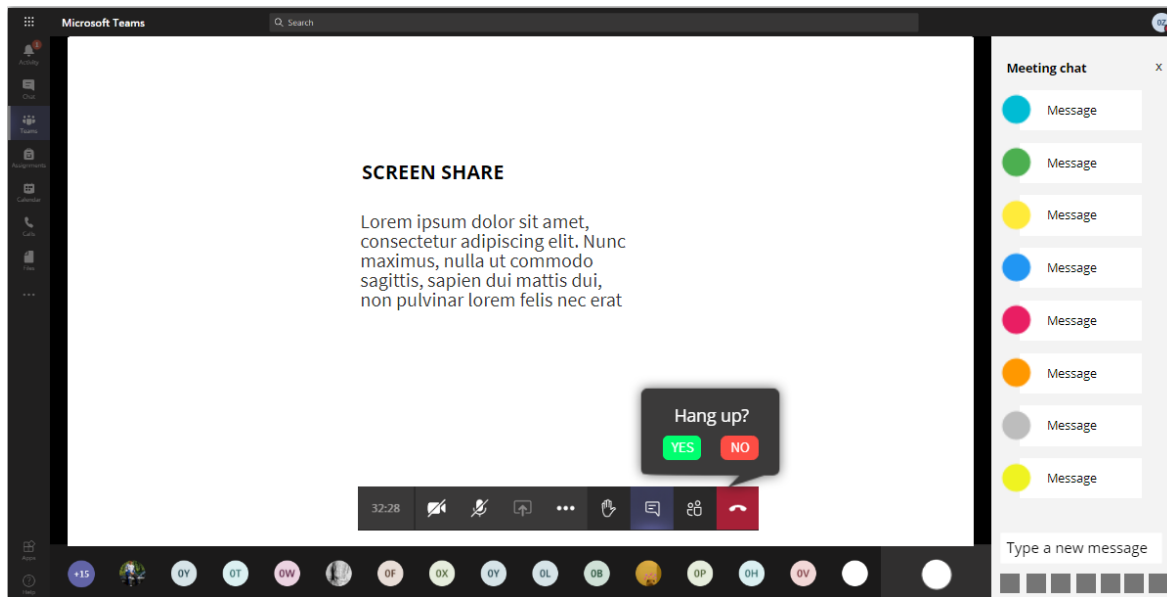


Figure 2.3.7: Confirmation popup shown in full screen

Lastly, the solution to the **unorganized chat list in the “Chat” tab** is to provide users with a feature to **organize the chats into custom categories**. For example, students using Teams for online learning can set custom categories for different classes, groupwork, etc.; workplace employees can set custom categories for different work teams, departments, etc. Based on the previously mentioned user review regarding this flaw, the user also suggested that different categories of chats can be **colour coded** to be easily identifiable. On the drawn solution, *Figure 2.3.8* shows that a “Manage categories” button has been added; the chats have been categorized into custom categories such as “Course A”, “Course B” and “Private Messages”; and the chats have been coloured differently. These solutions fulfil the general principles for UI design – efficiency and configurability, because users will be able to find specific chats more easily and customize their chat list according to their own preferences.

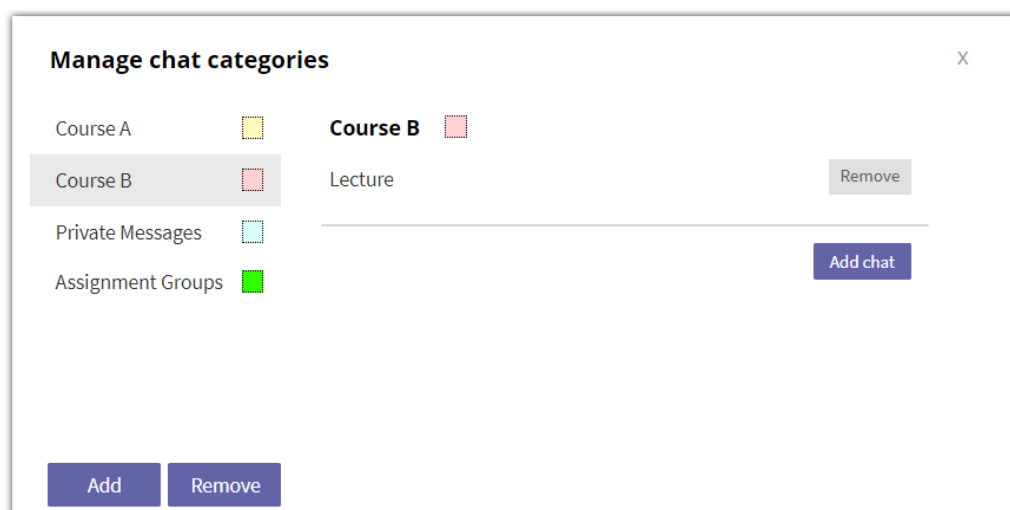


Figure 2.3.8: Example interface window for “Manage categories”, the colour boxes next to each category name can be clicked on to select a custom colour for the selected chat.

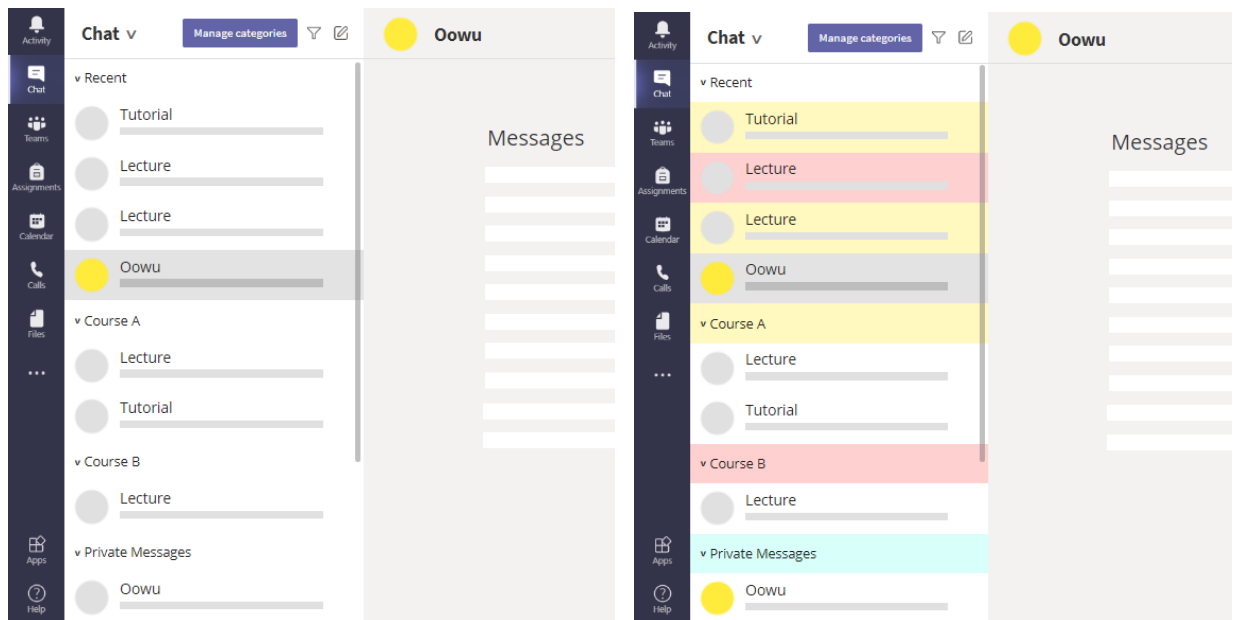


Figure 2.3.9: Left image shows the chats are organized into custom categories; right image shows the chats are coloured according to their respective categories.

ZOOM

Zoom: Part 1 - Introduction

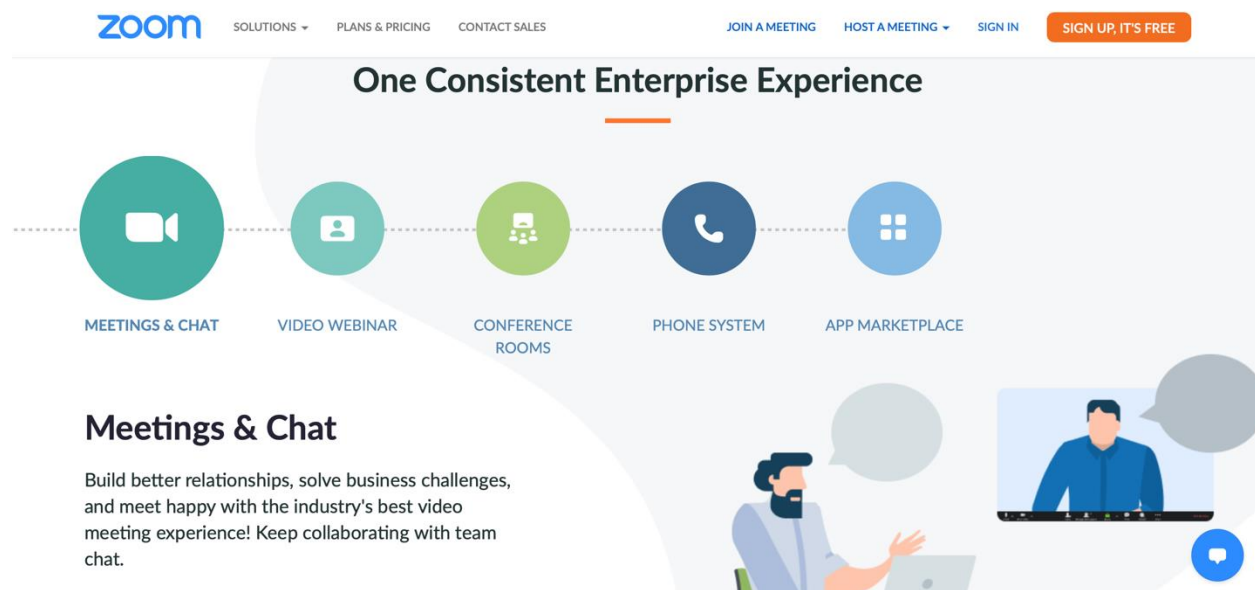


Figure 3.1.0: Image of the official home page of zoom website

ZOOM is a **cloud-based video conferencing software program** developed by Zoom Video Communications to allow user to have collaboration chat, live webinar, video / audio conferencing or even have a private meeting / session via online without the needs of having to physically appear face to face. It supports both **desktop** and **mobile** version as well. **ZOOM** was first founded by a Chinese businessman named **Eric Yuan**. At first **ZOOM** initially have only 400,000 user but during the **COVID-19 pandemic** it now have over **2.2 million** user and over more than 300 million daily meeting held and being the 5th most downloaded mobile app worldwide in 2020 at 477 million downloads. User can download zoom with the free plan that provides a video chatting service that allows up to 100 participants concurrently, with a 40-minute time restriction. Users have the option to upgrade by subscribing to a paid plan, with the highest allowing up to 1,000 participants concurrently, with a 30-hour time restriction.



"Zoom is probably the most well-received collaboration tool that we've seen at Fox in 20 years. There is no other tool that has brought people closer together than Zoom."

Doug Goetz at 21st Century Fox



Figure 3.1.1: A review from Doug Goetz from 21st Century Fox

ZOOM is noted for its simple interface, user interaction, usability, and interoperability regardless of technological expertise. It features include one-to-one meetings, group video conferences, screen sharing, plugins, browser extensions, and the ability to record meetings and have them automatically transcribed. Users from desktop or even mobile are able to select a virtual background which can be downloaded from different sites. Its simple design helps improve user's daily task, increase in proficiency and decrease in additional waste of usage time.



"We like that anybody on the go can use it. We are everywhere, so it's very important to have the most easy way to go and start meetings."

Shobhana Ahluwalia at Uber

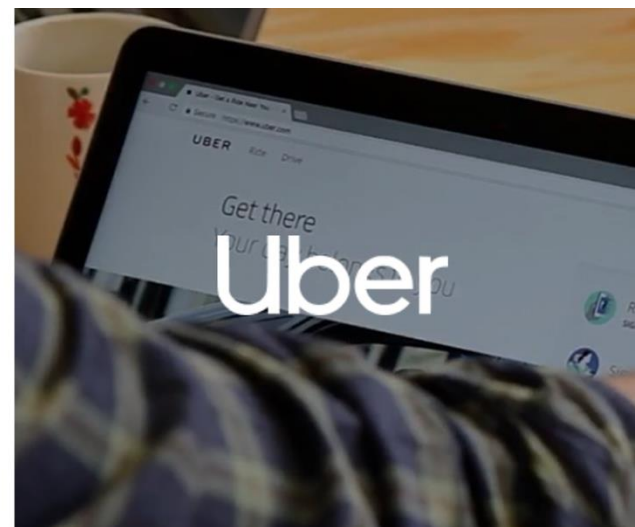


Figure 3.1.2: A review from Shobhana Ahluwalia from Uber

- **Usability**

Users can easily set up a large conference meeting or even a group of meeting wherever they want, whenever they want with ease, this is especially useful for small medium businesses or local businesses that have no knowledge on how to use modern technology. This reduces the number of roadblocks and headache the user will face. Everything is very intuitive to use for both the user that hosts meeting and for everyone attending. This is all thanks to the excellent interface the platform developers have put together to make it easy and intuitive.

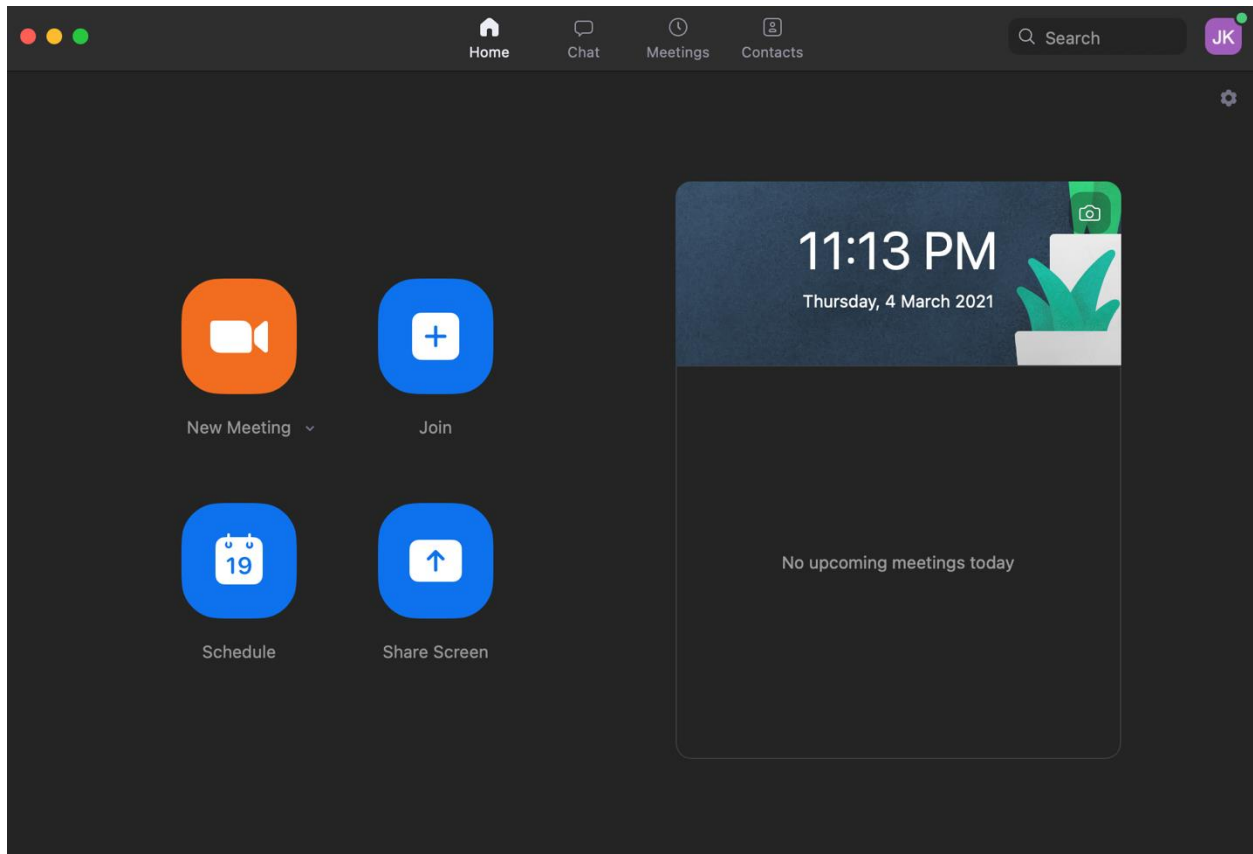


Figure 3.1.3: An image of the homepage of the official Zoom App

- **User Interaction Design**

The goal of a User Interface Design is to be the most user friendly for users. Compared to Google Hangouts or Skype for Business, Zoom is fairly user friendly; it glitches the least, it offers many cool collaboration tools and it is easy to connect to Slack and calendars on Google or Outlook. When users first open the application, there are four simple buttons and users will immediately know how to create a meeting and join a meeting. Not to mention less headache for users that have no knowledge or experience in modern technology.



"Zoom is super natural and easy to use - just download it, click, and you're in. I use Zoom on an airplane, in the car, in my house, in the office - everywhere."

Jelena Joffe at AB in Bev



Figure 3.1.4: A review from Jelena Joffe from AB in Bev

- **Interoperability**

Users are able to communicate via ZOOM anywhere in any platform with just a click away and you're in. ZOOM is compatible with Windows, macOS, iOS, Android, Chrome OS, and Linux and is easily sign in with Google and Facebook.

Zoom: Part 2 - User interface design flaws

But those fifteen minutes of fame came with a price. More and more users are reporting that their meetings are getting hijacked by internet trolls in what has been called "**Zoombombing**". Basically, this means that unwanted individuals join conferences and interrupt with insults, pornography, or racial slurs.

While this may seem like just another internet prank, users and governments alike have been taking this rather seriously, putting into question just how secure Zoom really is.

Figure 3.2.0: A screenshot of a review from the website aboutmanchester.co.uk

Zoom has been criticized for "security lapses and poor design choices" (BBC.com, 2020) that have resulted in heightened scrutiny of its software. Many of Zoom's issues "surround deliberate features designed to reduce friction in meetings," (threatpost.com, 2020) which Citizen Lab found to "**also, by design, reduce privacy or security.**" (2020) and thus lead to interface design flaws. Based on an observation and review from Google Play, a **couple** of user interface design flaws have been found.

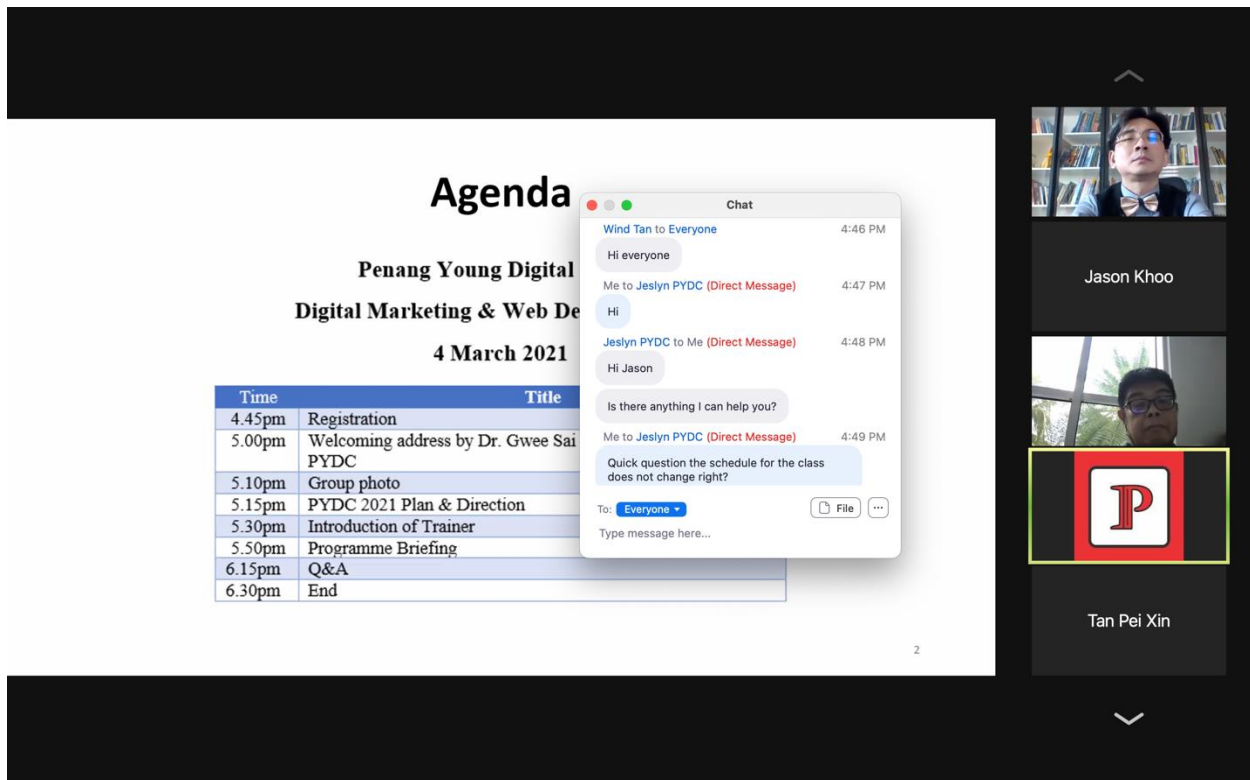


Figure 3.2.1: A screenshot of the disturbing chat box appear in the middle of a meeting

The first one is whenever user is in a meeting and the teacher would like show some slide in front of the screen but due to the small screen when user is not in full screen user couldn't see more detail so user would have go on full screen in Zoom and the chat box would suddenly appear and block the **visual and perception** of the user thus disturbing the user to **lose focus** on the meeting, then the user would try to find a solution to the problem and wasted a lot of time on doing so, to no avail user could not find a solution to the problem or a **configurability** from the setting thus having to loss the precious time of the user, user would loses focus and information on the meeting which lead to being uniformed of what is happening thus leading to an **inefficiency** in finishing work for the user.

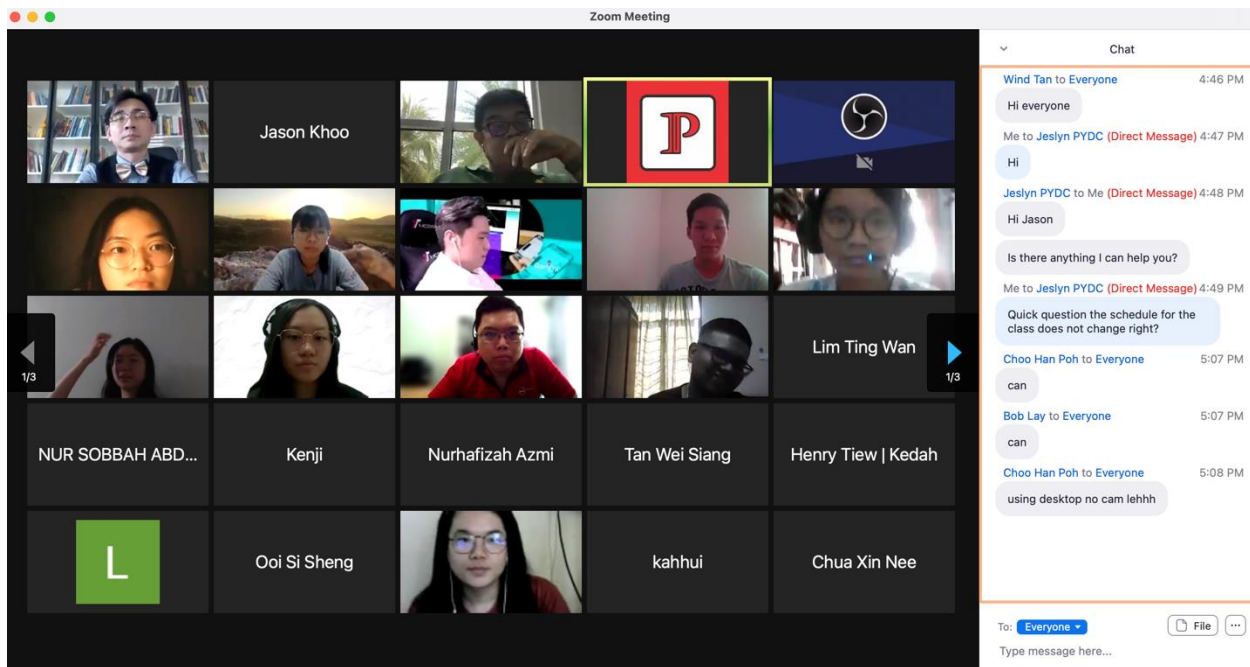


Figure 3.2.2: A screenshot of the meeting with the chat box overflowing with messages

Next is another problem that is also based on experience and observation. Whenever users would like to ask a question to a certain individual the message will be shown in the entire chat box, at first user would thought that it's not a big problem but after a couple of minutes when there are many people messaging in the chat box User can found themself very **frustrated** and **lost**, because user can see everyone's message messaging to everyone and user couldn't find the **direct** message where user messaged to the certain individual, user have to scroll back up to a certain point in time from when the user was messaging to the individual and slowly scroll back down and check every single messages or comment to check whether the certain individual have reply back the user and when the user saw the reply user would immediately reply back but due to **more than 20 people** commenting at the same time, the individual would also did the same thing as the user did thus leading to inefficiency and a big waste of time and frustration for both of the users. Not to mention user did miss a couple of messages from other individual when they try to message the user directly without the notifying the user.

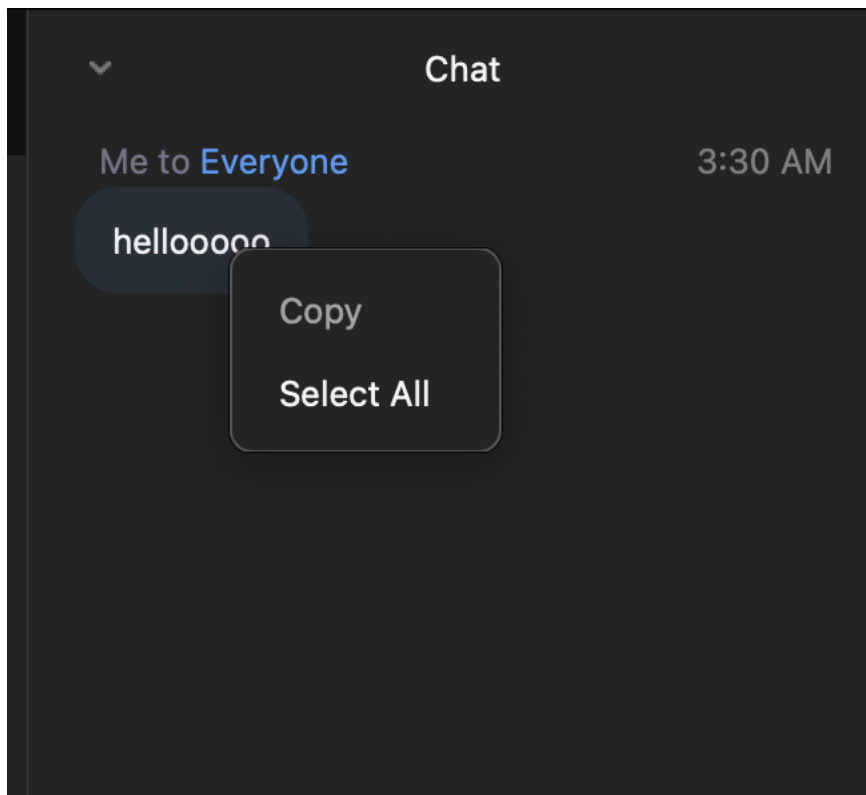


Figure 3.2.3: A screenshot of the inability to delete or configure the message

2. Lack of Comment Control

A big part of any online event is the ability for people to comment and message each other in a live chat. While zoom has a lot of customization in this department, it does lack one very important feature: the ability to delete inappropriate comments on the fly.

While Zoom does take inappropriate behavior seriously, it often takes too long to actually do anything about it. This can be devastating for public events because there is often a bad apple among the bunch.

Figure 3.2.4: A screenshot of a comment from the website greengeeks.com

Another problem is that the lack of configuration to delete inappropriate comments, as seen above from (greengeeks.com,2020) state “can be devastating for public event because there is often a bad apple among the bunch”, as ZOOM lacks the ability to erase inappropriate comments, it could often lead to being misjudge and often being badmouth behind the back.



Cavell Lindsay

★★★★★ February 28, 2021



Great app and service. Much appreciated especially during this pandemic. I have one suggestion...on mobile devices if you could make it possible for you to mute/unmute yourself and mute others from the Participants screen instead of always having to switch back to the main screen that would be greatly appreciated.

Figure 3.2.5: A screenshot of a review from google play store by Cavell Lindsay

Upon reading the reviews of ZOOM application on the Google Play Store (ZOOM, 2021). According to one of the reviewers that goes by the name of “Cavell Lindsay” state that “if it is possible to mute or unmute others from the participants”, because the reviewer was disrupted by other participants and therefore losing focus and efficiency in doing her task. And not to mention the reviewer has to “switch back to the main screen” in order to mute someone that is disturbing the reviewer which lead to the lack of configurability for the user and the reviewer.

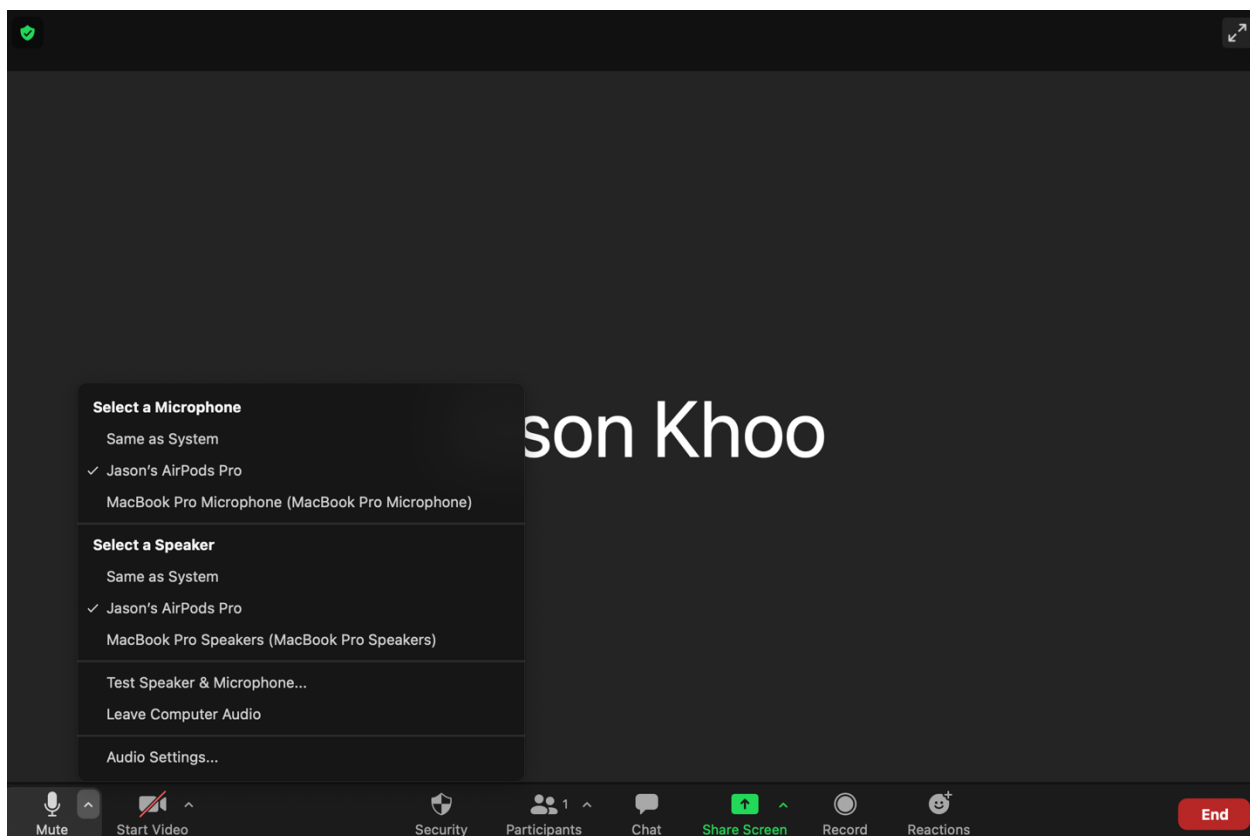


Figure 3.2.6: A screenshot of the perceptivity of the mic when connected to a Bluetooth device

Another flaw is due to the lack of perceptibility as you can see from above it is showing the user a mic instead when the user has already connected to Bluetooth earbuds. This has perceived the user to spent more than 10 minutes to check whether the user is connected to the Bluetooth earbuds or not.

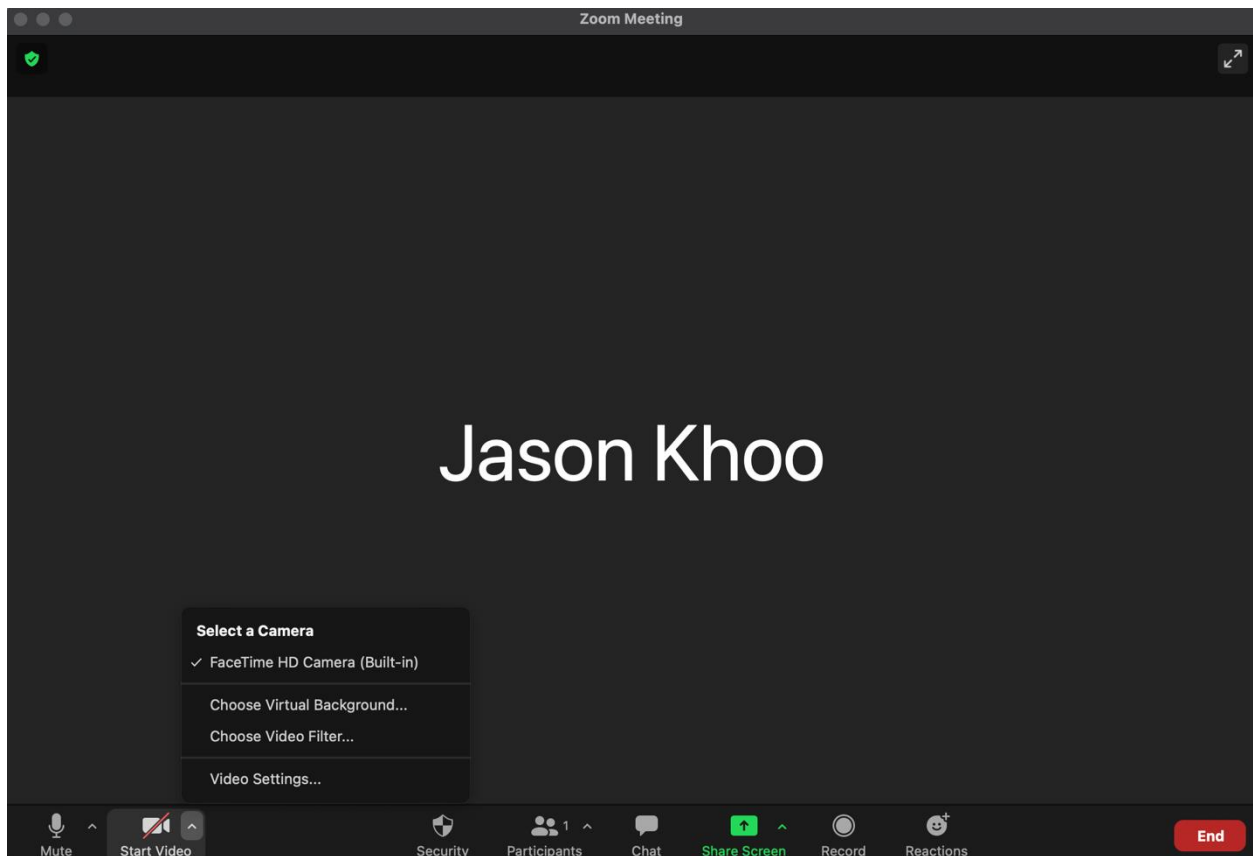


Figure 3.2.7: A screenshot of the lack of operability for the disabled

Lastly there is one more user interface design flaw and that is the lack of **operability** for users who are visually impaired, colour blind, or someone who has poor vision or eyesight. When a user is colour blind and when the user attends online class the teacher would taught them about graphic design and the user would have problem differentiating the colour and not to mention there are also people who have lost the ability to hear and is having a hard time trying to understand what the teacher was trying to say.

Zoom: Part 3 – Solutions for the flaws

For the solution for the flaw for the chat box to appear and disturb the user whenever user is in full screen is to add a configuration for user to be able to move to chat box to the side even when in full screen. As you can see in the figure down below have added an arrow that would pop up a configuration the “slide” button to allow user to slide the chat box to the right side if the user wishes to move, this makes it **flexible** for user if the user would like the chat box.

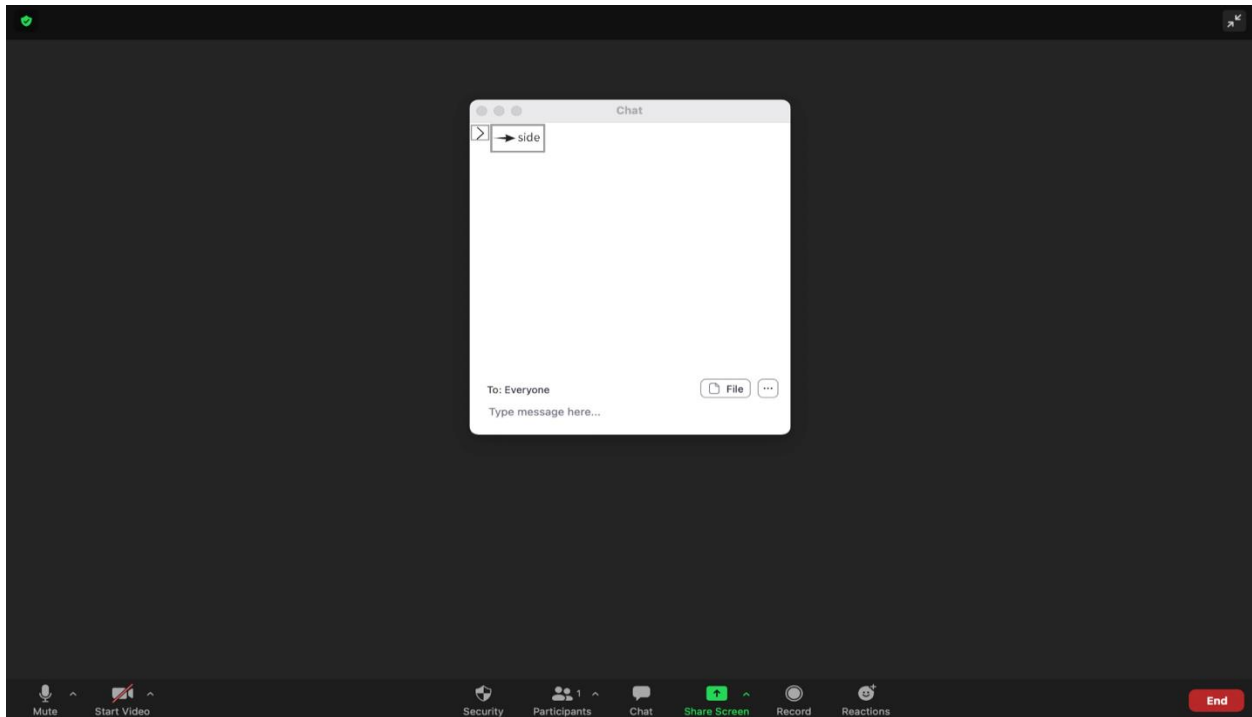


Figure 3.3.0: A picture of the chat box with the slide button on the top left

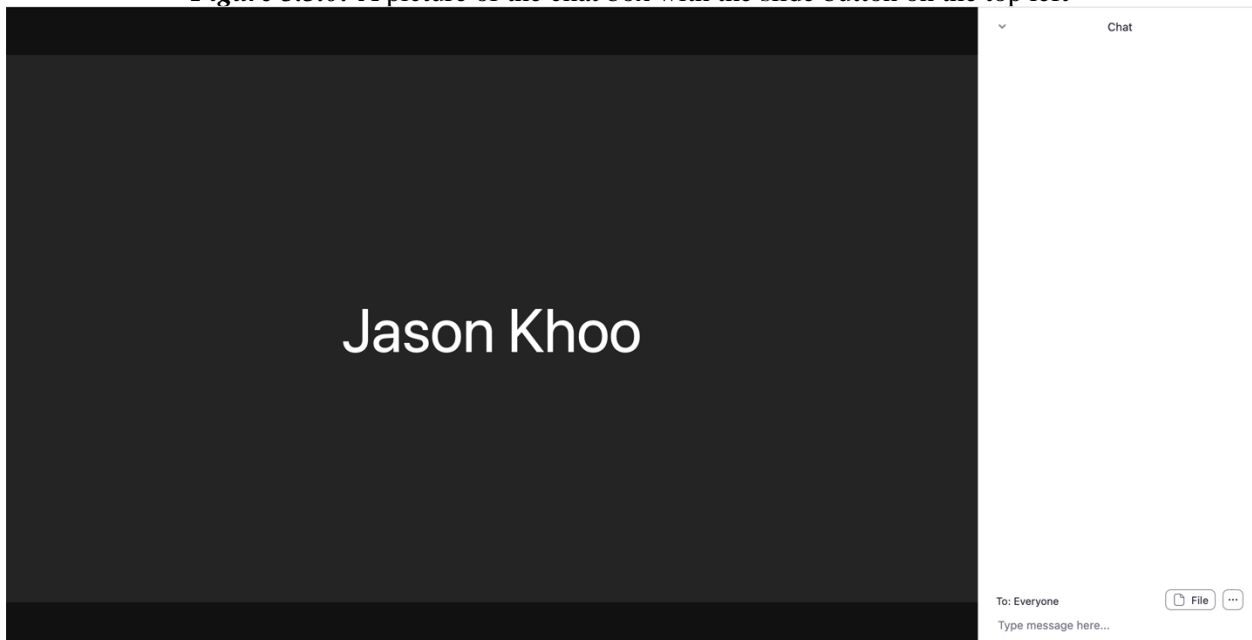


Figure 3.3.1: A picture of the chat box being on the right side when the user click slide

For the solution of next flaw is the chat system that wastes users' time to find and frustrate the user is the chat system. Now user can differentiate between “(Everyone)” and “(Direct Message)”. When user started chatting and have selected everyone user will be prompt to the chat “(Everyone)” and user will be able to communicate with everyone and whenever user would like to chat privately or directly to certain someone, user can select the name of the other user who user wish to chat and it will prompt the user to another chat box that is directed to “(Kenji Ooi)” and the previous chat of “(Everyone)” will disappear until or when the user return or selected the chat to be everyone. This solution would help and benefit the user, so user won't need to waste time and memories to search the previous message.

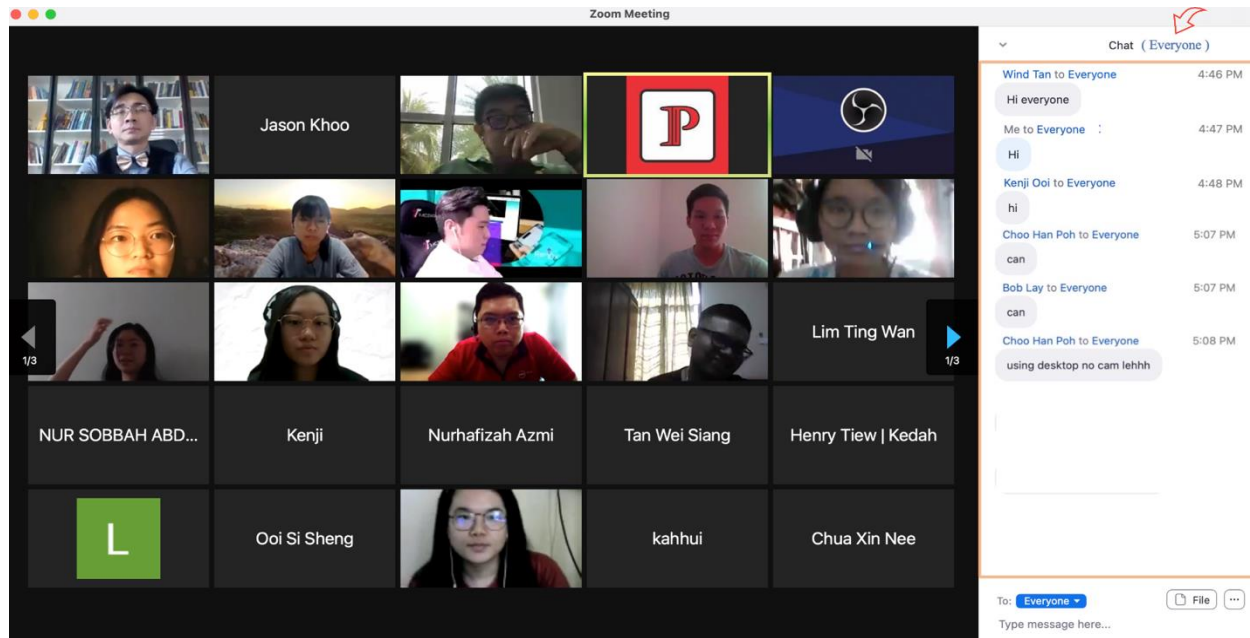


Figure 3.3.2: A picture of the selected chat box (Everyone)

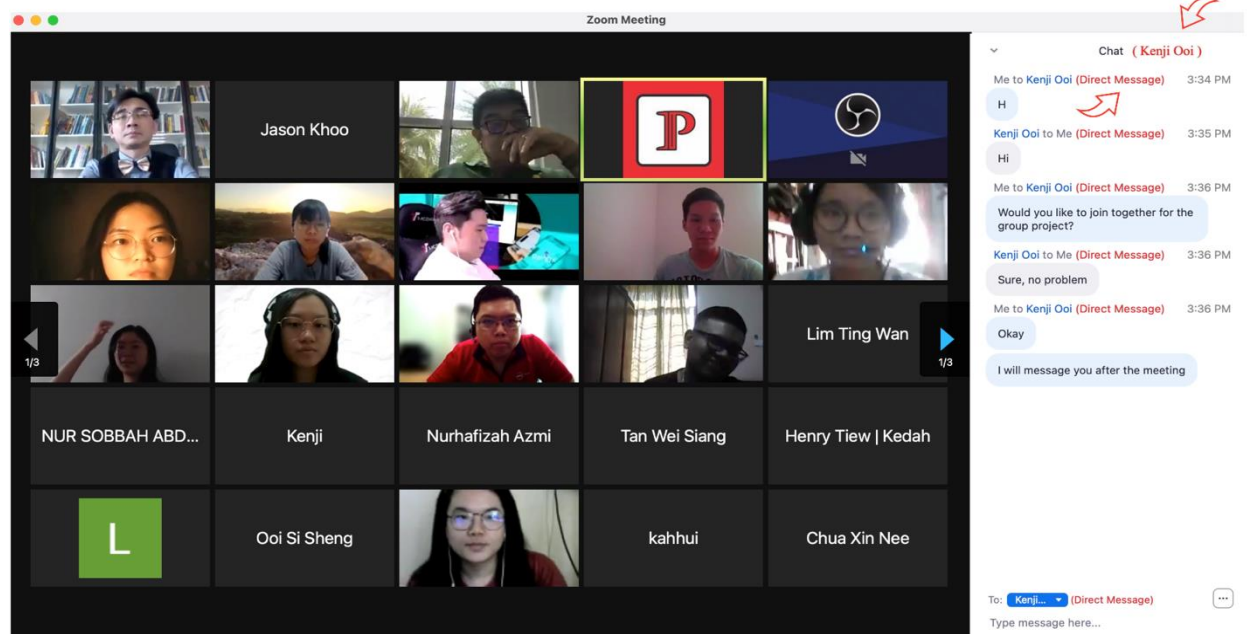


Figure 3.3.3: A picture of the selected chat box (Kenji Ooi) (Direct Message)

The next solution for the design flaw is to make the lack of configuration and the lack of ability to configured or delete a message when user make a mistake and message “hey wanna go shopping?” in the chat that everyone can see from the figure down below to become available by allowing the user a delete button and whenever the user would delete a message, in the chat box would appear a sentence that said deleted. And it also allows the host to be able to delete inappropriate messages whenever someone tries to send inappropriate message.

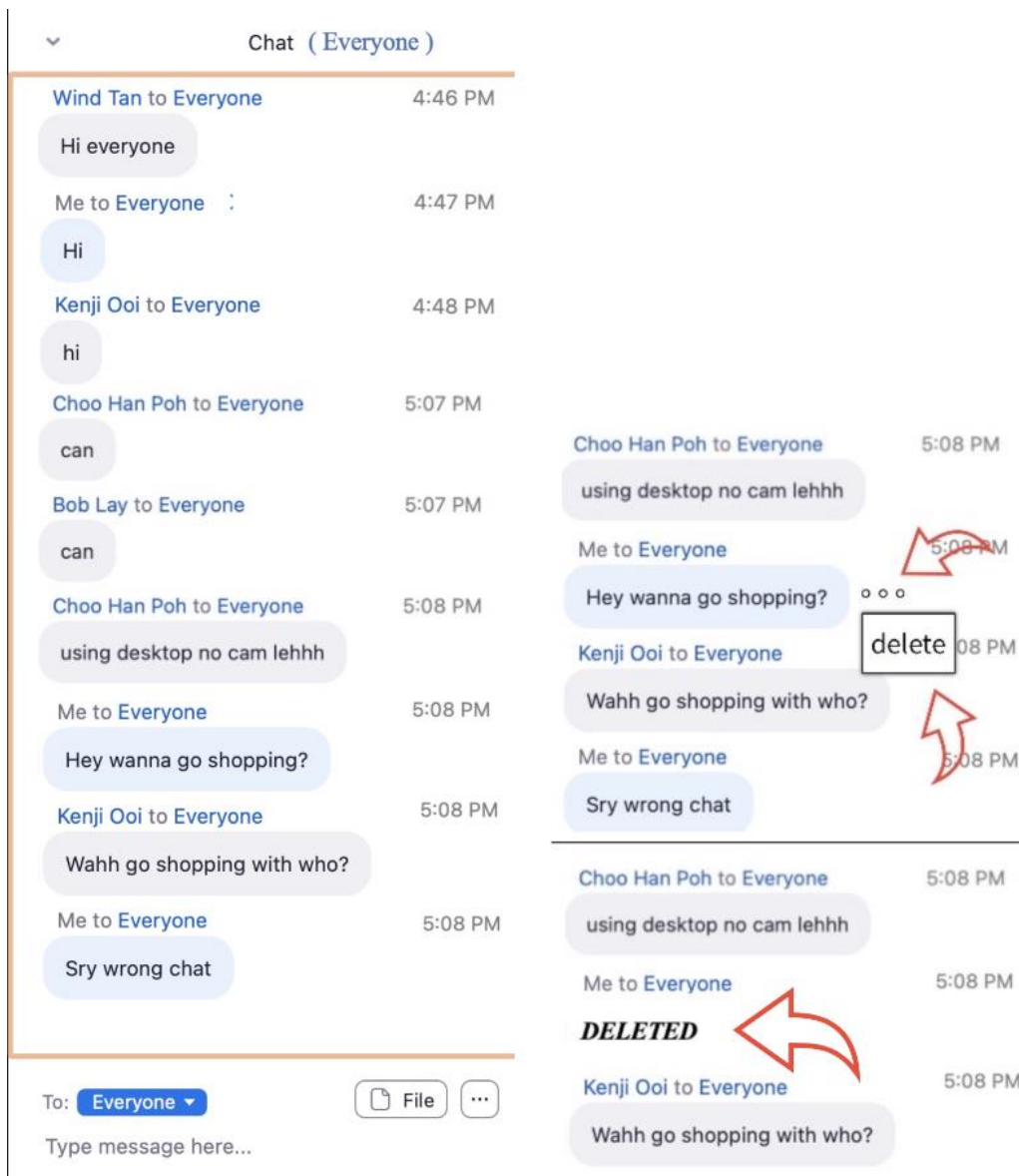


Figure 3.3.4: A picture of chat box with the ability to delete message within a period of time

Next solution for a design flaw is the inability to mute someone whenever the user would like. In the figure down below have placed a “mic icon” and a “muted speaker icon”. So whenever user is in a meeting and the user would like to have a certain someone muted, the user would just press the “mic icon” in the figure down below and a “muted speakers icon” would appear and the user will be able to mute someone without them having any issue that is because this function is only available to mute the sound of someone for the user and it won’t disturb or **inconvenience** anyone as only the user would not be able to hear the muted individual.

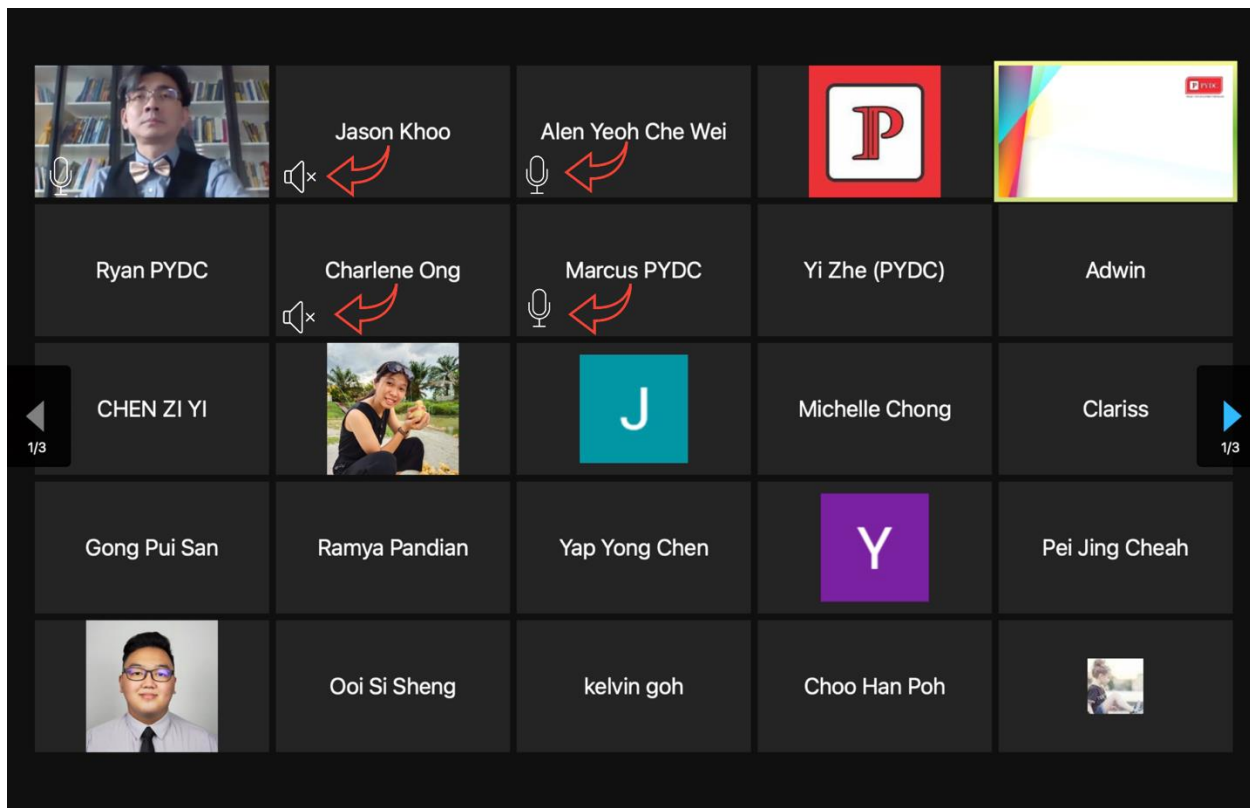


Figure 3.3.5: A picture of a “mic icon” and “muted speaker icon”

The second to last solution for the design flaw is the lack of **perceptibility** due to whether the user have connected to a Bluetooth device or not. as you can see from the figure below it is showing the user a mic instead when user have already connected to a Bluetooth earbuds, and now the user will see a different icon that describe as “BLUETOOTH” with a headset and an arrow that is pointed upward from the figure to the right means that the user is now connected to a Bluetooth device. Now user will be able to differentiate the differences between a connected Bluetooth device and non-connected Bluetooth device.

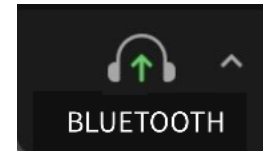


Figure 3.3.6: A Bluetooth device icon

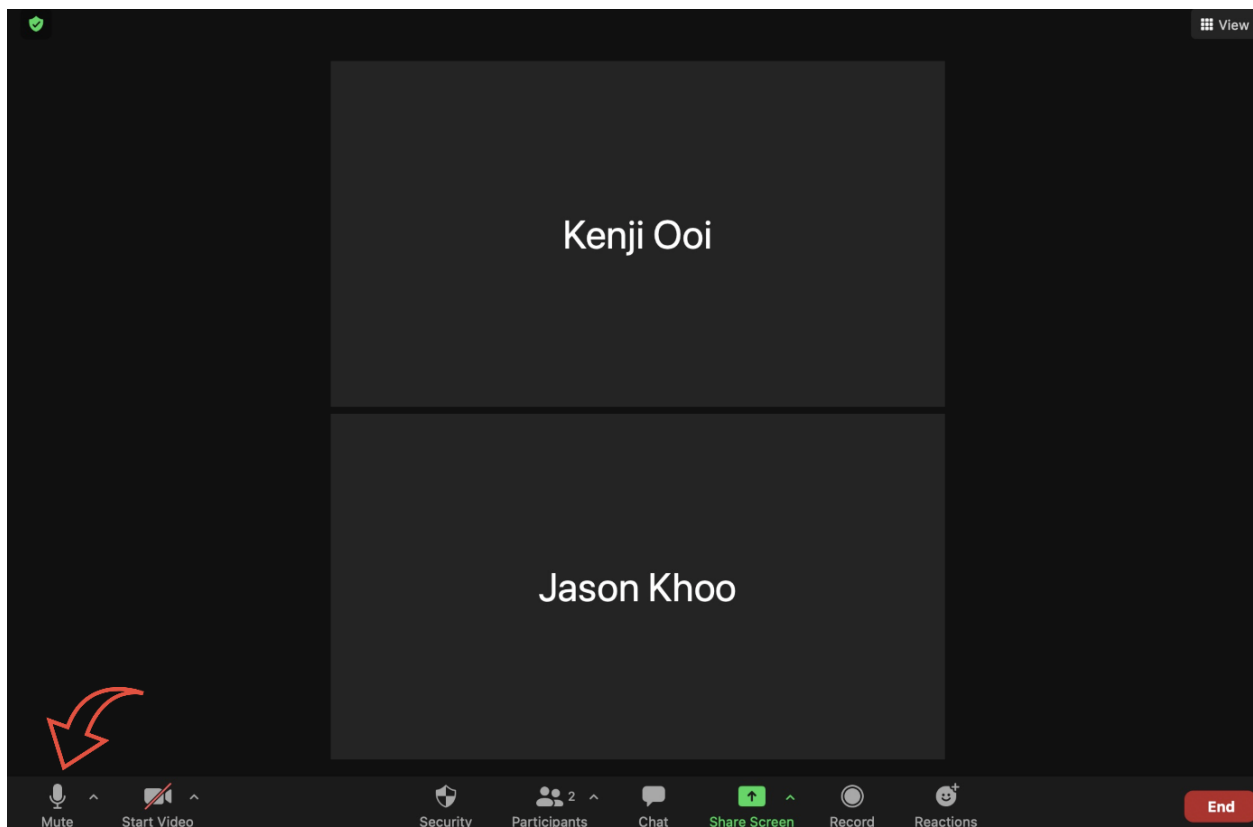


Figure 3.3.7: A picture of a mic icon before replacing it with **Figure 3.3.6**

Lastly, for the solution of the design flaw is the lack of **operability** for the user who is visually impaired or colour blind or someone who has poor vision / eyesight now whenever a user who has colour blind will have the option to turn on “colour blind mode” in the figure down below to enable the user to know which colour is correct, and not to mention for the user that has lost the ability to hear and is having a hard time trying to understand what was the teacher is trying to say, now will be able to turn on the “live caption” mode in the figure down below and whenever the teacher are speaking a line of caption would appear and the user that suffer the ability to hear will now be able to continue the lesson without having to struggle trying to understand what the teacher is trying to say.

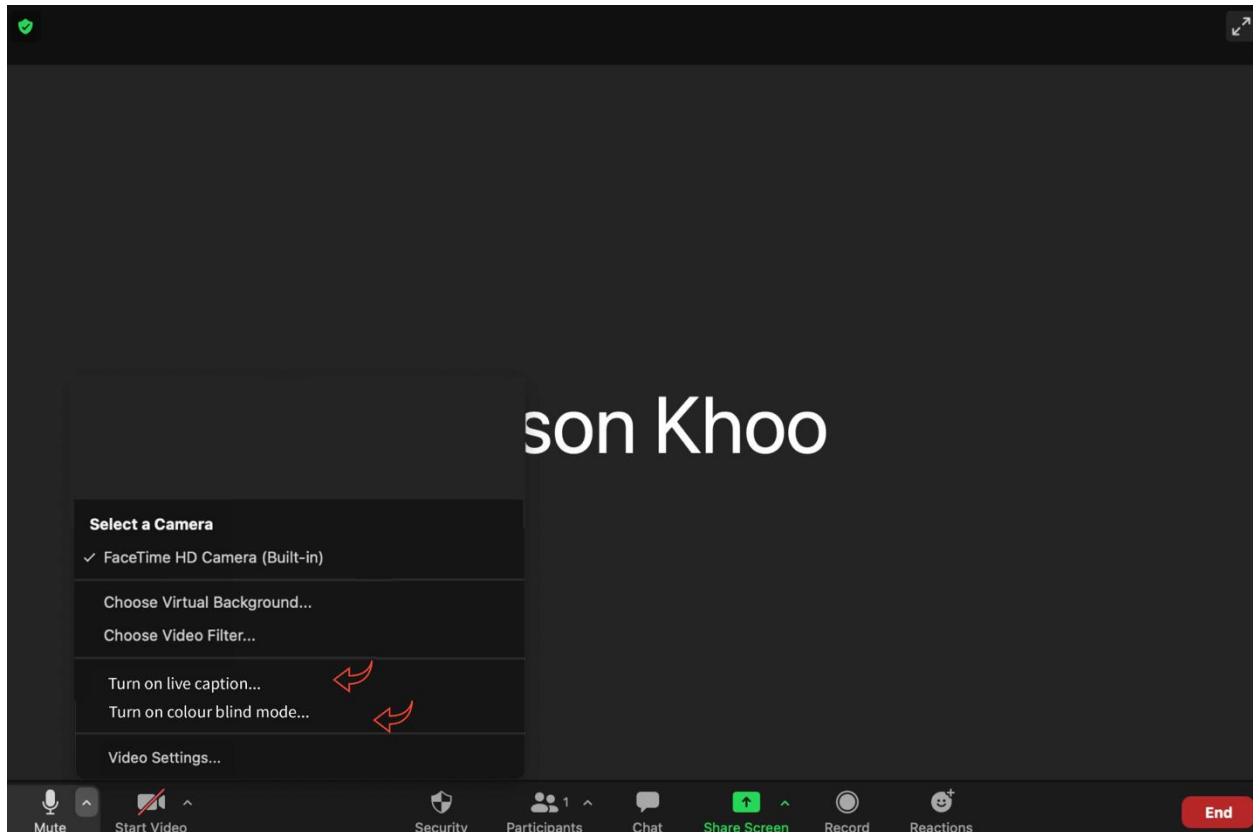


Figure 3.3.8: A picture of the ability to turn on “live caption” mode and “colour blind mode”

Conclusion

In conclusion, research conducted on all 3 conference/meeting apps shows that each of them appropriately applies general design principles on their user interface design. A similarity that we can obviously find between the apps is that all three apps apply clarity and simplicity into their user interface design. However, Microsoft Teams is unarguably the best among them in terms of said design principles, hence it is also the best conference app among the 3.

What makes Teams stand out from the rest of its competitors is for the fact that it clearly shows where the users want to go and what the users want to do. Displaying important information when they are needed by the users is crucial for the users to understand the layout of a system. Teams does not hide anything that helps describe and portray the use of the functions in the system from the users, making them more easily known and recognized by users the next time they want to use the functions. This is crucial in user interface design as one's power of recognition is often greater than one's power of recall (Galitz, 2007, 79).

One main selling point of Teams is its simple and straightforward navigation and layout. The main tabs and features of Microsoft Teams are clearly laid out within the simple, obvious, and easily accessible navigation bar. Just by looking at the navigation bar, new users can easily get an idea of all the main functions that they can use in the app, and they can start learning the app by exploring each tab. This navigation bar is visible on the left of the screen at all times, so users can easily navigate from tab to tab anytime and anywhere.

The user interface designs of the other 2 apps are good as well. However, the main problem that made Discord and Zoom fall behind Teams is lower usability. The user interface of Discord and Zoom feel harder to learn for beginners because of the flaw of having an over-simplistic design. Visual clarity is a subset of simplicity. Unlike Teams, Discord has a large workable layout that is not labelled clearly to show the different compartments of the app, making information in the window to be cluttered and often causing users to lose focus on where they are looking at. For Zoom, a lot of its functions are hidden inside layers of tooltips, losing app predictability for the users. This causes frustration and confusion because users are forced to dedicate more time on adapting and learning the user interface rather than just using the time to complete their tasks. Sometimes, experimenting on functions that are used for unknown reasons may also produce unexpected results, causing more stress while users are working with the system. Therefore, this means that user efficiency when using Teams would drastically differ from users using either Discord or Zoom. This also causes the usability of Teams to be higher than its two competitors. For all these reasons, Teams is considered to be the best among the 3 apps that have been chosen even though it also has its design flaws.

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[DUD 1204 User Interface Design]							
MARKING RUBRIC ASSIGNMENT [1]							
Assignment Weighting (15%)							
REPORT COMPONENT (100%)							
LEARNING OUTCOME	MARKING CRITERIA	SCALE					
		Fail (0-49)	3 rd Class (50-59)	2 nd Lower Class (60-69)	2 nd Upper Class (70-79)	1 st Class (80-100)	YOUR MARKS/COMMENTS
CLO1: Justify the choice of an effective interaction concept for a product.	1. Introduction (20%)	Weak or no introduction of the topic. Purpose of the writing is unclear or missing. Topics were not addressed properly.	Basic introduction that states topic but lacks interest.	Adequate introduction and states the topic.	Proficient introduction that is interesting and states topic.	Exceptional introduction that grabs interest of reader and states topic.	
	2. Quality of analysis of the user interface design flaws (30%)	Fails to provide a level of information that answers the question. Modelling concepts are internally contradictory without explanation.	Statements are sometimes on target and sometimes off center. Modelling concepts are unclear or contradictory with no good resolution.	Statements are on target and sometimes off center but with minimal explanation on the modelling concepts.	Most statements are at the best level of information that answers the question. Modelling concepts are usually mutually supporting and follow from one another.	Statements are at the best level of information that answer the question. Modelling concepts are mutually supporting and follow from one another.	
	3. Quality of the potential solutions (30%)	Solutions provided has little or nothing to do with the question.	Solutions clearly relates to the main topic. Points are insufficiently developed with weak justifications.	Solutions clearly relates to the main topic. Points are made, but justifications are minimal	Solutions clearly relates to the main topic. Points and justifications are made and related to the topic.	Solutions clearly relates to the main topic. Points are clearly made. Justification is solid.	
	4. Conclusion (10%)	Conclusion does not meet the criteria for the assignment (too short or incomplete, too long, and/or completely off-topic). Reference section is missing.	Improper conclusion with many grammatical and/or spelling error	Conclusion is stated clearly and are related to the topic, with only adequate grammatical and/or spelling errors.	Conclusion is stated clearly and are related to the topic, with only minor grammatical and/or spelling errors. Reference section is in minimal	Conclusion is clear and relevant, with no grammatical and/or spelling errors – polished and professional. Reference section properly formatted.	
	5. Citation (10%)	Missing or no citation and major flaws on the format.	Very minimal amount of cited works, with incorrect format .	Adequate amount cited works, both text and visual, are done in the correct format. Inconsistencies evident	All, both text and visual, are done with minimal errors on the format.	All cited works, both text and visual, are done in the correct format with no errors.	
	Total (100%)						