UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

Project 4: Prototyping & Evaluation

SEMESTER 1 2024/2025

GROUP : PRO3 - VIRTUAL BUILDERS

SECTION : SECTION - 06

SUBJECT : SECV2113 - HUMAN COMPUTER INTERACTION

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BLOG POST LINK: https://ganghci.wordpress.com

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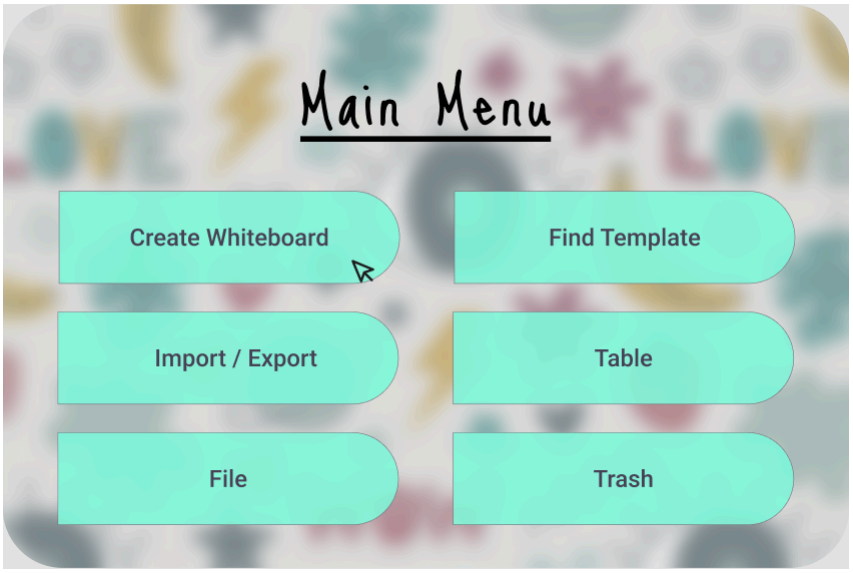
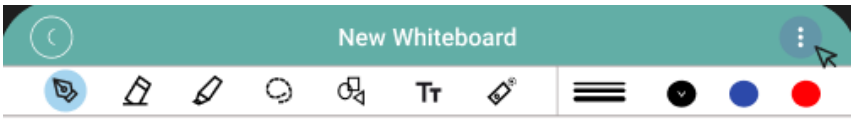
Introduction

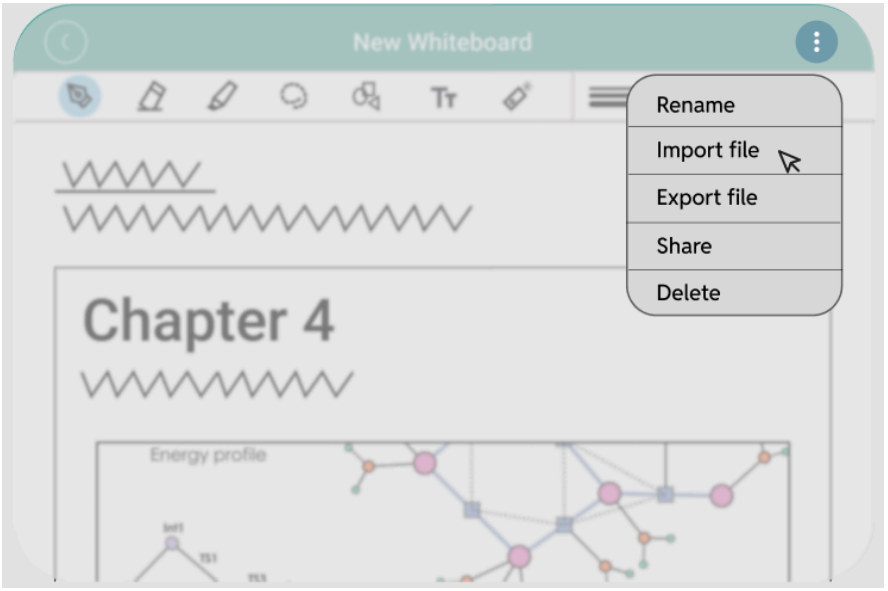
This report summarizes the high-fidelity prototyping and usability testing conducted for the Doodleboard, a smartboard prototype designed to enhance collaboration and productivity. The testing took place on January 22, 23, and 24, with sessions conducted by three different interviewers at locations chosen by the participants for their comfort and convenience. The equipment used during the testing included hardcopy of the Doodleboard prototype, electronic devices such as smartphones and laptops. Participants were tasked with completing three key functions of the prototype which are choose table function, choose template function as well as import and share file function. A total of seven participants were involved in the testing. They represented diverse educational backgrounds and age groups ranging from 17 to 23 years.

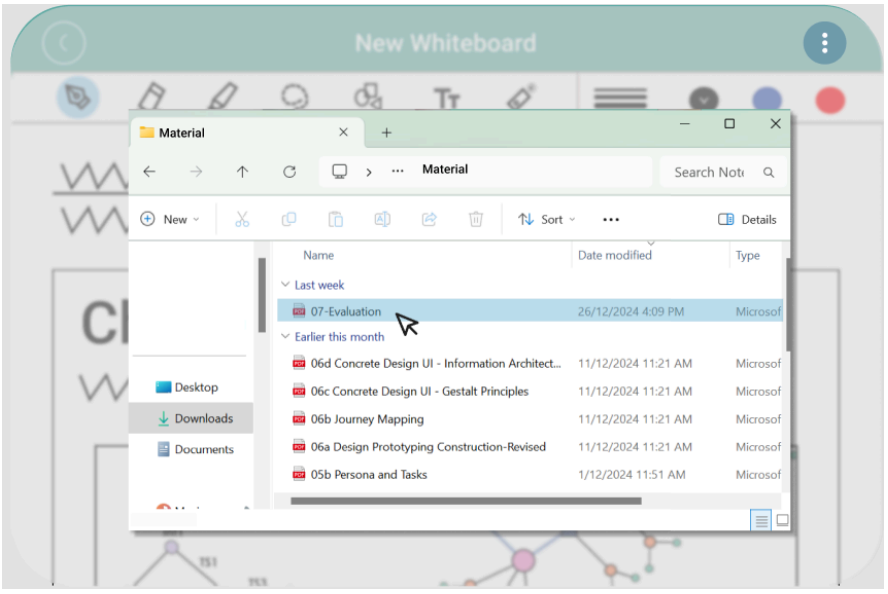
STORYBOARD VIDEO LINK:
https://youtu.be/qgLtjm3SFBo?si=M29yblYzeK2vV-dw

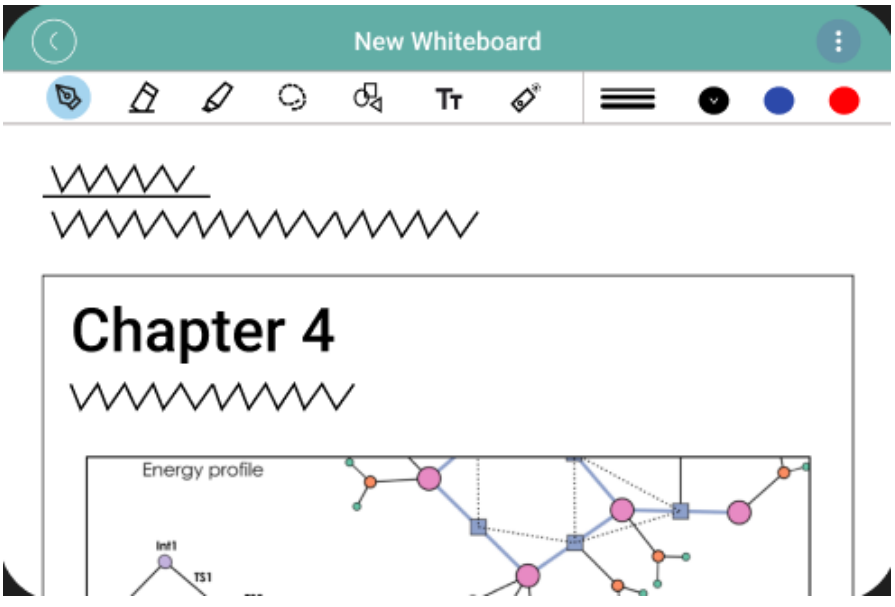
Screenshots of prototype

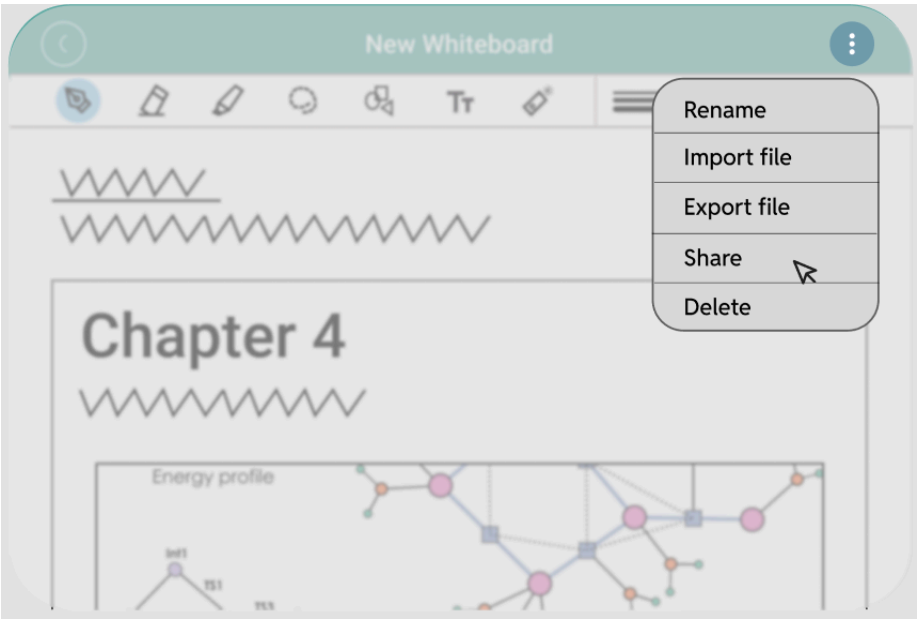


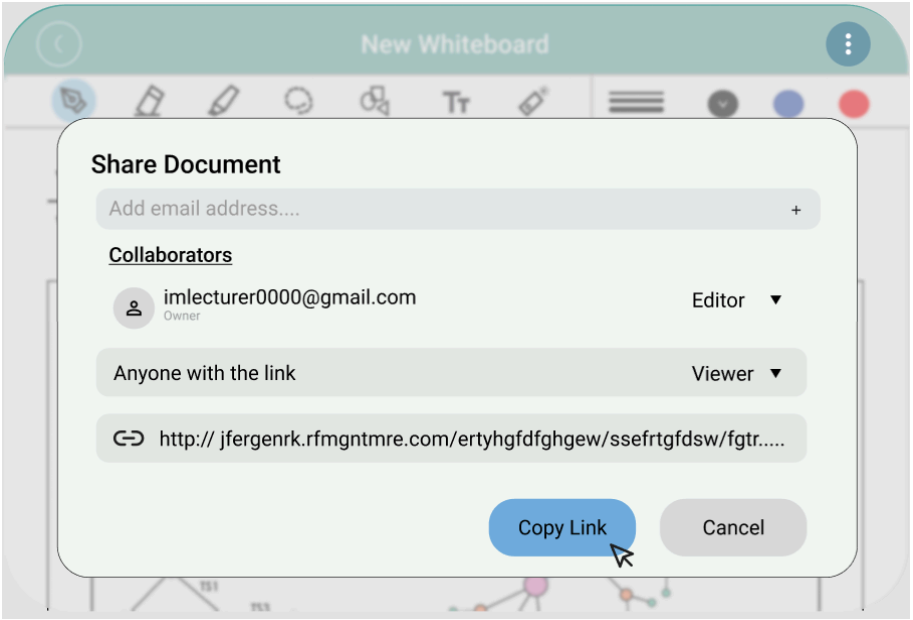


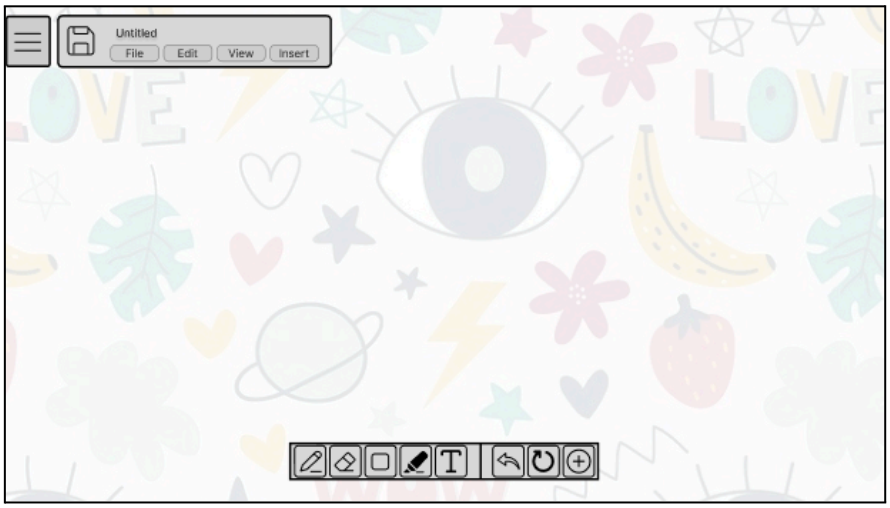

New Whiteboard
Rename
Import file
Export file
Share
Delete
Chapter 4
Energy profile


New Whiteboard
Material
Material
Search Not
New
Sort
Details
Name
Date modified
Type
Last week
07-Evaluation
26/12/2024 4:09 PM
Earlier this month
06d Concrete Design UI - Information Architect...
11/12/2024 11:21 AM
06c Concrete Design UI - Gestalt Principles
11/12/2024 11:21 AM
06b Journey Mapping
11/12/2024 11:21 AM
06a Design Prototyping Construction-Revised
11/12/2024 11:21 AM
05b Persona and Tasks
1/12/2024 11:51 AM
Desktop
Downloads
Documents


New Whiteboard
Chapter 4
Energy profile


New Whiteboard
Rename
Import file
Export file
Share
Delete
Chapter 4
Energy profile


New Whiteboard
Share Document
Add email address....
Collaborators
imlecturer0000@gmail.com
Owner
Editor
Anyone with the link
Viewer
http:// jfergenrk.rfmgntmre.com/ertyhgfdfghgew/ssefrtgfdsw/fgtr.....
Copy Link
Cancel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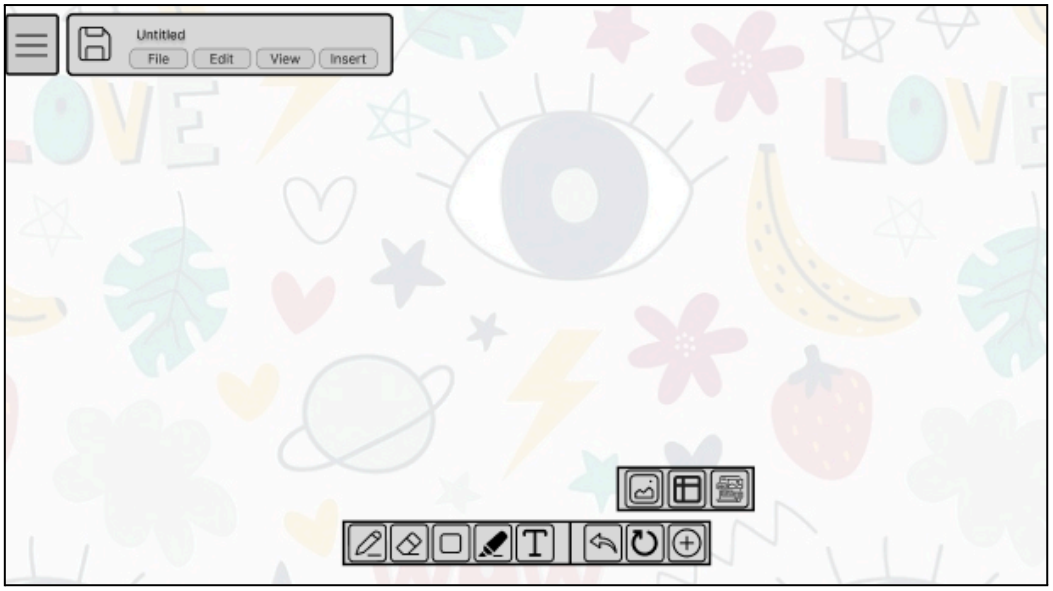
File
Edit
View
Insert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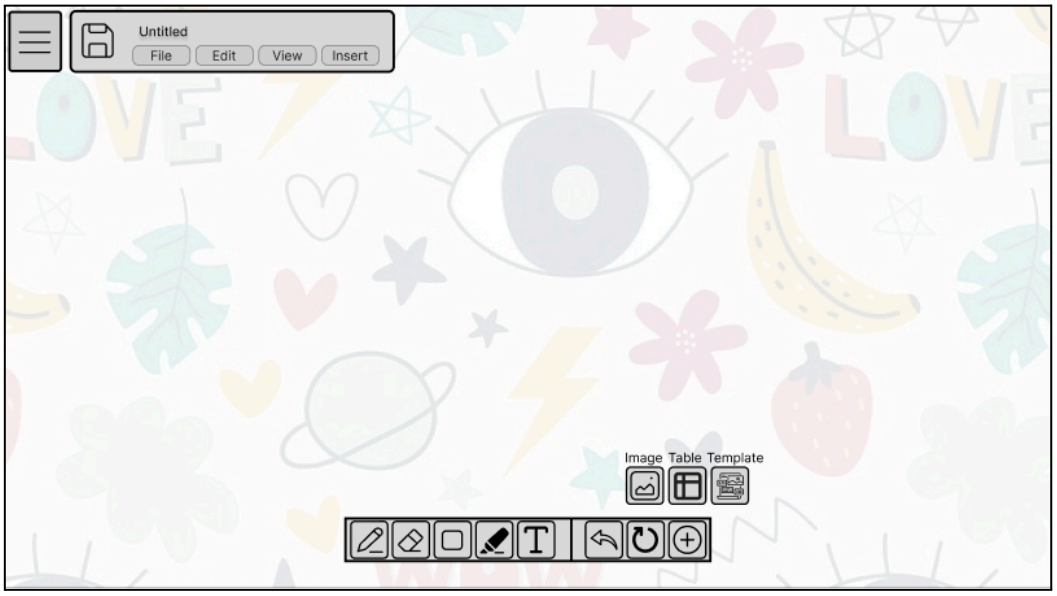
View
Insert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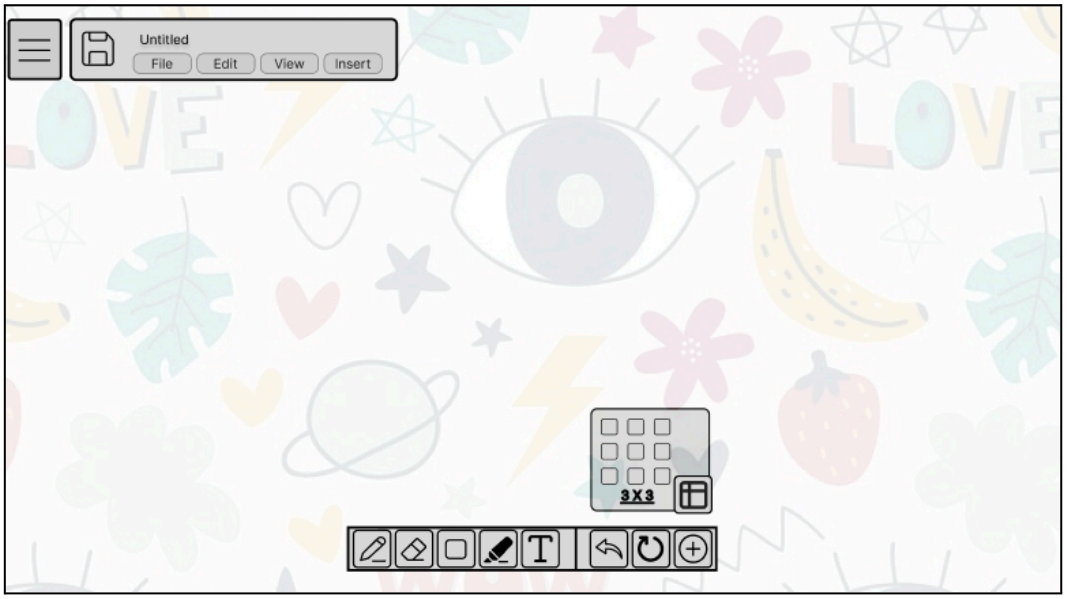
View
Insert
Image Table Template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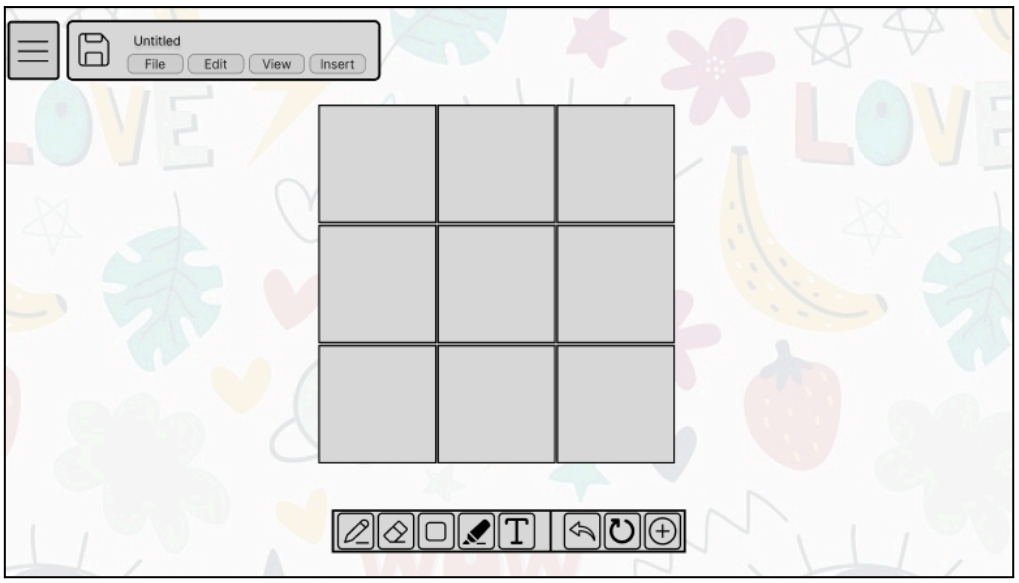
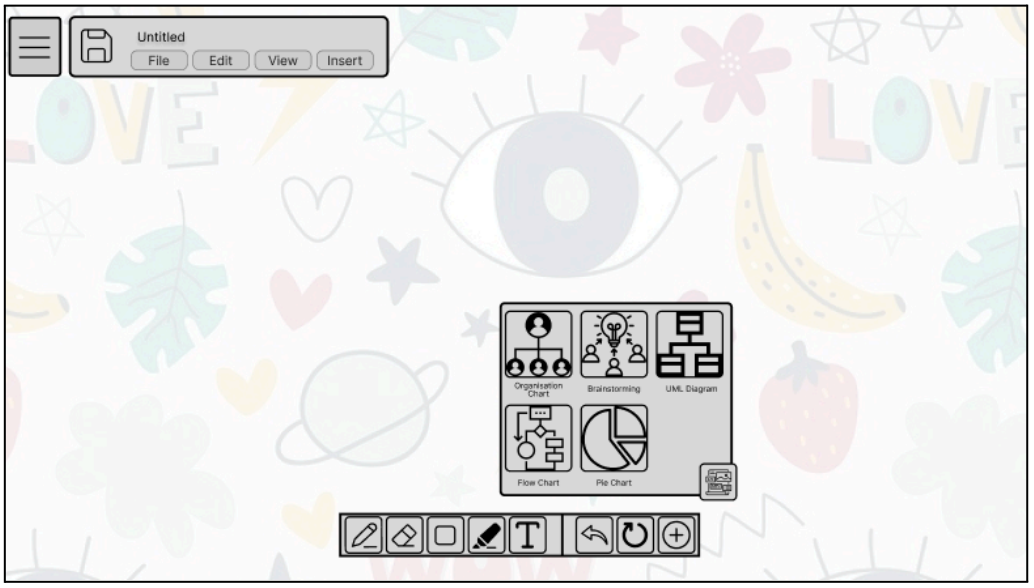
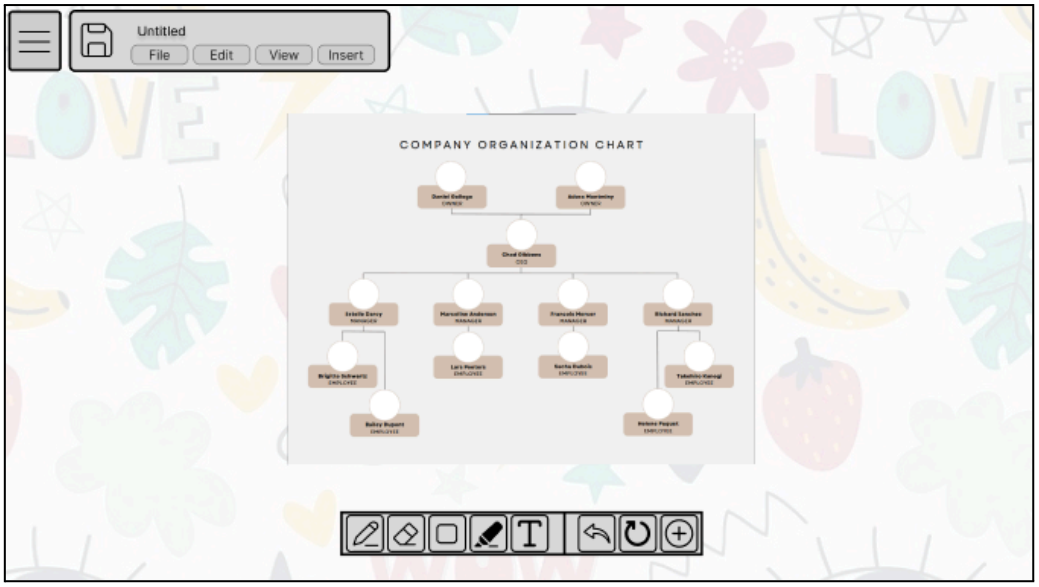
File
Edit
View
Insert
3X3


Untitled
File
Edit
View
Insert


Untitled
File
Edit
View
Insert
Organisation Chart
Brainstorming
UML Diagram
Flow Chart
Pie Chart

Untitled
File
Edit
View
Insert
Reverse Brainstorming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File
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View
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COMPANY ORGANIZATION CHART

Briefing notes

Hello, we are the developers for the product DoodleBoard. To briefly explain what a DoodleBoard is, a DoodleBoard is a modern whiteboard that can save, send and share contents to overcome all the limitations of a traditional whiteboard. This modern tool is directed to improve teaching and learning by adopting all the positive aspects of digital technology.

To develop the product with the best quality, we have developed a simple prototype to be tested by many users to find out what part of the interface we should keep and which part of it has room for improvements. Thus, we are very grateful that you are willing to participate in this short testing and interview session.

Now, let's get onto the procedures of the interface testing. First of all, we will give you a total of three scenarios to complete three different tasks, one task at a time. The prototype is done using figma, so we will send you a link to our prototype website to interact with it by clicking buttons with your mouse cursor.

During the testing, you are asked to think out loud and say what is on your mind to let us better understand the process of your thoughts using our interface. If you encounter any problem and are unable to proceed, please say "terminate" and we will stop the session for you. Lastly, After each task is done, we will ask you a few questions to understand your experience using our interface. That is all for the briefing.

Informed Consent

Before we start, I would like to ask your permission to record this testing and interview session for the use of our project? Your name will not be published and you will stay anonymous, none of your information will be used in the project other than the testing and interview session's video. You may choose to proceed with consent, or decline if you wish to.

We can start if you have no more questions.

Scenario tasks

Task 1 - Use Table function

Task 2 - Use Template

Task 3 - Import file and share file

Users Demographics

Video link under each user is the video for the full testing and interview session, which includes the briefing, consent, doing all three tasks and lastly interviewing the user.

User 1 - 17 year old Chinese, SPM student
https://youtu.be/faRaI-Y08qw

User 2 - 23 year old Chinese, computer science major in 2nd year
https://youtu.be/gAvvFjfy-SA

User 3 - 22 years old Bangladeshi, biomedical major in 2nd year
https://youtu.be/w_CNc8_r0Ng

User 4 - 22 year old Bangladeshi, software engineering major in 2nd year
https://youtu.be/kbXN_Eu8z9E

User 5 - 22 years old Malay, husbandry internship
https://youtu.be/EiJLtjsDws0?si=zYs68U2jTQTzTW8g

User 6 - 20 years old Half Chinese Malay, foundation in business
https://youtu.be/uUVSkA1ArAM?si=9TpwS51JwTOPQxVq

User 7 - 22 years old Chinese, Management of Technology in 2nd year
https://youtu.be/sKjwMNENqUA?si=ELgsBttPUA8pv6Xx

Testing with users

Task 1 - Choose table function

User 1
https://youtube.com/shorts/fIhYcxsOLo0?feature=share
User 2
https://youtube.com/shorts/WikwRbcwzjE?feature=share
User 3
https://youtube.com/shorts/5-0st6sozFY?feature=share
User 4
https://youtube.com/shorts/o9f4OtvZ5y4?feature=share
User 5
https://youtube.com/clip/UgkxDJJSi1GqTPPtE4dCR_8gR7QuANfoBEzp?si=TdY-rrn41Q1XlIV-
User 6
https://youtube.com/clip/Ugkxa92m0LFgQekLI_-x2LyFSPqvX6D5BVsm?si=VRK7QCviyfRNCS3I
User 7
https://youtube.com/clip/UgkxH8cByvV7HJynIKgGIGz_07zkHZZyOd9M?si=Zf60Uz0jpQO1c6hh

Task 2 - Choose template function

User 1
https://youtube.com/shorts/Df00q03oip4?feature=share
User 2
https://youtube.com/shorts/nKpr4Vb5Sh8?feature=share
User 3
https://youtube.com/shorts/fkE1IKMywoE?feature=share
User 4
https://youtube.com/shorts/8BQnA3flvCs?feature=share
User 5
https://youtube.com/clip/UgkxsAEQ74jWBfopiDTZc68ml9-zry9oLwcD?si=SpuhEGibs7G7vyC7
User 6
https://youtube.com/clip/UgkxEhQs9NM_7qDMNGqTOfoQW0OzMWxmrKss?si=Ce-ACEFjtsDM7vsS
User 7
https://youtube.com/clip/Ugkxi1lY4z9Rqj8vhJBMhWsvJHdNmxeC5KW7?si=Lai8rbVwls-99t10

Task 3 - Import file and share file

User 1
https://youtube.com/shorts/T1nDSxK1HL4?feature=share
User 2
https://youtube.com/shorts/hXAPohunOvI?feature=share
User 3
https://youtube.com/shorts/Ct2oh-xnrwI?feature=share
User 4
https://youtube.com/shorts/HZp2I2l1yg4?feature=share
User 5
https://youtube.com/clip/UgkxDDCi8S_8CjvJ_St20np-2TwirRO128mM?si=V-OzoQT_wVWZ9WTp
User 6
https://youtube.com/clip/UgkxXGeqanHvbcmsUBuB3qG5JSWoRfbphqFI?si=eXCDQmFqEj_fbbF1
User 7
https://youtube.com/clip/Ugkxj9gJNI2wADJvZV6RT5tNIsa7gz4FApy3?si=HLLQmpjn7_utTbfq

Observations

User 1

- The prototype goes well on the user on every three tasks.
- User makes a good starter by clicking the “Get Started” button for every three tasks.
- “Table” option on the main menu is clicked followed by clicking the “+” icon to get a function to add a table, template or image.
- “Table” icon choosed and the table format of 3x3 is also chosen.
- User repeats the same things for the template function by clicking the “template” options from the main menu, then after the “+” icon, the user chooses the “template” icon and selects a template.
- User select the “Create Whiteboard” options instead of “Import/Export” from the main menu.
- The three dot icon on the top right corner is used to show the menus of import and share functions.
- Importing and sharing function goes well.
- Interview summary: After the testing and question section, the user mentioned that the system is easy to use and had not found any difficulty when using it. The user suggests that the system can be more simplified but overall it was a fine system. The user also said that he would use the system as it can be useful for presentations.

User 2

- User shows a good flow when using the system.
- However, user choose to click on the “Create Whiteboard” options shown in the main menu on every three tasks instead of clicking the “Table”, “Find Template” or “Import/Export” options.
- The three dot icon on the top right corner is ignored but directly clicking the “Import File” option.
- Interview summary: After the testing and question section, the user said that the system is easy to use for a secondary school student. The user also said he did not find any difficulty as the system is user friendly. He suggests that the system is good enough for now and not big changes needed. As a student, the user will use the system as it is useful and provide support in education purpose.

User 3

- The prototype performs well across three tasks.
- The user starts smoothly by clicking the “Get Started” button.
- To add a table, template, or image, the user selects the “Table” option in the main menu, clicks the **“+”** icon, chooses the “Table” icon, and selects a 3x3 table format.
- The same process is followed for templates: the user selects the “Template” option, clicks the **“+”** icon, chooses the “Template” icon, and picks a template.
- The user opts for “Create Whiteboard” instead of “Import/Export” in the main menu.
- The three-dot menu in the top-right corner is used to access import and share functions, both of which work as expected.
- Interview summary: The user was overall satisfied with the system and found it intuitive and efficient for completing tasks. They particularly appreciated the smooth startup process and the functionality of the import and share options accessed via the three-dot menu. However, the user experienced slight confusion when selecting the table function, specifically navigating the steps to add a table. Despite this minor issue, the user rated the prototype highly and described it as a user-friendly and well-performing system.

User 4

- The user completed all three tasks smoothly but experienced some confusion when inserting a table.
- They clicked on the table dimension boxes instead of selecting the "3x3" button. Despite this, the user quickly adapted and became faster at navigating the interface during the second task, likely because the process was similar to the first.
- In the interview, the user shared that the interface is straightforward and easy to use, even for beginners. However, they suggested adding simple tutorials to help first-time users avoid confusion. When asked about using the system, the user mentioned they might use it occasionally but prefer other systems with better-designed interfaces.

User 5

- The user has difficulty finding the button for inserting a table as he does not see the button for the function on the interface.
- The user clicked all the buttons he could find but still did not find out where the button for inserting the table is.

- The user mentions that each button's icon and absence of label makes it very blurry on what he should click.
- After some time, the user found the insert table function.
- However, for the last step of inserting the table which is selecting the dimension of the table, the user fails to click on the "3x3" button and keeps clicking on the boxes.
- The user expresses frustration and asks to skip over this task and start with the next task.
- Task 2 and task 3 went through smoothly.
- Interview summary: The user expresses that the interface looks easy to understand for the main menu and is clear what each button does. The difficulty starts when the user is given tasks as he is a first time user and is not familiar with where each function is. Thus, the user suggests better guidance on how to use the system, especially for the first time to look for the function they want to use.

User 6

- Overall, the user has a smooth experience for all three tasks.
- The user experiences confusion when inserting the table and clicking on the boxes of table dimension instead of the "3x3" button.
- The user seems to understand the flow of inserting table/template as it can be seen that the user is faster in navigating the interface to insert the template due to similar flow of task 1 and task 2.
- Interview summary: User mentions that the interface is relatively simple even for a first time user, the process was obvious for each task. However, the user suggested that we provide simple tutorials on the interface for first timers so that they do not have to be confused and click all the buttons until they find what they need. When asked if the user would use the system, the user states that maybe he would but not much since there are better systems and interfaces ready to be used out there.

User 7

- Overall, the user has a smooth experience for all three tasks.
- The only significant problem the user experiences is when choosing to insert the table, the user keeps clicking on the boxes instead of the "3x3" button.

- Interview summary: User said it was easy to navigate through the interface as it is simple and easy to understand. Part of it is because the user says he always tries out new websites and interfaces for fun, making him familiar with testing interfaces and where buttons should be usually. However, the user said it was confusing to know which button is which for a first time user, thus he suggests that we include the labels in the icon or make the icon more understandable. Lastly, the user states that he would use the system if it's more refined.

Finding

Usability Problems

1. **Difficulty Locating Functions**
   Many users, especially first-time users, struggled to find the correct buttons for specific tasks. For example, the button for inserting a table was not immediately visible to some participants.

2. **Confusion with Table Insertion Process**
   Several participants clicked on the table dimension boxes instead of selecting the “3x3” button during the table insertion task. This led to frustration and slowed progress.

3. **Lack of Guidance for First-Time Users**
   First-time users often found it unclear how to proceed with certain tasks, such as navigating through the interface or using specific features.

4. **Icon Design and Labelling Issues**
   The absence of labels on buttons caused uncertainty about their functions, especially for participants unfamiliar with the interface.

Solutions

1. **Improve Button Visibility**
   Enhance the visibility of key functions by adding labels to icons or redesigning them to be more intuitive. Including a prominent search or help feature could also assist users in locating functions quickly.

2. **Simplify Table Selection**
   Streamline the table dimension selection process by making it more intuitive. Adding a tooltip or highlighting the intended selection area could guide users effectively.

3. **Add Tutorials or Onboarding**
   Include a brief tutorial or onboarding process for new users. Simple, step-by-step instructions or visual prompts during the first use can significantly reduce confusion.

4. **Add Labels or Tooltips to Icons**
   Provide descriptive labels or hover-over text for the icons. This will help users understand the functionality of each button without trial and error.

Appendix

User Testing Interview Form

Group Project 4

Usability Test of DoodleBoard: High Fidelity Prototype

Your Group No. : PR03 Your Group Name: Virtual Builder

Test User No. : 1 / 2 / 3 / 4 / 5 / 6 / 7 *(Please circle accordingly)*

Test User's Name: _____

1. What was easy?

_____
_____
_____
_____

2. What was difficult?

_____
_____
_____
_____

3. What would you suggest to improve the interaction flow?

_____
_____
_____
_____

4. Would you use/not use the system in real life? Please give brief reason.

_____
_____
_____
_____
_____