



UNIVERSITY OF LEEDS



Process Document

Group 29

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Selected User Group

This project is described as a streaming service application that is aimed for the use by Children (**A**), this is done by taking into account their general preferences, two scenarios in which the user group will use the application, and general behaviour when interacting with the prototypes and the application.

User Persona

Jack is a seven-year old student, and loves spending time with his dog. His parents describe him as a comedian, and loves to watch comedy shows. At school, he is often labeled as a class clown, and likes to make jokes, even when they are not at appropriate times! He often plays with his dog after school, as well as watching his favourite shows together. Not only does he have a liking for dogs but for other animals as well. He often likes to learn about animals as much as he can.

Use Scenarios

Due to school being closed late, Jack has adequate time to complete his homework and extra free time to watch his favourite comedy shows. After completing his homework, he uses his mother's iPad Mini to browse his favourite shows. Currently, Jack grew a liking for Spongebob, and often likes to watch the same episodes often as he just loves it so much. Jack opens the Tomeo app, and conveniently finds the videos that he watched before at the top of the page. He then scrolls down to get a quick look to see if there are any new shows related to comedy, then clicks on the same episode he watched. While watching the video, he is scrolling at the same to browse for other videos.

On a sudden rainy sunday afternoon, Jack was playing with his dog, Fred, in the yard, but due to the rain he and his dog had to go home. He sees his mother using the iPad Mini and asks her if he can watch videos on his new favourite app, Tomeo. Jack has been watching a lot of cat shows lately, which is why his favourite cat shows are listed in the ‘favourites’ section of the app, and clicks on his favourite show. While watching his episode, Jack pauses the video in order to ask his mother to join him, and presses the ‘replay’ icon when she joins him.

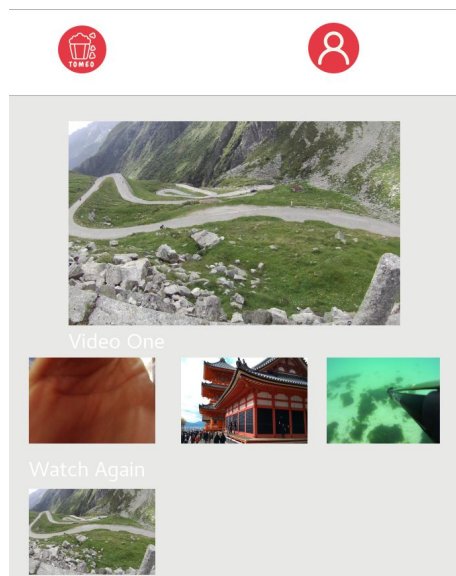
Platform Targeted

The project will be designed for IOS and the platform being targeted for this project is the iPad Mini, with a display size of 7.9 inches.

Process Cycle One (Player Page)

i. Prototype

- Prototyping technique and software used: **Evolutionary Prototyping and Qt designer**
- For the first iteration, evolutionary prototyping was used as the primary technique as the basic functional requirements were established through market research. In order to receive feedback as quickly as possible, Qt Designer was used to implement the initial design based on the requirements. With evolutionary prototyping, potential customers' interests and needs can be taken into account without the need to fully develop a working application. Since this is the first iteration, it is important to get feedback as soon as possible in order to discover more functional requirements that users might have. This saves time, and ensures that feedback can be taken into account when building the next iteration of the project. Qt Designer was found to be a useful tool with its drag and drop functionality in which the appropriate widgets that represent a specific function can be placed appropriately. Since the project is built on the CLion platform, many of the Qt functions conveniently have the same name as the functions in Qt Designer.
- Prototype Evidence:



ii. Evaluation

- Evaluation technique: **Cognitive Walkthrough**
- Cognitive Walkthrough was the chosen evaluation method for this iteration.

This is because this technique brings light to how a first time user with no prior knowledge of the application would interact with the system. This method makes clear of how easy it is to use the application, and identify any natural impulses that a potential might user have when interacting with the system. This method also does not require a fully functional application, and usually a simple UI mockup, even as simple and basic as this iteration, can illustrate how a user interacts with the system. The goal of this cognitive walkthrough evaluation was to understand the users' preferences when it comes to browsing for more videos as well as what labels the users might want. Future iterations can be designed with the way these preferences in mind, as well as saving time in the overall process.
- The outcome of the evaluation demonstrated that the testing users wanted widgets where the same videos could be watched again. Also, a search function in which certain shows that users had in mind could be easily searched in the Tomeo application using a search bar. Users also wanted a way to change the videos, so other videos of their interest can be watched.
- Link to video: <https://www.youtube.com/watch?v=Jl0TCF0goBw>

iii. Code

- Link to video: <https://www.youtube.com/watch?v=GfdLlL3mJXE>

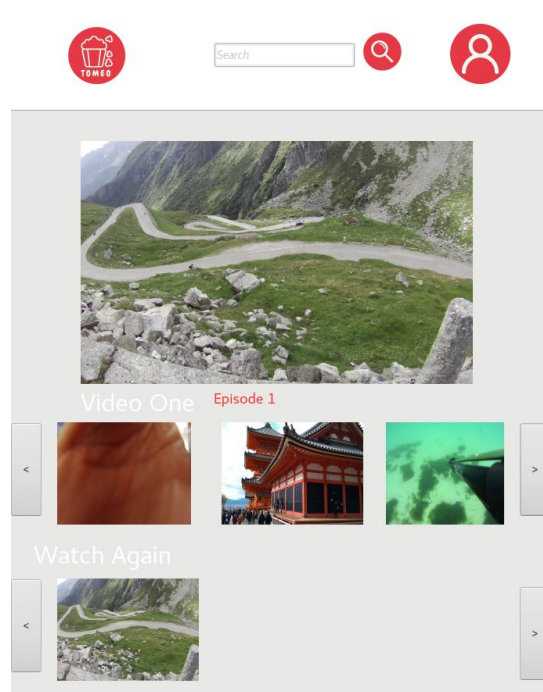
- The key differences between the prototype and the implementation are apparent in the player size, the header icons, and the thumbnails under the video. During the implementation, it was decided that the header icons should be placed symmetrically, this would improve the user interface of the application. Black frames were also added to the sides of the player as this improved the resizing of the player, and would make the video not appear ‘stretched out.’ In the prototype there were ‘Watch Again’ videos listed, however in the implementation it was decided that all the videos should be placed in one row.

Process Cycle Two (Player Page)

i. Prototype

- Prototyping technique: **Evolutionary Prototyping and Qt designer**
- For the second iteration, evolutionary prototyping was used again along with Qt designer. From the previous iteration, this method was effective when learning more about customer behaviour when interacting with the application. From the first iteration, it became more clear on what the functional requirements were and the second iteration was built on the basis of those requirements. With further feedback, additional functionality will be presented in the next in the next prototype and will be implemented in the code of the project. Again, Qt Designer was seen as best fit for prototyping as this software proved to be efficient as new additional functionality could easily be presented in the drag and drop functionality of Qt Designer.

- Prototype Evidence:



ii. Evaluation

- Evaluation technique: **Cognitive Walkthrough**
- Why this was used: Cognitive walkthrough was chosen as the primary method for the second iteration as this method allows the team to further understand the usability of the application. This approach was chosen as this is cost-effective and can easily be done in the design process, saving a lot of time. The goal of the evaluation was to determine the sizes of the thumbnails users preferred as well as the background color that users might find preferable. As well as determine any missing functionality the application might have, which is useful when implementing a new iteration.
- From the evaluation, it was clear that the users did not respond well to the overall background colour as it was hard for them to read the name of the

labels, which diminished the user experience. Certain feedback highlighted that the header did not feel ‘symmetrical’ and that the icons needed to be bigger as this would be visually appealing to children. Users also seemed to want more control on how the video is played. For example, they wanted a way to pause and stop the video as well increase and decrease the volume. Also the feedback indicated that less videos should be displayed in a row and make the thumbnails for other videos bigger.

- Link to video: <https://www.youtube.com/watch?v=SiKj4LuC0dY>

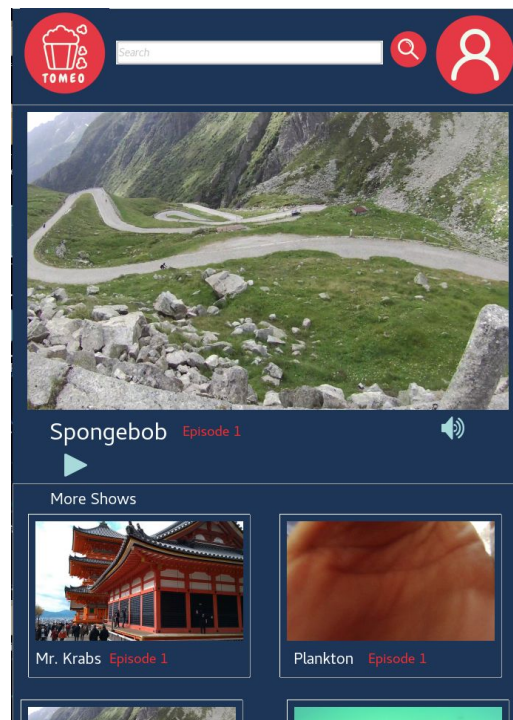
iii. Code

- During the implementation stage, it was decided that the search function in the header must be placed in the header due to feedback from the evaluation from the previous iteration. Along with this, during the implementation stage it was decided that the labels should be black as this would be easily read by users, especially with the background being white, as opposed to the white color of the prototype model. The ‘Episode’ label was also made the same size as the name as this would make it easier for the user to read. One technical difficulty that was encountered in the implementation stage was that the rows were not aligned, and so this slightly diminished the user’s experience in the testing stage.

Process Cycle Three (Player Page)

i. Prototype

- Prototyping technique and software used: **Evolutionary Prototyping and Qt designer**
- Evolutionary prototyping was found the best fit for this iteration, as the requirements became clearer from the previous iteration, and as a result, the design was further improved. All new functionalities have been implemented using Qt and added to the code. With evolutionary prototyping, more of the user preferences and behavior could be further understood, and implemented, this allows for the final product to emerge faster. Qt Designer is useful for this iteration as allows for certain changes to be easily implemented. For example, the background color could easily be changed, and the widgets can easily be expanded or made smaller as per users' preferences.
- Prototype Evidence:



ii. Evaluation

- Evaluation technique: **Cognitive Walkthrough**
- Cognitive Walkthrough was used for this evaluation, as it helped clarify the way users interacted with a certain task. As well as further understand the goals that users might have wanted to achieve when using the application. The main goal of this evaluation was to identify the best approach to allow users to view more videos at the bottom of the page, as well as determine what icons needed to be included in order to allow users to control how the video is played. This iteration allowed the team to further understand the user behaviour when browsing for more videos
- Using the cognitive walkthrough evaluation technique, it was observed that users wanted a way to scroll through other videos while they watched a show. Users were given an iPad Mini, and the team observed the way users held the iPad. It was discovered that users wanted a way to scroll through more videos while they watched an episode on the player. Users had their thumbs placed at the bottom of the screen for most of the time, and it was later decided that a scroll area should be placed at the bottom, as this allows users to easily scroll through other videos while watching their favourite shows. Users also did not enjoy the positioning of 'play' icon and the 'sound' icon, and suggested that the icons would be placed above the name of the video.
- Link to the video of evaluation:
<https://www.youtube.com/watch?v=OUvvoDwDEVs>

iii. Code

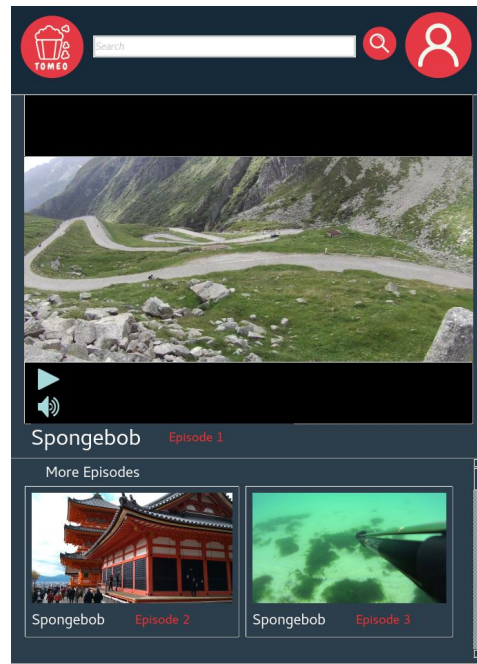
- In the implementation stage, the labels were made to be bold as this would be more appealing and easily read by children. In the implementation stage, it was decided that there should be labels under and above the player page, this is to make it 'feel' like you are watching a show. Due to technical difficulties, the labels were made to be the same font and color as the function used to set the stylesheet was the same for all labels. For future iterations, the search function will also be expanded in order to fill the header page and improve the overall visuals of the interface.

Process Cycle Four (Player Page)

i. Prototype

- Prototyping technique: **Evolutionary prototyping and Qt Designer**
- For the fourth iteration, evolutionary prototyping was used as further feedback was required in order to add finishing touches to the player page. Using Qt Designer, more adjustments were made to the prototypes. Evolutionary prototyping ensures that the final product to further adhere to user preferences and feedback. This allows for further feedback to be implemented into the next design and code. Qt Designer was used as this allowed for widgets to be customized, by adding icons and colors, and allows for a scroll area function to be implemented.

- Prototype Evidence:



ii. Evaluation

- Evaluation technique: **Cognitive Walkthrough**
- Cognitive Walkthrough was used for this iteration as this can indicate the ‘learnability’ of the system to in-frequent users. This type of evaluation also has the advantage in which real users can be simulated, which makes it inexpensive and low effort compared to other methods. The goal of this evaluation was to determine where the users needed more icons to control the player as well as determine what position should the ‘Watch Again’ thumbnails should be placed in the scroll area.
- At the fourth iteration, it was clear that users wanted the ‘Watch Again’ labels to be first and ‘More Videos’ to be second after that in the scroll area at the bottom, this identified that users cared more about watching a video again and then having then more episodes being shown up. Users also suggested that the

background color would be better if it was slightly darker as this will compliment the primarily white text.

iii. Code

- During the implementation stage, the black frames were added to the sides of the player as this was a better design. This was also due to a technical difficulty in which the player did not increase in size responsively as the window screen increased. The borders were also not added in the implementation around the thumbnails as this was a better design and made it ‘blend’ in with the main page. The ‘episode’ labels in the prototypes were made to be the same font as it was harder to see the episode number as the color did not compliment the background color. Instead, the ‘episode’ label was made to be the same font as the name of the video, and separated with a dot.

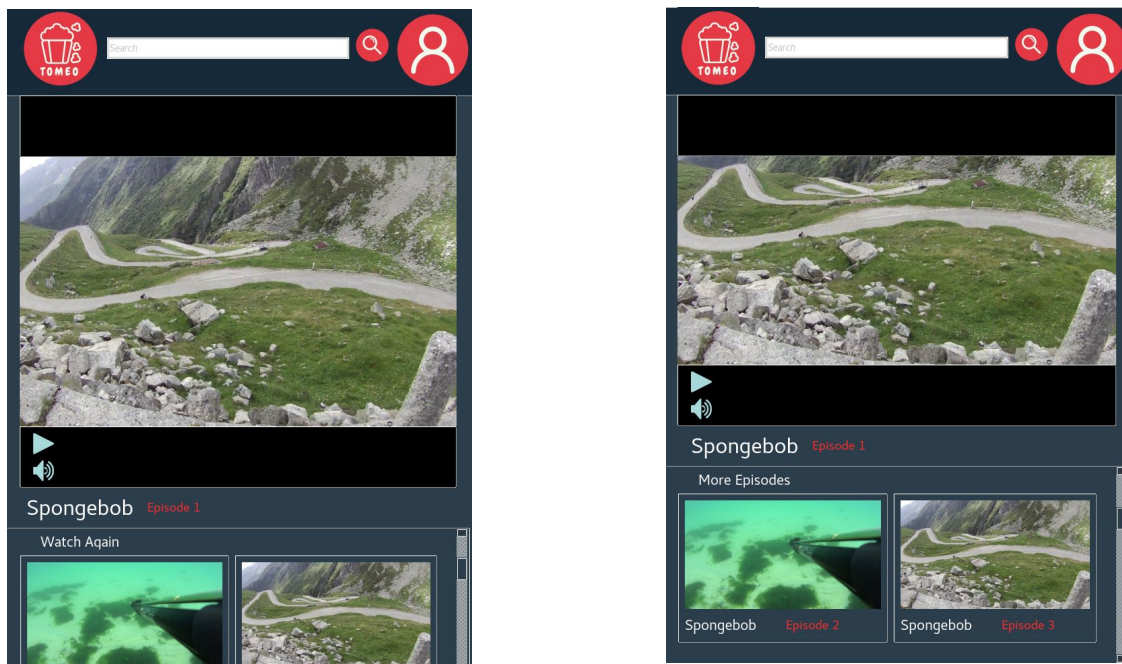
Process Cycle Five (Player Page)

i. Prototype

- Prototype technique: **Evolutionary Prototyping and Qt Designer**
- For the fifth iteration, evolutionary prototyping was used along with Qt Designer. This technique allows for the design to further evolve from the previous iteration. This allows for any extra changes, even if it is small, to be implemented in the design, and eventually shipped as the final product. This

stage was meant to be used to identify any new opportunities for new features or designs that might have been ‘missed’ by the team or the user feedback. Qt Designer was used again for this iteration as those changes could easily be implemented through a simple drag and drop, as well as its ability to display multiple windows at the same time, conveniently allowing for different changes to be done at the same time.

- Prototype Evidence:



ii. Evaluation

- Evaluation technique: **Interview**
- For the fifth iteration, the interview evaluation technique was decided by the team to be the best fit for this cycle in order to receive more feedback for

future iterations. Since many of the requirements and general user behaviour were already established through previous evaluations, an interview would allow for a deeper insight and context to be made regarding user behaviour. The goal of this interview was to improve the user persona for this particular project, and understand the general feelings the user might have about the application. This is vital as this makes future decisions more oriented towards user needs and goals.

- After the evaluation, users seemed to be content with the player page and they suggested that an index page would deem appropriate for a fully functional application. It was learnt that users wanted the 'Watch Again' video widgets to be listed first in the index page, as well as their favourite shows being listed second. With the addition of an index page, more videos can be displayed at once which will not limit the users to browse more videos in a small scroll area.
- Link to video: https://www.youtube.com/watch?v=m05_NkKssPU&t=4s

iii. Code

- Differences between prototype and implementation: Differences between the prototype and implementation are apparent at the position of the player controls, and the frames of the player, as well as certain labels' color and sizes. In the implementation, the sound icon was added to be on the same row as the pause, play, and replay icons, as opposed to the prototype, this allowed for more space for the scroll area, and gives the page an overall simpler look. The black frames were added to the side of the player, as this will also give more vertical space to other elements of the player. The label color were all changed to be white as this would allow the user to see better, as well as correctly identify the episode number.

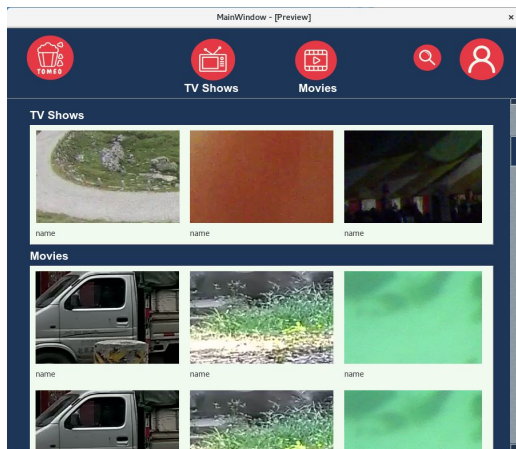
Process Cycle Six (Index Page)

i. Prototype

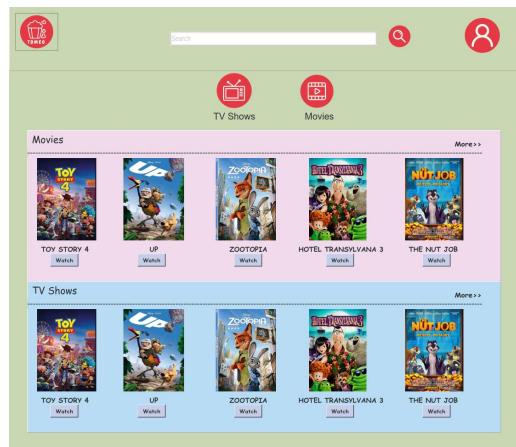
- Prototyping technique: **Throwaway Prototyping and Evolutionary Prototyping**
- The prototyping techniques used for this particular iteration was a combination of throwaway prototyping and evolutionary prototyping. Qt Designer was used again when implementing the designs. Established requirements concluded from previous iterations were used in order to make a potential index page. In order to tackle this, the team proposed multiple designs that could potentially be implemented, and by utilising the feedback from the evaluation stage, the right design was chosen, and the other designs were simply discarded. With a chosen design, the design was further iterated using evolutionary prototyping.

Qt designer was chosen again for prototyping as the majority of the team was sufficiently skilled at using it, this helped ensure that designs were consistent.

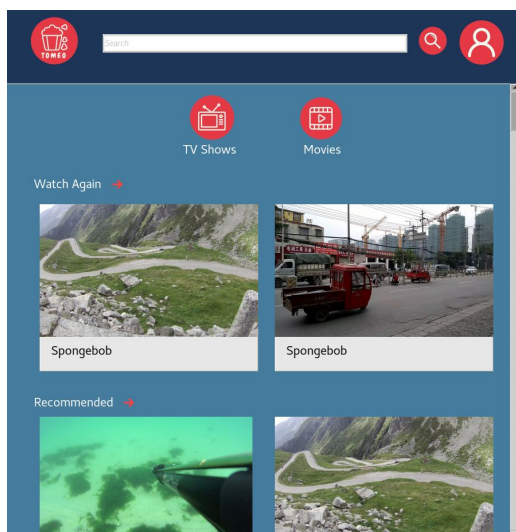
- Prototype Evidence:



Design One

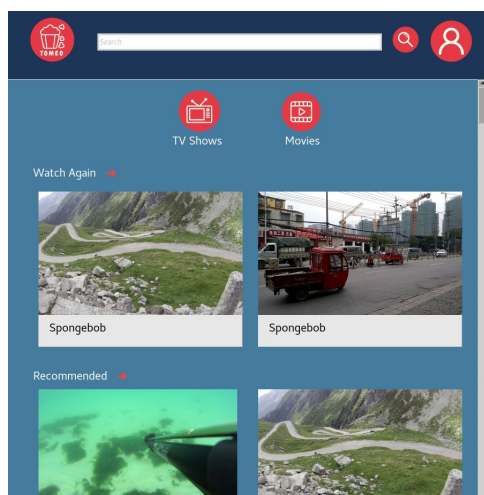


Design Two



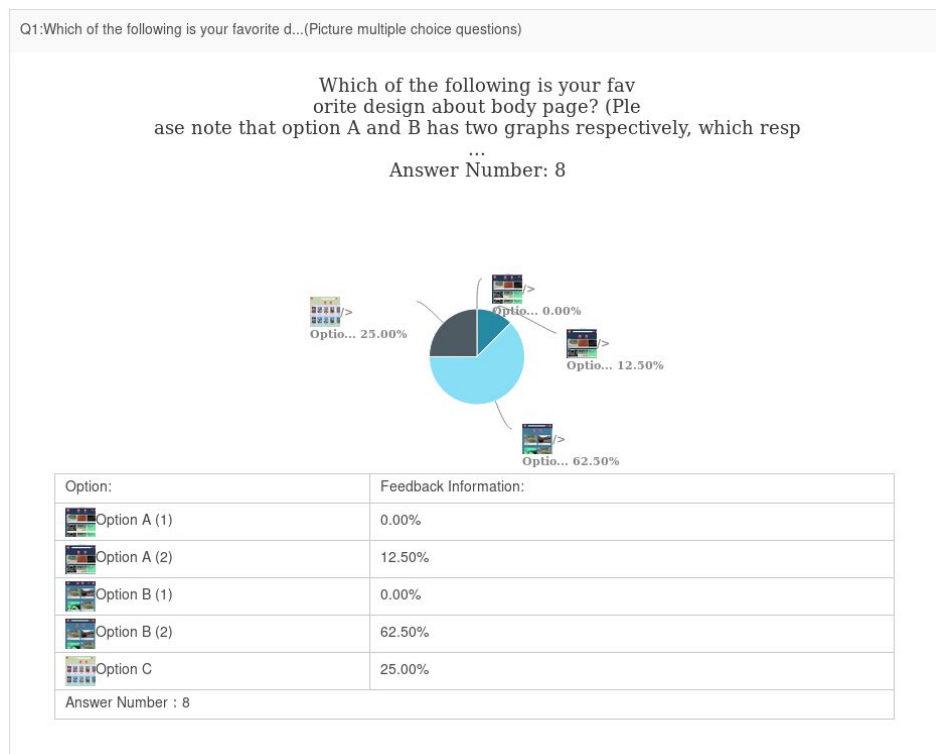
Design Three

Chosen Design:

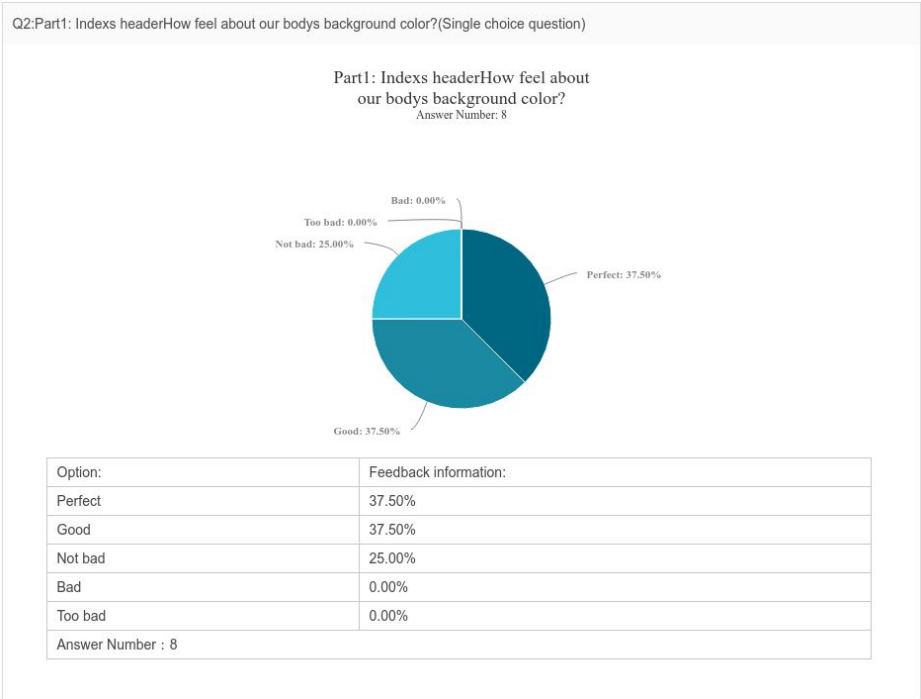


ii. Evaluation

- Evaluation technique: **Questionnaire**
- The questionnaire technique was chosen as the evaluation technique at iteration six. This method saved time, money and manpower. Questionnaires are scalable in which information can be collected from large user groups quickly, which can identify any common requirements that users may want from the interface, and can be an objective way of collecting data. The goal of the questionnaire was to come up with the best design for the index page of the application.
- Outcome:



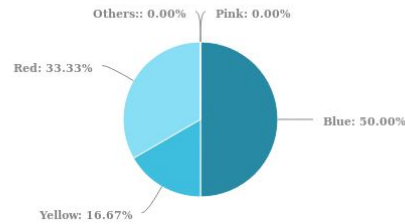
In this question’s feedback information, we can clearly see that most of the people think the option B is more reasonable than the other two options. Therefore, we will select the option B to design the index page.



It is clear that most of the interviewees think our design of the body’s background is reasonable. Therefore, we decided to keep the original body’s background in body.

Q3:Do you think which kind of color more suitable for our header's design?(Single choice question)

Do you think which kind of color more suitable for our header's design?
Answer Number: 8

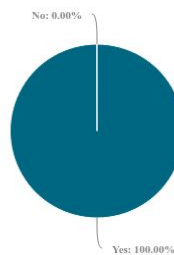


Option	Feedback Information
Pink	0.00%
Blue	50.00%
Yellow	16.67%
Red	33.33%
Others:	0.00%
Answer Number : 8	

According to the feedback information of question three, we could find that most of the people think the color blue is more suitable for the background color of the header. Therefore, we will select blue as the background color for header.

Q4:Do you think the button's layout on the header is reasonable?(Single choice question)

Do you think the button's layout on the header is reasonable?
Answer Number: 8



Option:	Feedback information:
Yes	100.00%
No	0.00%
Number of participants : 8	

It is clear that most of the people hold positive attitude towards our button's layout design. As a result, we decided to keep the original design of buttons' layout.

Q5: Could you provide some suggestions for the button's layout design?

Answer

None

none

None

I think button's colour can be changed personalized

It will be better if the icon can shrink a little bit when you click on it.

none

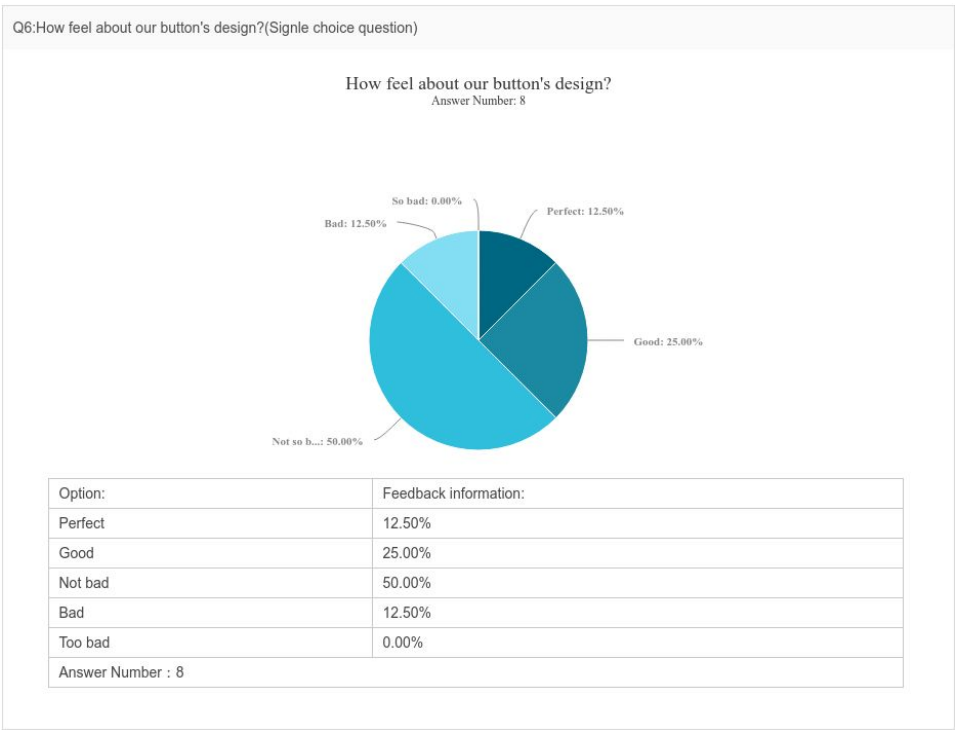
None

none

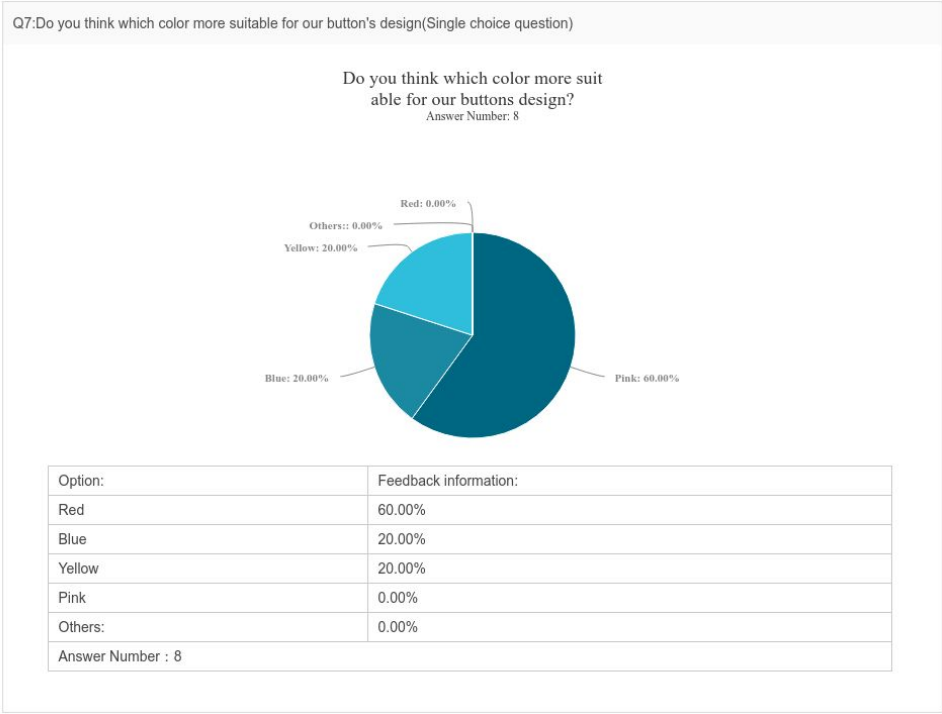
Interviewee number: 8

1 / 1 ☐ Skip

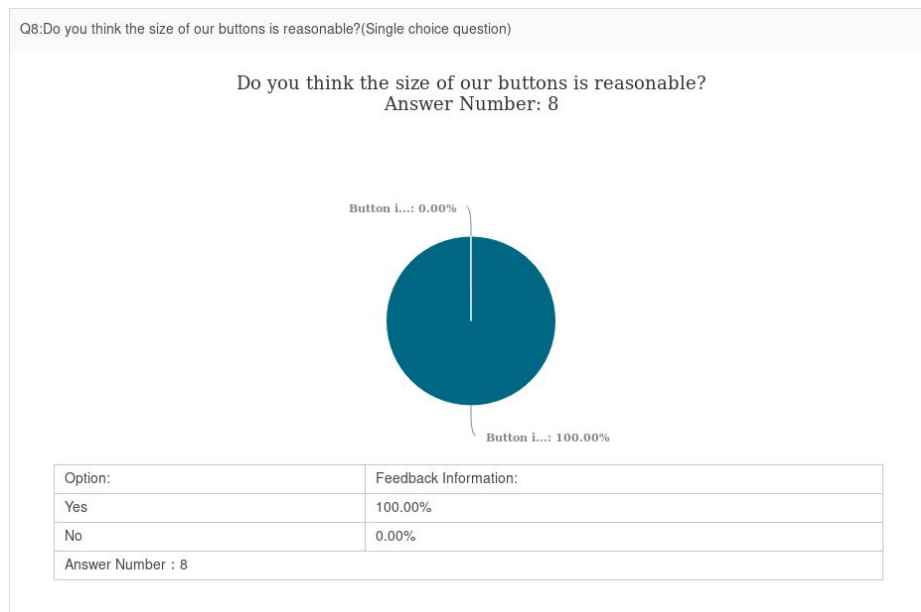
In question five, there are two people provide some suggestions for us. And they think we make the button's color can be changed personalized and it icon can shrink a little bit when user click on it. However, after the group discuss, we think that it will send a long time to implement these two functions.



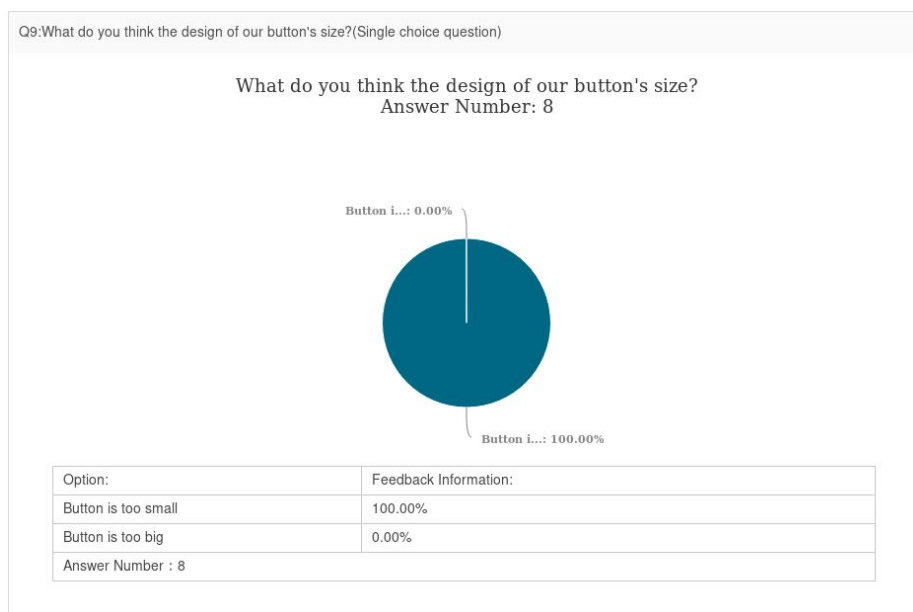
In question six, we can clearly see that most of the people hold positive attitudes toward our buttons' design and only few people do not have an interest in it. As a result, we will keep the original design in the process cycle seven.



Based on the feedback information of the question seven, we can find that most of the people think the color red is more suitable for the button. As a result, we decided to select the color red for button.

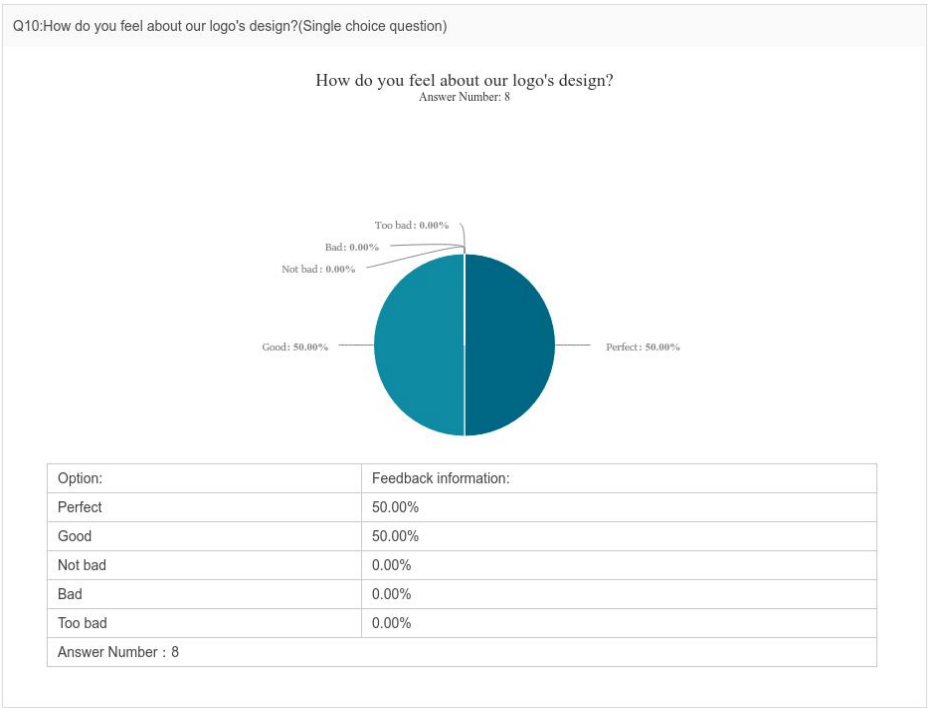


As for the feedback of the question eight, we can find that all interviewees think our buttons' size is reasonable, and we will keep the original design of the buttons' size.



According to the feedback information of the question nine, we can find that most of the people believe that our button's size design is not reasonable. And

then at the feedback information of the question nine and we also can find that all interviewees believe that our button’s size is too small. As a result, we decided to enlarge the size of the buttons.



According to feedback information of the question ten, we can find that most of the people think our logo design is perfect and good. Therefore, we decided to keep the original design.

Q11:Do you have some suggestions for us to improve the logo's design?

Answer

Why not use SpongeBob as the logo?

none

None

Can the logo change its color every second to make it catchier?

It seems better to change the logo into a gif format

none

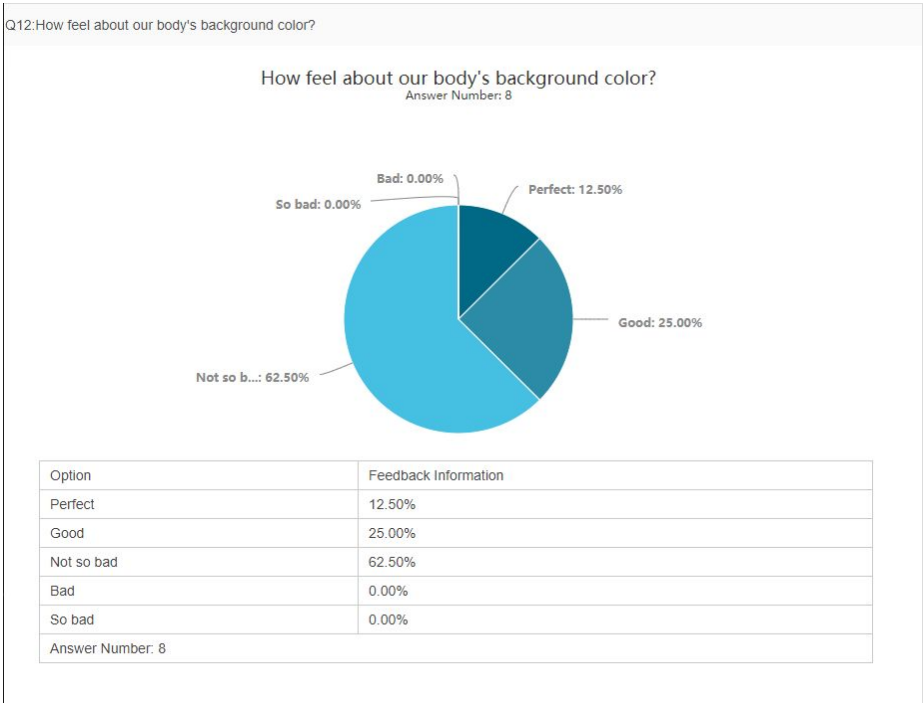
None

none

Interviewee number: 8

1 / 1 ☐ Skip

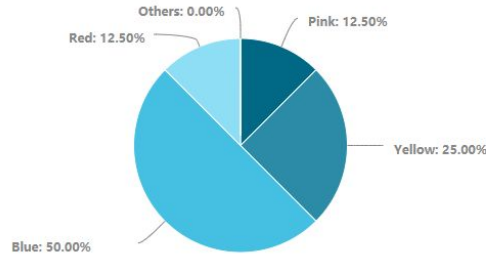
This is the feedback information of the question eleven, and there are three people who provide suggestions for our logo design. Two of them think we should change the logo to a changeable GIF, and another person believes that we should select the picture of “Spongebob” as our logo. After the group discussion, we think that it will take us a long time to implement a GIF logo and there is a copyright issue of select the “Spongebob” as our logo. Thus, we decided to keep our original logo’s design in the process cycle seven.



As the chart shows the feedback information, we can see that a large number of people believe that our body’s background color is accessible. Therefore, we decided to keep the original design of body’s background color.

Q13. Do you think which kind of color more suitable for the background color of the body?

Do you think which kind of color more suitable for the background color of the body?
Answer Number: 8

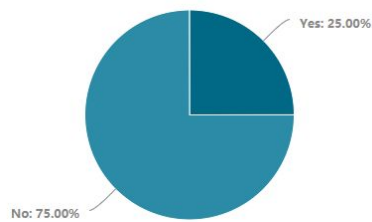


Option	Feedback Information
Pink	12.50%
Blue	50.00%
Yellow	25.00%
Red	12.50%
Others	0.00%
Answer Number: 8	

According to the feedback results, we can clearly find that most of the people believe that the color blue is more suitable for the body's background color. As a result, we will select the blue as the body's background color.

Q14. Do you think the layout design of body is reasonable?

Do you think the layout design of body is reasonable?
Answer Number: 8



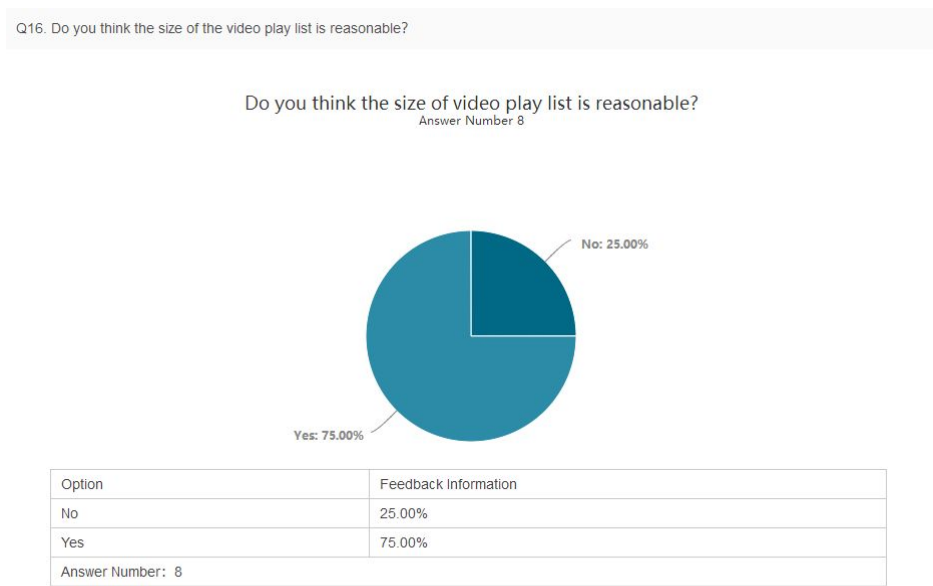
Option	Feedback Information
No	75.00%
Yes	25.00%
Answer Number: 8	

According to the results, we can find that most people hold negative attitudes towards our body’s layout design. Therefore, we decided to redesign the body’s layout in cycle seven.

Q15. Could you give us provide some suggestion for the design of layout?

Answer
gun
none
Maybe use some powerful color like red can attract kids
None
It's good. But you can use some contrasting color
Color should more suitable for children.
None
None
Answer Number: 8

1 / 1 ☐ Next

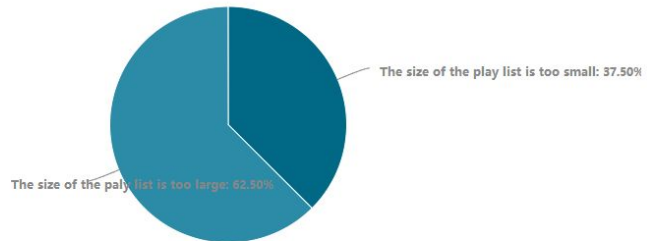


This question provide information that most of the people think our video playlist’s design is accessible. And we will keep our original design in the process cycle seven.

Q17:What do you think of the size of play list?

What do you think of the size of play list?

Answer Number 8



Option	Feedback Information
Yes	37.50%
No	62.50%
Answer Number: 8	

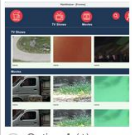
In this question's feedback, we can find that most of the people believe that our playlists size is not reasonable, therefore we will change the size in the process cycle seven.

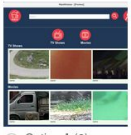
Q18:Do you have any other suggestion for the design of index page?


Answer
The index page should include more functions
The design of index page might use more cartoon elements
None
None
Maybe the index page can be more colorful
None
None
None
Answer Number: 8


- Evidence of Evaluation:


1.Which of the following is your favorite design about index page? (Please note that option A and B has two graphs respectively, which respectively represent the page situation when user select the search button. These two options only needs to choose one diagram. And you can click on the picture to find more design details.) *


☐ Option A (1)


☐ Option A (2)


☐ Option B (1)


☐ Option B (2)


☐ Option C

2.Part1: Index's header

How feel about our body's background color?

- ☐ Perfect
- ☐ Good
- ☐ Not bad
- ☐ Bad
- ☐ Too bad

3.Do you think which color more suitable for our header's design?

- ☐ Pink
- ☐ Blue
- ☐ Yellow
- ☐ Red
- ☐ Others:

4.Do you think the button's layout on the header is reasonable?

- ☐ Yes
- ☐ No

5. Could you give us some suggestions for the button's layout design?

6. How do you feel about our button's color? *

- ☐ Perfect
- ☐ Good
- ☐ Not bad
- ☐ Bad
- ☐ Too Bad

7. Do you think which color is more suitable for our button's design? *

- ☐ Pink
- ☐ Blue
- ☐ Yellow
- ☐ Red
- ☐ Others:

8. Do you think the size design of our buttons is reasonable? *

- ☐ Yes
- ☐ No

9. What do you think of the size of our button's size? *

- ☐ Button is too small
- ☐ Button is too big

10.How feel about our logo's design? *

- ☐ Perfect
- ☐ Good
- ☐ Not bad
- ☐ Bad
- ☐ Too bad

11.Do you have some suggestions for us to improve the logo's design? *

12.Part2: Index's body

How feel about our body's background color?

- ☐ Perfect
- ☐ Good
- ☐ Not bad
- ☐ Bad
- ☐ Too bad

13.Do you think which kind of color more suitable for the background color of the body?

- ☐ Pink
- ☐ Blue
- ☐ Yellow
- ☐ Red
- ☐ Others:

14.Do you think the layout design of the body is reasonable? *

- ☐ Yes
- ☐ No

15.Could you give us provide some suggestion for the design of layout? *

16.Do you think the size of the video play list is reasonable? *

- ☐ Yes
- ☐ No

17.What do you think of the size of play list ? *

- ☐ The size of the play list is too small
- ☐ The size of the play list is too big

18.Do you have any suggestions for the design of the index page? *

iii. Code

- Link to video: <https://www.youtube.com/watch?v=JEoglCmfOns>
- During the implementation stage, the arrow next to the 'Watch Again' and 'Recommended' labels were removed as this was a challenging task to actually implement as the icon position did not stay the same when the page was expanded. The 'TV Show' and 'Movie' icons that were present in the prototype were also removed in the implementation as it was decided that the index page should include the listing of all TV show videos. **The index page was built but not added to the final project as there was a technical difficulty with implementing multiple pages within a single window.** However, in the future, the Tomeo application will be modified so that it will have multiple pages so users can navigate throughout the application.