1. The first pitfall of focus group is that individual might not express their honest opinion if they think they are the minority. The second pitfall is that the loudest person voice in the group is being heard the most as the shyer participant might keep quiet. The third pitfall is that it might cause bias in the result due to group think as the discussion happen their initial opinion might get changed to a middle ground opinion.
2. i. The technique that can be used can be focus group

ii. The data that would be gathered would be qualitative data and might be related to the layout of the website or maybe the styling of the pages.

iii. By categorizing the data into styling issue, layout issue, user flow issue and make analysis on what common issue user face when using the website.

iv. The output of the process will help to reflect the weakness(bad layout of the interface or bad styling) of the current system which can be improved in the upcoming redesign of the interface.

v. The first limitation is that results can be biased because of group think. The second limitation is that it is difficult to voice out minority opinion.

1. i. Mental model is a possible interaction design model to explore car driven by human. When the steering wheel turn left, the front wheel will turn left when the steering wheel turn right, the front wheel will turn right.

ii. Language will be the interior of the car for example start-stop engine button, gear knob indicator. When user sees the d on the gear knob would know the gear is switched to drive. Visuals will be the logo that is found in the dashboard of the car like high/low beam logo, seatbelt logo. When the user sees a seatbelt logo would means they never wear their seatbelt. The space and proximity would be the steering wheel the user would know that it can be used to change the direction of the car is heading to. Time is the longer the user interacts at the driver seat, they would be more adjustable to the product. Example is that if a user changes to another car, other car will have the same identical words, logo and the space. Behaviour is when the user turns the steering wheel, the car front wheel would turn to the same direction.

iii. The goal of riding in a self-driving car is that the car will drive itself to the destination and arrive at the destination safely. The user scenario will be Alex, age 35 a software developer who work in Google who often must work overtime. Because he drives to work, every time he works late, he find it tiring to drive back home as the journey back to home is quite far it is difficult for him to focus the long distance driving. What Alex want is a self-driving car that can drive on behalf of him and reach his destination safely. As a driver, I want to reach my destination regardless of my health condition so that I can reach my destination safely.

iv. Eye fatigue when driving on the road when driving for a long time which might cause the person driving to be careless about blind spot which self-driving car can solve the human error.

1. A picture containing text

   Description automatically generated

<https://www.spreadshirt.com/>

1. It is quite easy to navigate from the home page to this page and with a few clicks, I can create a custom shirt with my own custom prints on it, changing the colour even inserting designs to it. To conclude the interface in terms of efficiency, I would say it is quite a success in getting what I want in a very short duration of time, the failure criteria is that if there is too many buttons to click and navigate through a lot of pages to reach a user desired page then it will not be efficient.
2. Most of the logo which can be seen in the screenshot have a text below it which make it very easy to remember which button does what task. So, in terms of memorability, I would say it is quite a success as people who use back this system after 5 months will get a hang of it quickly.
3. The interface doesn’t have a lot of popups and most of the control are on the page itself, the control is very clean and easy to understand. The text provides a lot of colour option, there is a lot of design in built which can be used and some of the prints are able to customize the colour, and custom image can be uploaded to be printed on the shirt. The bonus interface is that choosing the size and quantity are very clean and convenient to add bulk number and is on the same page which you can use back the same design and do a few editing after adding the shirt to cart(screenshot below). In terms of satisfactory, I find it quite a big success based on my past web development experience, user hate a lot of clicking and if there is too many modals the user will be lost.

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1. Graphical user interface, application

   Description automatically generated

<https://open.spotify.com/>

i. A metaphors is a set of user interface which can be visuals, gesture and procedures that user is already familiar with from another user interface. Metaphor can enhance usability of an application because user will have a sense of familiarity(e.g. logo, gesture) which can be easy for the user to learn.

ii. The skeuomorphism is used here for e.g. Play/Pause button sign, previous/next button sign which is a universal sign that can be found on tv remote control, dvd radio player. It improved the user interface because even a new user who just use the platform would understand what the button does because it has been seen from other places in our daily life which help the user to get a hang of the interface easily.

iii. Minimalism by removing all the excess recommendation by spotify even though this is a web view, the recommendation feels a bit overwhelming for user when looking at this page and it may be distracting for user.

iv. From the literature, the author three objections of metaphor were too constraining, overly literal translation of existing bad design and limit designer imagination. Too constraining is like file systems because it is better to have user to instruct the system rather than the system instructing itself. Overly literal translation of existing bad designs are like online calculator but an example I can give is that qwerty keyboard which is a bad design but was implemented as phone keyboard. Limit designer’s imagination is that designer wouldn’t try new paradigms and model and would stick to the same paradigms and model.

**References:** [https://www.sharritt.com/CISHCIExam/metaphors.html#:~:text=There%20is%20a%20growing%20opposition,literal%20translation%20of%20existing%20bad](https://www.sharritt.com/CISHCIExam/metaphors.html%23:~:text=There%20is%20a%20growing%20opposition,literal%20translation%20of%20existing%20bad)

v. Instructing interaction task will be like using spacebar on keyboard to play or pause a song.

Conversing interaction task will be like able to search by song title or artist name.

Manipulating interaction task will be moving the mouse to the Play/Stop button to play/stop a song.

Exploring interaction task will be using the mouse to navigate to different page and component of the media player.

1. i. User must familiarise themselves with the system first before performing usability evaluations so that the user can give a more accurate evaluation on effectiveness, efficiency and satisfaction as they will experience how an everyday user will feel. The first example is if the user is not familiar with the system, it is hard to measure the success rate of the system as user is not using it daily. Using grabfood as an example so the task for grabfood is for user to order food and food being delivered to their doorstep however there are other things to take into consideration like is the food being prepared as what the user order, did the rider pick up the correct order, did the rider deliver the correct food to the correct address. For the second example is if the user doesn’t use the system regularly, they wouldn’t feel whether the number of buttons they have to click to reach the page to achieve their task is it efficient or not. Using grabfood as an example, from the home page to the restaurant menu page is it a lot of clicking of buttons or is the button in certain page being hidden which created a lot of complexity is hard to measure of efficiency if the user is not familiar to the system. The last example is if the user is not using the system for their own interest, it is hard to measure satisfaction. Using the grabfood as an example, if the user does not familiarize themselves with other component of grab it is hard for them to find if they are really having a good experience of the system or not as payment system is also a key component for grabfood as you can pay through different method. Complexity of topping up of your grab wallet, adding your credit card to the system will affect the satisfaction of grabfood for this instance so if the user is not given time to familiarize the system it might be hard for the user to give usability evaluation.

ii. The advantage of utilising quantitative data is that the data is easier to be collected which result in easier to draw conclusion. The other advantage is that data can also be shown as graphs and charts that give a better overview. The disadvantage of quantitative data is that it is not descriptive which might restrict the information. The other disadvantage is that quantitative data is only number so there might be a chance of missing a larger focus of information which can be beneficial to the research.

iii. The advantage of utilising qualitative data is that it provides rich and in-depth insights to explore the research. Another advantage of qualitative data is that it is more focused on human behaviour. The disadvantage of qualitative data is that it is hard to generalize the data. The other disadvantage of qualitative data is that it is time consuming to sort out the data collected.