

Smart mirror

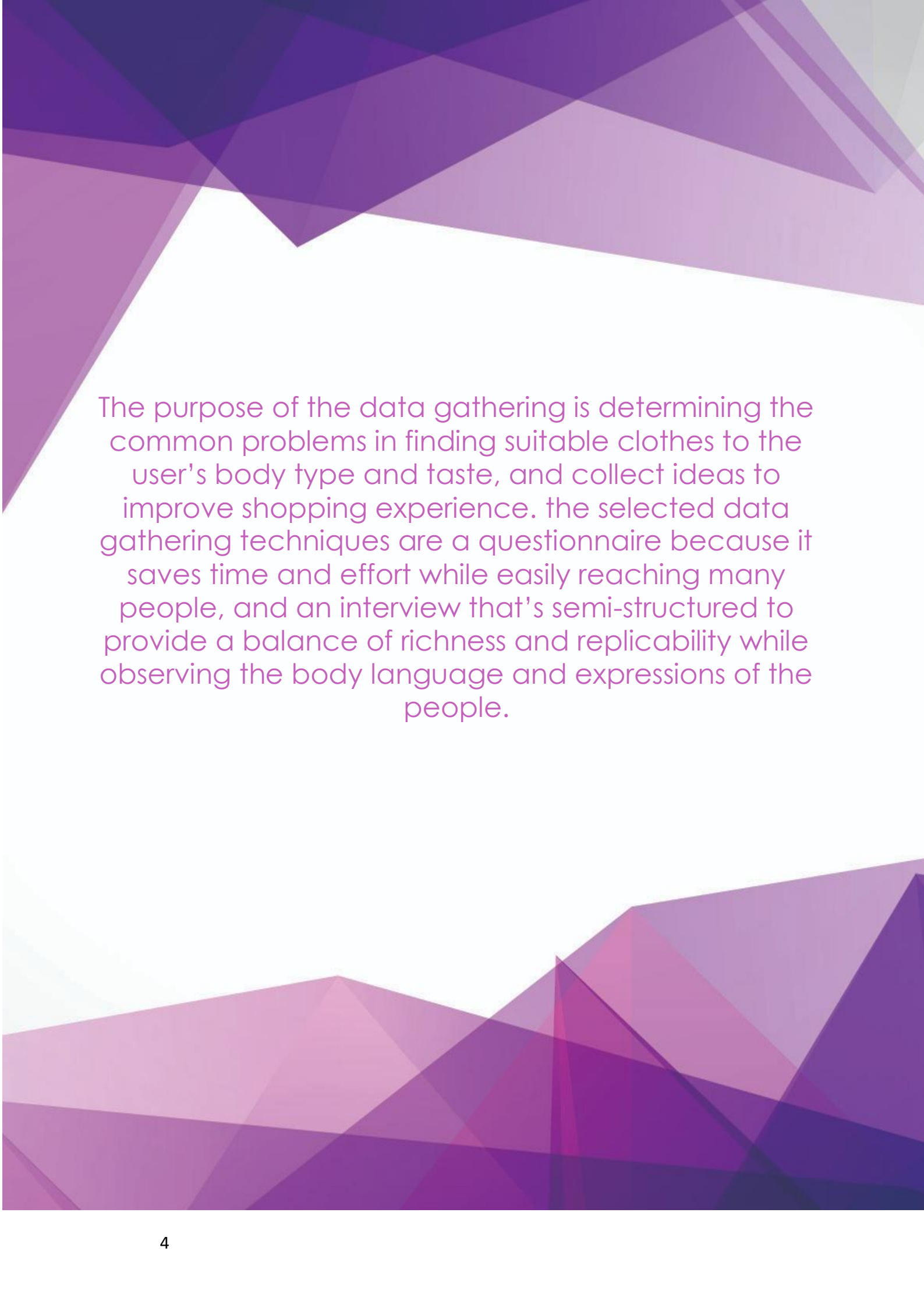
IT214  
Project

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The background of the slide is composed of various overlapping, semi-transparent purple polygons of different shades, creating a modern, abstract geometric pattern. The colors range from deep, dark purple to lighter, almost white-purple tones.

# Introduction

The background of the slide is an abstract composition of overlapping, semi-transparent purple and magenta polygons of various shapes and sizes, creating a layered, geometric effect. The colors range from deep, dark purples to lighter, almost white, magentas.

The purpose of the data gathering is determining the common problems in finding suitable clothes to the user's body type and taste, and collect ideas to improve shopping experience. the selected data gathering techniques are a questionnaire because it saves time and effort while easily reaching many people, and an interview that's semi-structured to provide a balance of richness and replicability while observing the body language and expressions of the people.

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# Interview

# Interview Question

Q1 : what do you want to find in the smart mirror?

Q2 : what comes to your mind when you hear the phrase "smart mirror"?

Q3 : what information do you find important while buying new clothes?

Q4 : Do you have fears from using the Smart Mirror ? if yes ,what and why ?



Q1 : what do you want to find in the smart mirror?

Answers:

- I would like to filter the clothes to suit my preferences like the color.
- I want it to accurately reflects my image and tells me what color suites me the best as well as not having a memory so that it doesn't save my image and finally, I want it to show exactly my size.
- -determining the user sizes (S-M-L) and measuring the sizes visually of the clothes horizontally and vertically, and the distance between body parts of the user, by centimeters and inches
- models with different sizes that I can choose from them which one I want. Ex: child model in case that I want to buy clothes for my children when they're not with me.
- I would like to have an option that let me choose colors I want, so I can easily pick that clothes, beside I think it's a good idea to have an option that help me to choose the styles that I like.
- Length and width measurements and body details are accurate. Also, provide appropriate clothing.

Q2 : what comes to your mind when you hear the phrase "smart mirror"?

Answers:

- It's mirror with a built-in camera that can temporarily save a 3d image of me and doesn't hide any feature of me.
- determining the user size and height, to decide if the clothes suit the user.
- - Shopping online, screen for displaying clothes.
- A mirror that shows me the future reaction of my face maybe.
- High precision mirror with interior lighting.
- A huge smart device.



### Q3 : what information do you find important while buying new clothes?

#### Answers:

- Color and shape are the most important ones also the type of material and it has to fit me perfectly and be comfortable.
- Size and fabric type
- Fabric, price, colors, Manufacturer City.
- Size and fabric.
- The country of manufacture, the quality of the clothes and exact size.
- The price and sizes.

#### Q4: Do you have fears from using the Smart Mirror? if yes, what and why?

##### Answers:

- As a Muslim woman I have fears that the mirror will record pictures or videos of me.
- I fear that the people will misuse this technology to the degree that shoppers who need the service can't use it.
- the appearance of me wearing the clothes in the mirror might not be the same in real life, which make the service inaccurate.
- I fear from the privacy part .
- no.
- no.



Q5: how do you think that the smart mirror will make a difference in a shopper's life?

Answers:

- it will make traditional shoppers easier.
- It will make people excited to try the new technology.
- It will encourage people to return to traditional.
- I think it won't change anything to someone who hates traditional shopping, and it is still crowded.
- Shopping will become easier, faster and more efficient.
- The mirrors' areas will be so crowded that most people won't be able to use it.

## Interview Conclusion

The beneficiaries raised a set of requests and ideas regarding the concept of the product, so these updates will be features that will be added to our product after developing, plus all the requests, and concerns regarding privacy and accuracy are all under consideration to be applied, it is noteworthy that during the interview we noticed that the idea of the product will help and facilitate a lot of beneficiaries lives of different ages and personalities

The background of the slide is an abstract composition of overlapping, semi-transparent purple and magenta polygons of various shapes and sizes, creating a layered, crystalline effect. The colors range from deep, dark purple to lighter, almost white tones where the polygons overlap.

# Questionnaire

## Questionnaire question

Q1 : what do you wish to find in changing rooms, in malls? (open question)

Q2 :do you face problems while trying new clothes in malls?

Q3 : are you satisfied with the current changing rooms in malls?

Q4 : do you use changing rooms in malls?

Q5 :do you wish to receive suggestions of clothes combinations and matchups that suits your body type and height?

Q6 :do you support the fusion of traditional shopping and e-shopping in terms of selecting measurements?

Q7 :Will you make an account in the smart mirror service?

Q8 :Do you have fears from using the Smart Mirror? (open question)

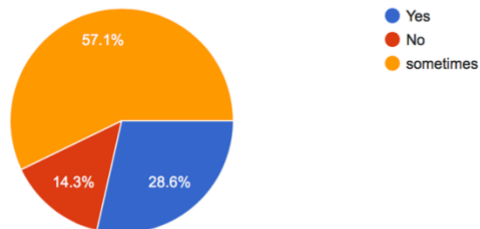


# Analysis of the Questionnaire

Q1:

?Do you face problems while trying new clothes in malls

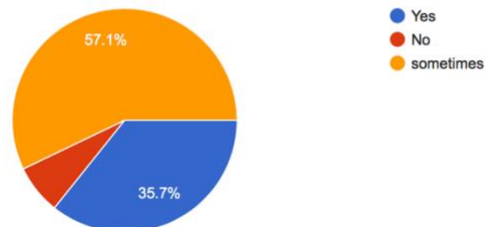
14 رڼا



Q2 :

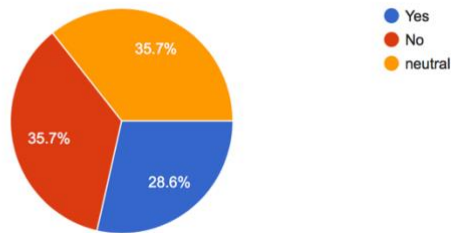
?Do you use changing rooms in malls

14 رڼا



?Are you satisfied with the current changing rooms in malls

14 ردًا



Q3:

?What do you wish to find in changing rooms, in malls

14 ردًا

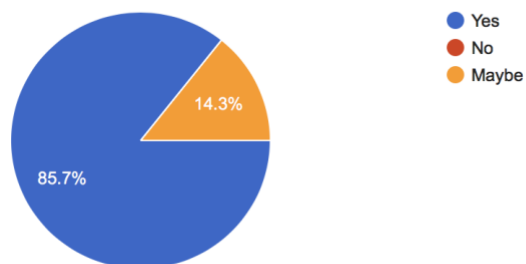
Q4 :

|   |
|---|
| Mirror  |
| Bigger space and more hangers   |
| Mirrors   |
| More privacy  |
| Bigger rooms and a non plastic chair  |
| .hanger, a chair, good lighting, a changing room in each store, a door lock   |
| I wish to be more comfortable, insure privacy   |
| .Different types of hangers, strong and long lasting doorlocks, a stool/chair   |
| ((Usually I don't))   |
| room clean and well appointed   |
| I would like the rooms to have more space + soft lighting   |
| More space, high heel, a big mirror every shop should have their own changing room  |
| The ability to change the intensity of room lighting and color , Automatic designer for the same shop style that suit<br>.your body shape and your skin color |

Q5:

Do you wish to receive suggestions of clothes combinations and  
?matchups that suits your body type and height

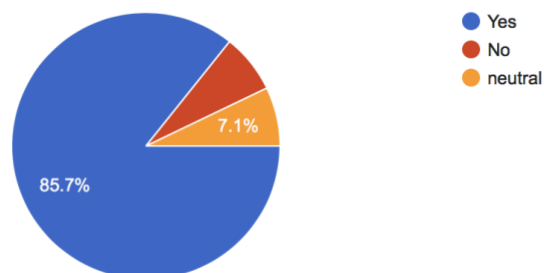
14 ردًا



Q6 :

Do you support the fusion of traditional shopping and e-shopping in  
?terms of selecting measurements

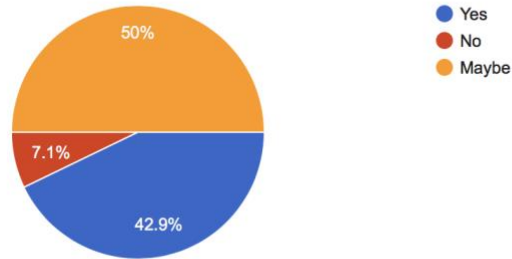
14 ردًا



?Will you make an account in the smart mirror service

14 ردًا

Q7:



?Do you have fears from using the Smart Mirror? If yes, what is it

14 ردًا

Q8 :

|   |
|---|
| No  |
| No  |
| Privacy problems  |
| No because I sure it's safe   |
| Suggestions may not fit with my taste   |
| 😬 If it's going to take and save images with out permission or can be hacked easily ... DUH                                 |
| If the mirror will take pictures or videos of me  |
| No , but maybe the privacy part   |
| It might be hacked and record footage of users and collect info and blackmail them because they'll have their .contact info |
| —   |
| I think it will not show me as if i wear the clothes in real  |
| No  |
| No  |

## Questionnaire Conclusion

It is noted that the majority is dissatisfied with the current measurement rooms and supports the existence of a personal account for each shopper in the Smart Mirror because of the convenience, the clothes suggestions and match-ups during the measurements and shopping. And since there are a lot of people who love e-shopping, and others that like traditional shopping, the idea of a product combining the two types of shopping was supported by many.

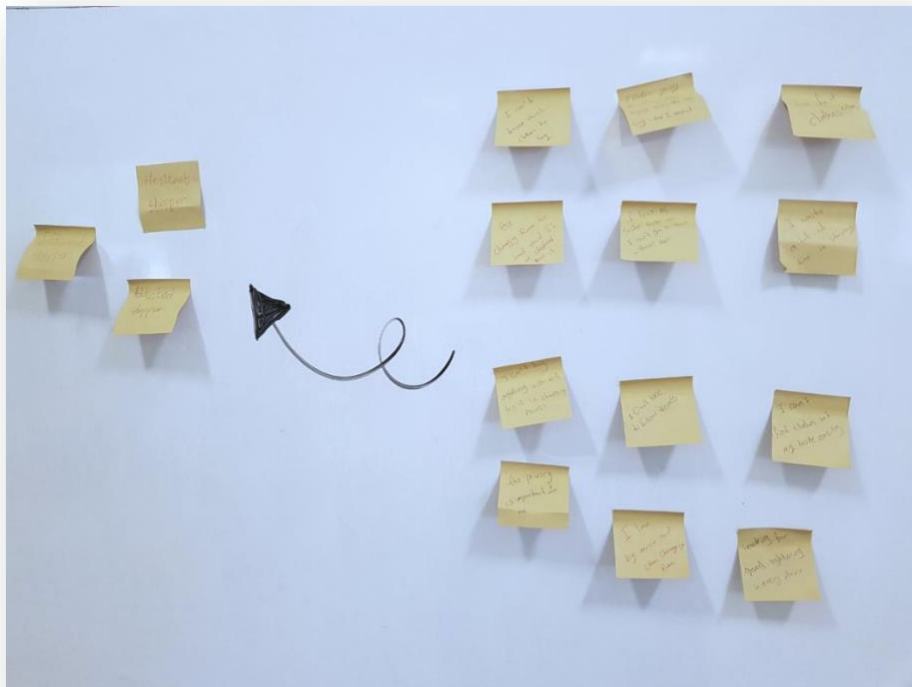
The background of the slide is composed of various overlapping, semi-transparent purple polygons of different shades, creating a modern, abstract geometric pattern. The colors range from deep, dark purples to lighter, almost white purples.

# Personas Modelling



# Personas

- Addicted shopper
- Hesitant shopper
- Efficient shopper



## Addicted shopper



**Yasmeen** is a 20-year-old girl who loves everything that's new and trendy.

shopping is her hobby and happiness which she spends her leisure time doing, so she is an expert in the markets and shops,

she gets bored and sad when she can't go shopping for a long time.

always wants to buy new products.

## Hesitant shopper



Lama is a 23-year-old girl who doesn't care about fashion, but has a unique taste and cares about every detail during shopping for clothes. So, she is rarely satisfied with anything and takes a lot of time to choose while shopping.

## Efficient shopper




**Fatmah** is a 29-year-old girl who shop at intervals and when she needs it. She does not take much time while shopping and her taste is not picky. her priority is to find suitable quality clothes and quickly to get back to do what occupies her.



# 1- Expert Analysis

| Tasks                       | Actions   | Is the product intent match the users menu | Is it visible ?           | Does the language match ? | Is there sufficient/appropriate feedback ?              | Comments  | Bug |
|-----------------------------|---|--|---------------------------|---------------------------|---|---|-----|
| ON/OFF button               |   |  |                           |                           |   |   |     |
|                             | Press the button  | yes  | yes - it appear with icon | yes                       | yes - it's open/close the mirror                        |   |     |
| Log in customer             |   |  |                           |                           |   |   |     |
|                             | Select icon : Customer or Guest   | yes  | yes                       | yes                       | yes - it's change the screen view                       |   |     |
| If customer                 |   |  |                           |                           |   |   |     |
|                             | Add information : username , password                                   | yes  | yes                       | yes                       | yes - it't appear the letters and filled password       | maybe we provide several way to enter as face ID      |     |
| If guest                    |   |  |                           |                           |   |   |     |
|                             | select icon : Create account or immediate use                           | yes  | yes                       | yes                       | yes   |   |     |
| If select (create account ) |   |  |                           |                           |   |   |     |
|                             | add information : username , password and perform scan if desired       | yes  | yes                       | yes                       | No  | there is no window that say the account is created    |     |
| Change mirror appearance    |   |  |                           |                           |   |   |     |
|                             | Select setting > Select display change brightness , color and font size | yes  | No                        | yes                       | yes - immediately changes                               | maybe the user can't find it or doesn't know about it |     |
| Change account setting      |   |  |                           |                           |   |   |     |
|                             | Select setting > account  | yes  | yes                       | yes                       | No - may be need a window that say it change or message |   |     |
| Preview cart                |   |  |                           |                           |   |   |     |
|                             | Select cart icon  | yes - recognizable icon                    | yes                       | yes                       | yes - it goes to the clothes                            |   |     |
| preview clothes             |   |  |                           |                           |   |   |     |
|                             | Select hanger icon  | yes  | yes                       | yes                       | yes - it is show the clothes                            |   |     |
| Filter clothes              |   |  |                           |                           |   |   |     |
|                             | select from the sub menu (Filter) then choose color , size , brand      | yes  | yes                       | yes                       | yes - it is will make filter on clothes                 |   |     |
| Scan                        |   |  |                           |                           |   |   |     |
|                             | select setting > select scan  | yes  | yes                       | yes                       | yes - it is will make scan on body                      | we'll make new scan                                   |     |
| Change measurement unit     |   |  |                           |                           |   |   |     |

|  |                                 |     |     |     |   |   |   |
|--|---------------------------------|-----|-----|-----|---|---|---|
| select  settings<br>> select measurement units. choose the appropriate selection for you. |                                 |     |     |     |   |   |   |
|  |                                 | yes | No  | yes | yes - it's change the size                |   |   |
| Browse search history  |                                 |     |     |     |   |   |   |
| select history icon  |                                 | yes | yes | yes | yes - it is show previous clothes         |   |   |
| Choose body module   |                                 |     |     |     |   |   |   |
| select clothes icon<br>> select body from menu , change default body module  |                                 |     |     |     |   |   |   |
|  |                                 | yes | No  | yes | yes - it is show the body moudle          |   |   |
| Add to cart  |                                 |     |     |     |   |   |   |
| select clothes   |                                 |     |     |     | yes - it is will add new item to the cart |   |   |
|  |                                 | yes | yes | yes |   | there is no window that say the item is added | there is no window that say the item is added |
| Select special categories  |                                 |     |     |     |   |   |   |
| select the appropriate category from sub-menu  |                                 | yes | yes | yes | yes - it's appear the chosen category     |   |   |
| Choose following models  |                                 |     |     |     |   |   |   |
| click following model icon   |                                 |     |     |     | yes - it's appear the following moudle    |   |   |
|  | choose the following model menu | yes | yes | yes |   | All the following well be shown               |   |



## The GOMS model

| Choose clothes |  |       | Scan             |   |       |       |
|----------------|--|-------|------------------|---|-------|-------|
| Step           | Description                                  | Time  | Step             | Description                                       | Op    | Time  |
| 1              | Click hanger icon                            | 0.89s | 1                | Click the setting icon                            |       | 0.89s |
| 2              | Click desirable category                     | 0.89s |                  |   |       |       |
| 3              | click filter to view specific specifications | 0.57s | 2                | Click the scan option                             |       | 0.89s |
| 4              | choose desirable color                       | 0.63  | 3                | Performing Scan process                           |       | 50.0s |
| 5              | choose desirable size                        | 0.63  | Following models |   |       |       |
| 6              | choose desirable brand                       | 0.63  | Step             | Description                                       | Time  |       |
| 7              | The clothes appearing                        | 0.13  | 1                | Click following models icon                       | 0.89s |       |
| 8              | Choose clothe                                | 120s  | 2                | Click following's name to show her/his body model | 0.89s |       |
| 9              | Click add to cart                            | 0.24s | 3                | The body model came up                            | 0.57s |       |
|                |  |       | 4                | Preview clothes on the following's model          | 120s  |       |

## 2-User Participation:

### Participants

A group of six female students at king Saud university, they are all IT major. and are between 20 to 25 in age. they haven't experienced a similar prototype before.

### Procedure

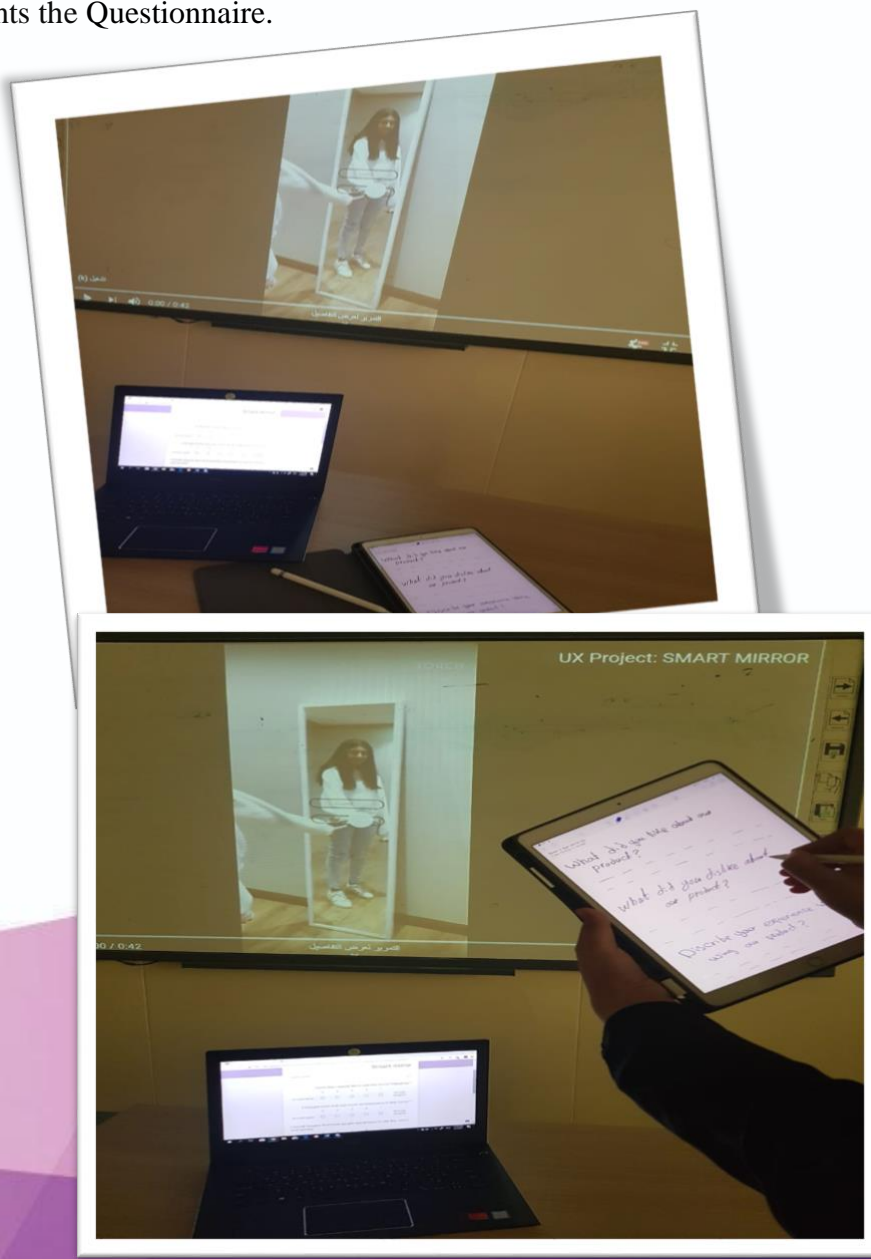
Firstly, our goal was to test our prototype with participants and improve it according to their feedback. Then after we chose our participants, we prepared the procedure and The test was by making the participants watch a video presented by a projector in a quiet room, the video shows a user interacting with our prototype to complete 3 tasks:

Task 1: perform a body scan.

Task 2: use the following models.

Task 3: find a yellow shirt and add it to the cart.

After we greeted the participants and introduced them to our test, we played the video and Then we started interviewing them. After finishing the interviews, we gave the participants the Questionnaire.



## Interview results:

Q1: Would you suggest our product to other people? And why?

- Yes , because it is very useful
- Yes , because it will save time since it is a replacement to fitting rooms and will save effort of changing clothes.
- Yes , because it is a creative idea and should all try it.
- Yes ,it will save time so I can preview many clothes in short time.
- Yes, because it saves time choosing the appropriate outfit.
- Yes, because it's easy to use.

Q2: Describe your experience while using our product.

- I like how it is saving time and I like following models feature .
- it is very obvious and comfortable .
- I like how the navigate through functions was easy and obvious .
- I like it because it is new and creative, very useful due to It is save time and facilitate many things such as preview clothes .
- It was interesting experience.
- I like the way this technology suggests to people what to wear.

Q3: What did you like about our product?

- Following models feature and adding clothes to cart .
- Following models feature
- Following models feature
- History feature and following models feature .
- I think that the following models feature is the most incredible idea.
- I like the following models features specially in case of moms with kids, instead of bring there children for shopping this mirror provides this brilliant idea.

Q4: What did you dislike about our product?

- Yes, I need guide before using it .
- No; I like it
- No ; nothing to dis like it
- Yes , I have fears that sizes may not suit me.
- I think that this mirror is perfect.
- The only thing that I dislike about this mirror is that icons don't show with labels.

Q5 : Would you like us to describe how to use the product as a tutorial? And why?

- Yes , I need it .
- No , it is very clear .
- No , it is very clear .
- No , it is very clear .
- Yes, I prefer watching a tutorial about how to use the smart mirror.
- Yes of course, I would like to have an explanation in details for how to use it.

## Questionnaire results:

the answers are a range from 1: strongly disagree to 5: strongly agree.





## **Results and Discussion**

Most participants prefer to use the product periodically. Participants were neutral or agreed that the prototype design was consistent. most participants liked the product and were said they will use it.

All the participants agreed that using the mirror is easy to learn except one. But half of them said that they would prefer an explanation or a tutorial to understand the mirror's functions. And one of them preferred to see labels under the icons.

All the participants loved the idea of following models, which was to create a 3d model of other people - kids as example - inside the user's account and try the clothes on it instead of bringing the kid himself.

## **Recommendation**

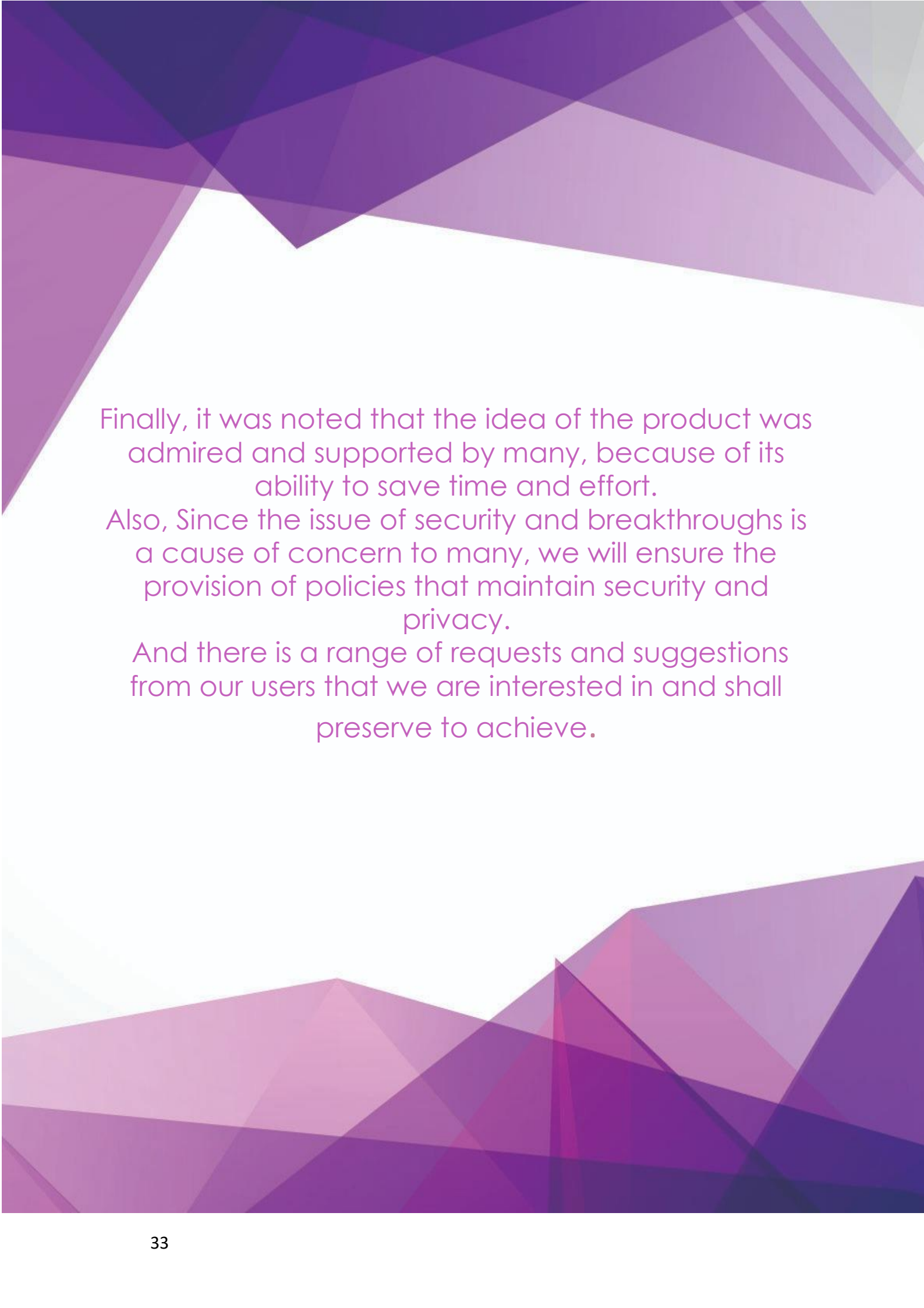
as a result of some users notes, we recommend to the developers adding some features to the mirror. For example, a tutorial to learn how to use the mirror easily and explain its icons and features clearly. And an educational program for new users to understand the smart mirror purpose and functions. Also adding labels under the icons. That will make the product easier-to-use and increases the number of users and their satisfaction.

In addition, by creating a web site and mobile application that provides the mirror services, users can try clothing from online stores on their body models that are saved in their smart mirror accounts. which will make determining if the clothing is suitable to the user easier even when shopping by phone, tablet, laptop.

The background of the slide is composed of various overlapping triangles and polygons in different shades of purple, ranging from dark indigo to light lavender. These shapes are arranged in a way that creates a sense of depth and movement, with some shapes appearing to recede into the background while others come forward.

# Conclusion



The background of the slide is an abstract composition of overlapping, semi-transparent purple and magenta polygons of various shapes and sizes, creating a modern, geometric aesthetic. The colors range from deep, dark purples to lighter, almost white tones, with the text area being a solid white space.

Finally, it was noted that the idea of the product was admired and supported by many, because of its ability to save time and effort.

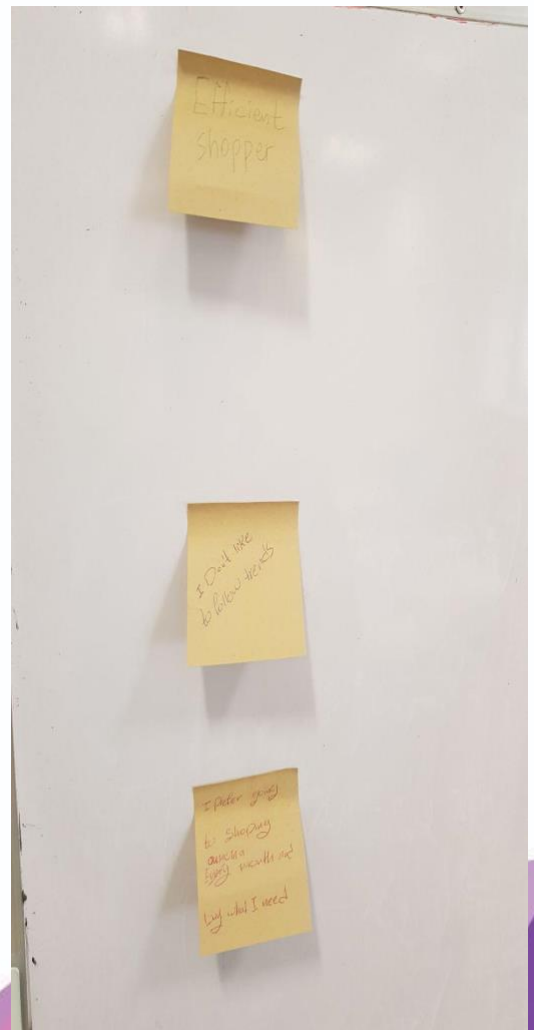
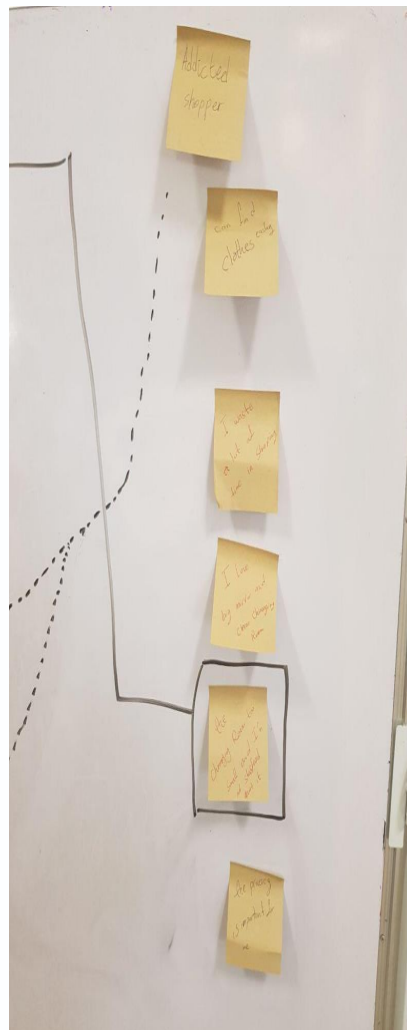
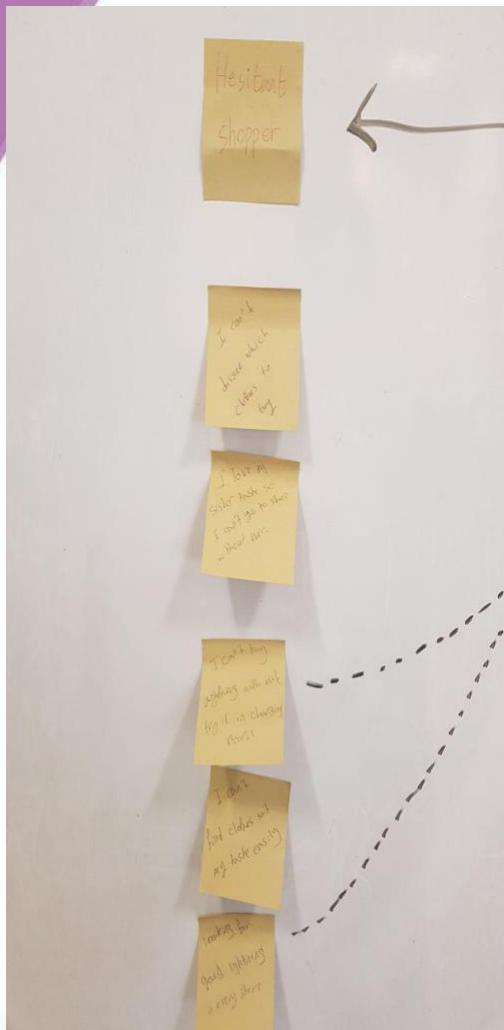
Also, Since the issue of security and breakthroughs is a cause of concern to many, we will ensure the provision of policies that maintain security and privacy.

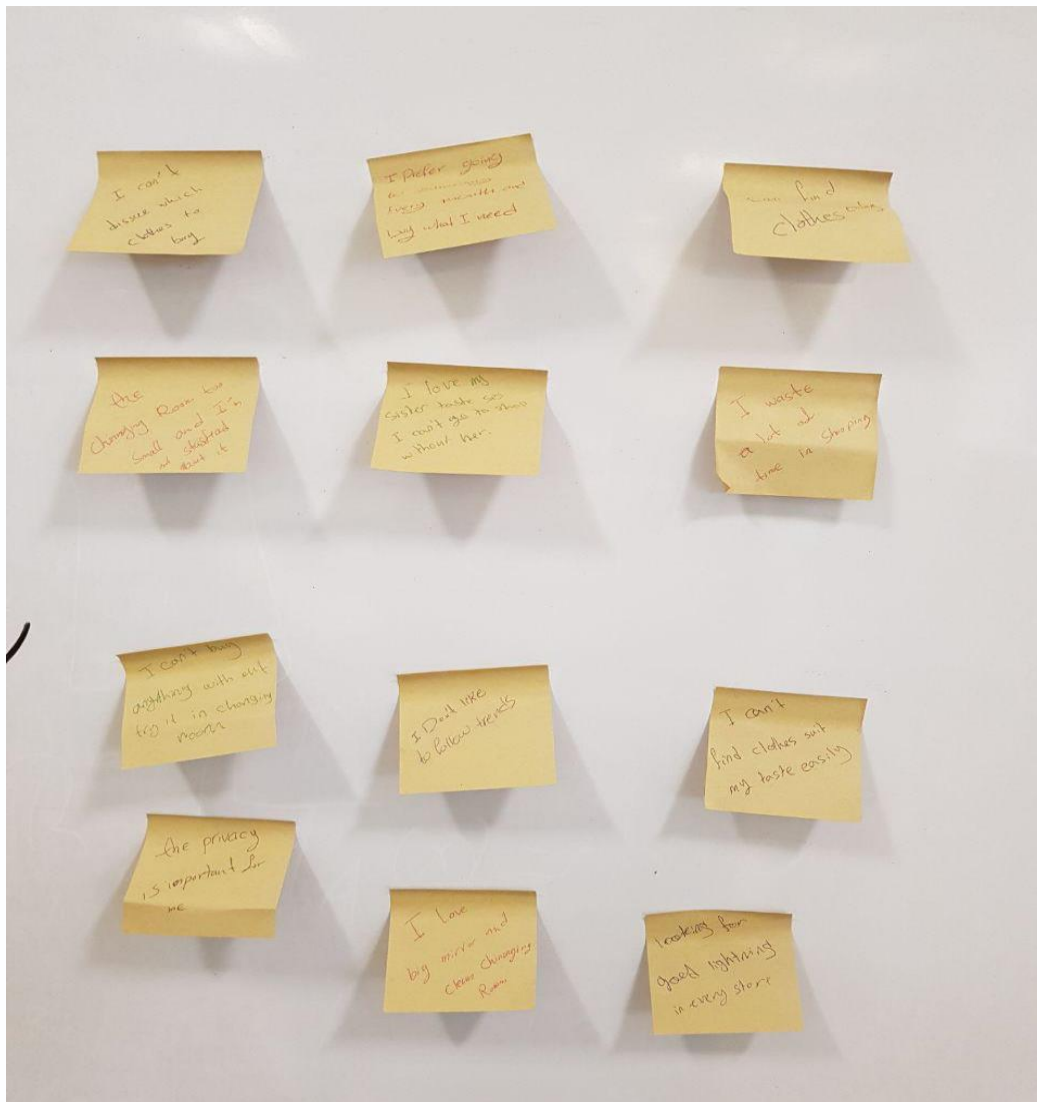
And there is a range of requests and suggestions from our users that we are interested in and shall preserve to achieve.

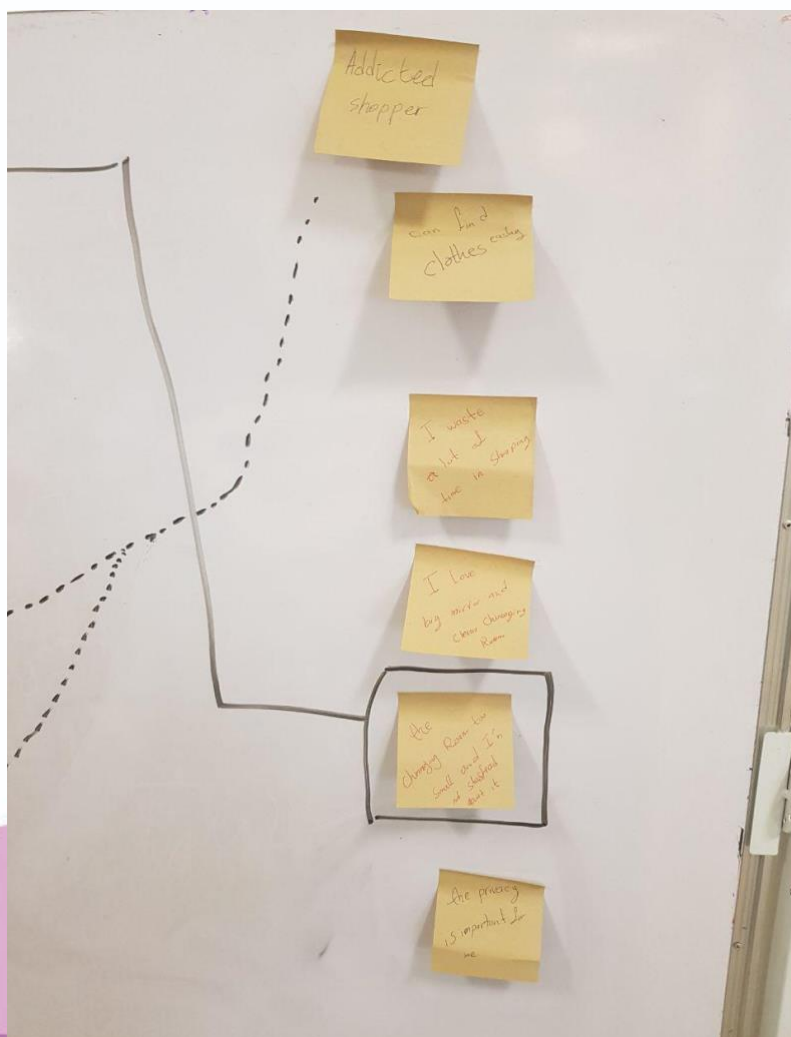
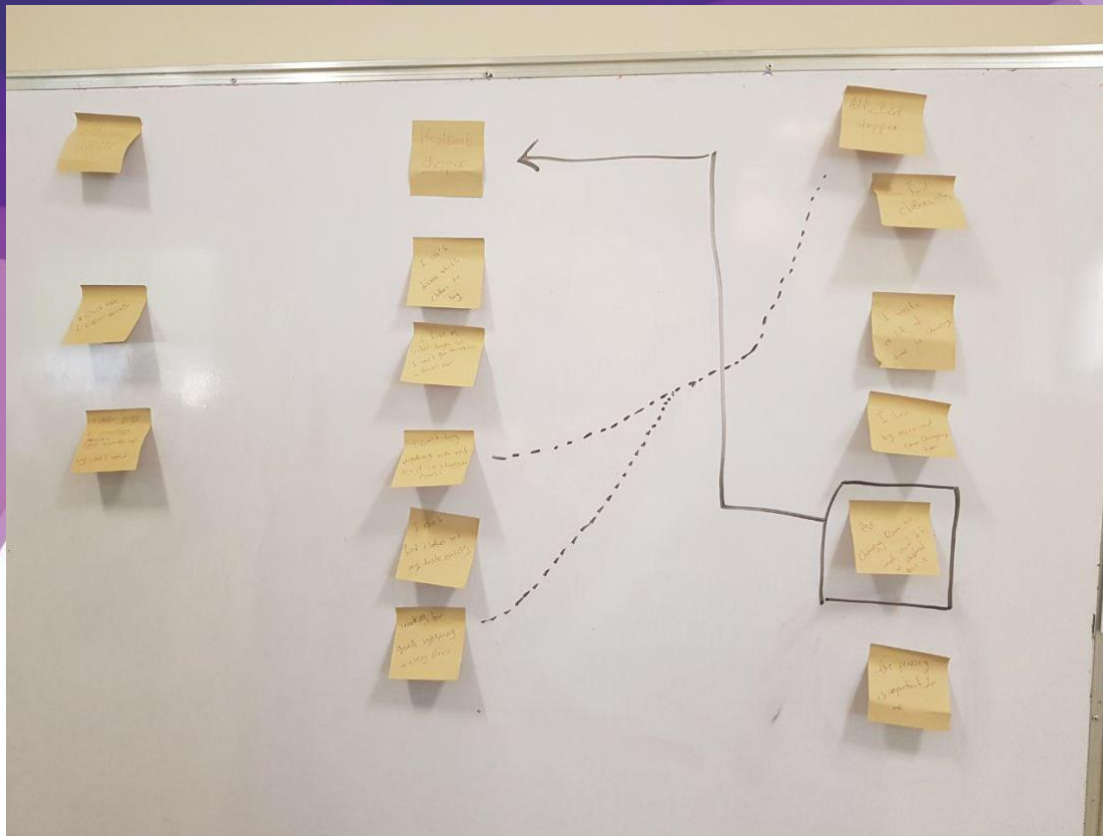
The background of the page is composed of various overlapping triangles in shades of purple, pink, and magenta. These triangles are arranged in a way that creates a sense of depth and movement, with some triangles appearing more prominent than others. The colors range from deep, dark purples to lighter, almost white pinks.

# appendix

## More detail about persona Modelling









## Questionnaire Template

### استبيان لتحسين تجربة التسوق

الرجاء الملاحظة أن الاستبيان يهدف إلى تحسين تجربة التسوق للتبدي (في الاسواق وحدهم).

\*مطلوب

الجنس :

ذكر ☐

انثى ☐

الفئة العمرية :

18 او اقل ☐

من 19 - 40 ☐

40 ذاكبر ☐

ماهي اكثر الصعوبات التي تواجهك اثناء التسوق ؟ \*

☐ عدم وجود أماكن ترقيعية

☐ صعوبة وجود المنتج الذي تريده

☐ وجود الكثير من الاغشياء التي عليك حملها

☐ كثرة الفس في السلع وانتشار السلع المقلدة

ماهي الخدمات التي تتمنى وجودها في الاسواق المحلية ؟ \*

إجابتك

مشاكل أو عيوب تتمنى وجود حل لها : \*

إجابتك

هل انت راضي عن أماكن الراحة المتواجده في الاسواق ؟ \*

نعم ☐

لا ☐

ربما ☐

هل تزيد وجود خدمة لحفظ مشترياتك حتى انتهائك من التسوق ؟ \*

نعم ☐

لا ☐

ربما ☐

إرسال

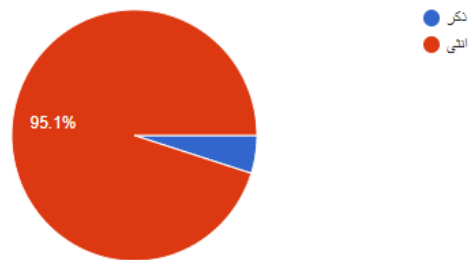
عدم إرسال كلمات المرور عبر نماذج Google مطبق.



## The audiences present

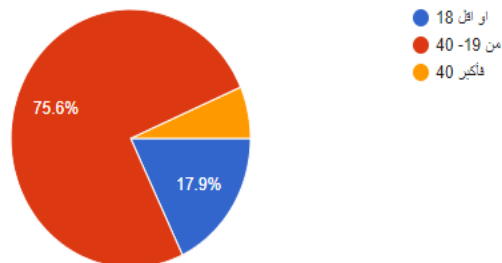
الجنس :

123 ردًا



الفئة العمرية :

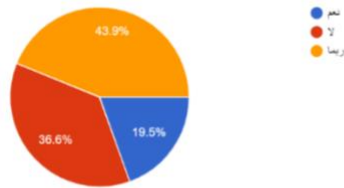
123 ردًا



## The Result of Questionnaire

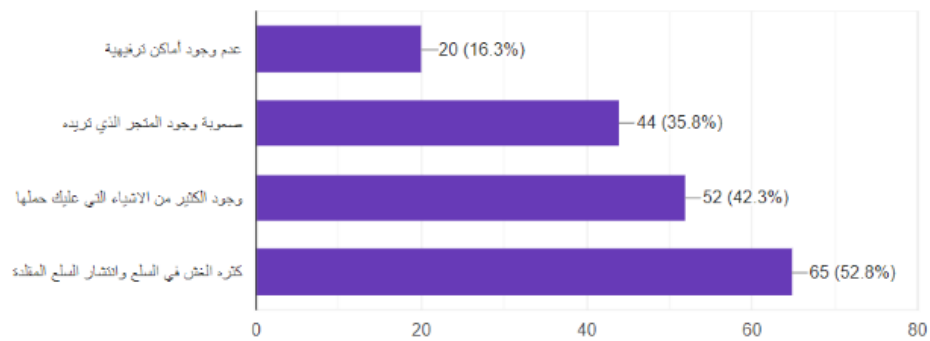
هل انت راضى عن أماكن الراحة المتواجدة في الأسواق ؟

123 ردًا



ماهي أكثر الصعوبات التي تواجهك أثناء التسوق ؟

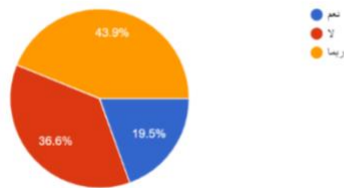
123 ردًا



## The Result of Questionnaire

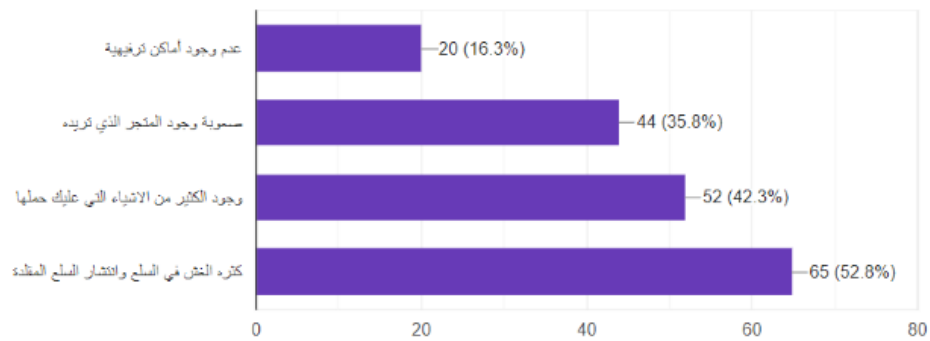
هل انت راضي عن أماكن الراحة المتواجدة في الاسواق ؟

ردًا 123



ماهي أكثر الصعوبات التي تواجهك اثناء التسوق ؟

ردًا 123



## The Result of Questionnaire

مشاكل أو عيوب تتمنى وجود حل لها :

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|   |
|---|
| وجود قائمة بالمحلات الموجودة في المنجر  |
| تفاوت الأسعار بالمت خاصة بالتصديقات   |
| الأمانة في التسوق   |
| قلة النظافة في دورات المياه   |
| السوق يجب تشييد الأمن   |
| المشي الكثير بحيث يكون فيه سيارات صغيرة   |
| انخفاض الأسعار  |
| عدم توفر غرف فiras في جميع المحلات  |
| يخلو دأب راحتنا وتوفر المقاسات عند طلبها  |
| الإزدحام الشديد في الأسواق، وعدم وجود وتوفر القفص والملايس العرب فيها، بقاذ الكميات بسرعة |
| عدم وجود أماكن مريحة في الأسواق لأخذ قسط راحة بين الشواطئ التسوق                          |
| زحمة  |

ماهي الخدمات التي تتمنى وجودها في الأسواق المحلية ؟

123 ردًا

|  |
|--|
| كثرة المحلات المفيدة أو الماركات   |
| عند التسوق كل محل له مكان يخطط مشتريات الزبائن لكي لا تكون ازحاج للزبون عند التسوق   |
| مكان لوضع الأشياء التي تزينها  |
| شائكة الكترونية ببداية السوق التي فيها نظره سريعة على المحلات 📱 توفير الوقت  |
| الملكيش لكل محل أو براند يعرض فيه جميع المنتجات المتاحه في المحل بحيث يتم اطلاق على كل السلع الموجوده في المحل من خلال الملكيشن ، نرا الان كثير من البراندر لديها الملكيشن لكن تعرض كل البضاعه وليس المتوفر بالمحل |
| خدمات ترفيهية للتكبير  |
| اتمنى التنوع الموجود في التسوق الإلكتروني  |
| التصميم يكون مبتكر فكره جديده مب ز ي اي سوق نفس التصميم والفكره  |
| محاولة جلب خدمات جديده مع السعر المناسب ، مراعاة اللباس المحتشم  |
| حماي أو مكان للأمانات كما في البحر ين يخطط مشتريائك حتى انتهاءك من التسوق  |
| شخص أو نوكر مخصص لكل صيل يضع فيه كيس التسوق  |

The background of the page is an abstract composition of overlapping, semi-transparent purple and magenta polygons of various shapes and sizes, creating a modern, geometric aesthetic.

## Smart Mirror team

Lama Al-Rasheed

Lama is energetic person and has a passion for computer science.

Fatmah AL-Asiri

Fatmah is someone who has big dreams and works hard for them.

Aljoharah Altamran

Someone looking for success

Yasmeen Al-Asker

Yasmeen is ambitious and always looking for an opportunity to do better and achieve greatness.

Maram Al Ghamdi

Maram is an interesting person and talented in designing.

Layan Aldhuwayhi

Layan is ambitious and strives hard in search of success to fulfill his big dreams

## Moment of keeps team meeting

