Specialist: Joseph Olayemi (#1005629599)
Programmers: Ran Wang (#1006126951), Hongyu Liu (#1005851295)

Word count: 2497

Introduction

The field of UX design is inundated with a lot of tools that aid the design process of the designer. However, the research area of UX seems to be lagging behind. Most of the tools available are quite old, manual or expensive to use in gathering information especially for new UX designers trying to break into the field.

The need for a robust tool that allows UX designers to carry out better research experiments was the main driving force behind developing Qsort. Card sorting is one out of many tools available to UX designers to better analyze and improve their designs.

The current methods available to UX designers to carry out the card sorting activity is mostly by using sticky notes, creating paper labels and categories, or whiteboard drawings. The challenge with this is that it has to be reset for every participant and cannot be done remotely. The available alternative is a web-based platform that is quite pricey and has a huge learning curve. This has deterred many UX designers from using the tool.

With Qsort, UX designers can run the card sort studies with a wider range of participants and have them do the experiments remotely. This saves the researcher's time and provides a better sample size to collect both qualitative and quantitative data for analysis.

Qsort is a mobile app to help UX designers / researchers carry out quick card sorting experiments at scale, allowing them to quickly gather the necessary information required to organize the hierarchical information architecture of a website

Card sorting is a tool used by UX designers and researchers to design or evaluate the information architecture of a site. In a card sorting session, participants organize labels into categories that make sense to them and they may also help re-label some categories or labels[1]. Card sorting can be done with the use of actual cards, sticky notes, pieces of paper, or an online card-sorting software[2].

Benefits of Card Sorting

Card sorting helps to understand your users' expectations and understanding of the website's labels. It is often most useful once you have done some research to find out about the users and understand the content[3]. Knowing this information can help the researcher:

- Build the structure for your website
- Decide what to put on the homepage
- Label categories and navigation

Open and Closed Card Sorting

Depending on the needs of the researcher, the card sorting session could be open or closed. They differ as follows:

Open Card Sort: Participants are asked to organize labels from content within the website into categories that make sense to them and then name each category they created in a way that they feel accurately describes the content.

Closed Card Sort: Participants are asked to sort topics from content within the website into predefined categories. A closed card sort works best when working with a predefined set of categories and labels, to learn how users sort content items into each category.

For the purpose of this project, we would be focusing on the closed card sorting in order to minimize the complexity of the app and meet delivery timelines.

Statement of Functionality & Screen Shots

Our card sorting app was built to provide value for two sets of users. First to allow the UX designer to easily create the card sorting experiment and then allow the participants who would be the ones to partake in the experiment, to sort the labels into categories.

This meant we had to provide separate functionalities depending on the user group. To enable this, we set the first page to present the users with an option to select if they are a UX designer or a participant [1]. Only UX designers need to sign up [2] and login [3]. Based on their selection, we present them with the relevant pages and features for them to complete their tasks.

Some main features of the Qsort app are:

A. ***Experiment cards:*** These cards allow the study participants to interact with when carrying out the card sorting activity. This will allow them to pick the most relevant category when presented with the label [4]. The participants can start the experiment through scanning a QR code [5] or entering a unique code [6]. The user would also be able to enter comments either as text or voice note using the chat box icon on the screen. That way they can let the researcher know and

understand their thought process and reason for certain groupings which might not be too clear.

B. ***Projects Page:*** The projects page is the main page for the researcher as this is where new and existing projects are created or managed [7]. Here the researcher can create a new project or view the status of existing projects. The researcher can see how the current projects are performing by providing information such as the status (enabled or disabled), number of participants that have completed the study, and name of the project. The researcher can also manage current projects by reviewing the optimized information architecture, reviewing comments [8], sharing the project, or deleting the project [9].

C. ***Categories and labels creation:*** The categories and labels for the experiment can be created by entering the names manually into the text fields [10]. In the event that the researcher is dealing with a huge list of labels and categories, manual text entry might not be very feasible. To solve that, the researcher can upload a CSV file into the project for it to be parsed for labels and categories. This makes the project creation faster and efficient.

D. ***Walkthrough overview or guide on how to create or use the app****:* We understand that the application would be new to both the researchers [11] and the participants [12], so in order to make it adaptable and easy to use, a quick guide button is available for the user to get information on how to use the app. The guide would still be available for reference by the user anytime while using the app.

E. ***User commenting via text or voice recording*****:** An important part of the card sorting experiment is for the researcher to be able to document the thoughts and reasoning for certain groupings. The app uses both text and voice commenting to capture the participants' thoughts and reactions while carrying out the card sorting study. When the comment option is clicked, the participant would have the option to record a voice note or type in their comments [13].

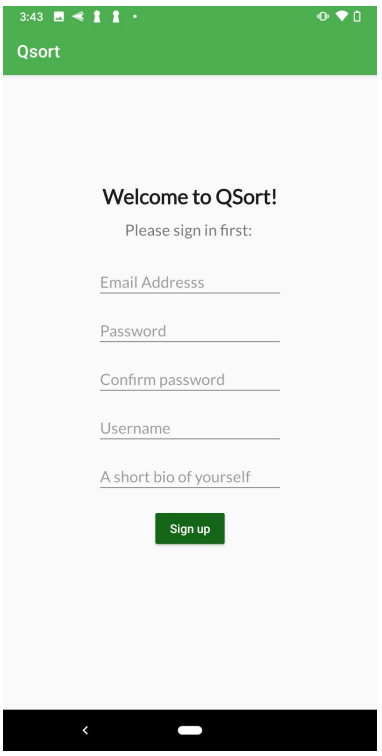
F. ***Sharing Options:*** This feature allows the study to be shared with targeted participants once it is created. The options currently available are a unique code, QR code [14], and email invite [15]. This will give the researcher more options to share the study with the desired participants.

G. ***Optimized information architecture for websites:*** Based on the results of the experiment, the system would create a mobile sitemap for the researcher to have an idea of how the users expect the website information to be organized [16]. This would be updated iteratively as each participant completes the experiment. The participant would also be able to see a sitemap of their own response only [17].

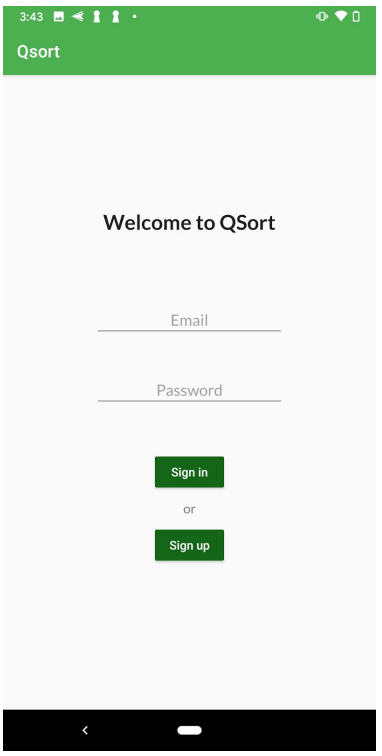
H. ***Summarized results of the study:*** After collecting all the data and results from the participants. The app would summarize this data in an easy to digest summary for the researcher. Some of the output data would be, number of

completed experiments, ranked categories for each label based on most chosen to least chosen, and the number of comments for that label [18].

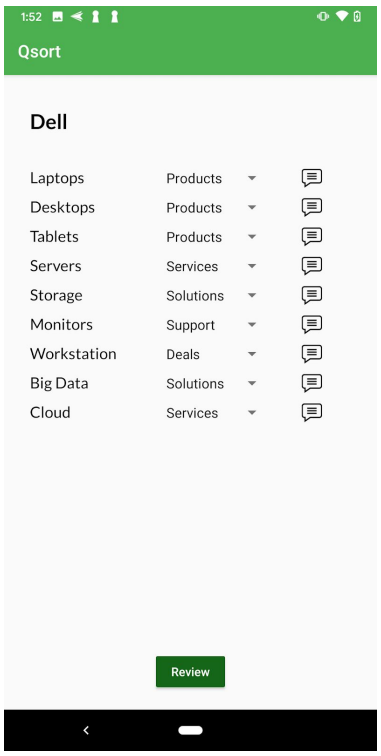
[1]



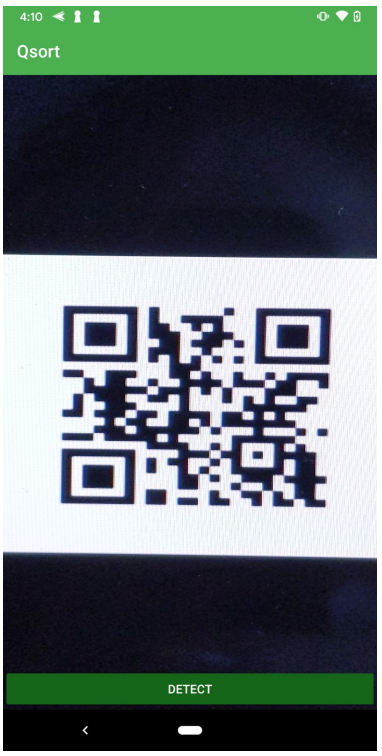
[2]



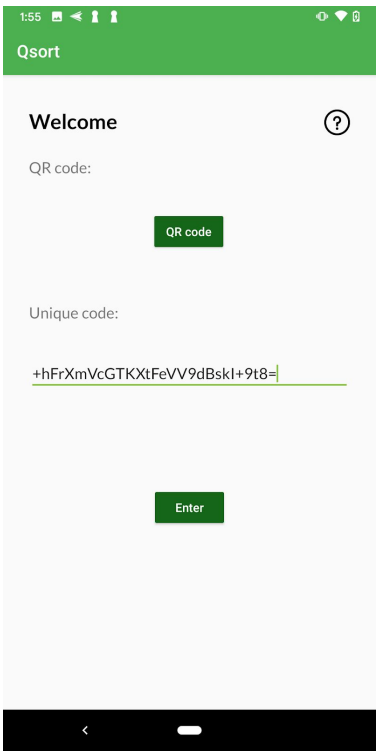
[3]



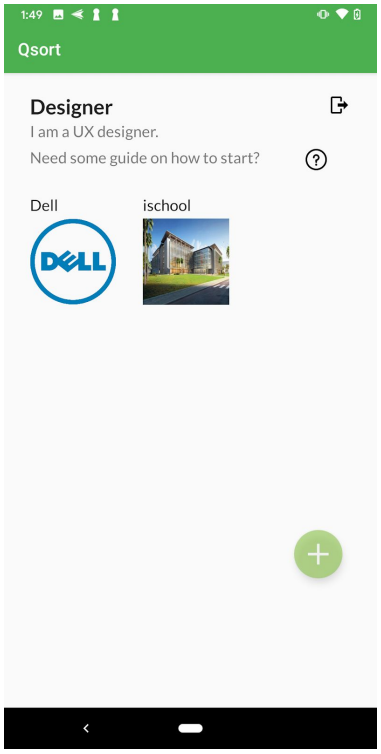
[4]



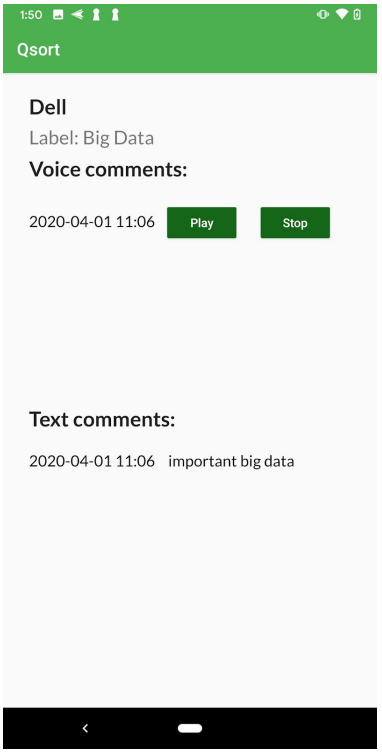
[5]



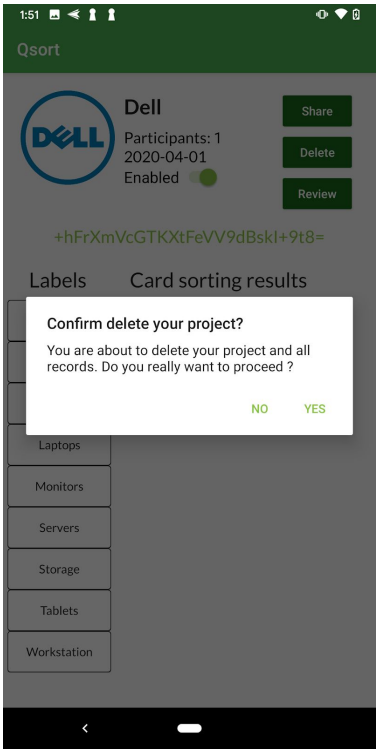
[6]


1:49
Qsort
Designer
I am a UX designer.
Need some guide on how to start?
Dell
ischool

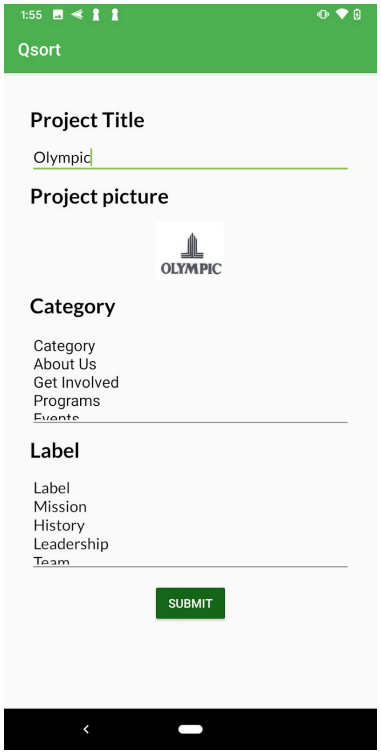
[7]


1:50
Qsort
Dell
Label: Big Data
Voice comments:
2020-04-01 11:06
Play
Stop
Text comments:
2020-04-01 11:06 important big data

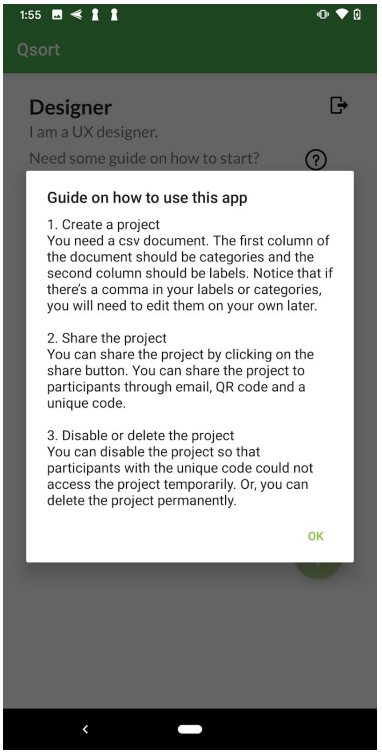
[8]


1:51
Qsort
Dell
Participants: 1
2020-04-01
Enabled
Share
Delete
Review
+hFrXmVcGTKXtFeVV9dBskI+9t8=
Labels
Card sorting results
Confirm delete your project?
You are about to delete your project and all records. Do you really want to proceed ?
NO
YES
Laptops
Monitors
Servers
Storage
Tablets
Workstation

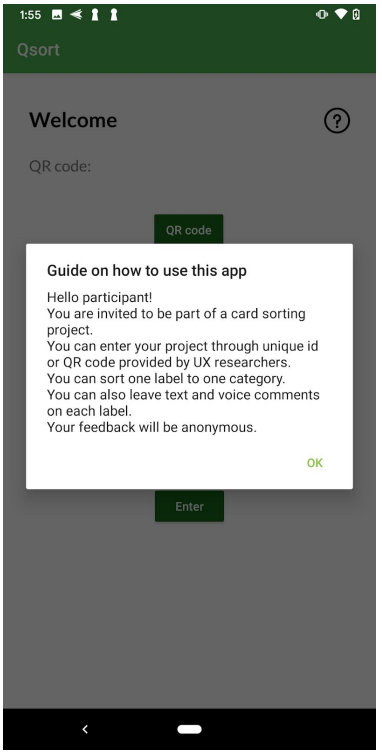
[9]


1:55
Qsort
Project Title
Olympic
Project picture
OLYMPIC
Category
Category
About Us
Get Involved
Programs
Events
Label
Label
Mission
History
Leadership
Team
SUBMIT

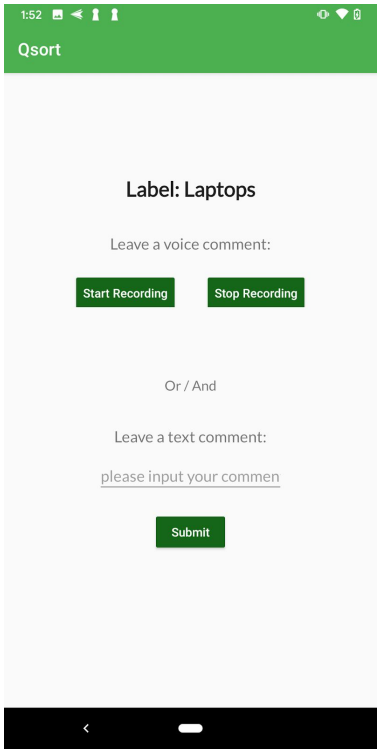
[10]


1:55
Qsort
Designer
I am a UX designer.
Need some guide on how to start?
Guide on how to use this app
1. Create a project
You need a csv document. The first column of the document should be categories and the second column should be labels. Notice that if there's a comma in your labels or categories, you will need to edit them on your own later.
2. Share the project
You can share the project by clicking on the share button. You can share the project to participants through email, QR code and a unique code.
3. Disable or delete the project
You can disable the project so that participants with the unique code could not access the project temporarily. Or, you can delete the project permanently.
OK

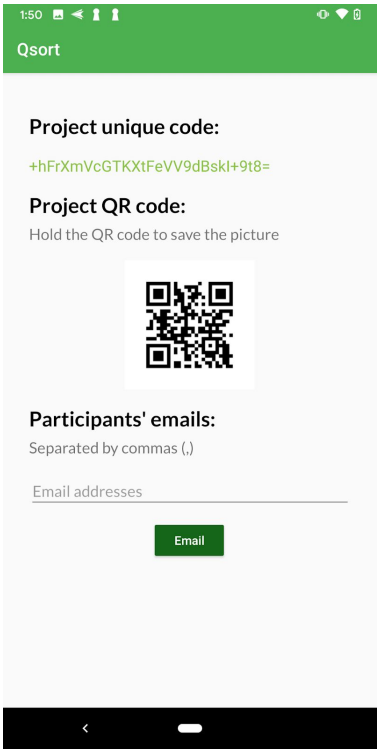
[11]


1:55
Qsort
Welcome
QR code:
QR code
Guide on how to use this app
Hello participant!
You are invited to be part of a card sorting project.
You can enter your project through unique id or QR code provided by UX researchers.
You can sort one label to one category.
You can also leave text and voice comments on each label.
Your feedback will be anonymous.
OK
Enter

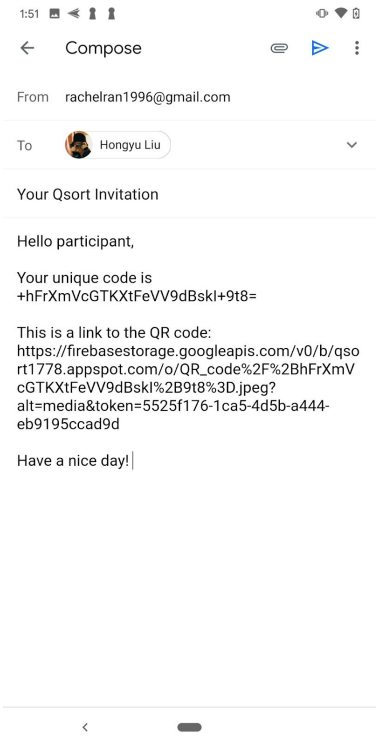
[12]



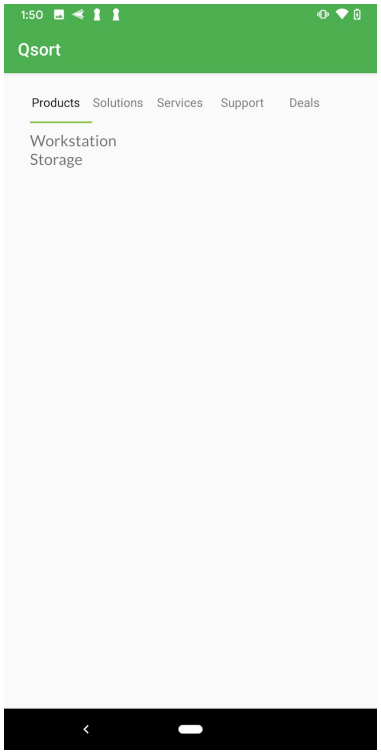
[13]



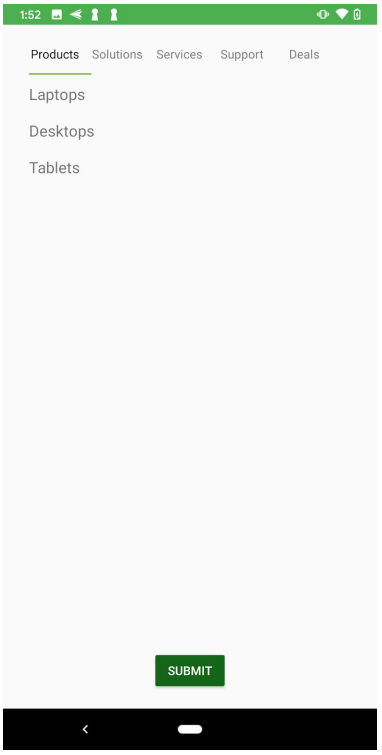
[14]



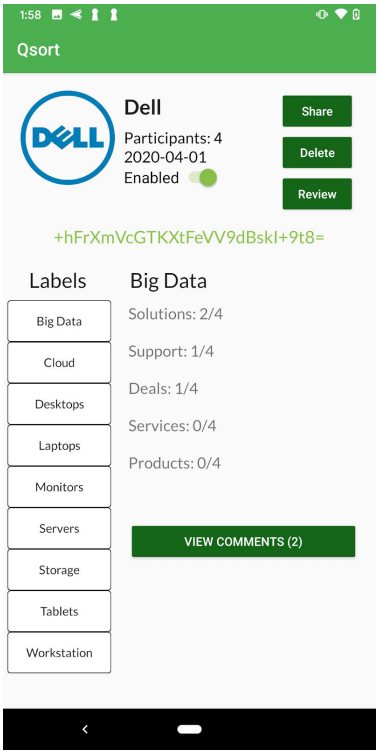
[15]



[16]



[17]



[18]

Overall Design

Overall Description

Qsort is built based on Google Firebase and aimed at providing UX designers and participants to do quick and remote real-time card sorting. At the welcome page, users can choose their identity.[1]

UX designers are allowed to create projects by importing web-design labels and categories through a .CSV text file, and give project-exclusive access to their participants with unique code and QR code through email.

Participants with access code are allowed to do card sorting experiments on Qsort. To be more specific, they are able to do label-category navigations and leave text and voice comments.

Qsort can manage the card sorting results from all participants and give analyzed feedback to UX designers.

Project Architecture

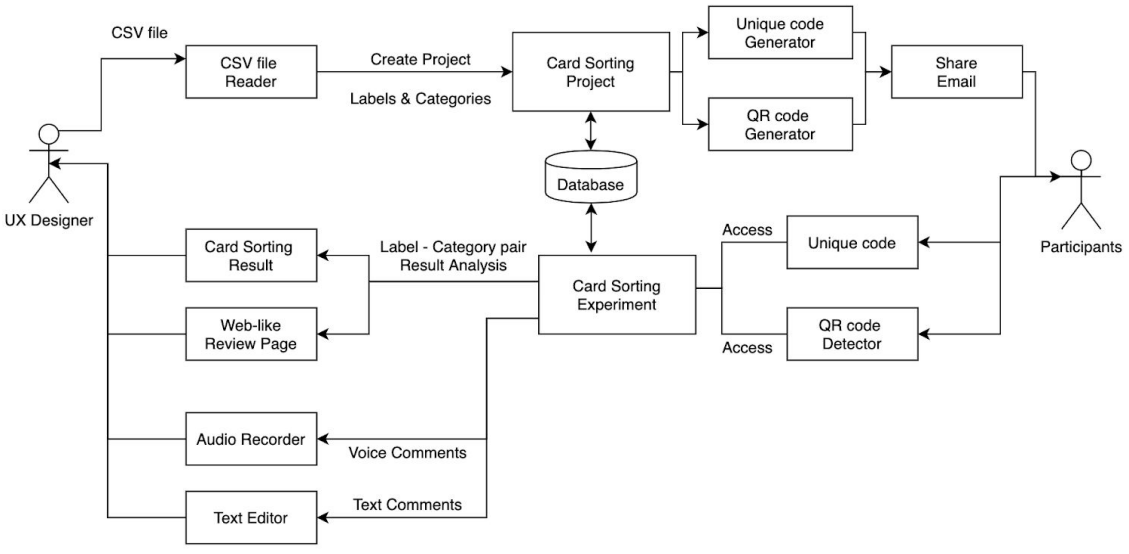


Figure A Project architecture

UX designers

- User authentication

  Ux Designers are the main target group of our application. They would need to manage and review their project, therefore, having an account to access is necessary.[3]

We used Firebase Authentication for authentication control with passwords. During registration, unique email address and username are required.[2] Password should be longer than 6 characters. Plus, a short bio of the user should be included. Username, email and bio are stored in Firebase Database.

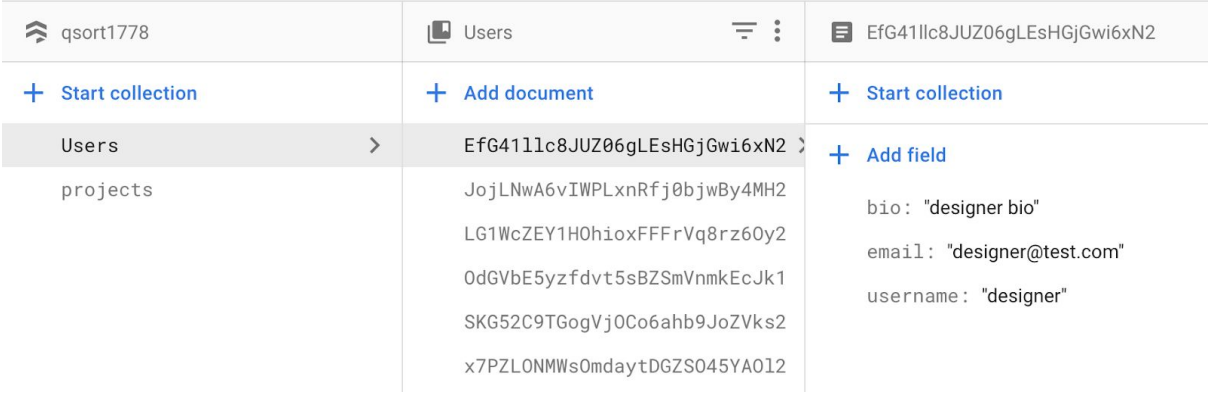
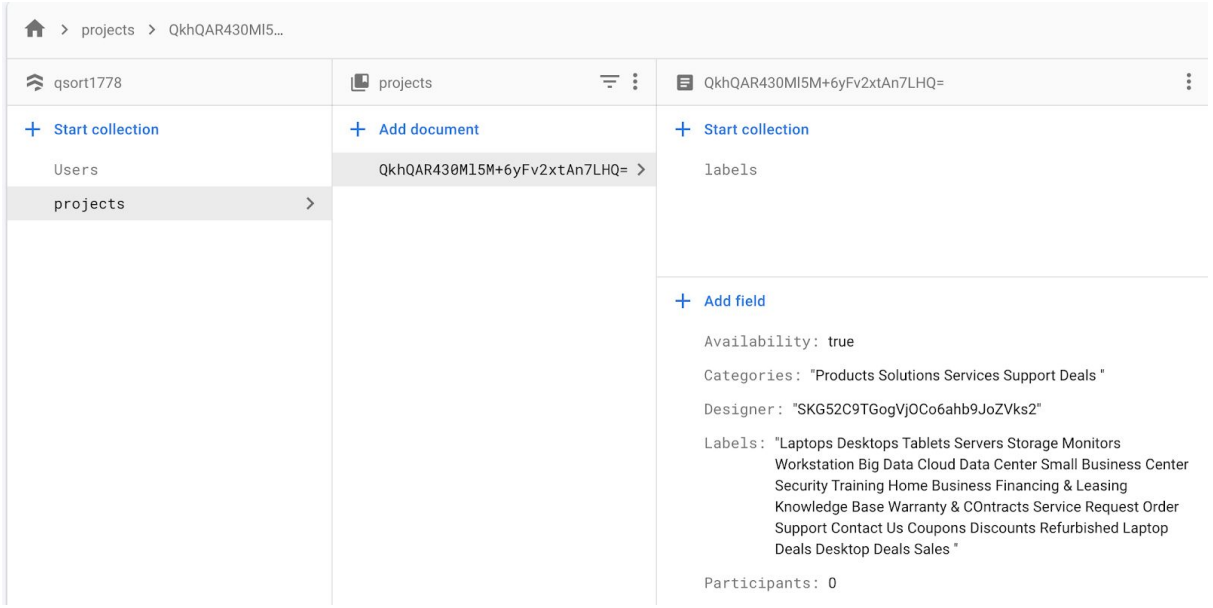


Figure B User database design

- ***Project creation***

  By clicking the plus button, UX designers should provide a .CSV file to import project labels and categories.[7] We kindly ask users to arrange the file in certain format, according to the detailed guide in the application.[11]

  After the project is imported, they are able to input the project title and picture, as well as freely modify the labels and categories as needed. [10] Once UX designers confirm their project creation, the unique code and QR code would be generated and available to share.



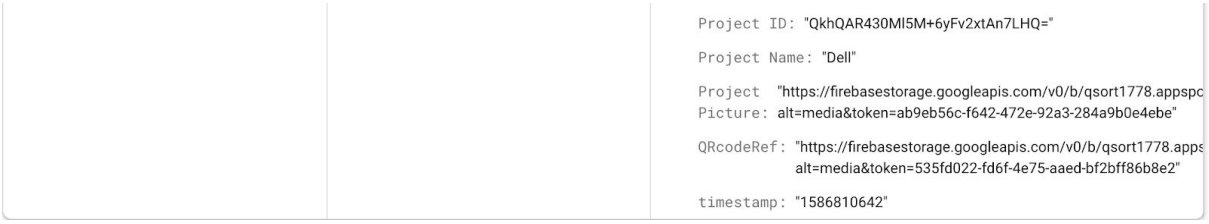


Figure C Project database design

- ***Share***

  For any existing projects, UX designers can share their projects to participants by simply clicking the share button.[14]

  For simplicity, UX designers can type in the emails of their participants, and a pre-set email will be generated in Gmail. The unique code and QR code will be automatically included.[15] Also, UX designers can just copy-and-paste the unique and long-press the QR code to save.

- ***Review card sorting results***

  By clicking the thumbnails of any existing projects, the project report page would be loaded. It displays the current number of participants and results by each label.[18]

  By clicking any button in the list of labels on the left, UX designers can see the rank of categories for each label. [18]

  To have an overall idea of the results, UX designers are provided a web-like review page.[16] Star sign(*) means the particular label has a draw and UX designers are required to do extra management.

- ***Review comments***

  The view comments button allows them to view the list of voice and text comments for each label, with the number of comments indicated on the button.[8]

- ***Manage projects***

  If the UX designers are satisfied with the results from participants and need to stop participants' accesses. They can disable the project, whereas still able to review the results.[18]

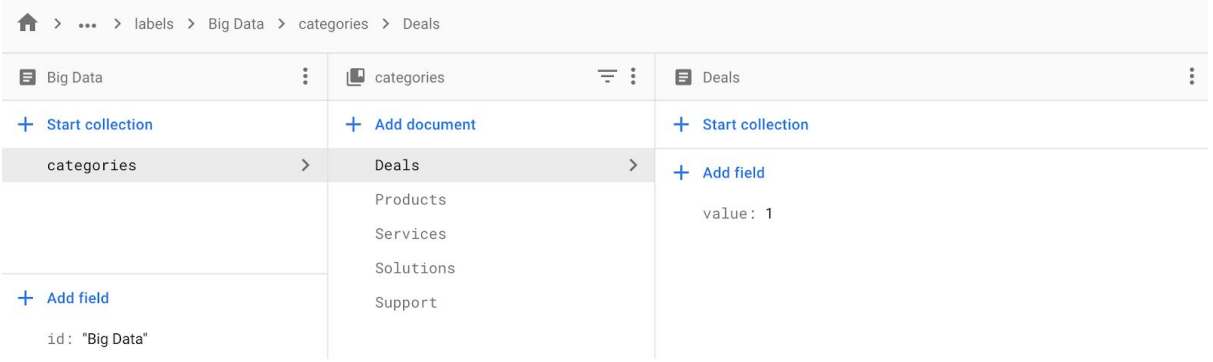
  If the UX designers would like to erase the project including all results, they can delete the project. As it's a dangerous action, the user are required to confirm their decision.[9]

Participants

- ***Access the project***

  Participants can access the project by either unique code or QR code provided by UX designers.[6] For QR code, they can either scan with the camera or choose from the gallery. [5] For unique code, they can simply paste the code.

- ***Card sorting experiments***
  Participants can do card sorting experiments by navigating one category to one label. They can select a category for each label in the drop-down menu. [4]



- ***Leave comments***
  If participants have any additional comments to add, they can leave voice or text comments on each label. The audio recorder is used for voice comments. [13]

Reflection

This project gave us the opportunity to hone our skills as part of a multidisciplinary team as this is an important part of the workplace today. We learnt how to maximize our time on tasks and work in an agile framework with iterative spirals.

Looking back, we could manage our time more appropriately and put even workload into each spiral. This means we need to do more research to have a clearer mind on how and how much time might be taken to realize the functionalities.

Contribution

Specialist (Joseph Olayemi)
I contributed by proposing the project idea, researched and designed preliminary UI features and functions. As a specialist, I also provided field expertise related to the project. Carried out functional testing of the features and provided feedback to the team.

Programmer (Hongyu Liu)
Project creation, Share by email, Review card sorting results, Card sorting experiments, Manage project.

Programmer (Ran Wang)
Card sorting comments, QR code generation and detection, User authentication, Access the project.

Specialist Context

The Qsort app automates and simplifies the card sorting process as it allows UX designers to run multiple card sorting experiments at a large scale. The model implemented also makes it easy to run these experiments remotely with multiple users. From personal experience, setting up a card sorting experiment can be quite tedious and time consuming but with this app, we aim to make it more intuitive and guided in setting up and running the experiment.

It is my belief that this app, with some more work and UI improvements could actually be very useful to UX designers who need to run card sorting experiments. The ability to have the users record their thoughts or comments also provides qualitative information to researchers. This can be huge in certain situations where a label has a relatively equal weight in more than one category.

Future Work

Open card sorting
Open card sorting allows both UX designers and participants to create their own categories and labels. Whereas, Qsort app supports closed card sorting, which allows only UX designers to set up beforehand. Though this app allows participants to leave comments on labels to express some additional thoughts, it could be more clear and efficient to enable them to edit categories and labels directly.

Export card sorting results
UX designers now can check the card sorting results by each label individually, and through a web-page like review page. To optimize this function, future work can involve the export of .csv file or .pdf shared to designers' emails.

Expand to other areas
Qsort app aims at providing quick card sorting experiments to UX designers and participants. Similar functions can be expanded to other areas requiring analytics of such surveys. For example, the UX design for mobile phones and wearables.

Public Agreement

Video of final presentation; Report; Source code:
https://github.com/rachelran6/Quick-Card-Sorting

Specialist (Joseph Olayemi): Agree
Programmer (Hongyu Liu): Agree.
Programmer (Ran Wang): Agree.

References

1. Nielsen, J. (2009, August 23). Card Sorting: Pushing Users Beyond Terminology Matches. Retrieved from https://www.nngroup.com/articles/card-sorting-terminology-matches/

2. Bigby, G. (2018, October 17). 10 Card Sorting Tools for Surveying Information Architecture (IA). Retrieved from https://dynomapper.com/blog/19-ux/428-card-sorting-tools

3. Sherwin, K. (2018, March 18). Card Sorting: Uncover Users' Mental Models for Better Information Architecture. Retrieved from https://www.nngroup.com/articles/card-sorting-definition/