# The WING

Alex, Eimi, Eric, Luis, Woohee

# Wing Luke Museum: Design Document

Team members: Alex, Eimi, Eric, Luis, Woohee
Version 4.0
2/26/2021

## Change Log

| Version | Date | Updates |
|---|---|---|
| 1.0 | Jan 15 | Initial |
| 2.0 | Jan 29 | <ul><li>Added the "change log"</li><li>Refined big idea</li><li>Started Competitive Analysis</li><li>Added user outcomes</li><li>Added design decision</li><li>Checked content links for UW restrictions</li><li>Added content to "Research History and Archive" section</li><li>Minor revision to prototype descriptions</li><li>Added "how our team works"</li></ul> |
| 3.0 | Feb 12 | <ul><li>New content highlighted with Yellow highlighter</li><li>Old/ outdated content are currently ~~striked out~~</li><li>Future content that haven't been added will appear as green text or comments ⊞</li><li>Updated 'Design Decisions'</li><li>Added further persona to "Research History and Archive" section</li><li>Added prototype 3.0</li><li>Updated prototype 2.0-2.2 (located above prototype 3.0)</li><li>Added preview thumbnail of the links in Research History and Archive</li><li>Update on customers section about planned/ in progress future survey</li><li>Minor update in the Stakeholder data section</li><li>Big idea outdated ideas striked out</li><li>Design Intent Added</li></ul> |
| 4.0 | Feb 26 | <ul><li>Stopped using the top 3 bullet points from previous change log</li><li>Added section: iteration findings/results (edited)</li><li>Added section: iteration plans (updated)</li><li>User Research added</li><li>Team case studies added</li><li>Added Design Document Cover Page</li><li>Added to design decision</li><li>Added titles in Research History and Archive section</li></ul> |
| 5.0 | Mar 14 | <ul><li>Updated Competitive Analysis</li><li>Updated Iteration Findings/Results</li><li>Updated Iteration Plan</li></ul> |

|  |  | <ul><li>Added Executive Summary of Design Project</li><li>Updated 'Customers'</li><li>Initial Demo Prototype added</li><li>Virtual Museum sketches added</li><li>Winter quarter countdown schedule added</li></ul> |
| --- | --- | --- |

## Index:

# Overview

## Iteration Findings / Results

For this iteration, we put our focus on finishing up research and ideation based on them, and moved forward to sketching and prototyping.  As we planned in the past iteration plan, we were each able to generate sketch ideas mainly for search, but also for a general idea of what the system would look like. We looked through them, shared them with the stakeholders, and received some feedback on the features they liked or disliked on the sketches. Since each of the sketches generally seemed to have a similar base, we combined different features we liked from the sketches and combined them into one idea for the prototype, rather than just choosing one sketch entirely. Due to time constraints, we shifted our focus to the prototype, and skipped the mood board for now. For the prototype, which is still in progress, we created a general layout of the pages and visuals to help better understand how the system would work. We also continuously individually have been working on learning and testing 3d modeling software and coding with three.js as well as research alternative options. We have also consulted the stakeholders about the artifact samples, and they are willing to send us samples as we request them.

## Iteration Plan

With the progress we've recently achieved on our current prototype, we're finalizing on the idea of creating a virtual gallery for users of the Wing Luke Museum. Our ambition for spring quarter is to create a website prototype that presents the idea(s). With recent research done regarding 3D modelling programming possibilities, we've discovered how to import simple 3D models and alter the light shown on them. However, this is still early in the learning process and thus we must account that adding these technologies could always end up harder than anticipated. That being said, we are confident that we will be able to at least create a good simulation of our ideas if they can't properly be implemented. The key here is to develop a solid preview of the main ideas we end up using; we are secure and excited to finally build it next quarter.

- [All] Demo prototype revisit & refinement. Hear feedback from other groups after the March 15th presentations and make edits. Finalize the editor interface for the prototype.
- [Eimi & Luis] Start creating the basic website wireframe based on the demo prototype. Implement or research how to implement 1+ of the prototype features.
- [Eric, Woohee, Alex] create at least 1 testable 3D model to implement into the three.js code.
- [Eric] Create a draft planner to set checkpoint goals and tasks to make sure the project is on track to getting completed in time.

# Executive summary of design project

This project is the development of a custom exhibit creator that will allow the user to create custom exhibits using actual artifacts from the Wing Luke Museum. The ideal outcome will create a system that will allow users to create their exhibits, generate "tickets" and share them with others through links and qr codes that will direct them to the user's created exhibit.

# Design Intent

The intent of this project is to design a product that can bring museum visitors a new method of engaging with the museum's content, as well as connect more to their artifacts and artwork, that typically have set meanings put behind them. Museums are seen as places to go learn from the exhibits and see them. But with museums such as the Wing Luke that primarily showcase community and locally found stories and artifacts, the museum feels that some of the artifacts can mean different things to people, and depending on perspective, can create a whole new story. The Wing Luke Museum has always worked with community members to find stories and showcase the different artifacts based on how they connect, and our idea can additionally potentially create opportunity for not only the users to learn about each artifact from the museum, but also for the museum to be able to learn from the community which could possibly even lead to new exhibits or information for them.

The likely users of this experience we're designing for are (from our stakeholders): teachers, community members, Seattle locals, tourists, and museum membership members.

# The Big Idea

The concept being explored with this project is using technologies and media to create remote experiences for the museum to offer to visitors especially while the museum is closed. The current idea is to create an online platform for the museum's archived content to be showcased. This can help preserve the museum content, as well as create online exclusive content so that the existing experiences in the museum remain indefinitely while the amount of content that exists between the physical museum and the virtual museum continues to grow. What we want to create is not just a boring website archive, but a virtual extension of the museum so that future visitors won't be limited to only the current exhibit. One big advantage of websites is that content isn't limited by physical space and certain accessibility tools like text to speech becomes easier to use. Another advantage is that the activities originally included in the exhibit can be recreated in a digital space and regularly get further expanded by connecting to other additional resources.

The way we're approaching this idea is by exploring what it means to be interactive through the use of digital mediums. One example is deconstructing the concept of AR to see how a digital object can be used to interact with the user's physical space. We already have plenty of examples of ways to bring virtual content into the physical space, but it's still a relatively new concept for museum experience since large scale artifacts and walls of informational content can't be fully experienced. The experience won't be the same if it is just pictures, videos, or

even 360 videos using VR headsets which is why another type of experience will be the main focus. The so-called "other type of experience" is all the historical and cultural experience records that form the Wing Luke Museum.

## Competitive analysis

We have created a competitive analysis chart of general virtual museums and related services to compare our idea with what other museums are doing especially as many more museums are opting to create online options during our current pandemic. With the analysis we have so far, we have learned that many of the museums offered free web based virtual tours, such as 360 viewing of exhibits or google street view type viewing methods. There were also a few museums, such as the teamLab which offered online exclusive content that incorporated the participation of users from their homes. We have currently collected information on around 10 museums, but so far, we have not found any similar ideas to our project. We plan to continue to search for more similar services, and ideally conduct research on those services based on their design and reviews.

Competitive Analysis for Virtual Museum Services

| Museum/Service(Add Link(s)) | Location | Topic | Type of virtual service available | Expenses |
|---|---|---|---|---|
| Wing Luke Museum | Seattle, WA | Asian Pacific American Culture and History | Virtual Live Video Tours | Paid virtual video tour, free map with some content |
| British Museum | London | human history, art and culture | virtual timeline | free |
| https://artsandculture.google.com/ | | | | |
| Smithsonian | Washington D.C. | Natural History | Virtual Tour | Free |
| National Gallery of Art | Washington DC | Art preservation/ collection | virtual "tour" | free |
| teamLab | Worldwide Pop-ups | Digital Artwork | Online Exclusive Exhibit for Home | Free |
| NASA Langley Research Center | Hampton, VA | Research Building Tour | Virtual Tour through media | Free |
| The National Gallery London | London | Art | 360/VR Virtual Tour/Images of Art | Free with member exclusive content |
| The MET Museum | New York, NY | Art | Images of Art, 360 video tour | |

## Conceptualize the design space
TBA

## User outcomes
- We believe that more membership will be achieved if the families successfully get connected to the WLM's programs through the virtual museum content.
- We believe that the museums' revenue will increase if users are happy with the proposed rewards system
- We believe that users' interest in the museum will be achieved if users can have a better understanding of artwork with an assistant system.

- We believe that there will be increased visitors to the museum once it opens back up if visitors are able to find interest in the museum through the online services.

User Outcome Class Activity

# Customers

According to the stakeholders, the main customers of the Wing Luke Museum are: 'teachers', 'community members', 'Seattle locals', 'tourists', and 'museum membership members'. We can gather from this information that users of the museum are people that like learning about history, want to discover Seattle's Asian Pacific American background, and want fun and community based experiences. The Wing Luke museum heavily emphasizes their community inclination with their events and exhibits. This fact allowed us to discover an open possibility of creating our virtual museum which aims to enhance the museum's experience further.

# Recommended design (noun 3)
TBA

# Technology description
TBA

# Barriers and Risks
- Integration with the museum's new website being developed as we work on the project. They are also simultaneously working on this new website that our system would likely be a part of, so we have very little knowledge of what they have and how it might work with that system.
- The archive exhibit sample is limited to what the museum has available, which will greatly affect what can be done for the project. The sample material we have received so far, primarily consists of text files and images, which is a constraint/barrier that we are currently trying to solve.
- We are all working remotely, likely for the remainder of this project, and have very limited understanding of the physical museum.

Possible constraints that can occur for our project that our users can suffer from can vary. One is the fact that our AR project could have accessibility issues that could arise unintentionally. Another is that certain website integrations (if we explore that feature) could not be included.

# Stakeholder data
Our stakeholder for the capstone project are the experienced employees from the Wing Luke Museum of the Asian Pacific American Experience. We have a total of 3

stakeholders, which are: Alex plemistcher (Director of Technology and Infrastructure), Jessica Rubenacker (Exhibit Director), and Mikala Woodward (Exhibit Developer | Oral History manager)
https://www.wingluke.org

## What you have learned (academically)

Through this project so far, we have experienced what it is like to work with a stakeholder. Especially with our particular stakeholder being fairly enthusiastic about the possibility of our project being implemented in their system, there is a lot of careful thinking that we have to be putting into the project. Unlike other previous school projects, there have been fairly major constraints that we have had to work with, and we are currently still learning to work around these constraints and still are in the process of trying to figure out how we could solve the problems surrounding them, but this will likely be something that will also be relevant in industry situations, so all of these processes have been helpful to understand.

## Roles & responsibilities

The responsibilities of each member is dependent on the roles every two weeks, based on our created role rotation charts. With the team role rotation, generally the roles define the responsibilities that relate to the project and the design document and rotate every two weeks, while the meeting notes roles are solely for the meeting and the notes and rotate every week.

Team role rotation schedule:

|                  | Project Manager | Team Manager | Documentor | Scrummaster | Team Member |
|------------------|-----------------|--------------|------------|-------------|-------------|
| Jan 4 - Jan 15   | Alex            | Eimi         | Eric       | Woohee      | Luis        |
| Jan 16 - Jan 29  | Luis            | Alex         | Eimi       | Eric        | Woohee      |
| Jan 30 - Feb 12  | Woohee          | Luis         | Alex       | Eimi        | Eric        |
| Feb 13 - Feb 26  | Eric            | Woohee       | Luis       | Alex        | Eimi        |
| Feb 27 - Mar 12  | Eimi            | Eric         | Woohee     | Luis        | Alex        |

Meeting Notes Role Rotation Schedule:

| Week | Scribe 1 | Scribe 2 | Meeting facilitator |
|------|----------|----------|---------------------|
| 1    | Eric     | Alex     | <none>              |
| 2    | Eimi     | Woohee   | Luis                |

| 3 | Eric | Alex | Woohee |
|---|------|------|--------|
| 4 | Luis | Eimi | Eric |
| 5 | Eric | Alex | Eimi |
| 6 | Eimi | Woohee | Luis |
| 7 | Luis | Alex | Eric |
| 8 | Woohee | Luis | Alex |
| 9 | Eric | Woohee | Eimi |
| 10 | Eimi | Luis | Alex |

## Lean UX design journey map
TBA

## Design evolution
In the initial idea of the virtual museum archive design, we had thoughts about having features like DIY projects as interactive components, viewable 3d objects from the museum, and making images partially 3-d. Everything was mainly focused on how we can transform an exhibit that was designed for a physical space and make it suitable for a virtual setting. But after making progress from the first iteration of the winter quarter, we've made more progress on focusing more user-involved features which resulted from the brainstorming activity on January 13th. The brainstorming activity on Jan. 13th had only one goal in mind, and that was to list the things we envision in the Wing Luke Museum. A lot of the ideas were created under the impression that Wing Luke Museum was a community-based educational resource.Due to the strong community connection, we thought of implementing features that can involve the community and grow from the community's involvement. The two key ideas that were the result of the brainstorming activity were:
- Community fueled features where they participate in activities together and add posts of their own content. (polls, quizzes, word prompts/ word clouds, DIY project showcase)
- A gamified experience that will get the users interested in the museum content (also a way to also make younger audience motivated to get involved)

Some of the idea choices were made because we first wanted to consider the impact of having an exhibit with updating content. First, the design is self-sufficient in the way that it doesn't involve the stakeholder to have the need of adding updates to the archived exhibits since they're already busy with curating new exhibits. Second, the community can do more than just post responses to writing prompts because they're not restricted to the amount of time spent at the exhibit, which allows possibilities like submitting inspired artwork or longer stories to expand the exhibit content. Third, these are interactive activities that can only be done through virtual settings and it doesn't require resources like display stands, kiosks, TV, or other typical museum tools to make the activities possible. These changes are important to the development of the

team's capstone design because it creates content tailored towards one of the major user groups identified for Wing Luke Museum.

## Bonus: "How our team works"

The team generally works based on the given roles for each of the two weeks, along with the assigned roles for team meeting durations, which both have a rotation schedule. But team members will contact through our group discord, ask for additional assistance as needed, and will receive help. Team meetings are held both through discord and zoom, and stakeholder meetings are held regularly every two weeks through zoom calls to discuss any changes and receive feedback on them. Other than the formal meetings, the team also frequently communicates through discord which helps us to discuss ideas and design in more detail.

# Appendices

## Prototypes

Link to the prototype page: https://www.figma.com/file/omNK0kxK9DxVSk6k89ldqv/Wing-Luke-Prototype-Revision-2.0?node-id=0%3A1

## Prototype 1 (abandoned):

During the first ideation phase, we were imagining the whole Wing Luke Museum virtual space to be an app of some sort. So the first figma prototype started as a mobile based design with features that are more suitable for a mobile device (drop menus, content layouts, scroll navigation). After the first 2 stakeholder meetings, it was decided that ideally the project will be website based for computers instead of a separate mobile app since people don't often download apps for museums.
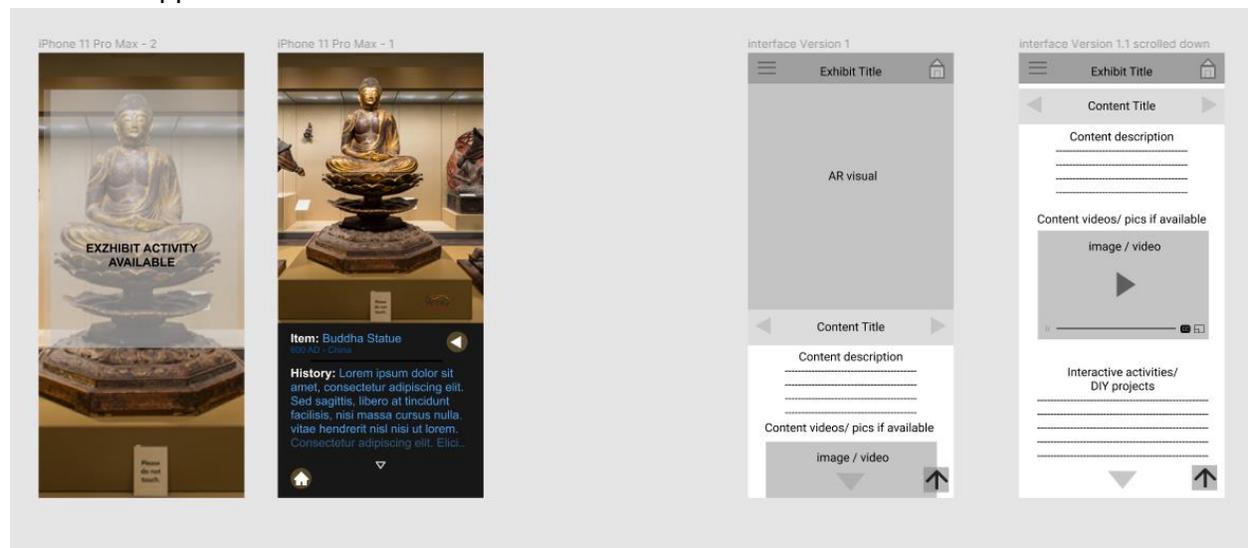
## Prototype 2 (abandoned):

The next set of prototypes were website based with a wireframe of the exhibit selection page and exhibit page. The design included consideration for spaces to place the 3 window tab buttons (min, max, exit), search bar, museum logo, museum navigation tabs, and the side scroll bar. Features explored in this iteration include cards to showcase the exhibits, preview slideshow, and some kind of virtual room embedded content that was originally for some kind of 3d virtual view of exhibit content. Some of the navigation buttons for the 3d virtual room (top right box) is from a mix of 3d video viewing buttons and google maps zoom bar. The result of the prototype was that it's too simple and similar to some basic website templates. Additionally, it doesn't really showcase enough detail on how the exhibit content will be viewed from the perspective of the user.
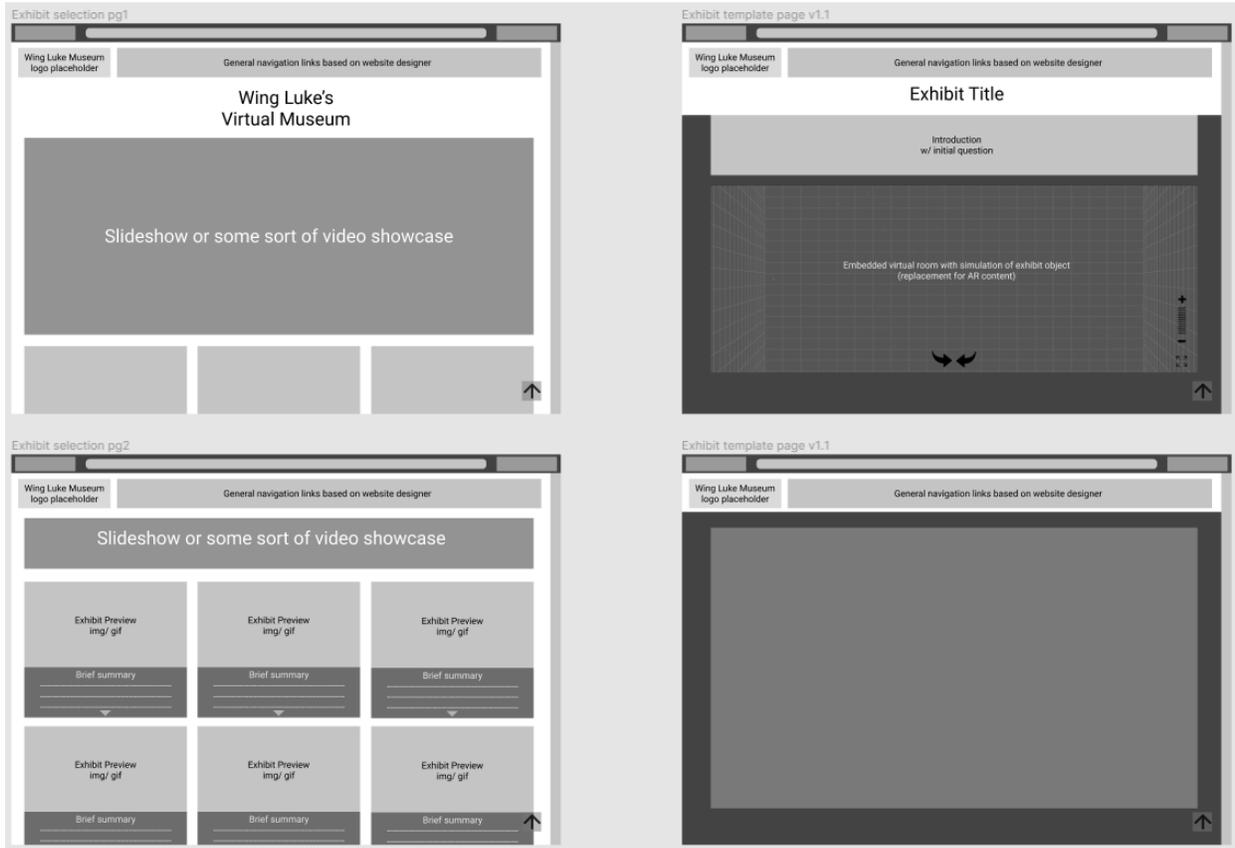


## Prototype 2.1 (abandoned):

The next iteration of the prototype is an implementation of the sample exhibit content given by the stakeholders. This included the layout of the actual exhibit plan, the digital file of the exhibit content/ picture, samples of their exhibit word prompt interaction, and additional content like their informational brochure. In this prototype, we explored the potential usage of the virtual room previously included in the last prototype to see how it could be used to navigate through the exhibit content. The series of samples show an example of selecting one panel of information from the entire exhibit display through the use of zooming in and out (similar to how websites like figma or lucid chart navigate through the content).
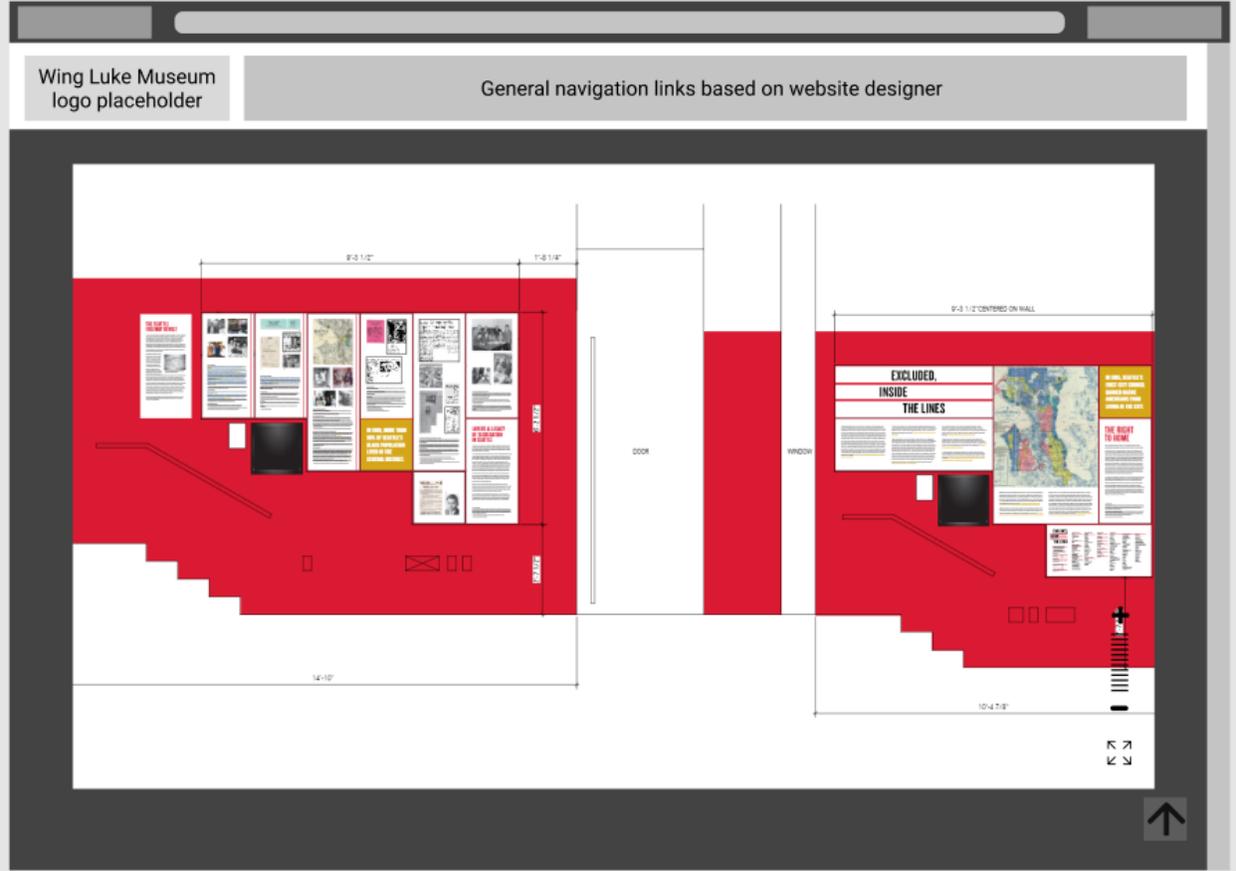
Figure 1.0: zoomed out view of the entire exhibit to showcase how it will fit within the "virtual room" tool
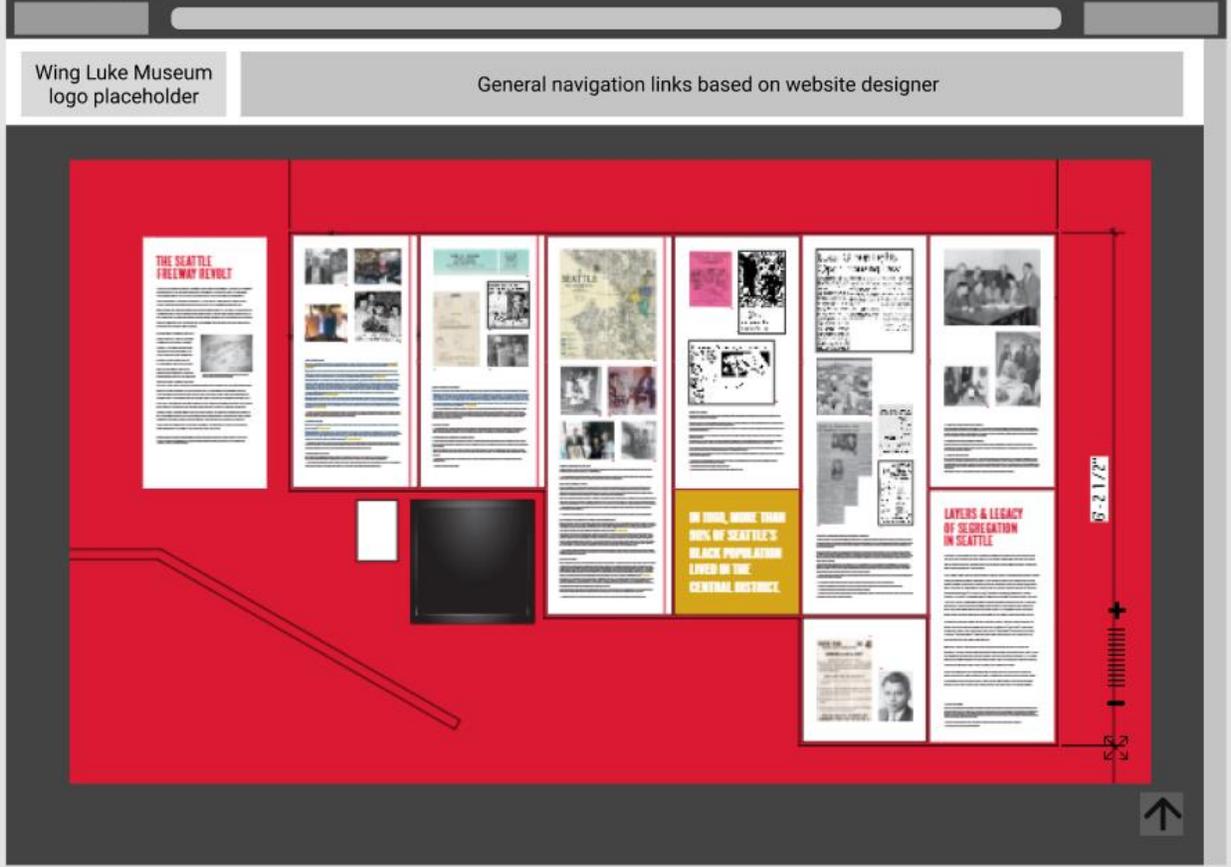
Figure 1.1: Zooming into the left side of the exhibit wall to view the group of content
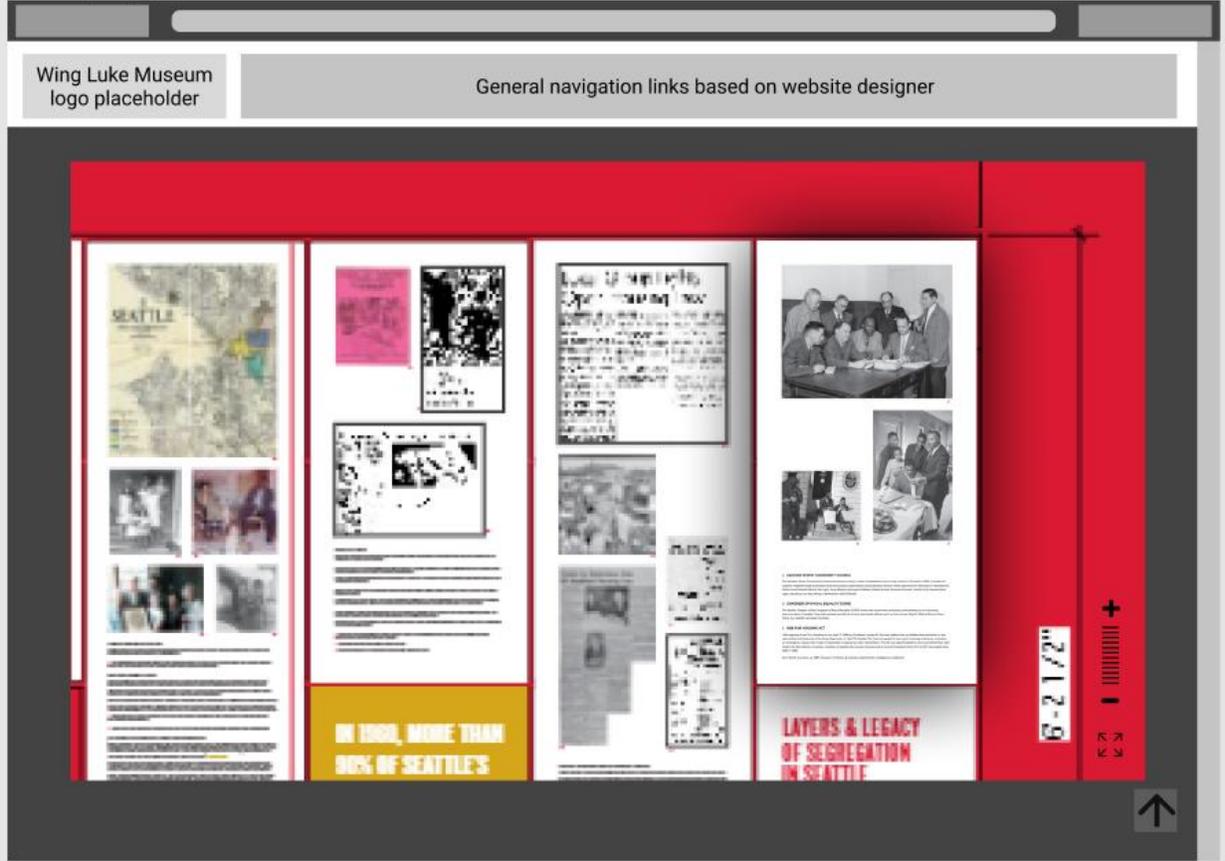
Figure 1.2: Zooming even more into the exhibit contents. Hovering over one panel will lead it to pop out and create a subtle drop shadow
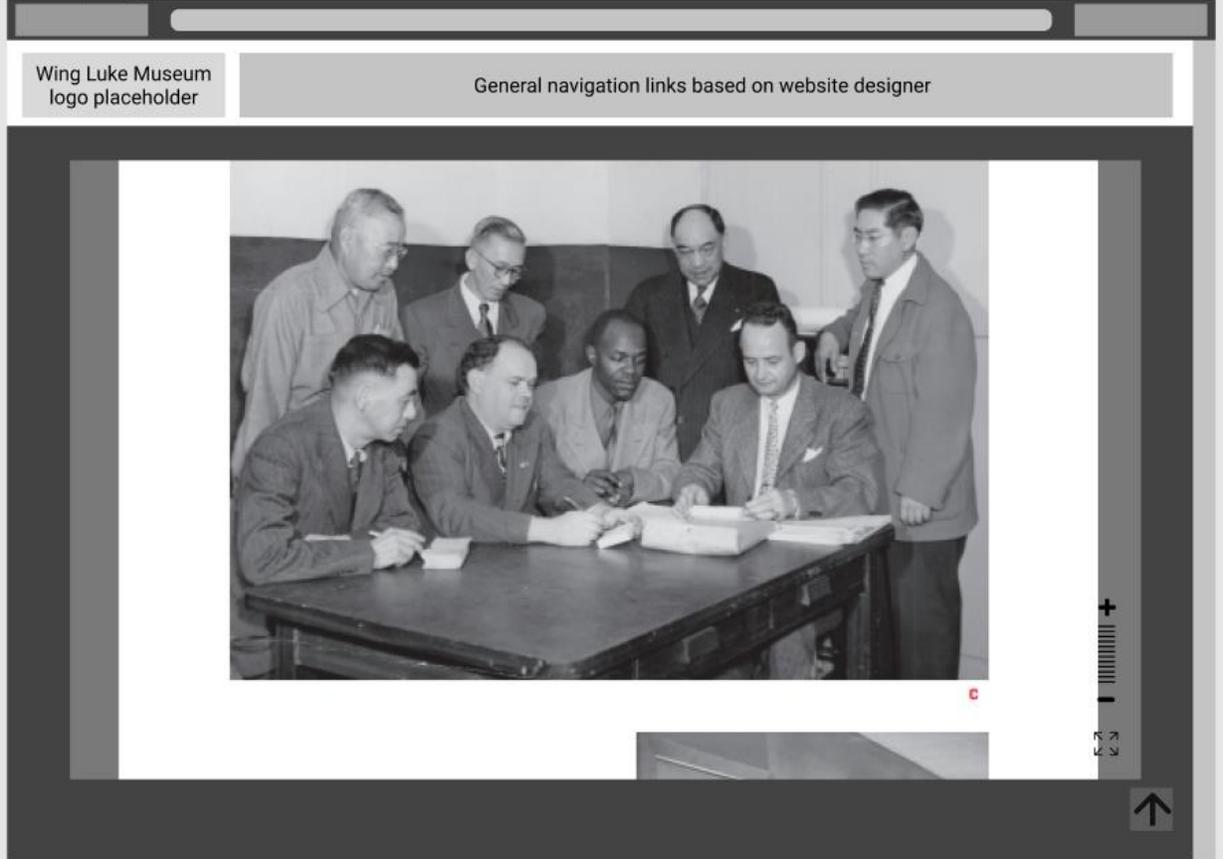
Figure 1.3: Clicking on the prior panel will make the virtual room open up the panel with a similar format to a pdf document viewer.

Figure 1.4: Preview of the entire panel which isn't shown in the end product due to the amount of content designed for an open space exhibit panel. Instead the viewer will only have the prior figure's window which can navigate through the panel by scrolling or clicking dragging the page. Since not everything could be viewed at once, images and content may be linked together by clicking on either the text or image to jump to the relevant content. Additional solution is to create a pop up that shows both image and content together.

## Prototype 2.2 (abandoned):

This was another idea of the exhibit webpage with a background theme suited towards the exhibit content. Other than adding a theme component to the prototype, slideshow windows are added to reduce the length of vertical scrolling needed to complete navigating through the entire exhibit content. This was taken into consideration due to the size of the exhibit panels and the amount of words/ image content included.
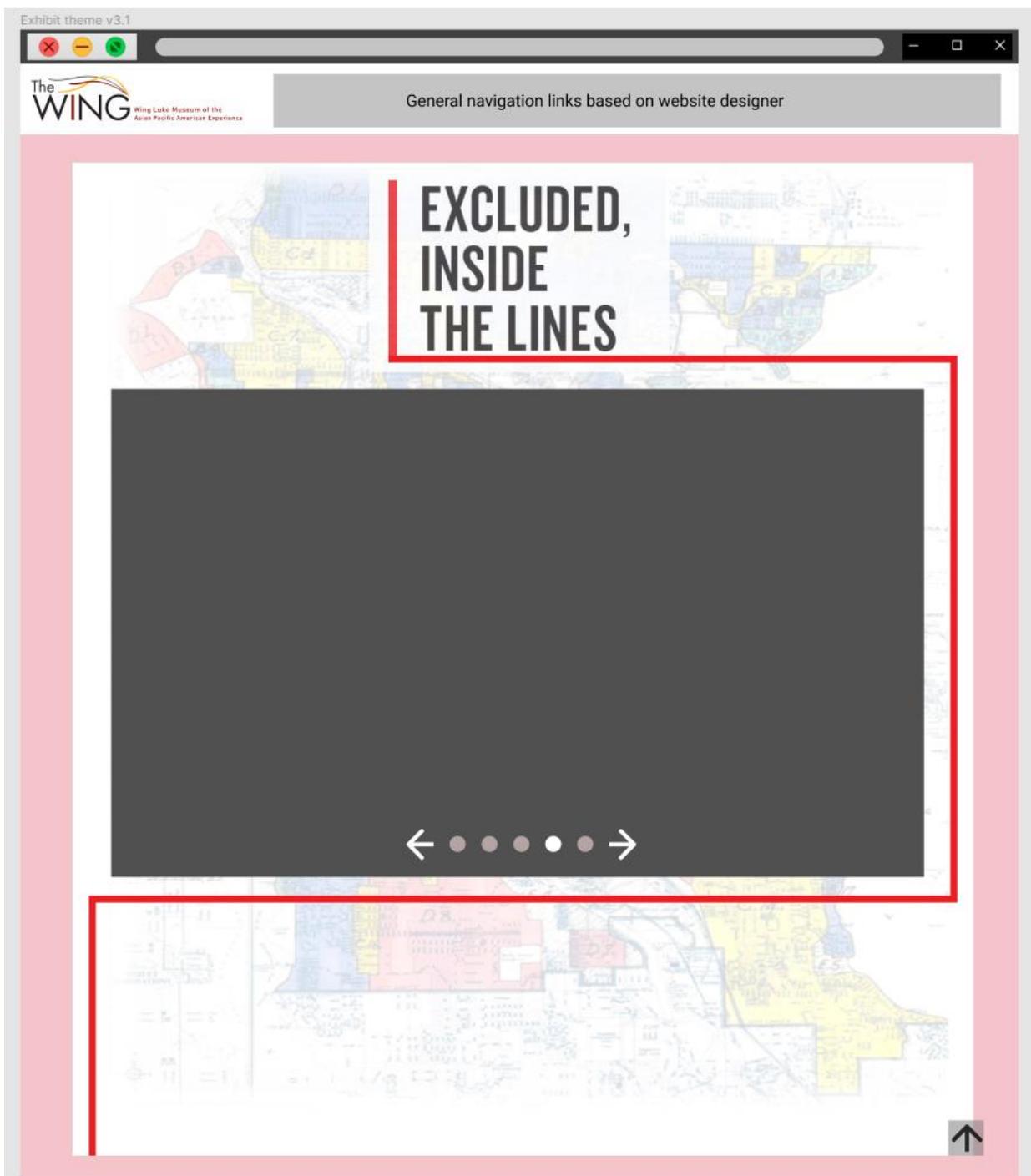
Figure 2.0: utilizing existing exhibit content, the background map is an image from the exhibit word prompt background and the exhibit title design is further implemented to the page by extending the red line design. The line design can be a potential method of splitting the page content while guiding the viewer to look through the content (similar to the Ikea arrow navigation design)

In prototype 2.0-2.2, we abandoned the idea due to the restrictions and limitations of using archived past exhibits. It felt more like building a regular website page instead of creating a new product that can enhance the museum experience. With the new change, we began to find a lot of interesting unexplored areas when it comes to virtual museum experiences. Without worrying about the unrealistic or futuristic possibilities, we found the new ideas more interesting and fun to design.

## Prototype 3.0:

After the stakeholder meeting on January 29th, our group moved onto a new project idea that focused more on a personalized exhibit experience. Originally, the whole prototype was going to be created in Figma, but due to several learning curves and recurring bugs, we decided to use alternative resources (primarily Microsoft word, snippet tools, free PNG images, clip studio pro, and Sketchup) to create the prototype concept images. Additionally, the whole prototype was made under a tight time constraint of ~5 days to make it in time for the checkpoint presentation.

The main idea is to have a list of interactable artifacts that can be dropped into the user's virtual room (a blank white room template) or their personal real-life room using AR. We came up with this idea because the next best thing to going to a museum is bringing the museum right into your home. As of now, everything is still in the ideation phase since we're trying to think of the

processes needed to make the whole idea work.



Figure 3.0: Within the screenshot displays the arrow drop menu which contains artifacts that can be scrolled horizontally or dragged to be placed on the screen. Some features that are part of the initial idea are artifacts that can be used as a picture prop (similar to the japanese photo booths with touch screens to add effects, props, and additional things to the pictures), signs for artifact descriptions/ messages (such as exhibit name), pinning artifacts to actual walls, and background filters (similar to snapchat filters).

## Prototype 3.1:

In this set of prototype images, the concept is still the same as prototype 3.0. The only difference is that the visuals showcase the product's usage in a 3d environment to further define certain details related to the perspectives during usage. Figure 3.1 focuses on the 3rd person view of the phone screen when using the AR version to view the artifacts. Although it is still uncertain how certain natural elements can get replicated through AR, we thought it would be interesting if virtual artifacts that are only viewable through digital devices are able to reflect the

sense of 3-dimensional space along with natural lightings on top of the virtual objects.

Before AR                                                    After AR
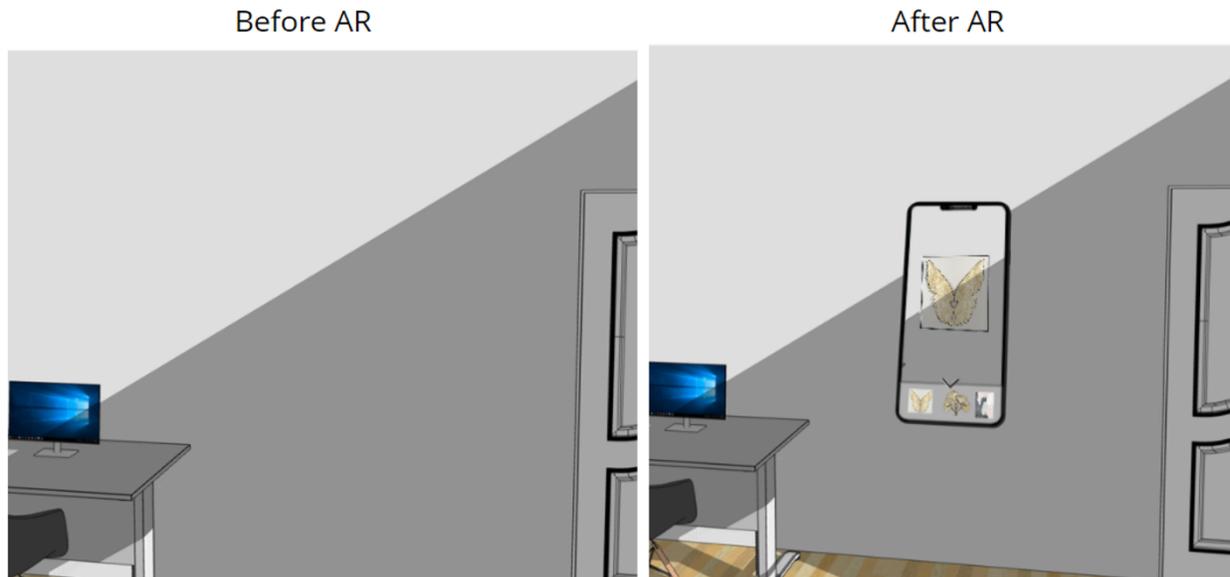


Figure 3.1: A quick visual demo of the actual room and the view of the web app being used in the same space.

# Project Demo- Pinned artifacts



Figure 3.2: In this screenshot called "Project Demo- Pinned artifacts", the main focus is the way the objects maintain position despite the change in perspective. As of now, we are thinking of creating a snap grid system to make it simple and easy for users to pin artifacts onto the walls. In the AR option, it's fairly limited with the current resources, but there are some possibilities with the newly released Lidar feature which uses lasers to map out 3D space. Although perspective may be unnecessary for certain flat artifacts like paintings and pictures, it's still an important feature to replicate a museum experience.

# Project Demo- Web view

Blank Room

Virtual Museum Space



Figure 3.3: A screenshot of the website view of the personal exhibit when using a computer instead of a smartphone. Although it lacks icons for features like navigation, menu, zoom, etc., it's only an early visual concept of what the layout might look like if the user used a "virtual room" template instead of using AR on their actual room. Although the image shows a bedroom type room, it could be a simple blank room where artifacts can be placed anywhere (even the ceiling or ground). The controls would likely be the arrow keys or WASD to move around while the mouse/ keypad controls the view of the user. These types of creative freedom will be encouraged to let users view artifacts from a different perspective along with the endless possibilities of the artifact combination.

Overall, prototype 3 is vastly different from the previous 2 prototypes in the way a virtual museum is viewed. We felt like there is so much content that can be explored, yet they're not personalized for the user's specific interests. With the whole virtual exhibit, every experience is unique to the user. Additionally, without the limitation of physical space, users can explore thousands of stored artifacts that rarely/ never get seen in the physical museum.

## Interactive Demo Prototype 4.0:

TBA
https://www.figma.com/file/oJcpmgVdnkZRjQShxQRU27/Wing-Luke-Museum-Project-Prototype?node-id=0%3A1
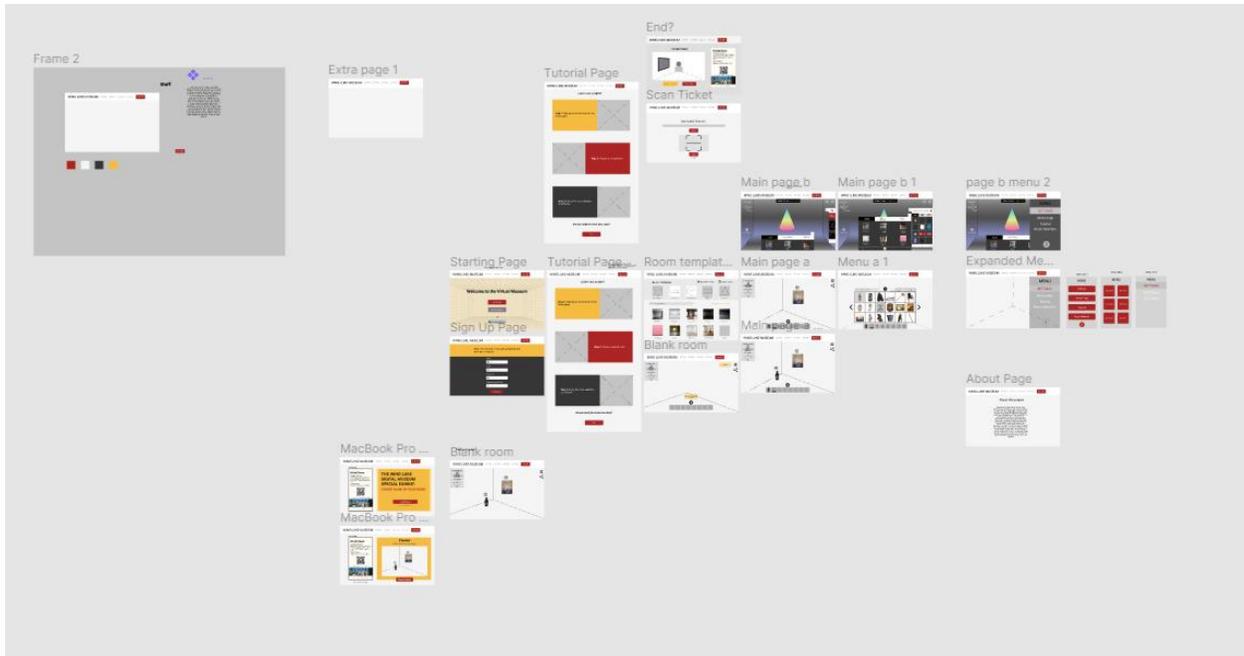
# Research History and Archive

Throughout the project, we've constantly come up with new ideas using UX methods like mind mapping and storyboards to help bring user assumptions and feature ideas to mind.

We find mind mapping incredibly useful for idea generation and storyboards are great for us to step back a little and try to empathize with specific users.

## Storyboards:

During our first ideation phase as a team, we each built individual storyboards that helped us find common themes, areas of interest, and focus in search of a final prototype idea. One of the common themes we found from all of our storyboards was that a great museum experience will help a user do something more than *just* going to a museum to look at some exhibits and going directly back home. In all of our storyboards, the user ends up doing something more after finishing a tour such as: looking up local social movements that relate to exhibits/local struggles, buying a souvenir after, or wanting to relive the experience or interactive parts of the tour with other loved ones. We believe that it's safe to assume that a memorable experience will help bring more revenue to the Wing Luke Museum as well as provide great user satisfaction.

[Link to the storyboards above mentioned](#)
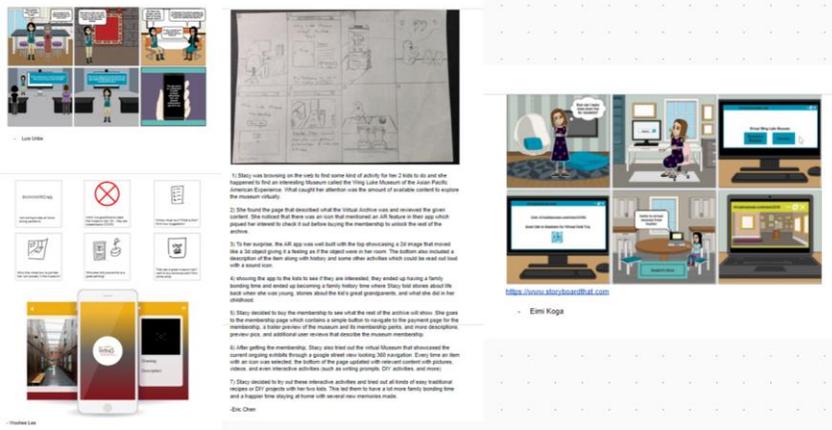
## Mind Mapping:

Mind mapping has also been a very useful tool in helping us create our project. After our first two stakeholder meetings, we decided it was time to narrow down our design choices more profoundly and used this method to help narrow down our ideas. Going over those mind maps along with the new conversations that sparked afterward allowed us to move forward more confidently with two strong ideas: having interactive community activities/content and possibly incorporating a gamified "point-system" that works when the user goes to exhibits, interacts with the community, posts content, etc. We will introduce these ideas to our stakeholders at our upcoming third meeting on January 22, 2021.

[Link to the mind maps above mentioned](#)
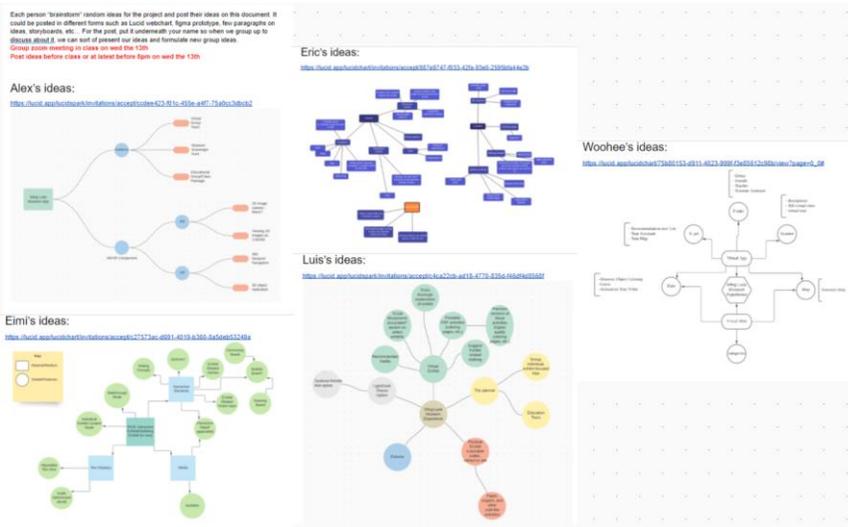


## Concept Sketches w/ stakeholders

Before our fourth meeting that occurred on January 29, 2021, we ended up needing to iterate a few more project/prototype ideas as individuals to then collectively show them to our stakeholders. We did this due to being allowed to be more open with creating something outside

their original project expectations. The assignment that shows this work was created amongst ourselves to reflect new ideas that would search for new and more specific delighter features which was based on January 25ths stakeholder meeting. Each individual chose from a range of sketches and visual narratives to brainstorm their ideas. We ended up completing these ideas 24 hours before the fourth meeting to give the stakeholders more time to fully delve into our design thinking.
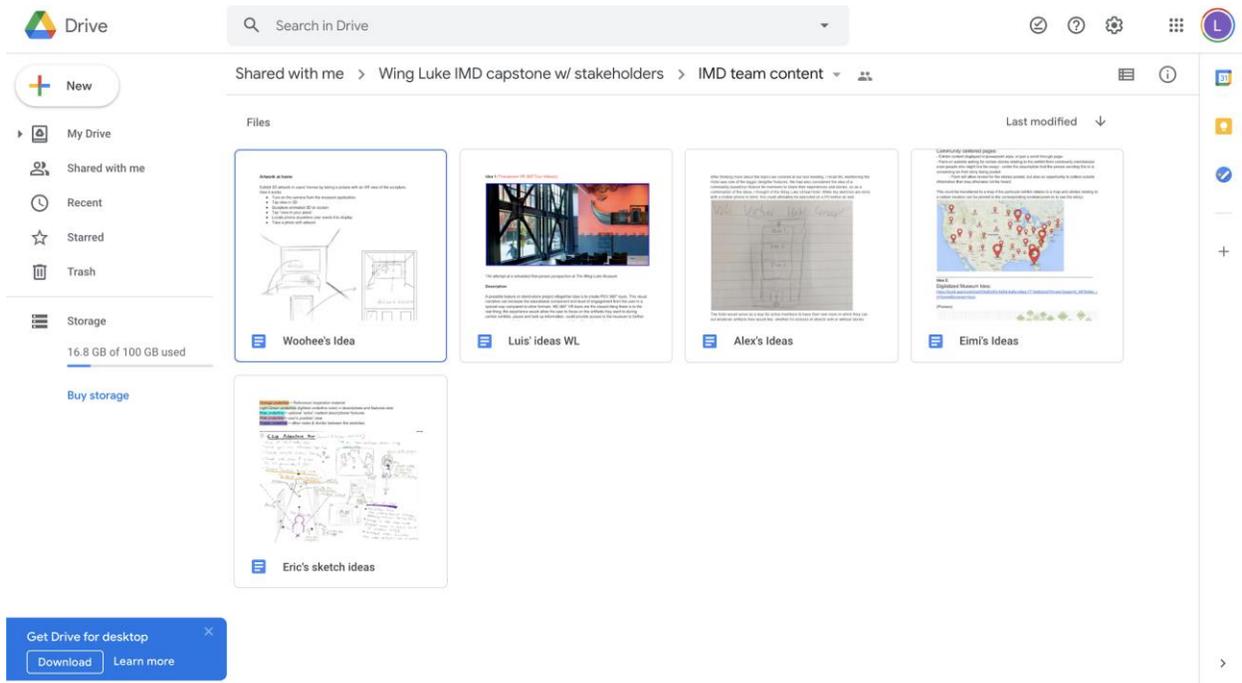


*Click on this link to see the documents shown and described above*

## New Project Idea + midterm presentation:

Personas are also a great way to test out your assumptions and use as a point of reference for a type of user you're building for. After our last meeting on January 29th, 2021, we decided to move forward with the idea of having museum artifacts within one's space using AR technology. We want users to engage in creative content that can showcase their personality and interests delightfully.
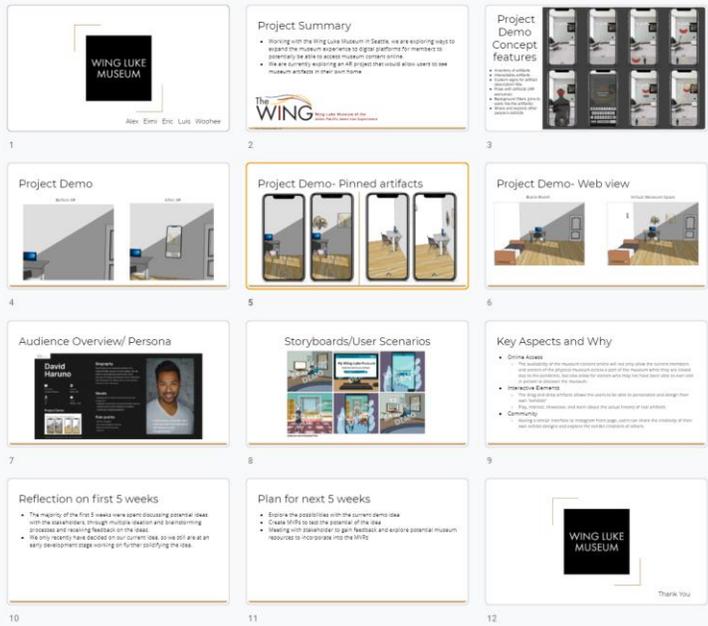
We made this persona that reflects this that can be seen on our [mid-term presentation](#):



## Team case study ("Show and tell" presentation) notes:

On February 24, we were tasked to share to the class our experience so far when it comes to working on the capstone project. The task was surprising due to it's sudden appearance, but it also benefited the groups in some ways. It allowed us to review what processes were useful and what tips/ tricks we can use in future projects. Every mistake we've encountered gave us more experience on what not to do and what isn't helpful. It also allowed us to see how our group grew as we faced more challenges throughout the project.

- individual idea proposal and grouping up together to present each other's ideas.
    - helps group come up with more ideas.
    - similar to the 10+10 method
    - prevents "groupthink?" (when everyone starts thinking the same ideas and progress becomes stagnant)
    - even similar ideas have subtle differences which change the perception of prior known ideas.
    - gives the group more choices on things they can enjoy making together as a group.
- "casual user research" (Replacing surveys with casual conversations)
    - Gives more useful user feedback through comments.
    - Higher chance of "off topic" conversation that can lead to new ideas.
    - Helps the presenter (you) learn and improve on proposing the project idea.
    - Brings in the personality of the user being researched.
    - In person connection helps you sense more stuff than "results and data"
- Always browse online for cool resources or projects made by another designer groups.
    - Looking at other museum's approach to the online space inspired ideas
    - Helps build a selection of useful content that can be used for current or future projects.
    - Super useful whenever you fall back into a backup plan.
- Takes notes on EVERYTHING.
    - Meeting notes are super useful for communicating between all group members and stakeholders.
    - Even standup meetings contain useful information that can lead to progress.
    - Sometimes normal group conversation discussing off topic stuff can lead to realization of new ideas.
    - Sometimes subconscious thoughts that you never realized you said can be a crucial idea for the project's next step.
- Constantly question your group work
    - Why am I doing this? How is this helpful/ useful? Who is this for? Is it possible? Is it important? Would I do/ use this? What happens next?
    - Helps the group critically think about what they are doing.
    - Creates a way to check if it meets the desirability, feasibility, viability requirement.
- Critique each other to help group members improve and grow (mix of project manager and scrummaster)
    - Quickest way to get feedback on content.
    - Does not require the person critiquing to re-learn the whole project summary and purpose of the content.
    - Already something we should be doing often when we work in groups.
    - Double checks for mistakes and potential problems

## Virtual Gallery Museum — Artifact Menu Sketches

Nearing our stakeholder meeting that took place Friday 12, 2021, our group decided to ideate some sketches of our current virtual museum idea to find common takeaways. Additionally, the group desired to use these sketches to take into consideration before creating our most recent Figma prototype. In other words, that prototype is the result of us going through these sketch ideas and figuring out what works and what doesn't. One of the takeaway points we found was that all of the sketches contained some sort of artifact search or storage menu. In the end, we ended up using both these features in our most recent prototype.
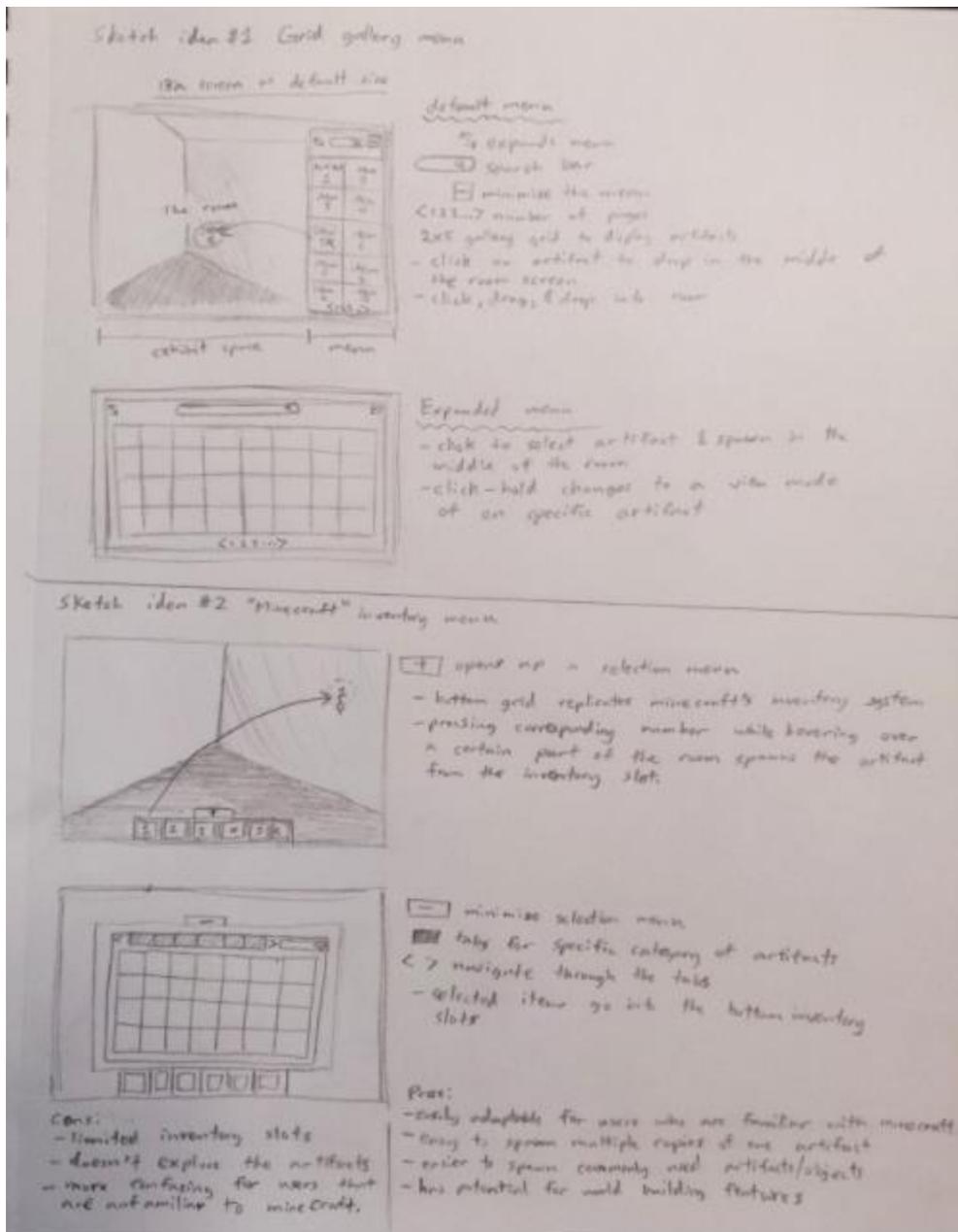
*One of our sketches which can be located in the linked document above*

## Winter Quarter Countdown Schedule

Starting from the end of the 4th design doc iteration, we want to try out a task calendar to ensure that the upcoming tasks are reasonably spaced out to prevent pileup of multiple tasks. From the first few days, the schedule was really helpful at keeping the team on track of the contents that need to be completed along with meetings to prepare for. As the end of the quarter approaches, we were able to further organize the schedules to find what tasks are

needed. Additionally, having the description also helped group members clarify what is expected in each task. Color coding and time stamps were other features that made the calendar a better option than having an iteration plan bullet list. We plan to loosley adapt this calendar format for the upcoming spring quarter to maintain progress in the project at a reasonable pace.

https://drive.google.com/file/d/12Xii33TBSksSHv5-kYkeQdVNOhpRP9sb/view?usp=sharing



## Design assumptions

We have observed that the Wing Luke Museum exhibit content is too text heavy, which is causing a lot of visitors to leave reviews saying that it isn't suitable for kids. The assumptions were based on the accumulation of reviews for the museum.

**●●●●●**

**What a museum should be**

I love a good museum that opens my eyes, educates and entertains. That's what the Wing Luke Museum does. I visited last summer with my college-aged daughter and we still talk about how much we loved it. This isn't the best museum for younger kids (lots of reading and talking which would be boring), but it's super fascinating for older teens and adults. We loved the tour of the different waves of Asian immigrants' apartments and the general store. It's not every day that you get to learn about cool things like Bruce Lee and uncool things like redlining all in one afternoon. I think Wing Luke is the perfect example of what a museum could and should be: interesting, educational, approachable, beautiful and a place that inspires you to become a better human. (That also has a great gift shop!)

Read less ▲

**●●●●●**

**Excellent museum**

This museum is excellent. It is informative and well set up. The hotel tour (included in the price of admission) is very informative and historical. It is not for young children.

Read less ▲

**●●●○○**

**Okay**

This exhibit focuses on the different Asian cultures found in the Pacific Northwest. It's not a huge museum and I wouldn't plan on spending more than 1-2 hours here. There is a nice area for children to try stitching a pattern on cloth but otherwise, the tour would be boring for them.

Read less ▲

**Date of experience:** January 2017

**Trip type:** Traveled with friends

The exhibit content has too much text and large images, which is making it difficult to navigate through the exhibit content and making users less likely to look through all the content thoroughly. (currently researching in progress)

## Design Decisions

From the outcome of a stakeholder meeting that took place on January 22th, the team (with the professor's guidance) decided that the whole project should be more about exploration on the possibilities of what can be done to the exhibits even if the ideas aren't applicable right now due to budgets or certain constraints. The reason for this decision was due to the frustration of coming up with things we can specifically do for the sample exhibit given to us. This led to limitations on our ideation process and caused the group's progress to become stagnant. After this decision was made, our team decided to individually come up with our own ideas so we can showcase them to the stakeholders.

In our stakeholder meeting that took place on January 29th, the team presented a good amount of ideas we iterated to search for a more concrete solution. In our conversation, both our stakeholders and us noticed how the themes of "community" and "delightful features" were what

we kept referring back to. After this realization, we decided that showing lots of artifacts in a personalized manner through AR tech in one's own space is the way to go for now.

Between the stakeholder meeting and the video presentation that was due the following week, we further solidified the idea for the mid-term presentation, that it would be a web based museum building system that would be for both mobile and desktop, and would give users the ability to create custom exhibits out of provided Wing Luke Museum artifacts and items. AR mode would be available for the mobile version, but would also allow the user to choose from a few template rooms(empty or with different backgrounds) in the case that they don't want to use AR, or include their own rooms in their project.

On February 12, 2021, we met with the stakeholders once again to discuss our project and develop further ideas we might incorporate into the project such as having unique artifacts to choose from each season of the year, etc.. The main ideas we want to flourish however, are that a user can have a virtual copy of the museum wherever they go. Another idea that was particularly liked by the stakeholders and would likely be included in the project is the community and sharing aspects of this system. Regardless of the form we decide on later, this is an element of the project that should highly likely be included in the final result.

Looking into the development process of the project, we decided that we would need a method to create a 3D space that would be accessible directly on the website, rather than requiring any kind of download. With our team generally being familiar with only front-end code, we looked into different coding languages and libraries that we could potentially use with the knowledge that we have, or would only require a little bit of additional learning. We found babylon.js and three.js which were two of the most popular libraries for web-based 3D projects available that were based on javascript which most of us knew the basics of. After looking through the examples and features of the libraries listed on each website we decided on moving forward with three.js for the time being, as it had many built in functions and the language was pretty straightforward. We are still in the process of learning how we can use this to implement the project idea, and this could possibly change as we learn more about it, but for now, we have decided to move forward with this development method.

# Design measurements & data

## Brainstorm activity 1/13/21

We are currently still in the process of discussing the ideas that can be implemented into the archive exhibits based on the result of a brainstorming session. A few key ideas that resulted from the brainstorming activity were:
- Community fueled features where they participate in activities together and add posts of their own content. (polls, quizzes, word prompts/ word clouds, DIY project showcase)
- Gamified experience that will engage users more often (as a way to also make younger audience motivated to get involved)

- Printable content for arts and craft type activities
- Including options for different disability tools

Other issues that are still being developed are navigation methods & platform/ devices the product will be built for (for coding purposes and options for features).

Link to the individual brainstorm activity

Link to meeting notes (Jan. 13):

## User Research "survey" conversations 2/21/21

While surveys in the research phase are generally not very useful, we ended up creating one that formed into a guided user interview. The user interview mainly focused on what platform our survey takers would rather pick (an AR or 3D experience), what users mainly (and what they don't) look for when going to a museum, and to see if any additional features, key ideas, or other pieces of relevant information springed up.

The number of responses we got for our questionnaire was 9. The survey took place as user interviews that were conducted by individual members of our team who would each select their own individuals to work with.

The main 'requirement' (if that, as technically our first question on the interview makes this optional) for our interviewees was for them to have gone to a museum before just to get perspectives of people that might be attracted to our virtual museum idea.

Looking at themes that people seem to enjoy about going to a museum according to our user interview form shows us the following ideas: 'interesting artifacts/exhibits', 'rare content', 'learning about history', and 'cool gift shops'. These findings are useful to us because this gives us more confidence in moving forward with our ideas. This is since the positive feelings the interviewees displayed could likely be felt by our prototype idea since it encompasses a lot of the attributes that are seen in the themes above.

Furthermore, themes that showcase more negative feelings towards museums include: "getting lost", "Having to read descriptions - too many words", and ""The waiting line(s), the price, the food..." to name a few. Noticing these common feelings allowed us to take note to try and make our product easy and fun to use.

One of our top priority questions was "if you were to create your own virtual museum exhibit which method would you choose?" which gave users the choice between 'AR' and '3D world' experiences for our idea. In the end, 77.8% of respondents preferred a *'3D virtual room - On any device'* experience.

We were also interested in finding out what respondents thought were good sites/apps that allow easy search functionality/discoverability. In the end, our results showed that the top 3 responses for this question were: 'Google', 'Amazon', and 'Ebay'. Interestingly enough, the latter

two examples offer text-heavy user experiences but admittedly, the designs are well done so it doesn't feel like so.

Finally, respondents' thoughts when we asked the question 'How would you like to see information or descriptions about each item/artifact' generally indicate that a desire for a short but sufficient explanation (with an emphasis on audio narrations) are needed. Additionally, through a question asking what it would take for someone to use this product constantly, we heard that 'constant content updates', 'rewards', and making sure it's accessible as possible were the main hook points.

# Museum AR Features Survey

Hello! We are a group of university students building a 'virtual gallery space' for users of a certain museum. In this product, users would be able to access digital models of their favorite artifacts/pieces from the physical exhibit museum with the use of their computers or smartphone's AR.

With this survey, we would like to ask museum visitors (or people that would consider going to one) what their thoughts are on some of our proposed features.

Results will help us eliminate assumptions and uncover new trends. All responses are anonymous and appreciated, thank you!

* Required

Here is a brief concept picture of our project for reference.



Have you ever visited a museum before? *

○ Yes

○ No

Are you a member of a museum? *

(Survey)
Backup link to survey results (excel version)