GP 4: Final Project Report

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Project Description

Museo aims to create a system that improves the art museum experience for visitors who do not take advantage of a museum's tour guides. For many visitors, these tour guides are either too expensive or not available, and often visitors prefer a more independent experience. Technology has yet to effectively impact the museum experience, providing room for disruptive designs that dramatically change the way visitors view the intersection of technology and museums.

Using the Princeton University Art Museum as a case study for the art museum experience in general, we performed research through interviews, surveys and placing ourselves in the shoes of museum visitors. Next, we presented designs to various prospective users and gathered feedback. Based on that feedback, we constructed a low-fidelity prototype. Once again, we tested our product with users and collected criticisms and suggestions. The majority of the reviews we received were positive, so we made only minor changes to our original prototype, building a high-fidelity prototype implementing the changes.

The core idea of our product remains the same. Museo consists of a NFC-enabled visitor card which visitors use to indicate paintings they like by tapping the card on a sticker next to the painting. At the end of their visit, users are provided with more information and suggestions as to similar paintings or museums to visit next. In this manner, the user gets guidance, while the museum is able to collect valuable information about their visitor's habits and preferences. Our prototype aims to present this system through a simple and efficient interface easily adopted by all museum visitors.

Requirements Summary

Our systems need to be accessible to a broad range of the general population and augment, rather than interfere with, the user experience. Museums are often a place that visitors can escape to, and are typically quiet areas. Outside of people's footsteps, conversations among visitors, and a tour guide talking, noise is quite limited in museums. This environment allows visitors to spend time focusing on and enjoying the artwork they are surrounded by. That is why it is pivotal that our system allows visitors to continue to immerse themselves in the museum. We want our users to continue to spend time interacting with the exhibitions, and have our system add to that experience by making it more enjoyable and stress-free.

Besides maintaining the existing experience of visiting a museum, we would also like for our system to be used again and again. If a majority of our users use our eventual system design once and then choose to not use it again, that would mark a key failure of the system. Ultimately, the goal of our system is to grow the number of people who visit museums, which in turn will help museums. While not a requirement for the system, we also hope to help museums get more information on the kinds of artwork that interest

their visitors so that they can make strides to make the experience more accessible and enjoyable for all.

Finally, our system should be clear and easy to use, and all of the features of the system should be visible to the user. The system should only involve a limited number of steps, sticking to the theme of not being intrusive to the user. We hope our system is easy enough to use that it is self-explanatory, but it should still provide easily accessible help and documentation, either through a tutorial when the user first starts using the system or on a help page. The different functions of the system should be clearly divided so that the user is not confused and doesn't accidentally access functions they don't want to. That being said, the design should still allow users to easily switch between functions, while maintaining error-proof capabilities.

Prototype Revisions and Rationale

Based on the feedback we received when presenting out low-fidelity prototype in class, we made two modifications to our design. The final prototype can be viewed at the following link: https://invis.io/NCFBTMDQMPZ.

Design Modification 1: Adding Museum Recommendations

The first modification is one that we have discussed in prior iterations of this project, but did not implement in our low-fidelity prototype: to recommend museums and galleries as well as paintings to users. In our low-fidelity prototype, we suggest paintings that are similar to what the user has liked previously. These paintings may be at different museums, which are specified in the description, but our previous prototype did not explicitly suggest entire museums based on a user's declared preferences. In our updated prototype, we have two sections of recommendations. The first presents specific paintings that our system deems as especially similar to the ones the user has liked. The second presents entire galleries or museums that are catered towards the genre of artwork our system matches with the user. An additional feature would be to filter by location, so a user can find museums close to them that they would want to visit. This updated design is reflected in **Figure 1**.

The main rationale for this addition is that a user may not want to go to a new museum just to see one art piece. Furthermore, if a user really enjoys a certain genre of artwork, they may be looking for museums that have an especially impressive selection and quantity of that genre, so only suggesting specific paintings will not be of much help. When we presented our initial prototype in class we found that many people were confused because they expected our design to include this functionality. Ultimately, it seemed to be a fairly important feature to include for many of our users.

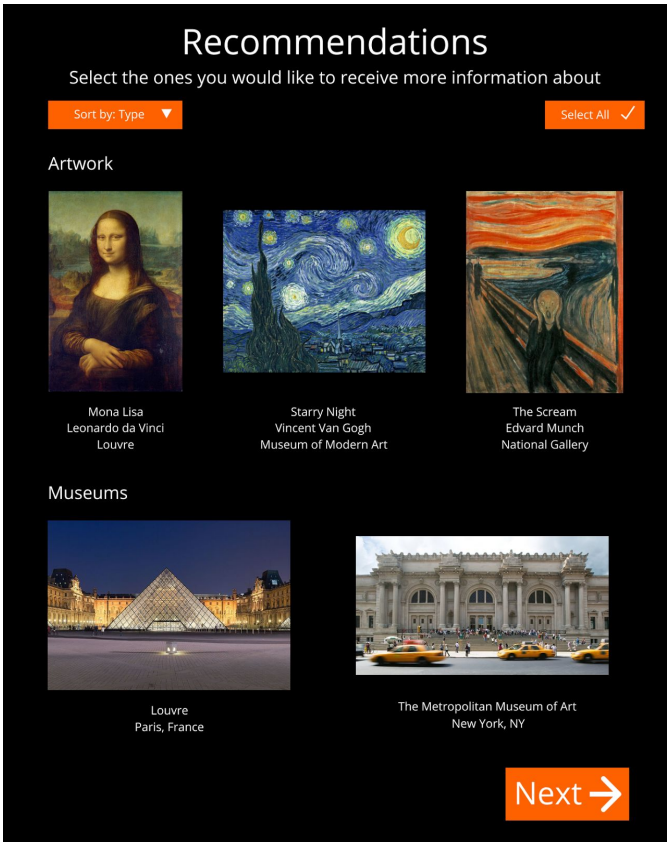


Figure 1: New recommendations screen, with museum/exhibit recommendations and sorting of results

Design Modification 2: Select and Filter Paintings and Information

Our second design modification was the result of a few users who asked the question, “What happens if I like a huge number of paintings during my visit?” One user pointed out that in this case, it would be tedious to select paintings one by one or scroll through so many paintings to select the ones the user would like more information about. The same can be said with the recommendations page. As a response to this criticism, we decided to add a “select all” option, and the ability to sort and filter the content. For example, a user can now sort by “order of likes,” “exhibit,” or “genre.” “Order of likes” would present the pieces in the order the user saw them in the museum and “liked” them. “Exhibit” would sort the pieces by the exhibit or room they appeared in the museum. Lastly, “genre” would sort the pieces by their genre and therefore would allow a user to see how many pieces of each genre they liked. This feature would allow a user to orient themselves however they prefer when selecting art pieces to receive more information about. Furthermore, filtering allows a user to reduce the amount of information on the page, especially if they know they only want to receive information about a specific genre or exhibition. This updated design is shown in **Figure 2**.

The rationale for this decision was twofold. First, one of our design requirements was that the system be simple and not overwhelming. However, it is possible that someone who loves a museum might like a huge number of pieces. Our system needs to

be able to remain clear and easy to use even in the cases where there is a lot of data involved. We understand that our users would not like to spend more than a few minutes at a kiosk after their visit, so it needs to be easy for our users to navigate the system and find the things they want. Furthermore, different users have different preferences and digest information in different ways, so letting a user filter their results allows our system to appeal to a greater amount of people. During the feedback session, multiple people mentioned that the system would benefit from this feature.

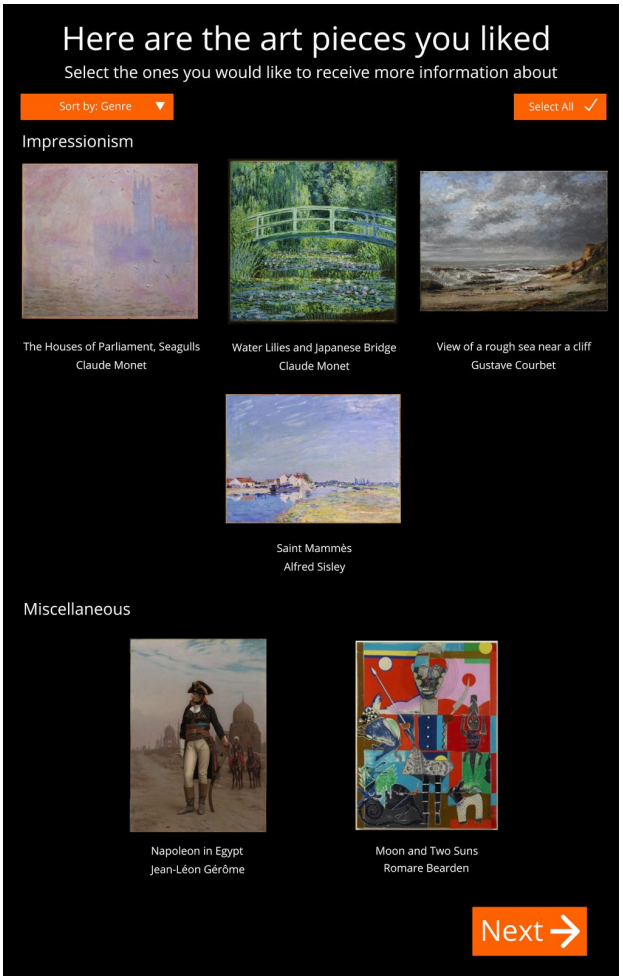


Figure 2: New information page, sorted by genre

Evaluation with Users

For our initial evaluation we employed two separate techniques to receive feedback from users that were testing the Museo product. The first of these techniques was a small survey that users would fill out immediately after interacting with our product. We selected a survey as a first evaluation technique because it allowed us to receive particular responses about some key areas of design like how intuitive the product was, how easy it was to navigate, etc. (the full list of survey questions can be found below). The results of this survey would give us strong guidance as to whether the general

design of our product was something users found easy to use and relevant for their museum experience.

Next, we also conducted some more in-depth feedback interviews with a select number of users that tested our product. The purpose of these interviews was to receive an answer to the “Why” questions that by nature surveys find hard to tackle - why do they find our product easy to use (or not easy to use), why do they think this is/isn’t a way to enhance the museum experience, etc. The flow of these interviews usually proceeded as follows: we asked users to test and interact with our product while simultaneously narrating what they were doing and thinking throughout the process, as we observed their interaction as a “fly on the wall.” Once they were done, we asked for general thoughts and feedback, and then asked follow-up questions based on that feedback as we saw fit. This technique allowed us to uncover some more specific reactions users had when using Museo, as well as some more concrete ways to improve our product going forward (this feedback will be discussed in the results below).

Survey

The survey questions we used can be found in **Appendix A**. We received a total of 12 responses, and we have included these in **Appendix B**.

Overall, we were very pleased with the results from our evaluation survey. The first two questions were meant to show us the composition of the user group - how often did users visit the Princeton Art Museum and museums in general. This showed a diverse user group, with some avid museum visitors and some who rarely visited museums. Questions 3-5 were aimed at general design concepts we wanted feedback for - ease-of-use, intuitiveness, and relevance. All of these show positive feedback, with most answers being concentrated on the 4s and 5s. Finally, the last question on the survey was meant as a more general question of whether users thought this would be a good addition to the museum experience, both here at the Princeton Art Museum and other museums. The overwhelming response was that users would enjoy seeing this on their next museum visit. This gives us a lot of confidence that Museo is a product that would positively impact the museum experience for visitors.

Interviews

We received several useful pieces of feedback during our interviews. One key piece of feedback was that users wanted to know what particular works of art other museum visitors like and don’t like. Users told us that although they liked the idea of “liking” paintings with their cards and then receiving information/recommendations based on those, they find that their individual experience could be enhanced if there was also a sense of a community experience. They thought that this could be done by having users somehow be aware of what other visitors are liking while at the museum, which could also give them an idea of what pieces they should and shouldn’t visit.

Another relevant suggestion we received was that we could improve the quality of our recommendations if we also included things other than museum pieces. For example, one user expressed that he would like to know about books on the artists and paintings

that he liked throughout his visit. This could complement our recommendations feature well because it would add value to users even if they are not planning another museum visit in the near future.

These two crucial pieces of feedback, along with other comments/suggestions we received during our interviews of users, played a key role in shaping the proposed changes to our product that we will outline below.

Prototype Revisions and Rationale

Based on the feedback we received in our interviews of users, we came up with some designs for what future changes to our prototype might look like.

Popular Artworks

As described in the user feedback section above, users mentioned that they would like to know what pieces of artwork were popular in the entire museum. If our heart stickers were placed at each painting in the Princeton University Art Museum, Museo would be able to accurately display this information. From an implementation standpoint, this new feature wouldn't be difficult to do; Museo could keep track of individual users' likes and total likes in general and build a model from that information. Additionally, our team felt like this change would also help orient Museo to become a successful business. By providing the Princeton University Art Museum (and future museums) information on the types of users that like certain pieces of artwork or just how many people like a given piece of artwork, Museo is able to help the museum make informed decisions on how to keep the museum experience exciting and enjoyable for its visitors.

Figure 3: Popular Paintings Page

Once users have received their recommendations, they then navigate to the Most Popular Paintings page shown above in **Figure 3**. We considered a few things when making this design. First, we didn't want to display the total like count next to the pictures, because we felt like it would be up to the museum's discretion to release those numbers, and we want the artwork to be the focus. Secondly, we wanted to show how the current user's likes compared to the rest of the museum's visitors. To highlight this, we decided to bold all the popular paintings that the current user also liked. This was a simple, subtle design change that we felt helped connect the user with other museum visitors.

Museum Store Integration

Similar to the previous addition, we felt that incorporating the museum store was another way to drive Museo forward as a business. By looking at a visitor's likes and using them to make recommendations on what kinds of items the visitor could look into buying at the museum store, Museo could possibly help drive revenue for these museums. Although we are doing it on a smaller scale, this is the same concept that Amazon implements on their site with product recommendations. The museum shop recommendations page is shown in **Figure 4**. Although not shown, we could also provide users with some information as to how Museo developed the store recommendations. This would help the users understand why they are being recommended certain products, and it could help drive sales in the shop.

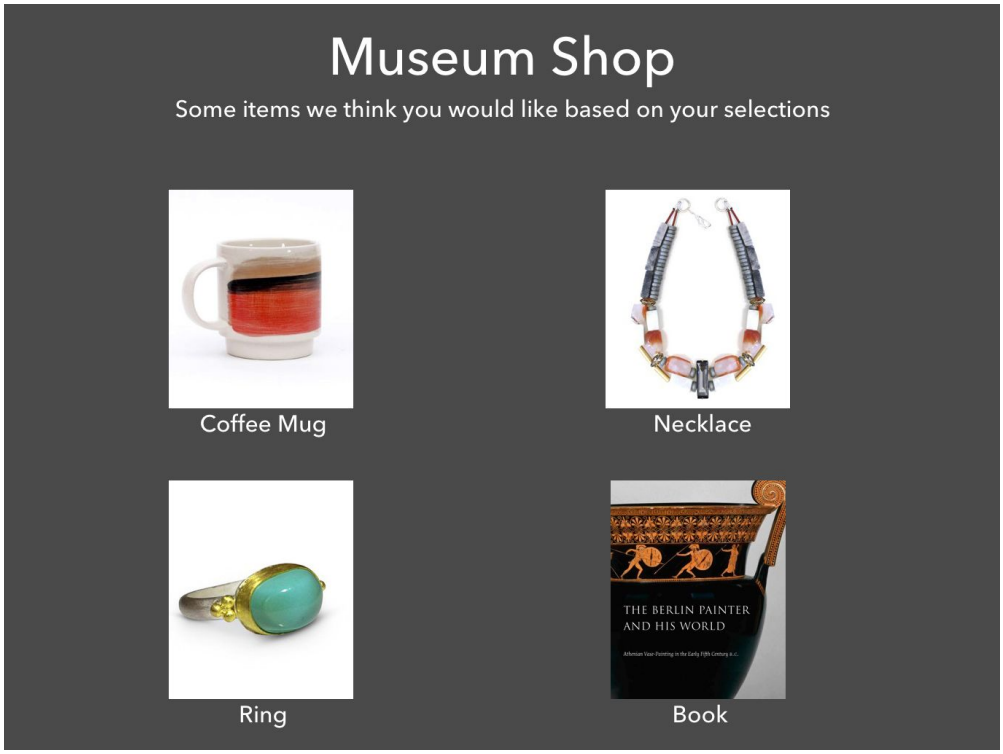
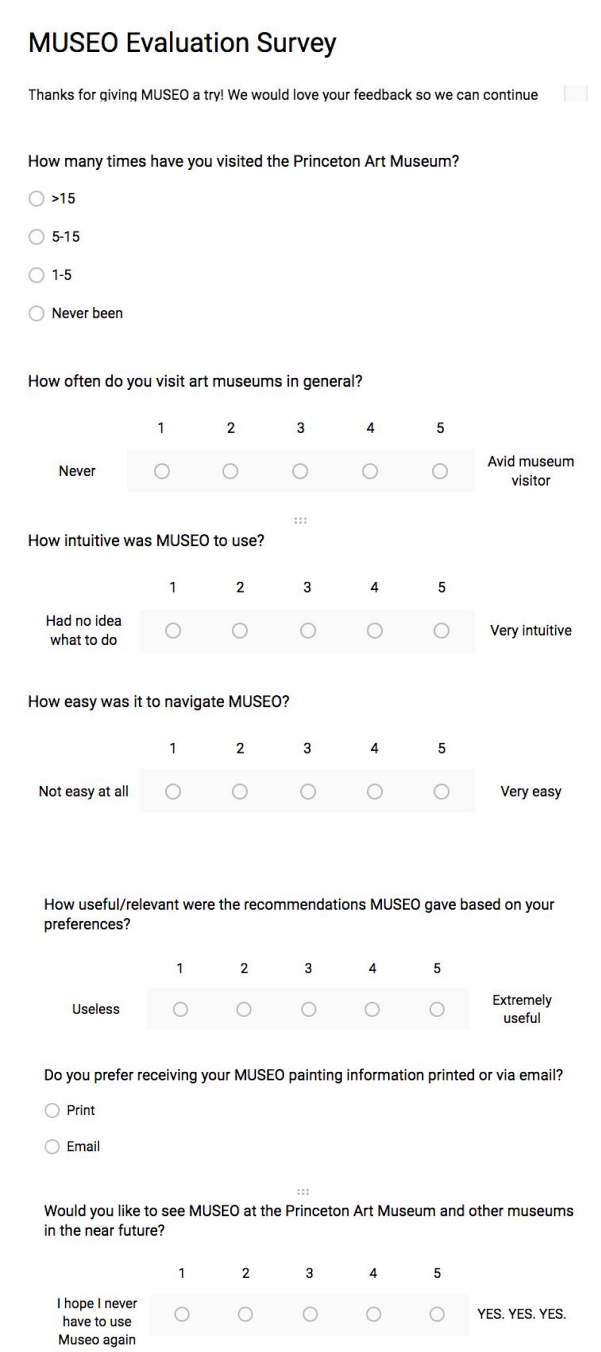


Figure 4: Museum Shop recommendations

Appendix A



MUSEO Evaluation Survey

Thanks for giving MUSEO a try! We would love your feedback so we can continue

How many times have you visited the Princeton Art Museum?

- >15
- 5-15
- 1-5
- Never been

How often do you visit art museums in general?

	1	2	3	4	5	
Never						Avid museum visitor

How intuitive was MUSEO to use?

	1	2	3	4	5	
Had no idea what to do						Very intuitive

How easy was it to navigate MUSEO?

	1	2	3	4	5	
Not easy at all						Very easy

How useful/relevant were the recommendations MUSEO gave based on your preferences?

	1	2	3	4	5	
Useless						Extremely useful

Do you prefer receiving your MUSEO painting information printed or via email?

- Print
- Email

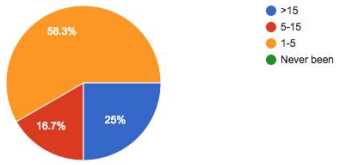
Would you like to see MUSEO at the Princeton Art Museum and other museums in the near future?

	1	2	3	4	5	
I hope I never have to use Museo again						YES. YES. YES.

Appendix B

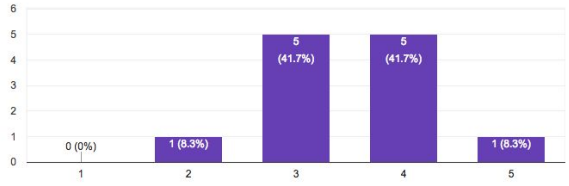
How many times have you visited the Princeton Art Museum?

12 responses



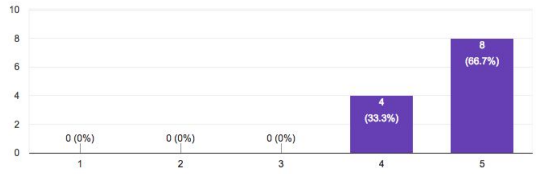
How often do you visit art museums in general?

12 responses



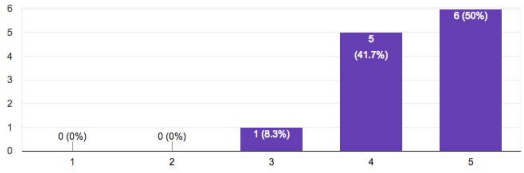
How intuitive was MUSEO to use?

12 responses



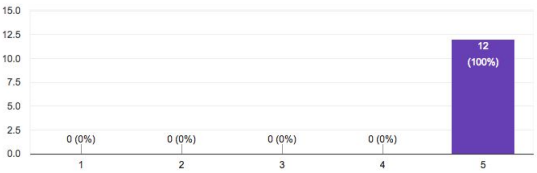
How useful/relevant were the recommendations MUSEO gave based on your preferences?

12 responses



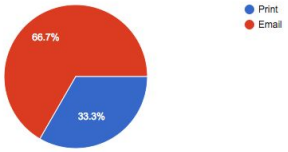
How easy was it to navigate MUSEO?

12 responses



Do you prefer receiving your MUSEO painting information printed or via email?

12 responses



Would you like to see MUSEO at the Princeton Art Museum and other museums in the near future?

12 responses