#dataart

CSC 591, Spring 2020

Team

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Client

Riley Benson: Senior UX Designer, SAS
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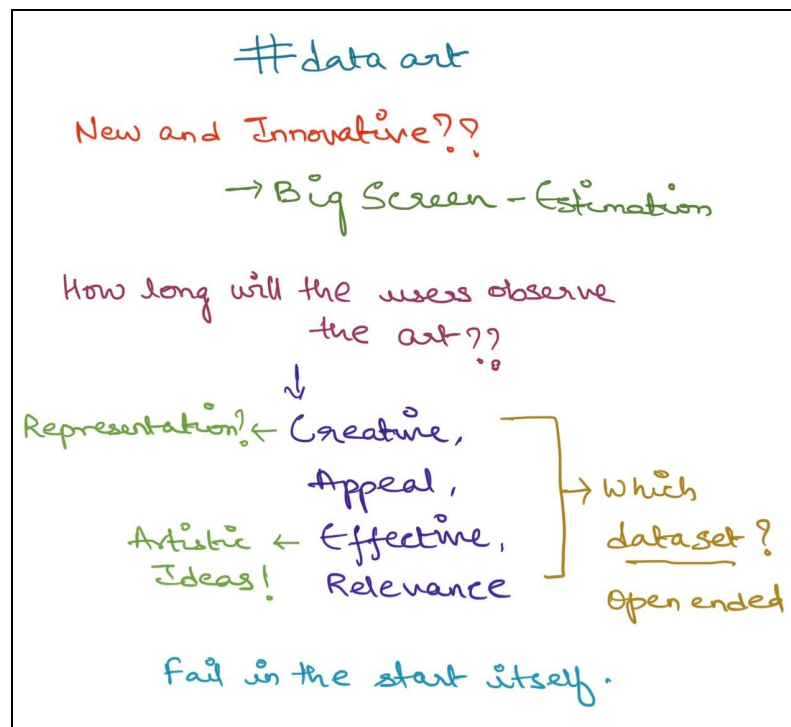Figure: The 4 by 15 sq.ft. screen at SAS HQ for Data Art

Long Term Goal

At SAS, analytics along with data visualization and artificial intelligence are common, everyday phrases for the tech-savvy people. After our visit to SAS, we have identified that the ultimate user-facing goal should be - "How do we help non-technical individuals connect to the story behind data?" In other words, the goal of data art is to expand the horizon beyond box plots, charts and correlation matrices and allow a wider audience to connect with the power of SAS technology.

The answer is simple - form a data story through digital, abstract art. Taking inspiration from the current projects at SAS such as the data story of SAS' solar farm that reflects the energy being produced and the impact time and temperature have on energy levels throughout the day, we have come up with the idea to monitor and understand weather changes in different SAS locations globally. We plan to develop an art that would allow the employees at the SAS HQ to see what kind of day their colleagues at different SAS offices globally are having, and probably provide them with some kind of comparison in the weather patterns and how it affects daily operations.

It's important to allow art to become the bridge to data. Art evokes emotions through the memories and experiences it creates. If we allow art to become the bridge to data, we can simplify the complexity of data and allow everyone to experience data in a way that is personal to themselves. We want our data art to invoke a thought process in its viewer's mind that would let them freely interpret its meaning and enable food for thought - something that is inherent in any human being regardless of their background.

Challenges and Obstacles

#data art

New and Innovative??
→ Big Screen - Estimation

How long will the users observe
the art??

Representation? ← Creative,
            Appeal,
Artistic ← Effective, → Which
Ideas!   Relevance   dataset?
                      Open ended

Fail in the start itself.

- **User engagement**
  User engagement is one of our top priorities in this project. One of the main challenges of doing so is addressing their expectation of seeing something new regularly which can be very difficult to achieve. Another issue that needs to be addressed is that the art should be something easy to understand without needing a reference or a legend and something that can be interpreted quickly on the go.

- **Estimation**
  Since the screen size of our art display is pretty big (about 4 by 15 sq.ft.), we need to figure out how to cover all that area meaningfully. This would require good planning in the ideation phase.

- **User's Interest**
  At SAS, we were introduced to two different data arts - a sculpture (3D model) and an LCD screen (2D representation). This presented us with an opportunity as well as a challenge to choose the best option for our application. Which of

these two would appeal more to the users? Which of these two is more apt for our application? Understanding user interests and expectations is definitely going to introduce some trade-offs in our implementation process.

- **Relevance**
  We will have to keep the visualization simple enough so that it could be interpreted by looking at it rather than reading some instructions just to understand the information or message we want to convey. We need to articulate the creative work in such a way that it peaks the interest of SAS employees, visitors, and clients.

- **Effects**
  We need to figure out a suitable color contrast and ratio related to different weather conditions for the art. The choice of the color combinations should attract the attention of the viewers and contribute positively to the overall ambience of the workplace but not be too flashy and become an eyesore.

- **Dataset**
  We need to find proper data that has the potential to be visualized and good enough to have a story attached to it. We would need weather data from different locations like Carry - USA, Pune - INDIA, Beijing - CHINA and more to compare different weather conditions for SAS offices.

Experience Map
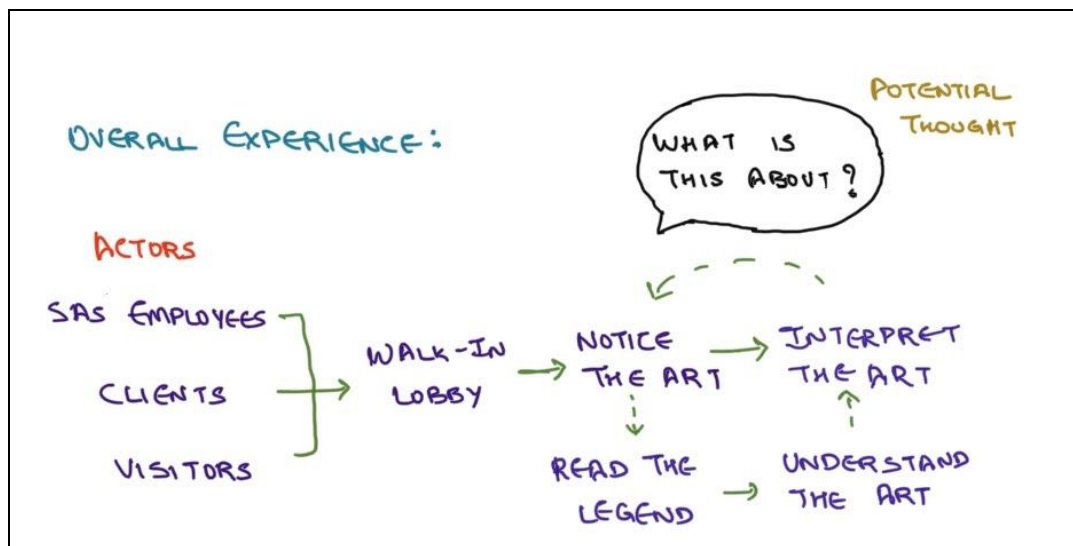
Expert Notes

During our visit to SAS on February 21, Jessica and Riley explained to us what the aim and inspiration behind data art was. We were shown 2 existing platforms for data art visualization: a sculpture, and a very large display (2D). They explained the patterns of lighting on the sculpture, with regard to its speed, timing, movement and color and how it correlated with the data they were collecting from bee hives. The 2D display visualized the activity of the solar farm(s) on the SAS campus and showed changes in the temperature and how the weather outside affects the amount of solar energy captured. However, the physical setup may be used for any other idea (and thus data) as well. One key takeaway from the discussion was that irrespective of the data we select, the visualization needs to update periodically and be interesting to look at. That is, a view with constantly moving (animated) parts that any observer can easily relate to. We brainstormed different data sources with them at a high level. For example, visualize the productivity of software engineers in the building over the course of a day or week, and a JIRA tracker art displaying the status of tasks in current and upcoming sprints. We were also advised that the data need not be updated real time on our art, and can be played in a loop. In conclusion, we were free to pick any data set as long as the art that depicts it attracts attention and updates frequently.

Having decided on weather as the subject of our art, and the large display as the medium, we had another follow-up discussion on February 28. It was observed that

making comparisons (similarity level of weather at different locations) and telling a weather story (like places with similar weather) would be a better idea than simply stating the weather. We were advised against displaying too many details at once, and listing out forecasts. Representations like pie-charts were not recommended. What the viewer should be able to do is to get quick takeaway messages. They also encouraged us to explore what metric of weather we want to focus on, like temperature, humidity, wind speed, etc. The screen size is not expected to be a problem. And lastly, a review of the experience map led to some revision which is presented above.

Problems/Opportunities

User Engagement and Interface Design
- How might we come up with an experience that is engaging and brings novelty?
  - ❏ Paying attention to the type of data we choose for visualizing.
- How might we utilize the data to make it more interesting?
  - ❏ Using the data that has the potential to be visualized and understandable
- How might we create an art that looks complex yet very easy to interpret?
  - ❏ Adding different colors and visualization methods make a dataset complex but understandable. But, we should be careful to not make the data art ambiguous and boring.
- How might we understand the perspective of the user? Whether a user is interested in digital art or a physical sculpture?
  - ❏ The reaction of people and how welcome they are with the visualized data/sculpture could be a way to know their perspective.
- How might we create an art that is appealing to the user?
  - ❏ Choosing a dataset which is hard to understand for users and visualize it to be interpretable for users like an apple pie.
- How might we select that dataset which is of interest to people at SAS?
  - ❏ Selecting some innovative data related to SAS buildings could be a good option.
  - ❏ A good data with a great potential to be visualized on the digital wall could be interesting for SAS people regardless of data type.

Physical Factors
- How might we create an art that can fit perfectly to the digital wall?
  - ❏ We should think about a method of visualization that fits the scale of the digital wall.
  - ❏ Since the digital wall has a landscape scale, the data could be presented in different levels all visible on the wall for user clarification.
  - ❏ How might we create an art that can be easily understandable through a sculpture?
  - ❏ A combination of static sculpture and dynamic equipment could be a great method to convey the information of data to users.

Target
- Help users to better understand the significance of data through interactive visualization.
- Communicate information effectively, efficiently, elegantly, accurately as well as meaningfully.
- Encode the given input in such a manner that eyes can recognize and the brain can comprehend.
- Allow free interpretation of the art, give them something interesting to think about (enable food for thought), creating a space for creativity and curiosity.
- Explore opportunities to connect people with the power of data.