#dataart

CSC 591, Spring 2020

Team

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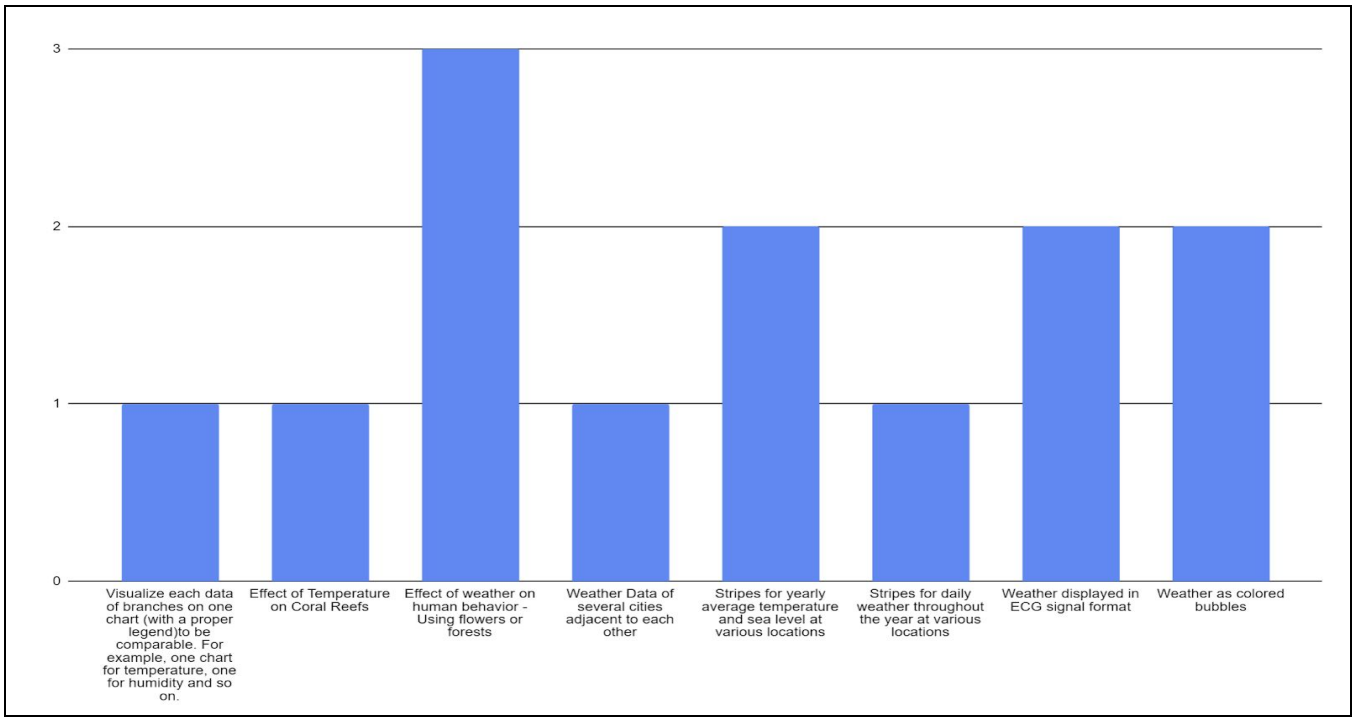
Client

Riley Benson: Senior UX Designer, SAS
Jessica Peter: Senior Data Artist, SAS

Figure: The 4 by 15 sq.ft. screen at SAS HQ for Data Art

Displays and Votes: (Link)

								Total Score by DataArt team	Total Score by SAS clients	Total Votes
Visualize each data of branches on one chart (with a proper legend)to be comparable. For example, one chart for temperature, one for humidity and so on.					1			1	0	1
Color-based charts to show different data on a single chart.								0	0	0
Visualizing the SAS buildings' location on the world map by popping up different branches in scale based on their size								0	0	0
Presenting the overall weather condition of branches on their popped up location								0	0	0
Applying a specific color to each branch to be able to recognize the data based on the color								0	0	0
Possibility to use AR to visualize weather condition of branches by details on the wall								0	0	0
Focusing on US branches and showing visualized weather condition on the screen in sequence based on their collaboration to the Cary branch								0	0	0
Using the background to show the overall weather condition of the branch that the weather information is popped up on the screen								0	0	0
Display a map with different shades of red, green, blue to depict temperature across the globe.								0	0	0
Display all locations with appropriate symbols and animations across the globe.								0	0	0
Effect of Temperature on Coral Reefs								0	1	1
Effect of weather on human behavior - Using flowers or forests	1					1		2	1	3
Weather Data of several cities adjacent to each other								0	1	1
Tremors of the tectonic plates on earth								0	0	0
This day that year								0	0	0
Increase in the use of plastic and then comparing it with skyline of a mega city								0	0	0
Impact of flight travel on the environment								0	0	0
Effect of sea levels, temperature								0	0	0
Stripes for yearly average temperature and sea level at various locations				1			1	2	0	2
Stripes for daily weather throughout the year at various locations		1						1	0	1
Annual, average CO_2 output per individual in countries combined, equivalent to 1 flight								0	0	0
Weather displayed in ECG signal format			1					1	1	2
Weather as colored bubbles								0	2	2



Critique

The following ideas sparked discussion in the group and those opinions are summarized below.

Color-based charts to show different data on a single chart

Positive: Would be easy to understand at first glance. Mergeable with other ideas.

Negative: Too simple and broad, needs more to the story behind this dataart. Difficult to stretch the map of the world in the current aspect ratio of the screen.

Visualize each data of US branches on one chart to be comparable

Positive: Easy to understand and various locations weather data can be displayed together. Mergeable with other ideas. It measures a lot of quantities (temperature, wind).

Negative: The view requires the US map to be stretched on the screen and may not be sufficient. The data also can be similar to daily weather reports.

Effect of Temperature on Coral Reefs

Positive: A very creative idea to show the effect of climate on coral reefs.

Negative: The idea would require us to gather and integrate data from both coral reefs and climate. For some viewers, it may be hard to interpret what the colors signify.

Effect of weather on human behavior - Using flowers or forests

Positive: Good idea because it depicts the effect of different weather conditions on humans. It can be easily stretched to fit the large display. The sketch shows 4 places of interest, more places can also be added to fit the display's width.

Negative: A bit complicated to understand information from the art without prior knowledge. It might be difficult to get real-time data from those locations. Also, it might require creation of mock data.

Weather Data of several cities adjacent to each other

Positive: Really easy to understand the information by just looking at it. Mergeable with other ideas. This idea is not constrained by width of the display as we can add as many SAS cities as needed to fit.

Negative: It needs to be more specific about the way of visualizing. Maybe merging with visualizing data on charts would be a solution. Also, if we choose cities with similar weather, the display could get repetitive.

This day that year

Positive: Interesting idea to be able to see the climate changes over a year.

Negative: The idea to display the same days on previous year would require live data, and may be should be expanded to more years as only 2 years cannot be displayed on the entire screen or maybe more locations.

Increase in the use of plastic and then comparing it with the skyline of a megacity

Positive: A really positive way to display the usage of plastic against the city.

Negative: It is visually less appealing and due to large screen size it might not be possible to span the entire screen. Also, this idea would look much better if viewed in a 3D space than in a 2D space.

Impact of flight travel on the environment

Positive: Interesting idea and may be thought provoking to users.

Negative: Restricted to one flight at a time, otherwise the screen would look chaotic and difficult to interpret.

Stripes for yearly average temperature and sea level at various locations

Positive: Interesting idea to display the weather as coloured stripes. The view of the skyline can be stretched across the wide screen.

Negative: The display throughout the year can be reduced may be as each city will have long cycles each. How to differentiate between various cities.

Stripes for daily weather throughout the year at various locations

Positive: It is easy to implement and is very intuitive. Skyline view can be easily extended to fit the wide screen.

Negative: Realtime data is not depicted. Historical data displayed in the form of stripes would be difficult to interpret sometimes. Aspect ratio of the screen also needs to be considered.

Weather displayed in ECG signal format

Positive: The signals are long and hence can be displayed in the screen as continuous signals. Easy to create and understand signals from the weather data. Signals can be used to depict many metrics (like temperature, humidity).

Negative: The format of the display is too simple. Additional colours can be added to differentiate the various weather conditions like what is mentioned in the first idea (color-based signals to differentiate data).

Straw and decider votes

Straw Votes

Following are the ideas that received one or more votes, with voter's comments.

Effect of weather on human nature

This is a novel idea, which represents not only weather, but also its effects on humans. It can be interesting to visualize how humans react to different weather conditions and where they move during different weather conditions.

Weather as colored bubbles

This is inspired from the way SAS represented the solar farm data in the form of circles that floated throughout the data wall. The background of the data art wall represents day and night as the color changes from light blue to a darker shade of blue. The transition between day and night and filling up of bubbles based on the temperate depict a nice animation to capture the viewer's attention.

Weather displayed in ECG format

A simple yet creative method of displaying real time data in the form of ECG/heartbeat signals that progress as the day progresses. The wall will have temperatures of three cities being displayed simultaneously. These three cities correspond to three SAS locations that keep on changing until all locations are covered.

Stripes for yearly average

A creative way to represent sea level temperature and changes in these temperatures at different locations. The changes in sea level can also be depicted by the bubbles and since it is a timely representation we can also witness the change in sea environment over the years.

Visualize each data of branches

A simple way to compare different weather data for various branches on single display and also can be easily interpreted. Also represents SAS branches in the data art.

Effect of temperature on coral

A very new and innovative idea, representing the effects of temperature on nature. Can be thought provoking and also the idea shows that it is possible to use the data to not just showcase it.

Weather data of several cities

Easy to understand in one glance, showing the weather of various cities. Useful to track the weather at various locations. Can easily be developed on the wide screen as it can be divided for multiple cities and represented at the same time.

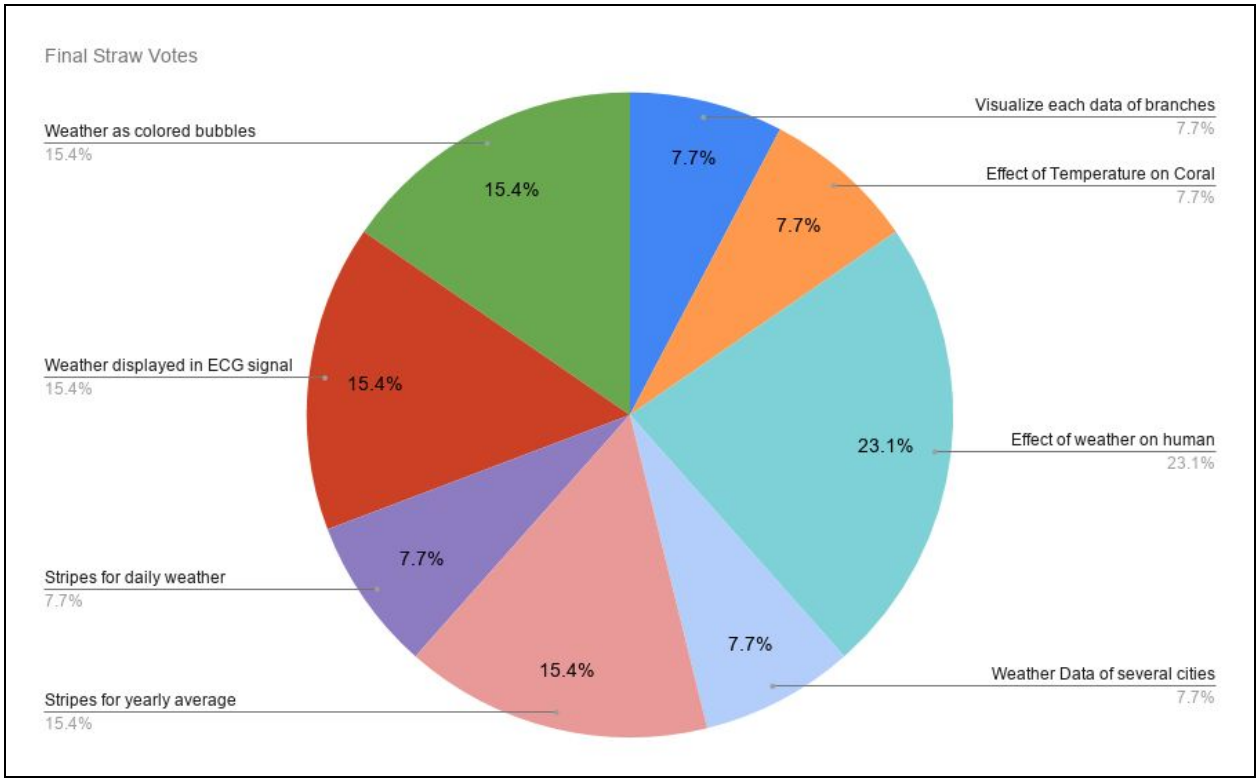
Stripes of yearly average weather and sea level

This idea can be used to span the width of the screen by depicting many years' weather in succession. It can also depict multiple cities. The gradual change in color from blue to red (cold to hot) would make the viewer think about global warming and also consider how hot it may get in future. The bubbles showing the sea levels rising, when presented against a skyline, shows the potential for disaster in future.

Merge or not and Final decisions

Voting Results

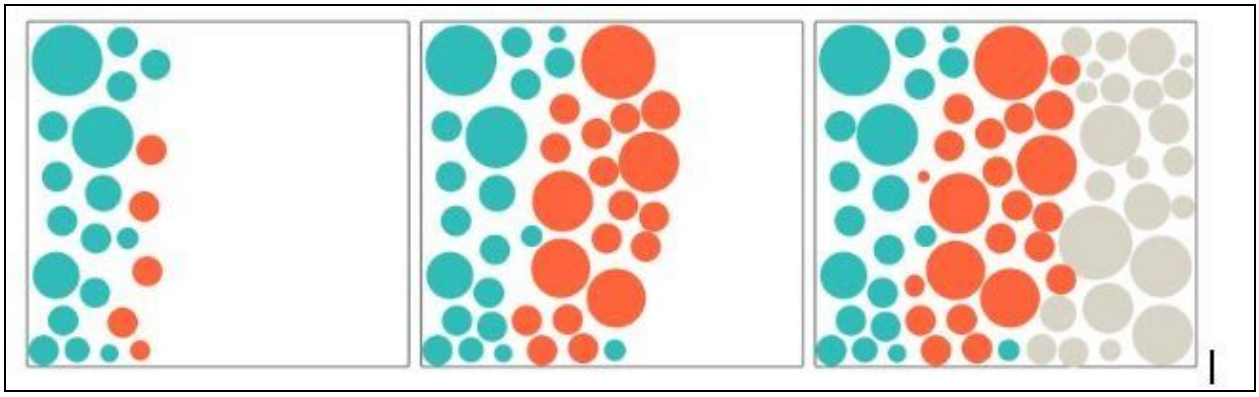
Visualization of the Final Straw Votes combined with Decider Votes



Merge or not?

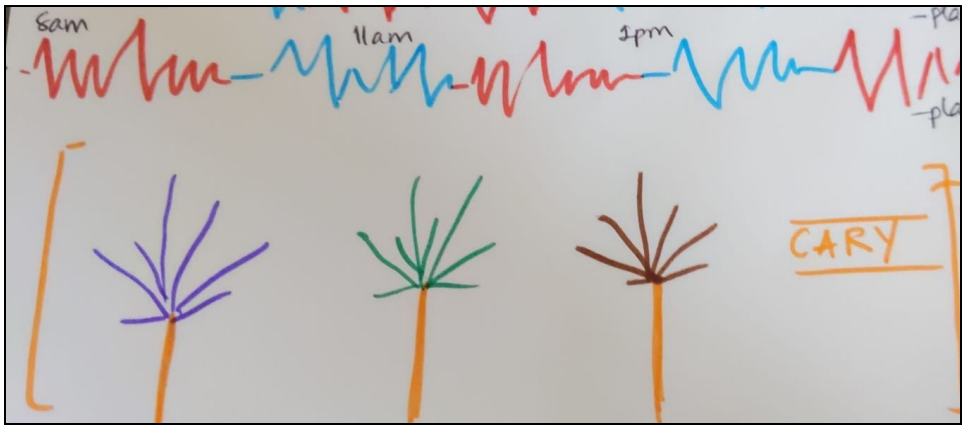
Merge Idea 1

We can merge “stripes for daily weather” idea and “weather as colored bubbles” idea. The merger here is to remove the bubbles from the 1st picture and superimpose the 2nd picture on it. The background color transition (blue to red) shows yearly average temperature increasing, while the superimposed bubbles show daily/hourly temperature on any given date. The radius of these bubbles depict humidity at that hour. Overall, we get an yearly and daily temperature view at the same time.



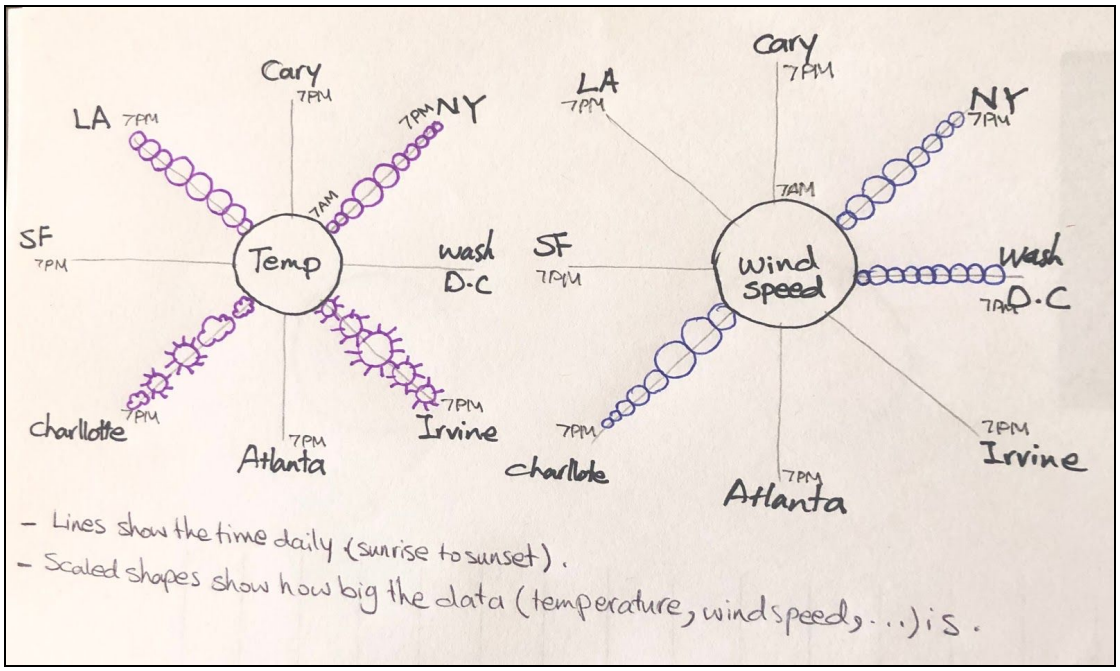
Merge Idea 2

This is a combination of “weather ECG” and “effect of weather on behavior” ideas:
Both ideas are time-based, but the scales are different - the former spans over 24 hours while the latter needs to change at frequent intervals (hourly or half-hourly), as people move in and out of locations. The hour depicted in the bottom half of the picture is highlighted in the ECG (top half) while the rest of the hours on the ECG are blurred.



Merge Idea 3

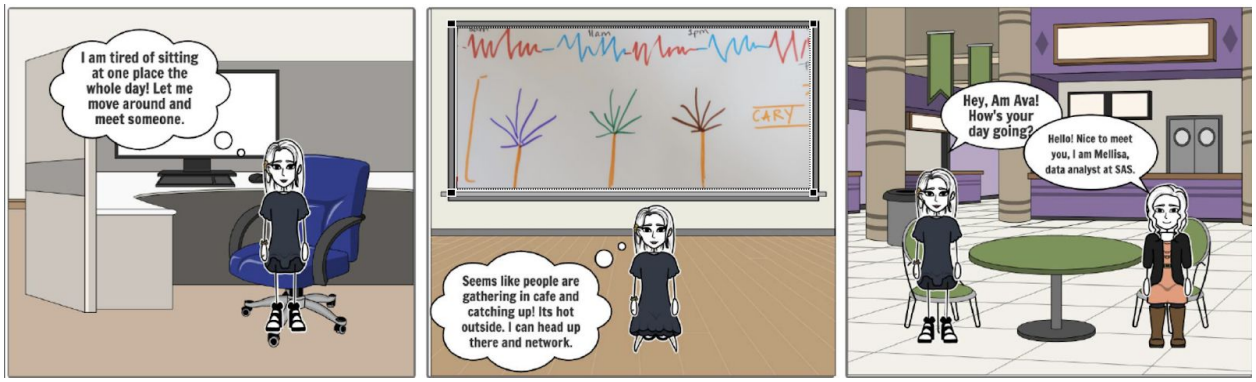
Both visualizing each data of branches on one chart and bubbling data ideas have a common part of scaling. Therefore, they have the potential to be merged to show an integrated data on the wall screen. The bubble scales are used for showing how big the specific data is and the chart line shows the daily time of each branch to visualize the behavior of the data during the day in different branches. ,



Final Idea

After thorough discussion, we all decided on the “Merge Idea 2” as our final idea. We all felt that it is more creative, useful, easily resizeable to fit any screen aspect ratio and moreover both the ideas had the top votes from our SAS clients as well as the team.

Storyboard


I am tired of sitting at one place the whole day! Let me move around and meet someone.
CARY
Seems like people are gathering in cafe and catching up! Its hot outside. I can head up there and network.
Hey, Am Ava! How's your day going?
Hello! Nice to meet you, I am Mellisa, data analyst at SAS.