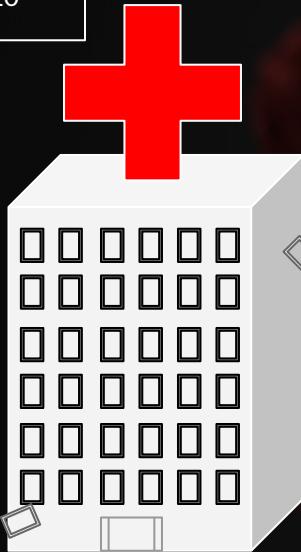


A5

12-07-20



Covid-19
What's all the fuss?

Francis Banares 1003974283 | Ryan Chow 1004176875 | Jiangyue Mao 1003928039

Introduction-

Project Aim.



An inevitable topic this year, we wanted to explore the effects of the global pandemic as it has affected our home city, Toronto. Our aim was to demonstrate patterns between COVID-19 case counts and the ongoing discussion of the virus on social media.



We sought to potentially identify links between social media activity and actual daily cases, and the hopeful outcome that discussions regarding the virus mean people are taking the situation seriously, keeping up with the news, and not being fatigued by its constant mention or the never-ending safety measures being implemented. Our demonstration was to ideally be depicted through an easy to comprehend, text-based visual animation.

State of the Art-

Examples of work that has inspired us.



A View on Despair

By Sonja Kuijpers

<https://www.studioterp.nl/a-view-on-despair-a-data-visualization-project-by-studio-terp/>

<https://www.studioterp.nl/traces-clouds-and-waves-or-how-i-visualized-data-on-suicide/>



legend

age group	< 20	20	30	40	50	60	70	>80	
method									
hanging / strangulation	18 30	21 79	25 77	47 146	47 183	34 113	12 41	5 31	209 women 700 men 909 total
drugs / medicines / alcohol	1 2 3 20	9 11 25	13 12 57	32 25 98	48 50 66	88 88 41	23 18 32	17 15	181 women 161 men 342 total
train or metro	12 11 29	10 17	12 5	5 30	21 32	6 13	6 19	0 11	71 women 71 men 213 total
drowning	0 0 3	0 3	3 8	6 11	7 17	18 35	11 30	5 14	50 women 68 men 118 total
jumping from height	0 3	6 10	7 6	12 32	20 27	17 23	11 12	8 12	4 women 6 men 136 total
other	0 4	2 16	3 27	2 29	11 46	11 34	2 22	9 15	40 women 153 men 193 total
unknown	* 0	* 0	* 1	* 0	* 0	* 1	* 2	* 0	4 women 2 men 6 total
totals	31 50	49 146	63 142	104 253	144 328	120 206	61 108	41 71	613 women 1304 men 1917 total

A View on Despair By Sonja Kuijpers



Project Description

This was truly a beautiful, yet striking and powerful project, regarding the data it represented and the aesthetic quality used to convey it. Kuijpers is a data artist who believes in transforming quantitative data into visual presentations that make it easier for one to process numbers, data, and its magnitude. In this scenario, she obtained data regarding Dutch suicide statistics. Being a hard subject to discuss for many, she wanted to create a piece that was soft, beautiful yet still very meaningful. The goal was to never romanticize and beautify the act of suicide, but rather to respect and remember each life lost to it. The goal was not to be too blunt or harsh, yet to still depict the unfortunately large scale of the problem. Kuijpers obtained her data from CBS (Statistics Netherlands), began creating a legend and scale through brainstorming hand sketches, then resorted to digital design software to implement her ideas and transform the numbers into artwork.

Relevancy to our Project

Kuijpers' piece is conceptually relevant to the aim of our project. We appreciate the way Kuijpers' has translated such tragic and impactful data and turned the victims of suicide into more than just numbers, thus honouring their lost lives, while still depicting to survivors and onlookers the immense need for change, support and investment to curb this problem. While a different type of situation, the Covid-19 pandemic has also been tragic and caused lives to be lost. We wish for our visual representation to be as striking and meaningful as that of Kuijpers, and to carry the same goal of honouring those that have died, while making those still alive acknowledge the incredible impact that the virus has had, then reflect and act on the gravity of this issue.

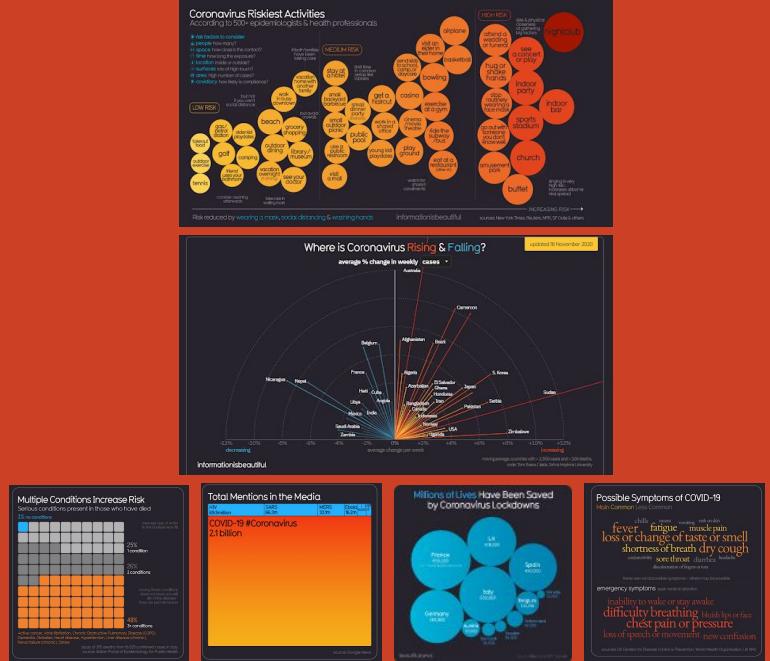
Information is Beautiful

By David McCandless

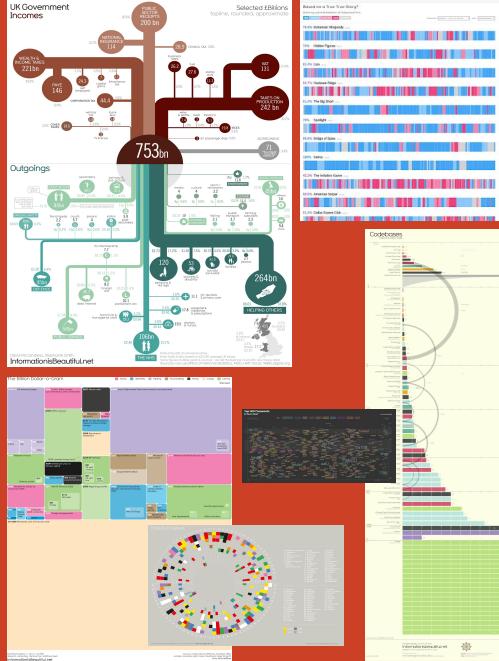
https://www.ted.com/talks/david_mccandless_the_beauty_of_data_visualization?referrer=playlist-art_from_data

<https://informationisbeautiful.net/>

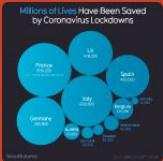
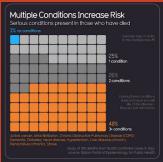
Examples of visualizations relating to Covid-19



Other examples of McCandless' Work



Information is Beautiful By David McCandless



Project Description

David McCandless is a writer and data analyst turned designer and creator. Found on his websites, including *Information is Beautiful* and *Knowledge is Beautiful*, McCandless has created hundreds of graphics on endless topics via immense amounts of data. He believes in getting lost in data as an analyst but finding himself and the meaning through careful consideration and large-scale observation. He and his team have scraped countless websites, databases, broadcast and print media and social media networks, logging world events, search engine hits, trends, and global conversations. With all this scraping, he has generated representations that depict scale and context in more digestible, comprehensive forms, allowing the viewer to see a fuller, bigger picture in the right perspective. His graphic style is functional, slightly utilitarian, minimalistic, yet still stylish and coordinated.

Relevancy to our Project

While we propose to make our representation more sculptural, abstract, and artistically-motivated rather than functional at the level of McCandless' work, we admire and are inspired by the ultimate goals and aspirations of McCandless. The love of data and the passion for translating it onto a new slate and reiterating it in new ways is something we share with McCandless. Even with a more 3-dimensional, sculptural approach, we still seek to achieve high levels of impact and meaning in our final representation.

With our main datasets being on the topic of Covid-19, we also plan to consult the data sources visited by McCandless in his broad series of Covid-19 related graphics.

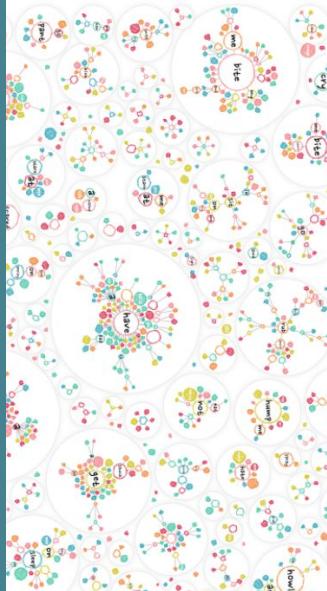
Why do cats and dogs ...?

By Nadieh Bremer

<https://www.visualcinnamon.com/portfolio/why-do-cats-and-dogs>



Why do cats and dogs...? by Nadieh Bremer



Project Description

This project by Nadieh Bremer is a stylized art piece where she wanted to visualize the common results that people look for with cats and dogs. The information was gathered from Google Trends and shows the depths that people go when searching for something.

Relevancy to our Project

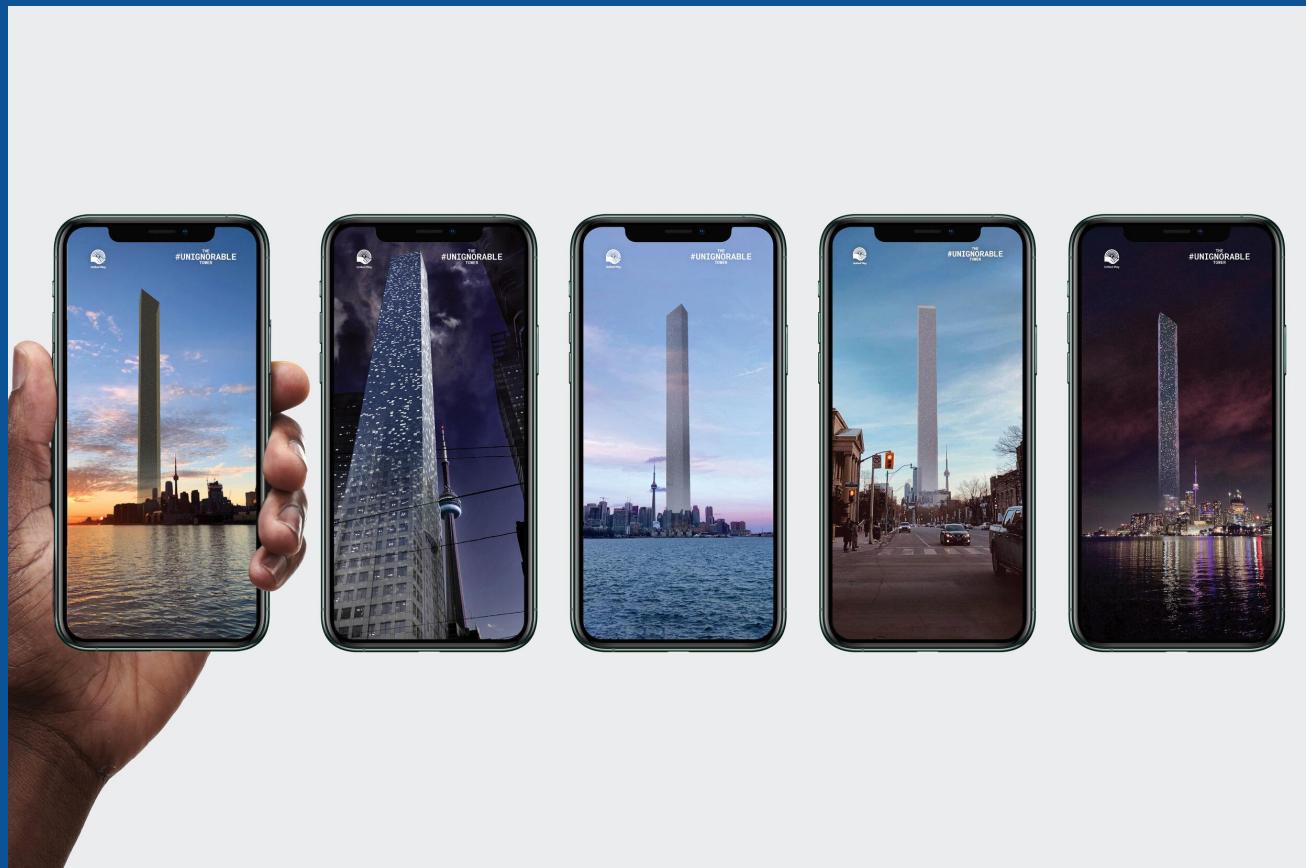
We plan to incorporate this project into ours by utilizing text to conceptualize and visualize the depths and relationships that people are exposed to when searching online for information on COVID-19. Whether that information is true or not.

The Unignorable Tower

By KPMB Architects,
Norm Li Studio, TAXI and
United Way

<https://www.canadianarchitect.com/the-unignorable-tower-brings-attention-to-poverty-in-toronto/>

<https://www.willcuthbert.com/the-unignorable-tower>



The Unignorable Tower

By KPMB Architects, Norm Li Studio, TAXI and United Way



Project Description

This project seeks to portray the ever growing problem of poverty in Toronto like never before, in hopes of encouraging the public to donate as much as their means allow for the sake of their neighbours in need. A tower was designed with an approximately 410 x 410 foot floorplate, with 240 units of approximately 700 square feet each filling up 484 storeys. The hypothetical building has no amenities, hallways, elevators nor additional features. All 1480 metres represent the sheer amount of condo units needed in Toronto to house the over 116,000 Torontonians in current need of housing. The building was then placed in an augmented reality app, where anyone could take a picture of their local surroundings in Toronto and see how tall and imposing this tower would look from their current location.

Relevancy to our Project

While quantitative statistics accurately represent the absolutes of a situation, for the average individual, the meaning and magnitude of information can often be lost, misinterpreted, and over- or under-rated, especially with large datasets. We were fascinated by this project due to its ability to strikingly present a pressing local issue with resounding context and impact. The absolute numbers on poverty and lack of housing in Toronto may not necessarily cause panic or may be hard to visualize to the average person. However, when depicting the issue as done here with relativity to the familiar scale of the existing Toronto skyline and one's locality, the magnitude of the issue suddenly becomes much more comprehensible and apparent. This design was inspiring to us and our work. With our data regarding the pandemic, we also seek to present our findings with such context and visual ease in order to be as clear as possible on the issue at hand.

Methods-

Dataset.

-  Our visualization will use Toronto data from official government reports on COVID-19 case counts, and monthly tweets from general local Twitter Activity extracted using ScrapeStorm.
-  We scraped data from SocialBlade.com, a website that allows one to enter in any public Twitter account and see sums of monthly account activity such as tweet count and new followers. We studied accounts such as those of local Toronto politicians, health institutions, and government organizations. We also looked at data from other cities to grow our own understandings.
-  For our own understanding and context, we also consulted worldwide case count and deaths data from websites such as Worldometer, the Government of Canada, the European Centre for Disease Control, and the US Center for Disease Control.

Methods-

Dataset



E3	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	headlines	links	profile	pho r-vvn4in	r-18jsvk2	css-901oao	css-1dbjc4r	css-16my4	(r-4gszl	r-vvn4in1	css-9pa8cd	css-901oao2							
2	@CDawnPi	https://twi	https://pbs	https://pbs		27 Mar	Everyone, f20			https://pbs	https://pbs	https://pbs							
3	@MichelleL	https://twi	https://pbs	https://pbs	If you want	25 Mar	-19. We wa	Show this t											
4	@asanteV	https://twi	https://pbs	https://pbs	Every time COVID	29 Mar	-19 standin												
5	@TPS_Bike	https://twi	https://pbs	https://pbs	Ready to hi#COVID_19	30 Mar	3			https://pbs	https://abs	https://abs							
6	@LizPalme	https://twi	https://pbs	https://pbs	Ontario, Ca COVID	26 Mar	-19			https://pbs	https://abs	https://abs							
7	CA	javascript:v	https://pbs	https://pbs	Important iCOVID	22 Mar	-19 situatic	35		https://pbs	https://abs	https://abs							
8	@_ZACK_Z	https://twi	https://pbs	https://pbs	With all thi COVID	25 Mar	-19 don't fc	Show this t											
9	@Catvanzy	https://twi	https://pbs	https://pbs	People nee #BBCAN8	24 Mar	due to gov	84											
10	@karlfarrc	https://twi	https://pbs	https://pbs	This is a go who is a na	27 Mar	#COVID19,'s coverage	https://pbs	https://pbs	https://pbs	https://pbs	https://pbs							
11	@AlexHarr	https://twi	https://pbs	https://pbs	Agreed! An for making	27 Mar	COVID												
12	@bobryzz	https://twi	https://pbs	https://pbs	Great new #canpoli, ht	29 Mar	to sign up!	@Grocery+	https://pbs	https://pbs	https://pbs	https://pbs							

Methods-

Computation.

- + Our initial plan was to first use Mosquito in Grasshopper to look for key phrases in tweets regarding COVID-19. Then, we could utilize information such as tweet location and time to compare to other countries, their most commonly trending phrases and tweet times, and find broader trends cross-referenced with daily virus cases. We also had considerations to scrape data from other networks such as facebook and instagram, or news websites that covered recent and relevant pandemic information.
- + After data collection, we proposed building a 3D model or creating a scatter plot to show found relationships. We could even perform text analysis in Python to vectorize and cluster texts, projecting them into 3D space together with found numerical data. 3D histograms and extrusions or surface plots could also be created.
- + We envision a final model that is animated, aesthetically pleasing, impactful, easy to read, and providing of context.

Process.

- + Because Mosquito cannot be used to collect data from months before, we first use ScrapeStorm to look for key phrases in tweets regarding COVID, filtering by tweet location (Toronto) and months (March to December). After data collection, we found the most frequent words by calculating word frequencies using WriteWords.
- + Height of words represents the varying frequency (number of appearances) of that word within tweets by months
- + Hospital bed changes size based off death cases in Toronto during the same time period
- + Birds flying around the words represent the rate of social activity of the Toronto Public Health account, according to data found on SocialBlade

covid until:2020-04-01 since:2020-03-01

Top Latest People Photos Videos

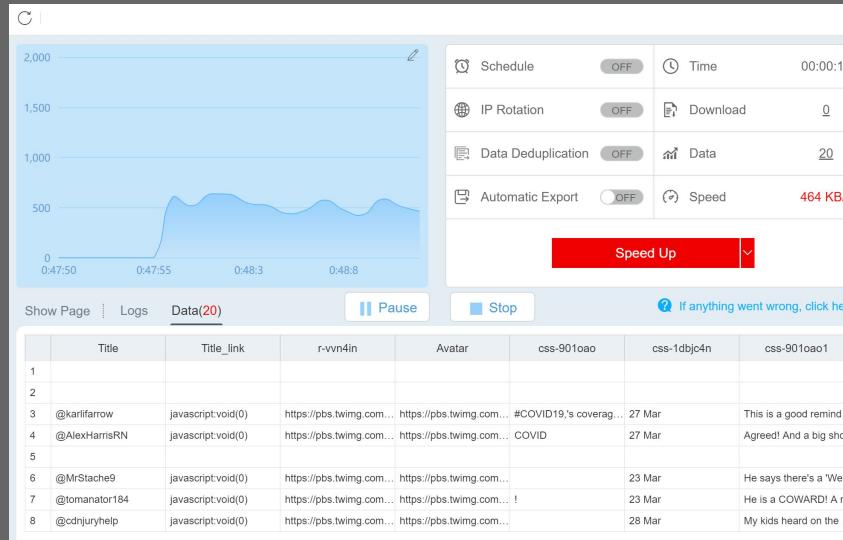
Know the facts

Information and resources on the coronavirus (COVID-19) are available from the Public Health Agency of Canada.

Public Health Agency of Canada
L'Agence de la santé publique du Canada

COVID-19
Rudy Giuliani says he's 'feeling good' after testing positive for COVID-19


Toronto Firefighters @TPFFA · Mar 29
Update: Six Toronto firefighters have tested positive for #COVID19. 200+ members are self-isolating, predominantly due to recent travel. The health and safety of our members and the citizens we serve remain our #1 priority.
19 42 118 



6 was
6 they
6 support
6 people
6 or
6 now

If you want to know how final year residents are feeling right now... in 1 word- lost. We are feeling the stress and anxiety that our colleagues and the world are feeling regarding																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	headlines	links	profile	pho	r-vvn4in	r-18jsvk2	css-901ao	css-1dbjc4r	css-901aoa	css-16my4(r-4gszl	r-vvn4in1	css-9pa8cd	css-901ao2					
2	@CDawnPi	https://twi	https://pbs	https://pbs			27 Mar	Everyone, f20		https://pbs	https://pbs	https://pbs						
3	@Michellei	https://twi	https://pbs	https://pbs	If you want covid		25 Mar	-19. We wa	Show this t									
4	@asanteV	https://twi	https://pbs	https://pbs	Every time COVID		29 Mar	-19 standin										
5	@TPS_Bike	https://twi	https://pbs	https://pbs	Ready to hi# Covid_19		30 Mar	3		https://pbs	https://abs	https://abs						
6	@LizPalme	https://twi	https://pbs	https://pbs	Ontario, Ca COVID		26 Mar	-19		https://pbs	https://abs	https://abs						
7	CA	javascript:v	https://pbs	https://pbs	Important i COVID		22 Mar	-19 situatic35		https://pbs	https://abs	https://abs						
8	@_ZACK_Z	https://twi	https://pbs	https://pbs	With all the COVID		25 Mar	-19 don't fc	Show this t									
9	@Catvanzy	https://twi	https://pbs	https://pbs	People nee #BBCAN8		24 Mar	due to gov84										
10	@karifarrc	https://twi	https://pbs	https://pbs	This is a go who is a na		27 Mar	#COVID19's coverage	https://pbs	https://pbs	https://pbs	26 Mar						
11	@AlexHarr	https://twi	https://pbs	https://pbs	Agreed! An for making		27 Mar	COVID										
12	@bobryzz	https://twi	https://pbs	https://pbs	Great new #canpoli, ht		29 Mar	to sign up!	@Grocery+	https://pbs	https://pbs	https://pbs	29 Mar					

Toronto covid death cases by month:

<https://open.toronto.ca/dataset/covid-19-cases-in-toronto/>

The screenshot shows a spreadsheet interface with several filter panels open. On the left, a 'Filter by Color' panel has 'FATAL' checked. On the right, a 'Date Filters' panel shows 'March' selected under the 2020 section. The main table displays data for March 2020, with columns including Case ID, Age Group, Neighbourhood, Outcome, and various status indicators.

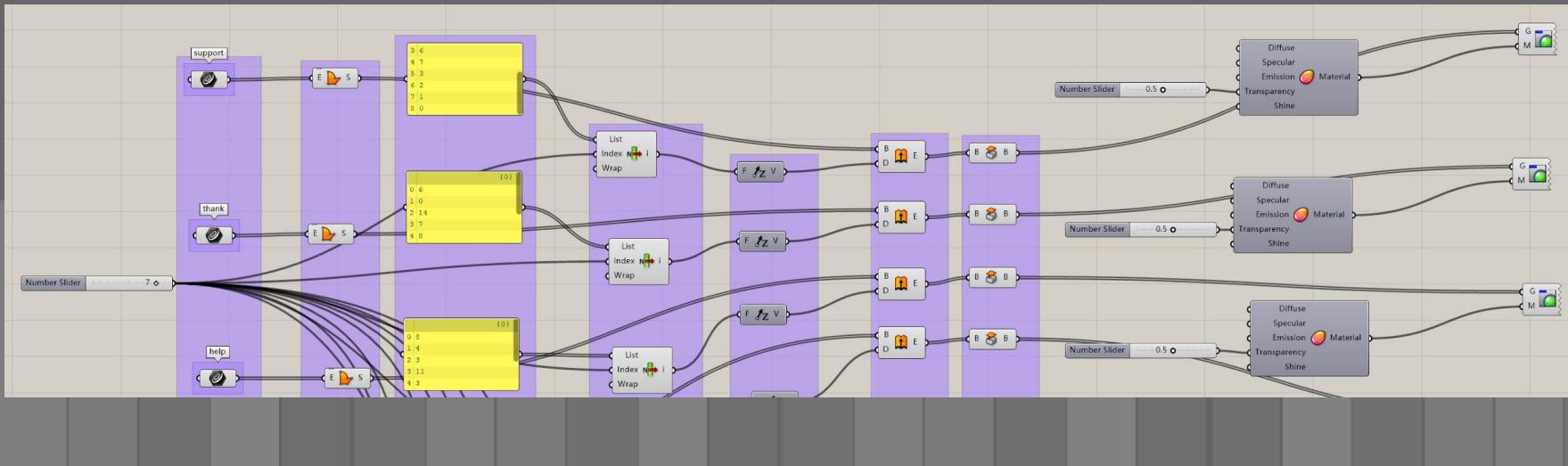
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	_id	Assigned	Outbreak	Age Gro	Neighbo	FSA	Source c	Classific	Episode	Reported	Client Gr	Outcom	Currentl	Currentl	Currentl	Ever Hos	Ever in I	Ever Intu	ted
80	484675	80	Sporadic	70 to 79	Ye Victoria Vil	M4A	Travel	CONFIRME	#####	#####	MALE	FATAL	No	No	No	Yes	Yes	No	
278	484873	278	Sporadic	60 to 69	Ye Niagara	M5V	Community	CONFIRME	#####	#####	MALE	FATAL	No	No	No	Yes	Yes	Yes	
282	484877	282	Outbreak	A 90 and old	Morningside	M1E	N/A - Outb	CONFIRME	#####	#####	MALE	FATAL	No	No	No	No	No	No	
290	484885	290	Outbreak	A 90 and old	O'Connor-P	M4B	N/A - Outb	CONFIRME	#####	#####	MALE	FATAL	No	No	No	No	No	No	
307	484902	307	Sporadic	70 to 79	Ye Don Valley	M2J	Travel	CONFIRME	#####	#####	MALE	FATAL	No	No	No	No	No	No	
396	484991	399	Sporadic	90 and older	Bathurst	M3H	Close conta	CONFIRME	#####	#####	MALE	FATAL	No	No	No	Yes	No	No	
404	484999	407	Outbreak	A 90 and old	Morningside	M1E	N/A - Outb	CONFIRME	#####	#####	FEMALE	FATAL	No	No	No	No	No	No	
407	485002	410	Outbreak	A 90 and old	Morningside	M1E	N/A - Outb	CONFIRME	#####	#####	FEMALE	FATAL	No	No	No	No	No	No	
408	485003	411	Outbreak	A 70 to 79	Ye Mornin	M1E	N/A - Outb	CONFIRME	#####	#####	FEMALE	FATAL	No	No	No	No	No	No	

Visualize the variation of word frequencies and death cases in Grasshopper:

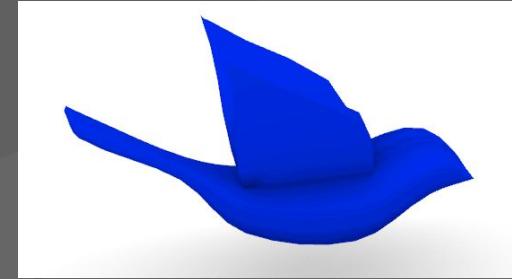
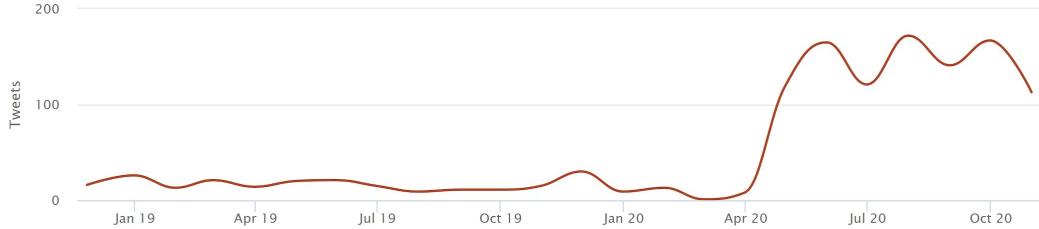
Create a list containing all data (number of words and cases) by month (8 months in all), extrude them using the data as the height (scaled death cases by 0.005 due to its huge amount)

Visualize those changes by changing number slider, from the first month to the final month

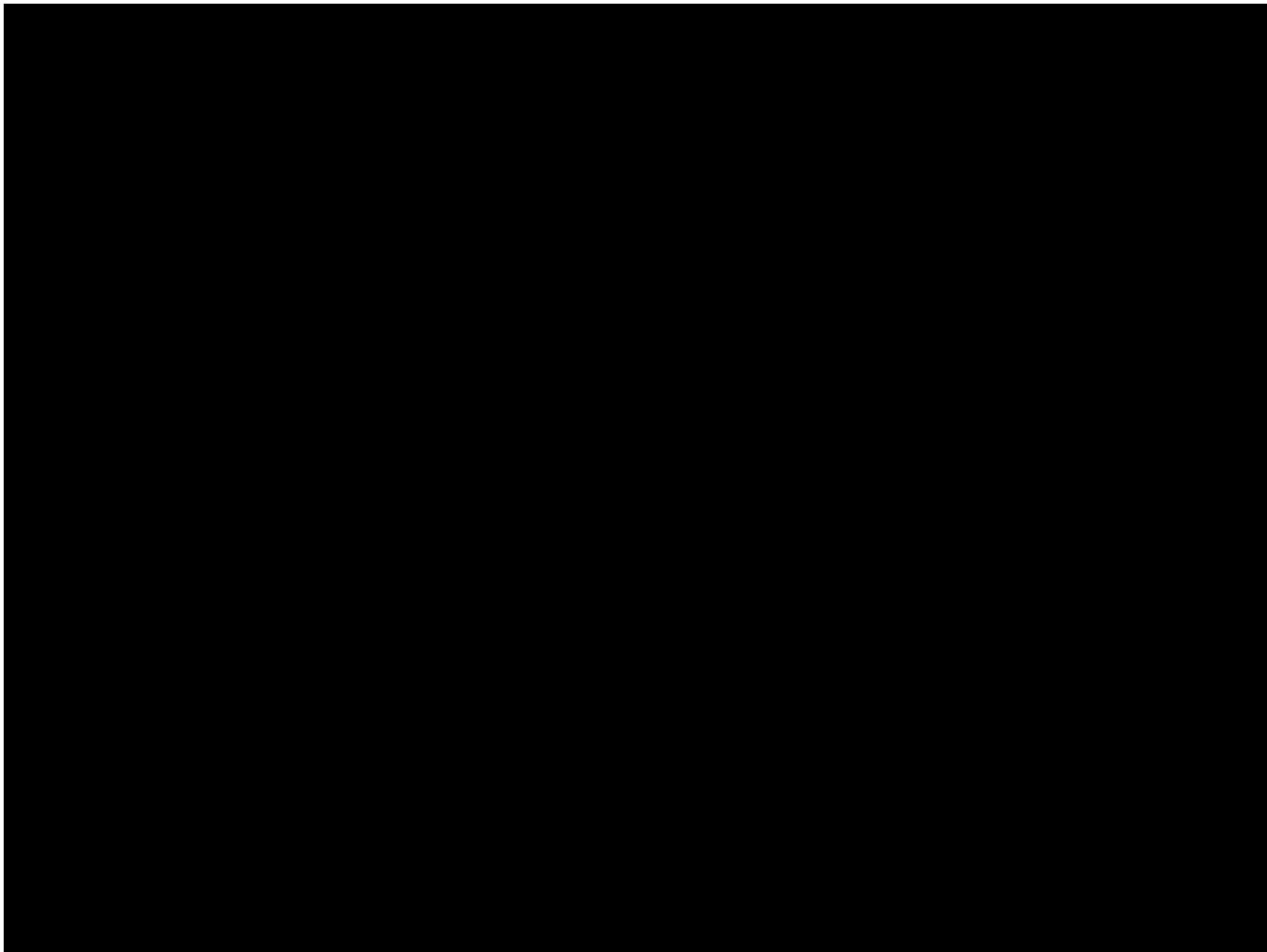
Apply materials to texts and the hospital bed



Monthly Gained Tweets for 'Public Health ON'

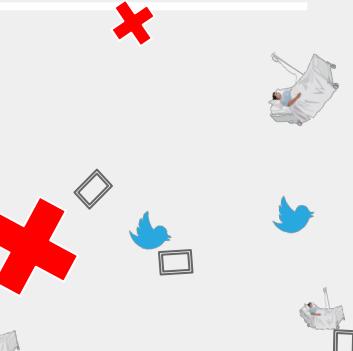
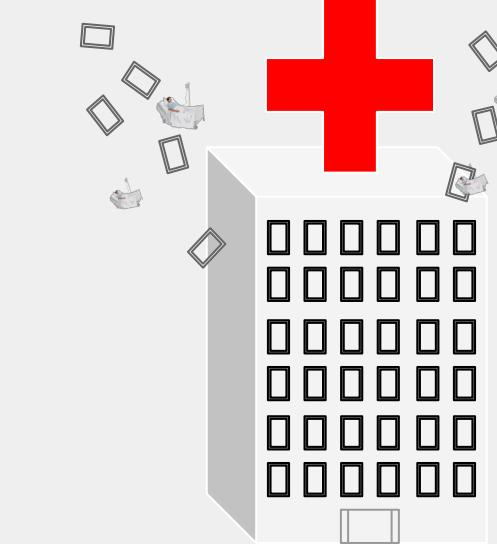


Using the data from SocialBlade, we utilized birds to represent the social activity of Public Health accounts in Toronto, showing their large increase of daily activity during this pandemic. Also showing how they basically surround our daily lives and its how majority of people get their information.



Discussion-

Potential Improvements.



Discussion-

Potential Improvements: Locality

- + This project could be repeatedly undertaken with data from other cities.
- + Studying the relationships between social media activity versus actual case count and pandemic severity in different cities around the world would have differing results:
 - differing governance, public broadcasting, structure and organization of public health system
 - demographics, social classes, wealth, age
 - differing industries and workforce
 - national and regional influences
- + Places that could be considered and contrasted to Toronto:
Doha, Milan, New York, Seoul, Sydney, Vancouver, Wuhan

Discussion-

Potential Improvements: Temporality

- + Increasing the timespan of this project would yield interesting results
 - over the course of the next year as the pandemic continues on
 - during the upcoming and highly anticipated vaccination period
 - going further back to other recent health emergencies and comparing social media use during those
 - possible examples: Ebola, H1N1, SARS, MERS

Discussion-

Potential Improvements: Animation

Experimentation with more artistic, sculptural forms

- + Free-flowing, organically moving birds with more natural appearance yet still linked to representing social network activity
- + Enhancing the representation of case count with different versions of hospital animation
 - Hospital that fills up, beds piling higher than top floor of hospital when max capacity is reached
 - Greater emphasis on what a significantly high number of cases is through representation of an upper capacity limit
- + Adding background design elements and illustrations to create a more complete total scene

Conclusion

What we have learned:

We thought the words with highest frequencies should be “mental health” and “depression” etc., but it turns out to be “support”, “love”, “help”, “thank”, and “vaccine”. Toronto is a warm place with love.

Social media can be both a place for spreading factual truths that people should understand in today’s society, but should also uplifting others through words and support. Unless we manually analyze the tweets containing these words, we don’t know if they have a positive or negative connotation with COVID. Therefore, we are biasing them towards positivity but we won’t know unless we view each tweet individually. Also, the dataset for now is not large enough to conclude the accurate social media trend, a larger dataset is needed to reach a comprehensive understanding.
