



Lakehead
UNIVERSITY

Ethical Issues In Computer Science (COMP-5015)

Group-11

Demographic Analysis - A tool to combat Pandemics

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Introduction



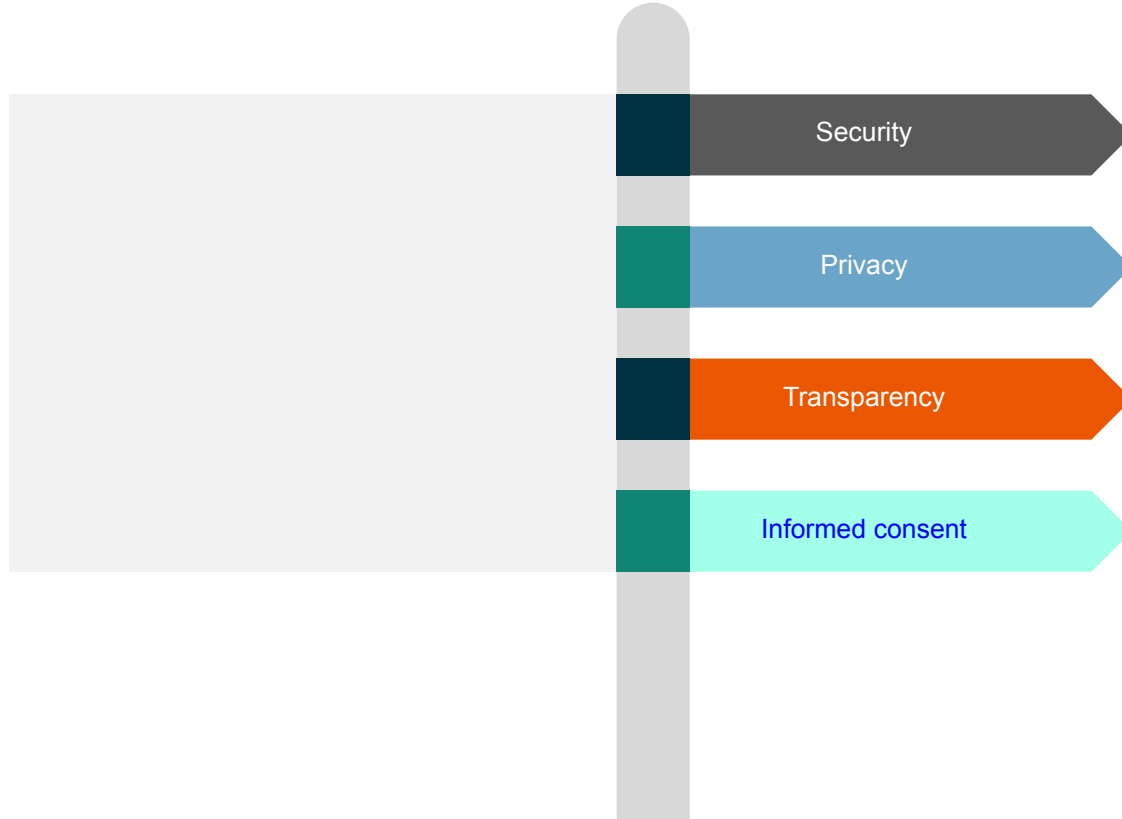
- Modern technology is equipped with a lot more data than has been possible in the past
- Having access to such robust datasets has become especially useful in the climate of global pandemics among the likes of SARS, H1N1, Ebola, and COVID-19
- Data collection results in the emergence of new and unique ethical concerns

Current Situation



- The ethical considerations are most relevant to the consumer who is having their data collected
- The most common issues that are important to consumers are security, transparency, informed consent, privacy

Current Situation



Current Situation



- Security : Consumers agree that to have their data collected, but have concerns over the safety of the data
- Privacy : Maintaining some aspects of a user's data privacy by not collecting certain (often unnecessary) data points
- Transparency : The consumer may not be aware that their data is being collected or what it is being used for
- Informed Consent : Consumers may not always know what they are agreeing to when giving consent to have their data collected

Analysis



- Facts
- Challenges
- Economic Drivers

Facts



- Easy way to collect data
- Important attributes for data collection
- Data storage
- Data access

Challenges



- Inaccurate Data
- Quality of Data
- Storage of Data

Economic Drivers



- Building UI for collecting Data
- Security check
- Storage Server
- Data Visualization



Ethical considerations

- Privacy
- Security
- Informed Consent



Cost Benefit Analysis

1. Costs for Data collection and Privacy.
2. Costs for Data Storage.
3. Costs for Data Security.

Ethical Approaches



Traditional Ethical Thinking

- ❑ In complete sync with the traditional ***Utilitarian Approach*** as we want our system that produces the greatest good and does the least harm for all who are affected customers, employees, shareholders, the community, and the environment due to the current covid-19 pandemic in the united states.
- ❑ Keeping the ***Virtue Approach*** in mind to be consistent with certain ideal virtues that provide for the full development of our humanity. These virtues are dispositions and habits that will enable us to act according to the highest potential of our character and on behalf of values like truth and beauty. Honesty, compassion, generosity, tolerance etc.

Ethics and codes of conducts

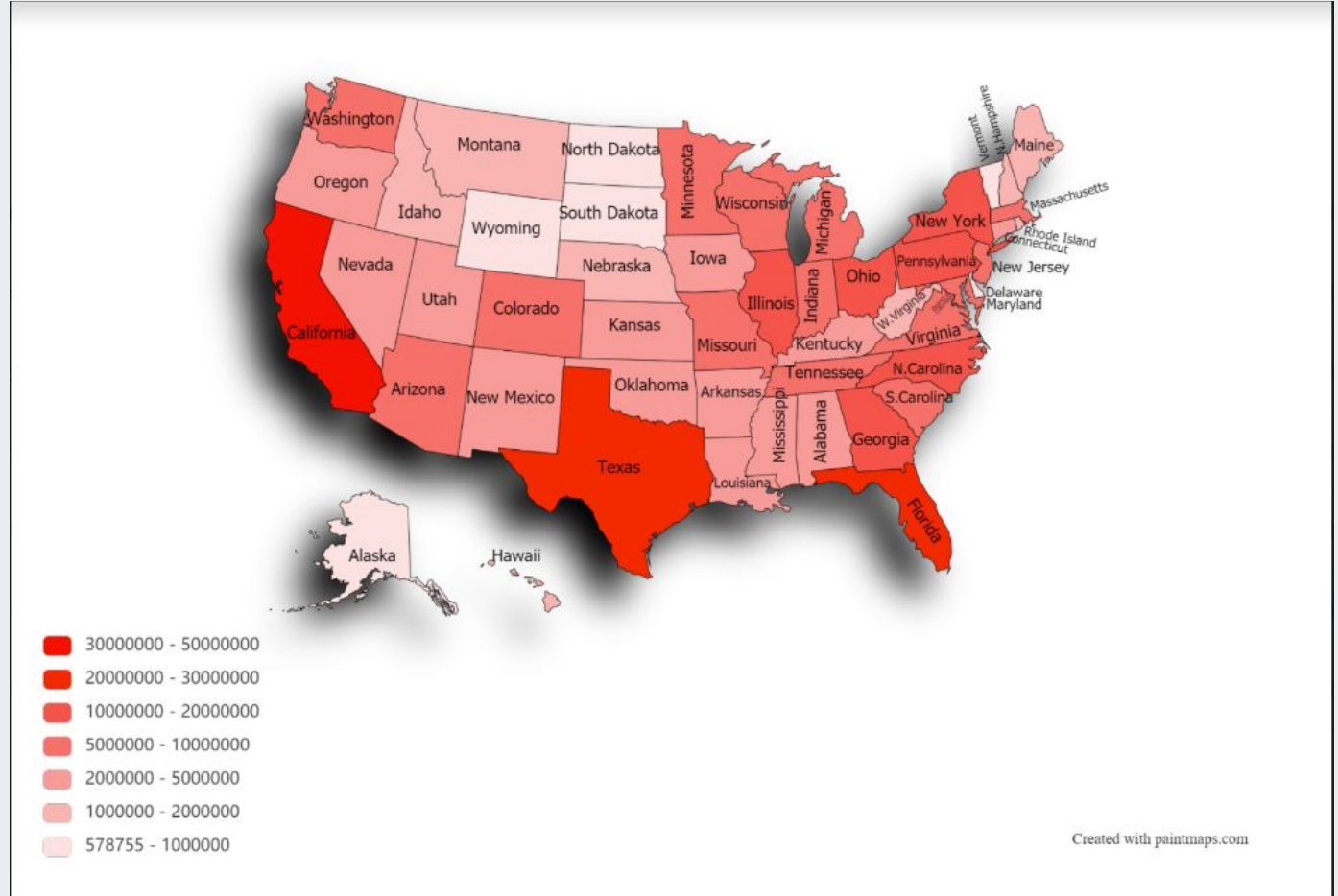


- Be honest and trustworthy and Respect privacy
- Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.
- Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks
- Foster public awareness and understanding of computing, related technologies, and their consequences.
- Ensure that the public good is the central concern during all professional computing work.
- To seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others
- To treat fairly all persons and to not engage in acts of discrimination based on race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression.

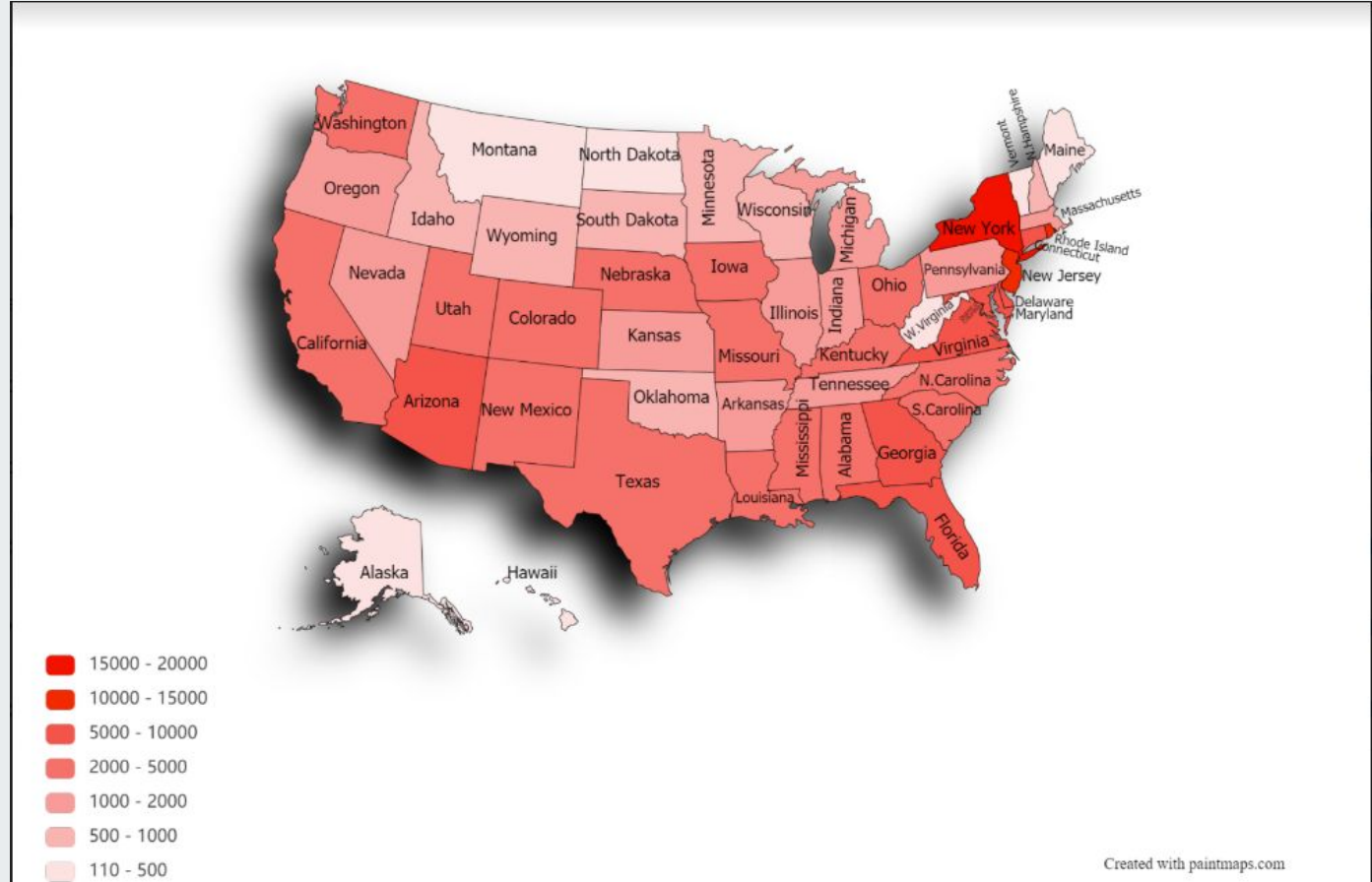
Visualizations - Number of active cases



Visualizations - Population

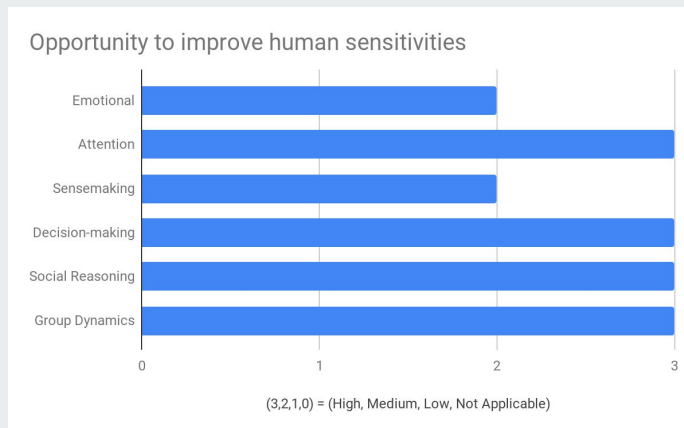


Visualizations - No of cases / million



Humane Design Guide

- A technology or a design that increases human resolution to problems that humans face
- A guide that provides
 - framework to evaluate involvement of human sensitivity
 - levels of opportunity to improve related human sensitivities
 - steps required to implement improvements



3 step guide to implement humane design



- **In what ways does your product/feature currently engage Human Sensitivities?**
 - Data collection initiative is all about collection, analysis and presentation of data. It is vulnerable to unnecessary data exposed to public. In our project, the data is about dangerous diseases. Even if it's presented correctly, it may change emotion with fear and stress.
- **How might your product/feature support or elevate human sensitivities?**
 - Our project involves data collection and presentation and we can keep the presentation of data simple so that can be easily readable. By providing data that reduces fear and stress to an individual, we can improve the level of emotion
- **Action Statement**
 - We are providing a dashboard which concludes all the collected information. We are providing data about disease that may cause fear and stress in infected area, but it also initiates reverse effect in non-infected areas. The dashboard contains information from authentic organizations about steps to prevent disease. This helps to reduces fear and stress even in infected areas and improves level of emotion.

Conclusion



- We have proposed a framework incurring minimal costs that allows users to input their own data as part of a global data collection initiative
- The core of the dashboard is a data pool collected through ethical means
- This framework can help combat COVID-19 and any other future epidemics.



THANK YOU