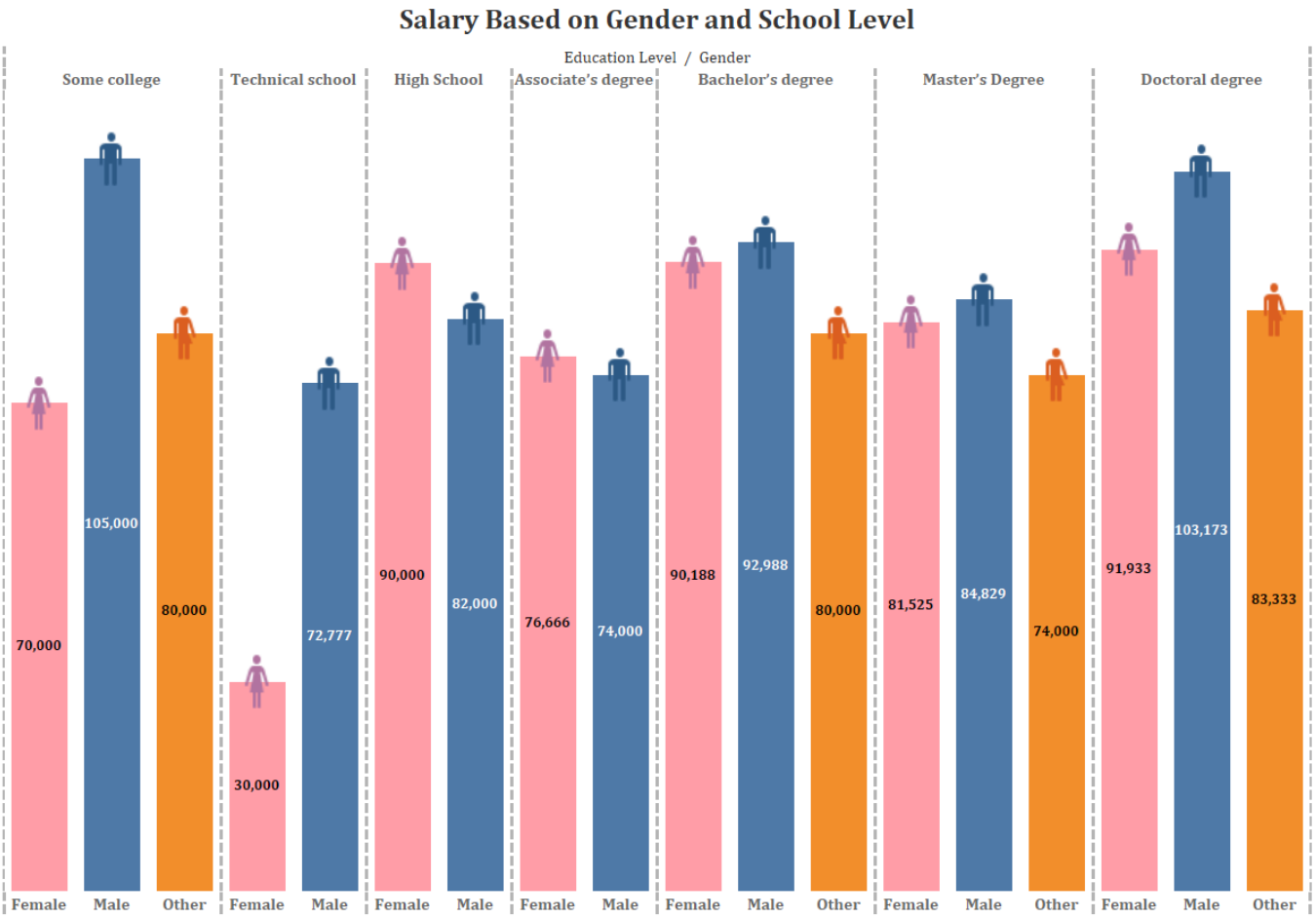
Salaries Based of different Backgrounds of Individuals



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Introduction

Our main topic on this data set is about salaries of people who partake in data visualization. This data set was collected by a survey (SOTI Challenge). This data is about people who participate in the process of data visualization, whether as a job, on the side or something to enjoy. We were interested in the salaries of these individuals and found any specific trends based on someone's background.

Background

This data was given to us by Dr. Byrd which was created by the Data Visualization Society with the survey *2021 Data visualization State of the Industry Survey (SOTI)*. They managed to gather data from a wide source of people throughout the world with in depth questions. The survey asked up to about 41 questions per person from stuff about job, experience, where they live, and more. The data also includes past sources of data from previous years but with different questions asked.

Questions

The main questions that we had was, how does someone's background affect their salary. Our audience we believe are people who are interested in data visualization. We wanted to focus on something specific in this large amount of data so we chose to do salary because it is a curious topic to see how well people do in this career. When we expanded even further, we noticed how we could take this data and view it in so many different ways. We are able to view salaries based on someone's gender, or what country they live in and so on. This allows people who are interested to view what they could get paid in a field based on their own individual background. By looking at the data in this way as well we can find problems in the system that may cause inequality in the system.

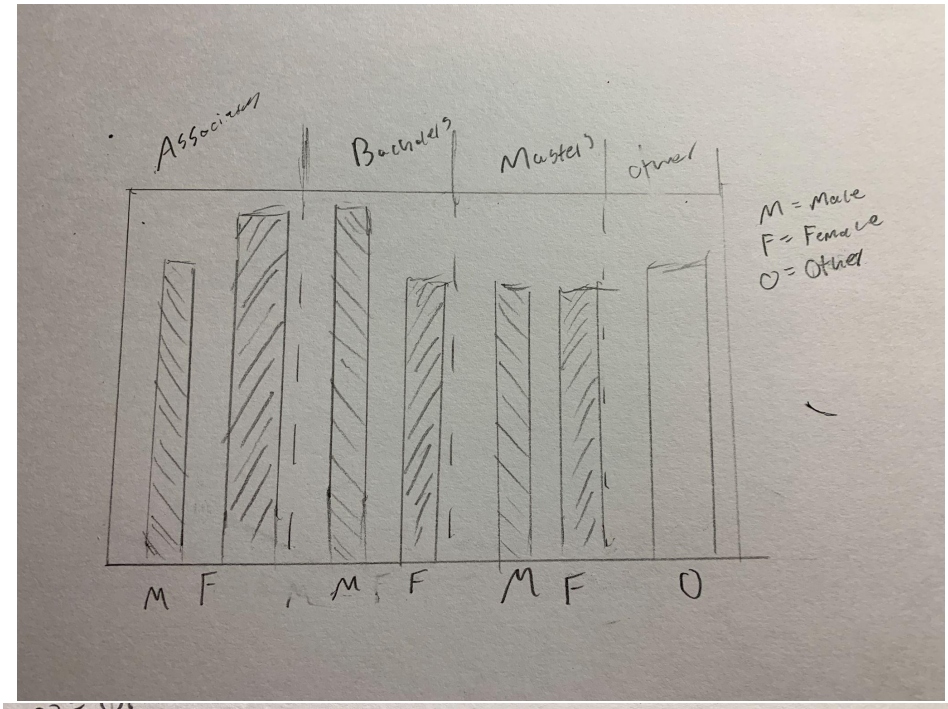
Problem Statement

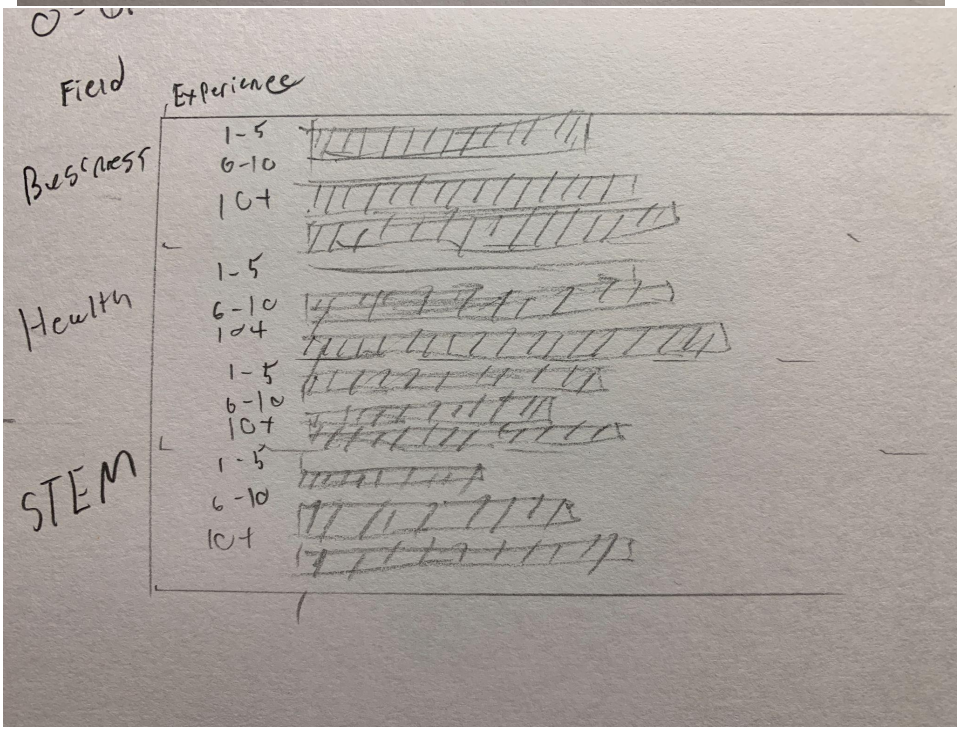
We want to find trends in salaries of those who partake in data visualization based on their background to show people in this career what they should/could be making and also expose any underlying problems we found when it comes to equality for salary.

Methodology

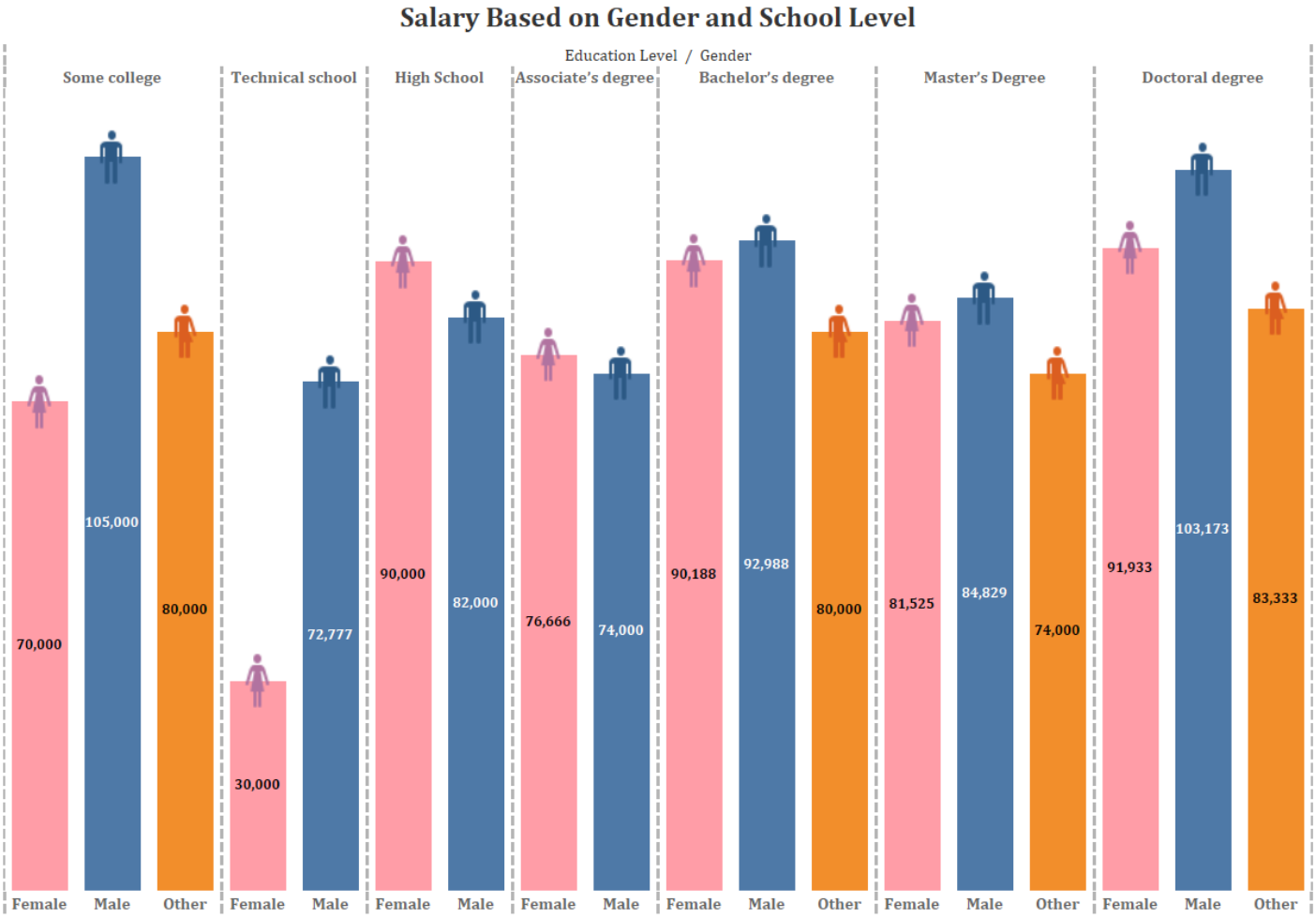
When we first started talking as a group, we started to look and analyze the data given. We came up with different ideas on what we could focus on and what to talk about. We all had slightly different ideas on what to focus on but we ended up coming together and compromising on focusing on salaries. We then made a few sketches for proof of concept to imagine what we could be looking at when creating visualizations. We were then all assigned some roles whether it was being in charge of the website, working on visualizations, or getting a script ready for the video.

Sketches that we made below:



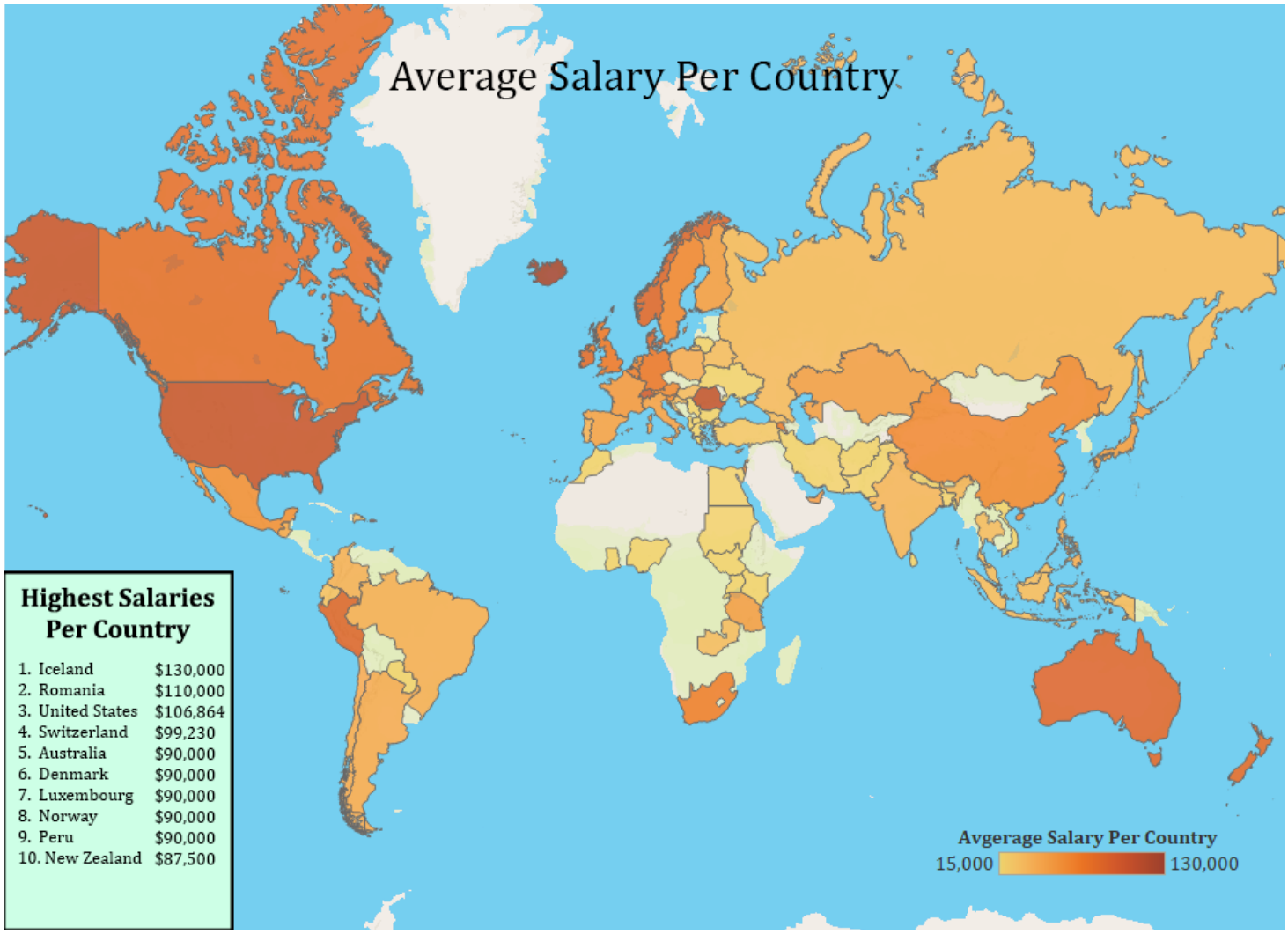


Results:
Final Visualizations (1/3)



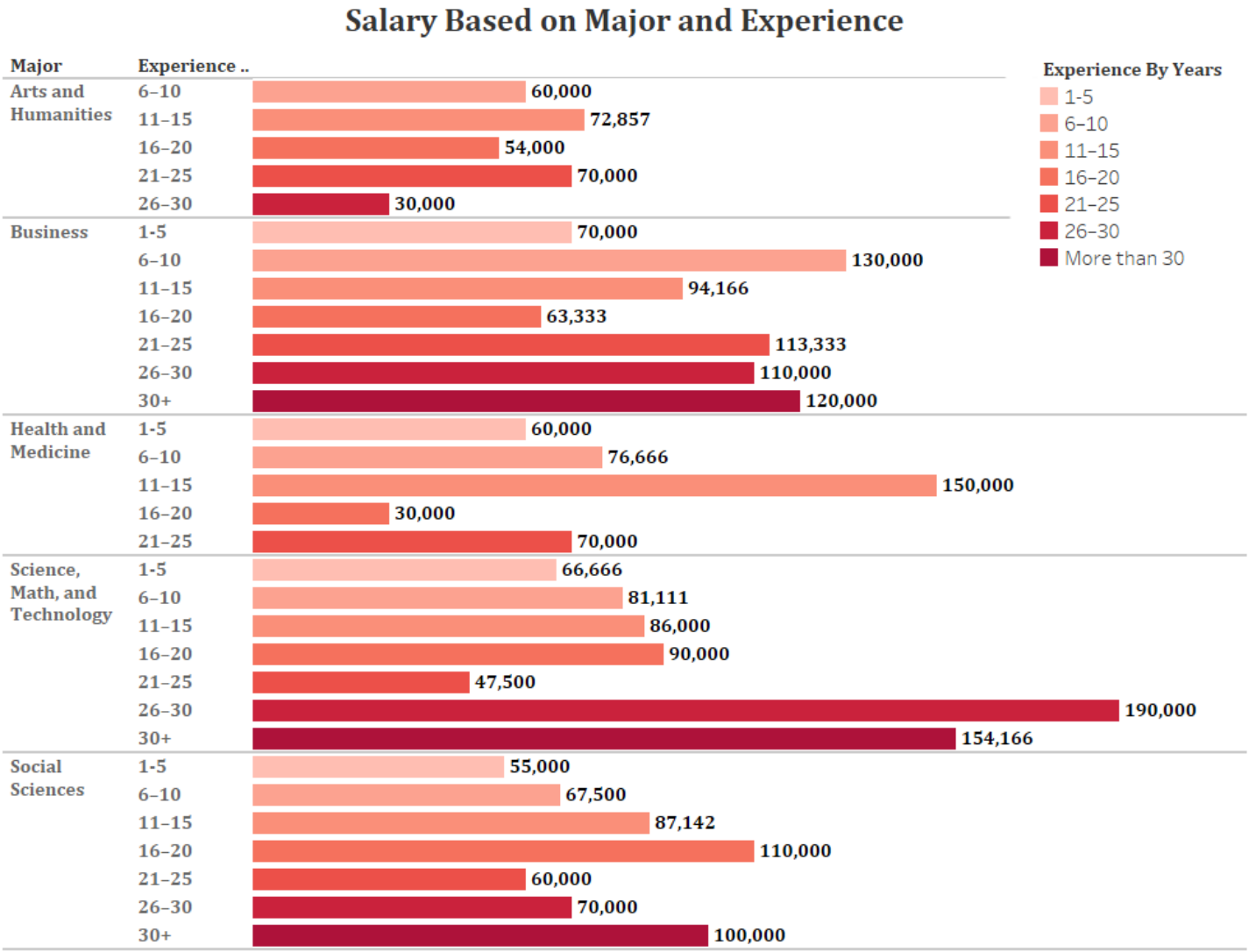
Caption: *Average Salary Based on Gender and School Level in 2021. Males on average make more than the other genders.*
Created by: *Ed Andersen*

Final Visualization (2/3)



Caption: *Average Salary Per Country. Iceland has the highest salary on average for participants of data visualization.*
Created by: *Ed Andersen*

Final Visualization (3/3)



Caption: *Salary Based on Field and Years of Experience. The science, Math and Technology field has the highest average salary followed closely by the Business field.*
Created by: *Ed Andersen*

Discussion and Conclusion

The first visualization *Average Salary Based on Gender and School Level in 2021* shows how both gender and degree for school affect your salary. Overall the trend shows how males make the most on average followed by females, and then finally other genders. Although there are a few exceptions in the graph, it does show clearly how being a different gender may affect your salary. The visualization also shows the higher degree you have, the more you tend to make. Except it also shows how it widens the gap of pay between males and other genders even further.

The second visualization *Average Salary Per Country* shows what countries have the highest salary on average for people in data visualization. The trends that were shown were most of Northern Europe, and North America had the highest average salary. This shows where demand for people in data visualization is the highest. The top three countries being Iceland, Romania and the United States.

The third visualization *Salary Based on Field and Years of Experience* shows what field of work and how many years of experience depending on the field has the highest average salary. This visualization shows that the Science, Math and Technology field has the highest average salary as a whole, closely followed by the Business field. Although there are a few exceptions within the data, we presumed them as outliers. Typically the trend shows the more experience you have, the higher the average salary.

It is apparent that there are many factors that determine what someone would get paid in this field. Mainly what was found was gender, country, experience, and field. This outcome made us think if this is right. Most of what we found made sense. Generally the more experience you have, the more you get paid. A country with higher demand will pay a higher salary. What didn't make sense was gender. Why was there such a trend when looking at salaries based on gender? These are some of the thoughts we had when viewing the outcome of this data.

References

Data used:

"SOTI Challenge 2021." Data Visualization Society, 2022, https://www.datavisualizationsociety.org/soti-challenge-2021.

Appendix A - Resources Used

Datasets

2021 Data Visualization State of the Industry (SOTI) Survey Challenge
The data used is the one that was given to all students in class. This data in this survey contains the newest responses from the most recent survey (2021) but also has data from past surveys going back to 2017. The data contains answers to many different kinds of questions asked. For example it might be data about someone's salary or someone's education level.

Tools Used

Tool/Application	Description
Excel	Data cleaning/filtering
Tableau	Data visualizations
Photoshop	Slight editing of visualizations
Wordpress	Web development
After Effects	Video editing

Appendix B - Project Web Page

Website Link: https://aaeamkhackathon.wordpress.com

Appendix C - Percent Contribution

Group Contributions

Individual Contributions

Team Member	Contribution	Contribution (%)
Ed Andersen	Made the visualizations, documentation, and helped with the video presentation and the website.	33.3%
Adam Abounnaim	Developed a website for the project and helped with the video.	33.3%
Mitchell Kennedy	In charge of editing the video and helping with the presentation.	33.3%

Appendix D - Individual Contributions

Team Member #1: Edward Andersen

Group Topic/Question: Salary based on others' diversities.

Your Topic/Question: My individual focus was comparing salary to other data points and coming up with visualizations for them.

Describe the diversity You bring to the group (150 words or less):

I believe the diversity I bring to my team includes working well with a team and being able to communicate clearly. I have a good amount of experience working with teams so I believe that is a good trait to bring. I also have a more design background because of my major in Animation and Visual effects so I was able to bring some design aspects to this team as well as work well with my group.

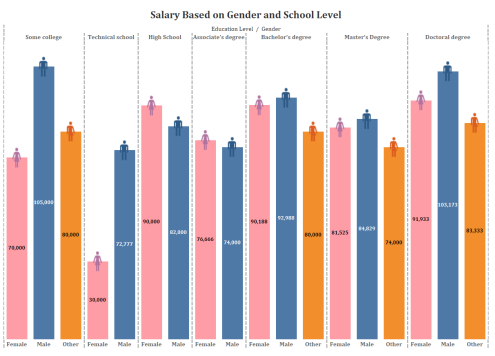
The problem our group was exploring in this project was the pay gaps based on different factors. We wanted to show trends in important topics while showing pay disparity in any of the trends. The fields we mainly focused on for the three visualizations were Gender, Geography, Work Experience, Education Level, and Work Field.

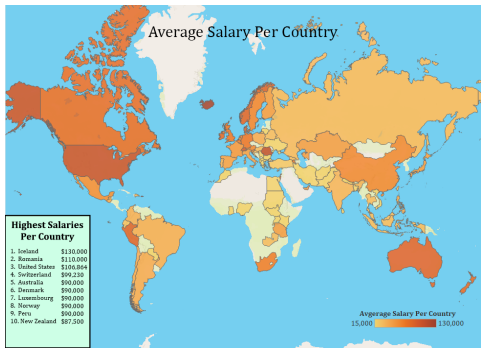
The story I saw emerge from this project was very unique. I saw trends that show inequality, and I saw others that showed demand. In the first visualization that I made I originally wanted to see how salary compares to different genders. What I first saw in my vision was that there wasn't too much information. It was just a single bar chart showing the average salary of males, females, and other genders. I felt that this visualization could've shown more so after some brainstorming, I decided to compare it to education level. This way people could understand the pay gap in not just gender, but also in education and see if any interesting trends appear.

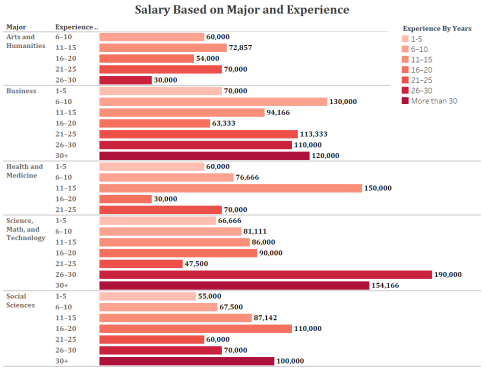
For the second visualization I made, I wanted to know the demand for people who work with data visualization depending on geography. I was able to find data within the survey on what country everyone was from and decided to create a map. I believed a map was the right choice for something like this because it was geographical information and it is a great way to show what country has the highest average salary.

For the third visualization, I wanted to use the data points for someone's experience. First I was just comparing it straight to salary, but just like the first visualization, I thought it could've shown more. I then found data that shows what field the respondents worked in and thought this was a good idea. A way to show and pay gaps between each field would be great and on top of that, it would include someone with years of experience. This way you can see a few trends happening at once without it still being too much data to look at.

For this project, I worked heavily on the making of the visualizations, including the data visualization process and the Hackathon Report. I also worked partially on the creation of the video, and the creation of the website.







Team Member #2: Adam Abounnaaim

Group Topic/Question: Salary based on others' diversities.

Your Topic/Question: My main focus was on designing the website as a portfolio of the visualizations we developed to illustrate the observations we found regarding the relationship between salary and diversity.

Describe the diversity You bring to the group (150 words or less):

I believe my experience with amateur web design helped contribute to the technical diversity of the group, in tandem with Ed's expertise with graphic design a la Photoshop, and Mitchell's knowledge of video editing which helped us greatly in preparing the presentation last Wednesday.

My own artistic sensibilities contributed as well regarding our refinement of the visualizations during our first weekly meetings, prior to settling on a few final iterations and proceeding forward. My input to the artistic and ideological diversity of the group was significant I believe, and helped influence somewhat the direction the project ended up going down.

Team Member #3: *Mitchell Kennedy*

Group Topic: Salary based on others' diversities.

Your Topic/Question: Pursuit of improvement in design & team coordination skills.

Describe the diversity YOU bring to the group (150 words or less):

As part of a generation that has spent the past 15 years on the internet learning of it's history of culture and change that thereof, I have learned much about the focus groups and different communities of most focus, as well as the fickleness that comes with trying to make a orderly conclusion about said communities tastes and interests.

I began this way over my head, only with my prior experiences to go off on and the abilities i've gained over my years I wasn't sure what to expect from my group mates when right off the bat one of them was a no-show.

But I am confident to say that I have learned not just about better ways to pursue my graphic design, but also how to manage meeting up, planning out, and working together than before with each of us taking charge as a leader each week.

It was a unique idea which I think pushed us to make a presence in the group each week and contribute and interact more so than just giving content & helpfulness in the project.

Appendix E - Diversity Statement

Our team has a pretty diverse background that has helped us complete this project. There are many things that make our group diverse, whether it is our different majors or technical skills, where we grew up, and more.

Ed Andersen:

I believe I bring a unique set of skills to this team bringing a good amount of diversity which allows us to work together on this project well. My major is in Animation and Visual Effects. This can allow me to bring more of a design background to this team. I am able to visualize a plan of what something may look like and share it with the rest of the team. I was also the only in-person. This allows me to have greater access to resources for our team for anything that we might need. I also grew up in a different area than my other teammates. This can provide the group with different perspectives on some things in this project.

Mitchell Kennedy:

The life experience of living within an ever growing and changing community that spans across the entire world has given me the unique perspective of the online landscape and all its mixed together culture & consumer groups. But beyond simply experiencing and learning from my own life it was being able to work alongside those of other perspectives and being able to each focus on a part we are best at allowed it to become something much more than what a single person could come up with. It was both a technical and group experience that allowed for much consideration and positive new changes going forward.

Adam Abounnaaim:

With all of these different backgrounds and diversity, this helped our team work well together. One of the unique things about this team is that none of us could work on this project in person. This provided a unique challenge for this group but also let us work on the project in different ways some other people may have. We were able to come up with a plan every week of what needed to be done, and allow everyone to contribute constructive ideas to each other.

Appendix F - Team Consensus

Team Consensus

I have read and approved of the content as a representation of the team's work and my contribution.

Print Team Members Full Name	Signature	Date
Edward Andersen	*Ed Andersen*	4/21/22
Adam Abounnaaim	*Adam Abounnaaim*	4/24/2022
Mitchell Kennedy	*Mitchell Kennedy*	4/27/22

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