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DS4200: Human Trafficking Analysis Marks and Channels

Link to Final Website: https://willanastas16.github.io/Ds4200-final/

Descriptions of Visualizations:

Barchart of Means of Control Frequency:
Marks:
Area taken up by the bars - The more area the bar takes up, the more prevalent the Mean of Control is within the Dataset.
Channels:
Vertical Position - The higher each individual bar is, the more prevalent the Mean of Control is within the dataset.
Description: This barchart allows for the Mean of Control that are present within the dataset to be sorted by prevalence. By using a barchart in the manner that we did, it is easy to decipher which Means of Control are more prevalent than others, allowing policymakers and organizations alike to act accordingly.

Barchart of Exploitation Type Percentages:
Marks:
Area taken up by the bars - The more area the bar takes up within the graph, the more prevalent the Exploitation Type is within the dataset.
Channels: Horizontal Position - The longer each individual bar is, the more prevalent that particular Exploitation Type is within the dataset.
Description: This barchart, which analyzes the percentages of each Exploitation Type within the dataset, allows for easy interpretation of which Exploitation types are most prevalent., By using a barchart in the manner that we did, the most prevalent forms of exploitation are able to be deciphered extremely easily, allowing for policymakers and organizations alike to push for necessary reforms.

Line plot of Trafficking Incidents by Gender and Year:
Marks:
Points on the line plot - Tracks individuals over time, holistically revealing trends and spikes.
Channels:
X-axis position - Represents time. Y-axis position - Shows number of incidents.
Color hue - Differentiates gender categories for easier gender comparisons.
Description: The combination of positioning and color hue effectively show changes in trafficking over time for different genders. This visualization helps us analyze the impact of campaigns and policy shifts, while interactivity enables deeper exploration of demographic vulnerabilities.

Line plot of Trafficking Incidents by Year:
Marks:

Points on the line - Represent the number of trafficking incidents reported each year.
Connecting line - Tracks trends over time, revealing patterns and changes.
Channels:
X-axis position - Represents time (year), providing a clear timeline of incidents.
Y-axis position - Indicates the magnitude of trafficking incidents, highlighting spikes and dips.
Description: This line plot enables us to analyze how trafficking incidents fluctuate over time, pinpointing key years with significant increases or decreases. By showing trends over multiple years, this visualization helps identify the impact of policy changes, awareness campaigns, or reporting shifts, providing a historical perspective critical for long-term planning.

Stacked Bar Chart of Exploitation Type by Gender:
Marks:
Rectangular segments - Represent each gender within the exploitation type categories.
Channels:
Vertical position - The height of each segment indicates the proportion of that gender within the given exploitation type.
Color hue - Blue (Female), Orange (Male), Green (Transgender/Non-Conforming) makes it easy to identify and differentiate gender proportions.
Description: The stacked bar chart effectively shows how different genders are affected by various exploitation types. It highlights stark disparities, such as females being disproportionately affected by sexual exploitation and males being more prevalent in forced labor. This visualization allows policymakers and organizations to design interventions based on gender-specific vulnerabilities.

Violin Plot of Means of Control Percentages:
Marks: Violin shapes - Represent the density and distribution of data for each control method.
Lines within shapes - Show median and variability in the data.
Channels: Width of the violin - Indicates the density of cases for a given means of control, with wider areas reflecting higher frequencies.
Vertical position - Reflects the prevalence of the control method within the dataset.
Description: The violin plot provides a detailed view of how different means of control are distributed across trafficking cases. It reveals not only the most common methods, like psychological abuse and physical control, but also the variability within each category. This visualization is particularly useful for identifying nuanced patterns in how victims are controlled, guiding tailored interventions.

Interactive Map of Trafficking Cases per Country:
Marks:
Spatial regions - Identifies geographic locations and connects trafficking data to specific countries
Channels:
Color hue - Represents the intensity of trafficking cases, making it easy to compare regions.
Spatial Regions - Specifies the location, allowing focus on distinct areas of interest.

Description: The use of spatial regions and color hue is effective for showing geographic disparities in trafficking. Users can explore specific countries to understand where reporting is strong or lacking. This tool highlights areas for targeted intervention and international collaboration.

Interactive Line Plot of Trafficking Incidents by Gender and Year:

Marks: Data points - Represent the number of trafficking incidents for each year.
Connecting lines - Link data points to show trends over time for each gender.
Channels: Vertical position (y-axis) - Represents the number of trafficking incidents, allowing for comparisons in magnitude.
Horizontal position (x-axis) - indicates time (year), showing changes and trends over multiple years.
Color hue - Differentiates genders (blue for females, orange for males), enabling easy gender-specific trend analysis.
Description: The interactive line plot provides a dynamic way to examine temporal trends in trafficking incidents, filtered by gender. Users can identify spikes or declines in specific years and compare patterns between genders. This visualization is particularly useful for evaluating the effectiveness of gender-specific interventions or policies over time.

Interactive Stacked Bar Chart of Exploitation Type by Gender:

Marks:
Area - the more area of the stacked bar chart each gender takes up, the more prevalent it is for that exploitation type, meaning that they are more at risk.
Connection - By connecting the two/three gender segments to each other, we are able to display 100% of the exploitation that occurs for each type. This also allows for easy interpretation for which genders are most at risk for each type of exploitation.
Channels:
Vertical Position - the amount of height each segment has, the greater the share the gender has in terms of that particular exploitation type.
Color - Purple = Female, Red = Male, Green = Other - By using color to denote gender, the viewer is easily able to decipher which gender is most heavily affected by each type of Exploitation.
Description: The stacked bar chart allows us to visualize gender disparities within exploitation types, with segments showing which gender is most affected by specific forms of trafficking. This approach makes it easy to compare exploitation types and prioritize interventions for vulnerable demographics. For example, females dominate sexual exploitation, while males are more prevalent in forced labor.

Interactive Violin Plot

Marks:
Shape (Violin) - Represents the distribution and density of a variable, showing how prevalent different means of control are across the dataset.
Points within the violin - Indicate median values and variation in the data.
Channels:

Width of Shape - The wider the violin is at any point, the higher the density of cases with that specific value.
Vertical Position - Reflects the value of means of control and their prevalence relative to others.
Description: The violin plot captures variability and density in the use of control methods, showing the range and frequency of each method. It's particularly useful for identifying which controls are most frequently reported, such as psychological or physical abuse, and comparing distributions across multiple categories. This helps stakeholders understand the multifaceted vulnerabilities of trafficking victims.