Title: Prosthetics and Amputation Demand Mapping
Mini Challenge Number: N/A (INDEPENDENT PROJECT)
Team Name: Dangerous Developers
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Our project is focused on assessing the demand for prosthetics across the United States. In our project, we provide a few key visuals: the first set of visuals are interactive line graphs with filters that give a big picture of projected amputation and prosthetic growth via publicly available data. These visuals primarily serve to highlight the disparity between the global need for and supply of prosthetics (lots more people need prosthetics than are buying them). Next, we explore this phenomenon in the U.S. specifically, using a few variables (road accidents, diabetics, smoking, veterans) as predictors and identifying the top three states with significant differences in need and supply (Missouri, Tennessee, and South Carolina). Next, we provide a visual of U.S. income distributions which implies that the disparity may be because of the affordability of prosthetics and we identify that as a key point to explore for companies.

Analysis: Our analysis changed from the initial assessment as we added a few more visuals that were not related to maps. Specifically, we added projection visuals for macro prosthetic and amputation trends.

Design:
Packages Used:

- Altair
- Plotly

Interactive Visuals:

- Demand by State (Hover Tooltip)
- Map of different risk factors (CheckBox)
- Map of change in car accidents (Hover Tooltip)
- Supply Scores by State (Hover Tooltip)
- Opportunity Scores by State (Hover Tooltip)

- Car Accidents by State (Slider by year)
- Median Household Income by State (Hover Tooltip)
- Projected Prosthetics by Region (Dropdown)
- Projected Limb Loss by Region (Dropdown)
- Combined Projected Prosthetics and Limb Loss by Region (Dropdown)

Strengths of the project include:

- The real-world relevance of the visuals
- Ease of understanding and interpretability of the color-coded maps and line projections (they are self-explanatory)
- Specific insight from the U.S state maps
- The comprehensiveness of the various predictor variables

Challenges of the project include:

- Complete data availability, especially as we had to collect our own data
- Choosing how to display the data to make interpretation as easy as possible and being as creative as possible with visual variety

Advice:

- Be very selective and thorough about the data you select
- Make sure to read through the data and understand it before analyzing or visualizing it
- Pick visuals that you could explain to your little sibling in a few sentences
- More visual variety (color, texture) is more engaging