# INFO 5100 Project 3

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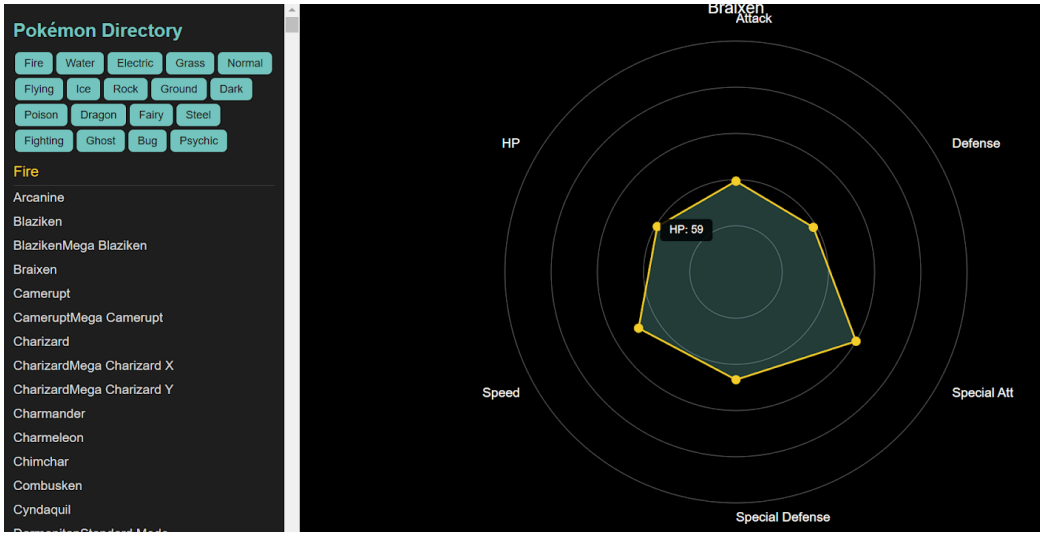
## Written Description

**A description of the data.** *Report where you got the data. Describe the variables. If you had to reformat the data or filter it in any way, provide enough details that someone could repeat your results. If you combined multiple datasets, specify how you integrated them. Mention any additional data that you used, such as shape files for maps.*
We mainly used Pokemon.csv, a dataset from Kaggle. Pokemon.csv contains, for each of the first 721 Pokemon, their Pokedex ID #, Name, Type 1, Type 2 (since some Pokemon have multiple types), Total (sum of all their stats), and their individual stats: HP, Attack, Defense, Sp. Attack, Sp. Defense, and Speed. The only instance in which a slightly different data file was used was for the bar chart visualization, which uses type_occurrences.json. This file is just a filtered version of the data in Pokemon.csv, which counts how many times a given type occurs for a given generation. The additional images in the bar chart visualization are from the official Pokemon website.

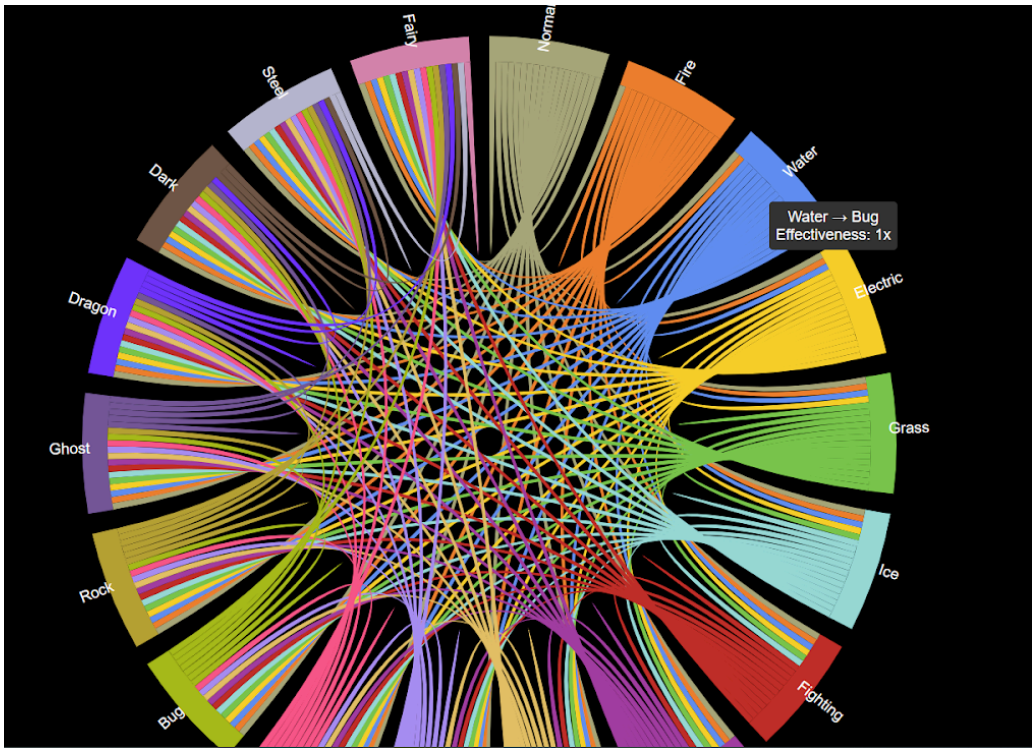
**An overview of your visual design rationale.** *A good rule of thumb to follow is "every pixel must be justified." Instead of a 100,000-element breakdown, give us an overview of the design decisions you made and the trade-offs inherent in how you displayed the data. This part ought to include a description of the mapping from data to visual elements. Describe marks and channels you employ such as position, color, or shape. Mention any transformations you performed, such as log scales.*

**Pokedex:**



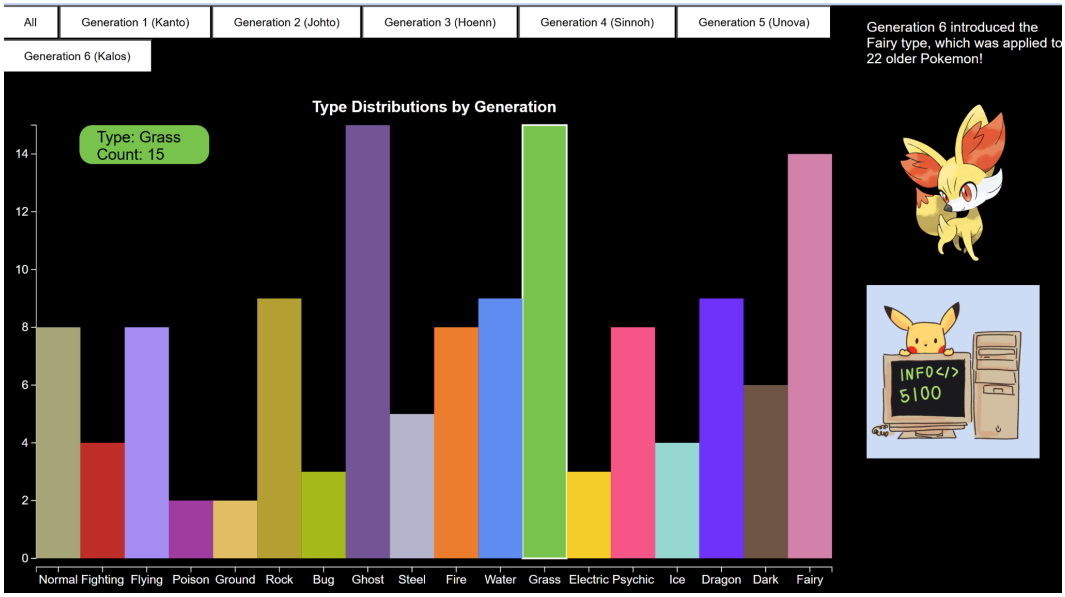

The Pokemon directory is designed to mimic the stat distribution screens shown in the actual games. Filtration by type allows you to easily see differences in stat distributions between both different Pokemon and different types more broadly. It's also easy to find individual Pokemon, as they are sorted alphabetically within the type headers.

**Type Chord Diagram:**




The colors here mimic the official color for each type from the actual games. The colored bands allow you to see which types have relationships with others, and mousing over provides a tooltip popup that tells you just what you're looking at.

**Type Distribution Bar Chart:**




We chose a bar chart here because it felt to be a more intuitive way of graphing the counts of something (in this case, how much a specific Pokemon type appears in each generation of games). The colors are all based on the official colors for each type (as well as coordinated with the chord diagram to match), and the black background helps all these colors pop. The mouse-over box showing the type and how many occurrences there are is there in absence of gridlines, as gridlines would have made an already visually busy space even busier.

**An overview of your interactive elements and their design rationale.** *Give us an outline of the design decisions that went into the interaction affordances you added to your visualization. What process did you use to choose the interactions you developed? How did you make them discoverable, usable, and interesting?*

**Pokedex:**
The interactivity lies in the radar chart, which keeps updates when clicking a Pokemon's name in the sidebar. The chart visually maps stats to vertices, forming a unique polygon for each Pokemon. Buttons and type categories on the sidebar encourage user interaction, while clear labels make the design approachable. The layout is clean, ensuring the focus remains on the Pokemon's attributes, with every element designed to balance functionality and simplicity.

**Type Chord Diagram:**
The interactivity here is achieved through ribbons that connect types, dynamically displaying tooltip information when you hover over them. The colors of the arcs represent the types, using familiar themes (e.g., Water is blue), which makes it intuitive for Pokemon enthusiasts. The circular layout and spacing make it easy to track relationships, while the smooth transitions in hover states invite exploration. Every ribbon and arc is purposefully placed to balance clarity and aesthetic appeal, ensuring an engaging experience without overwhelming the viewer.

**Type Distribution Bar Chart:**

The interactivity here is through mousing over the bars (which pops up a text box telling you what that bar is showing), and (more importantly) through the buttons at the top. The buttons change your cursor style when moused over, inviting you to click on them. The text (a little fun fact) and image to the right of the graph also change to provide a unique

***The story.*** *What does your visualization tell us? What was surprising about it? What insights do you want to convey to the viewer of your visualization?*

We wanted to convey just how complex and numbers-driven Pokemon can be, despite being a fairly simple game on the surface. It's always surprising to see how many Pokemon there currently are, but we found it really interesting to see how different trends play out across different games, different types, etc.

## Team Contributions:

*Give a rough breakdown of how much time you spent developing and which parts of the project took the most time.*

**Kuangming:**
The Pokemon Directory/Pokedex is an interactive radar chart designed to show the attributes of individual Pokemon by type just like the Pokedex in the game. Pokemon are categorized into their respective types (e.g., Fire, Water, Grass with buttons on the top), displayed in a sidebar. Users can click on a Pokemon's name to view a detailed radar chart showing attributes, such as Attack, Defense, Speed, Special Attack, Special Defense, and HP. The radar chart is visually engaging and allows for quick check of a Pokemon's strengths and weaknesses. Hovering over the chart points provides further insights into the exact value of each attribute.

**Zhiqi:**
I designed the Pokemon type Advantage Chart to visualize how types interact in battle, using color-coded arcs and connecting ribbons to show effectiveness. Hovering over ribbons displays tooltips with multipliers for dynamic insights. Most of my time went into building the matrix logic and ensuring accurate data mapping. I also worked on fine-tuning the layout and colors for clarity and consistency. Additionally, I contributed by helping to find the dataset and editing the project document. Surprisingly, getting the tooltips to display smoothly without overlapping the chart was the most challenging part.

**Sasha:**
I created the bar chart graph, which shows how much a type appears in each generation of Pokemon. Each color-coded bar represents a type, with its height determined by how frequently it occurs in that generation. You can click between generations and watch the bars move to see how the prevalence of different types varies between games. I also added a little "fun fact" for each generation (alongside with a picture of a Pokemon for each generation), to add something else dynamic that changes with each click. Somehow, the most time-consuming portion was

filtering out the data properly to make a new json file tracking occurrences. I also drew the little Pikachu on the INFO 5100 computer.

**Allison:**
I created the scatterplot of different Pokemon attributes. The graph shows each Pokemon's attack ability as the horizontal position, the defense ability as the vertical position, and the hitpoint represented as the radius. The plotted points are color-coded by type. The graph defaults to show data for all Pokemon. However, users are also able to select a specific type of Pokemon, such as Grass, Water, or Fire, through a dropdown menu. Upon making a selection, the data is filtered to show only Pokemon that are of the selected type. This allows users to view trends in the data of specific Pokemon types. I also combined all graphs into a single HTML file.