**Introduction**

The final project features an interactive map designed to inform rail safety outreach groups and public safety agencies about the spatial distribution of train accidents in the United States. The map offers data on accident causes, financial losses, injuries, subsequent accidents, and safety improvements made following the incidents.

**How might a rail safety educator interact with this map?**

* A rail safety educator can use this map to identify patterns and trends in train accidents over time, which can be used to improve safety measures and prevent future accidents. By analyzing accident data from different years, rail safety educators can better understand the causes and contributing factors of train accidents and develop targeted educational programs that address these issues.
* They can identify areas where accidents are most common and prioritize their efforts accordingly. For example, if accidents at a particular railroad crossing have increased over the years, rail safety educators can focus on educating drivers and pedestrians about the dangers of the crossing and how to safely navigate it.

**Filter by year:**

* Can help them analyze trends and patterns in the occurrence of accidents over time. By examining the number and types of accidents that have occurred each year, rail safety educators can identify periods of heightened risk and allocate resources and interventions accordingly.
  + For instance, if the number of accidents has increased steadily over the past few years, rail safety educators may focus their efforts on improving maintenance and inspections to prevent equipment failures and reduce accidents.
* Secondly, filtering by year can help rail safety educators assess the effectiveness of safety initiatives implemented in the past. For example, if a new safety program was launched in 2018, rail safety educators can filter the accident data for that year and subsequent years to evaluate whether the program had a positive impact on accident rates.

**Filter by rail accident type:**

* can help them identify the most common types of accidents that occur on railroads, allowing them to prioritize safety initiatives and interventions accordingly.
  + For example, if the map shows that collisions between trains and vehicles at rail crossings are the most common type of accident, rail safety educators may focus their efforts on educating drivers and pedestrians about the dangers of these crossings and how to safely navigate them.
* identify patterns and trends in the types of accidents that occur.
  + For instance, if derailments are more common in certain areas or under certain weather conditions, rail safety educators can take steps to improve infrastructure, equipment maintenance, or safety protocols in those areas.
* assess the effectiveness of safety interventions that target specific types of accidents.
  + If a new safety program was launched to reduce the number of derailments, filtering the map data by derailment type can help the educator determine whether the program has been effective.

**Filter by railroad company owner:**

* identify which railroad companies are associated with the highest number of accidents, allowing them to target their safety interventions and initiatives towards those companies.
  + For example, if the map shows that accidents are most common on railroad lines owned by a particular company, rail safety educators may focus their efforts on working with that company to identify and address the root causes of those accidents.
* assess the effectiveness of safety initiatives that are targeted towards specific companies.
  + For example, if a new safety program was launched in partnership with a particular company, filtering the map data by that company's railroad lines can help the educator determine whether the program has been effective in reducing accidents on those lines.
* Identify patterns and trends in accidents associated with specific companies. For instance, if accidents are more common on certain railroad lines during certain times of year, rail safety educators can work with the company to implement targeted safety measures to reduce those risks.