GitHub Repo: <https://github.com/Zig-Zag32/Data-Analytics-Final-Project>

**Who We Are:**

We are technicians of an electrical equipment maintenance company. The government hires our company to repair the equipment because defective and aging equipment can cause severe wildfires that can harm our ecosystem. By using available data about work orders and technicians, we hope to determine how we can become more efficient in both delegating repairs and taking preventative measures to ensure long-term sustainability for our infrastructure.

**Our Three Questions:**

1. What would each technician’s optimal schedule(s) look like?
   1. Value: Ensuring technician time on duty is being maximized, and repairs would not overlap into two separate workdays.
2. What are the most impactful hardware failures? Most common, highest severity, etc.
   1. Value: Investing in research to improve infrastructure to the end of avoiding these high impact failures altogether.
3. What technicians should we assign to the upcoming repairs?
   1. Value: Ensuring that employees are being leveraged effectively, and the most time and experience is going towards the most pressing repairs.

**Dataset Description:**

1. Repair\_types.csv - list of all repair types performed

repair\_id - unique identifier for each type of repair

repair\_name - name of the repair type

repair\_value - value the repair will bring in minimizing fire risk

time\_in\_minutes - how long it takes in minutes to perform a repair

1. Technicians.csv - list of all technicians and their schedule

employee\_name - name of an employee

employee\_id – unique identifier for each employee

start\_time - start time of a shift

end\_time - end time of a shift

number\_of\_days - number of days a week given employee works

1. Upcoming\_repairs.csv - list of all the pending repairs

repair\_id - unique identifier for each pending repair

severity - severity of the repair needed, scale 0-1

repair\_name - name of the repair type

employee\_id - assigned employee, null if none

**Our End Goal:**

By analyzing upcoming repairs, repair types, and technician workflows, we aim to optimize the maintenance company's operations. This involves assigning tasks based on each technician's proven strengths and identifying underperforming employees for potential cost-cutting. We will deliver data-driven insights to maximize profit and efficiency, supporting executive decision-making and maximizing company revenue.