# TEAM

# ANALYTICS AVENGERS

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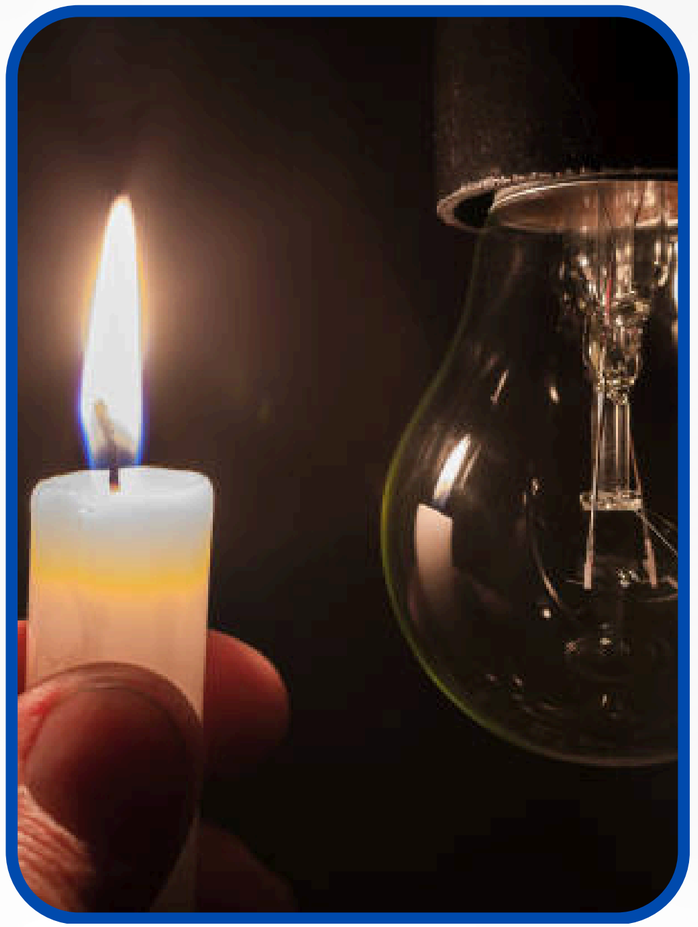
# ABOUT OUR **TOPIC**

## Electricity Outage vs Rainfall

- Electricity is essential for daily life and industries.
- Heavy rainfall often leads to power outages.
- Rain can damage poles, transformers, and wires.
- Studying rainfall vs outage helps find patterns.
- Insights can improve prediction and quick recovery.



# Problems

- High outage rate during rainy conditions (54.15%)
- Cities like Kochi, Chennai, Patna have highest outages.
- Equal contribution of faults (Line Breakage, Transformer Failure, Overheating)
- Electricity downtime is to high with an average of 4 hours per Outage .
- Outages are caused by a mix of line, transformer, and overheating faults.

# KEY INSIGHTS

## Total Outages & Rainfall Impact

Total outages recorded: 506

Outages during rainy weather: 54.15%

## Downtime Comparison

Average downtime during rainy weather: 4.13 hours

Average downtime during clear weather: 3.92 hours

## Maximum Outage Duration

Max outage duration recorded: 6 hours

## Maximum Outage Duration

Outages are almost equally caused by:

Overheating – 33.79%

Transformer Failure – 33.79%

Line Breakage – 32.41%

# SOLUTIONS

- Upgrade infrastructure to be rain-resistant (e.g. waterproof cables, insulated lines).
- Install automated weather monitoring systems to alert for preventive maintenance before storms.
- Use underground cabling in flood-prone or high-rainfall zones.
- Prioritize city-specific infrastructure audits to identify weak spots.
- Allocate higher budgets and maintenance resources to these high-risk areas.
- Implement smart grid solutions for faster detection and response.

# IMPACTS

- Fewer outages during rain, better grid durability, reduced repair costs.
- Improved reliability in top outage cities, more efficient resource use.
- Shorter outage duration, better service for customers.

# CONCLUSION

More than half of the outages occur during rainy conditions, indicating that rainfall significantly contributes to electrical outages.

downtime is higher during rainy weather, which suggests that while rain increases the number of outages, repairs may be faster or prioritized during rain, or the rain-induced faults are easier/faster to resolve.

- **No single cause dominates, but all three are critical areas to address for improving reliability.**

# THANK YOU