# Tallahassee Crime Map

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# Outline

# Project At A Glance

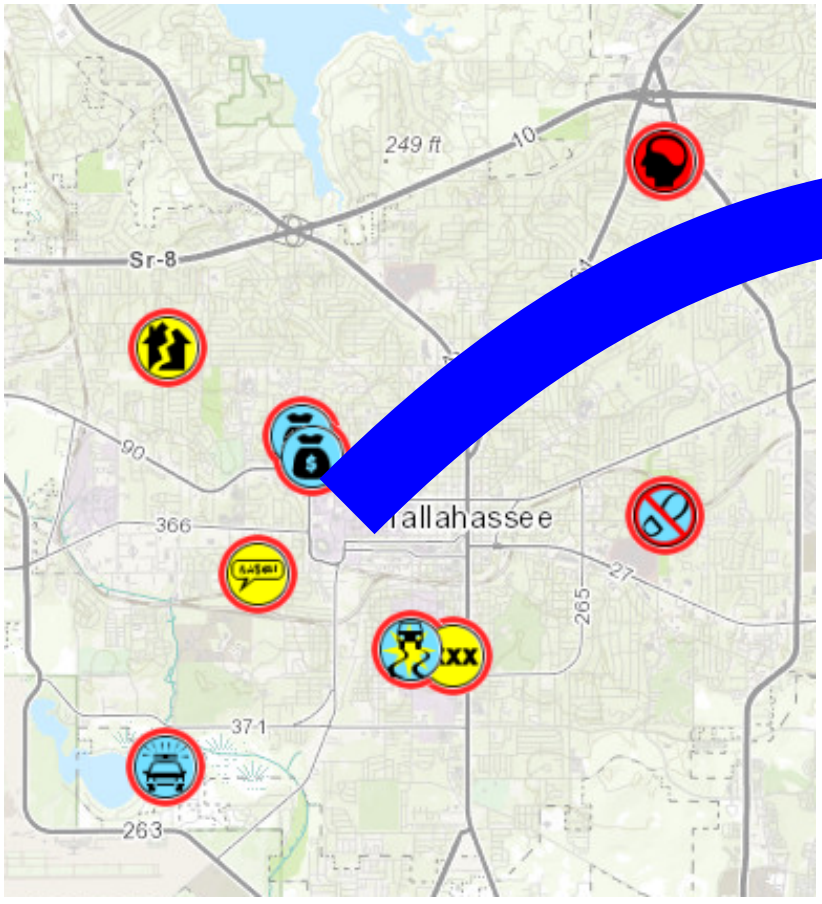
**Goal:** Develop a generative AI that outputs a crime distribution given a geographical map.

**Why:** To provide a tool for city planners to see potential crime risks with their plans.

**Technology:** Generative Adversarial Network (pix2pix)

Figure: Geographical Map to Crime Map

# TOPS Data Collection




A tabular data

The table contains the following columns:

- Time of the crime report
- Crime type
- Location
- Geographical coordinates

Figure: Tallahasse Police Statistics Homepage

# Data Processing

Write a short description about how we create our map dataset

# Categorical Analysis

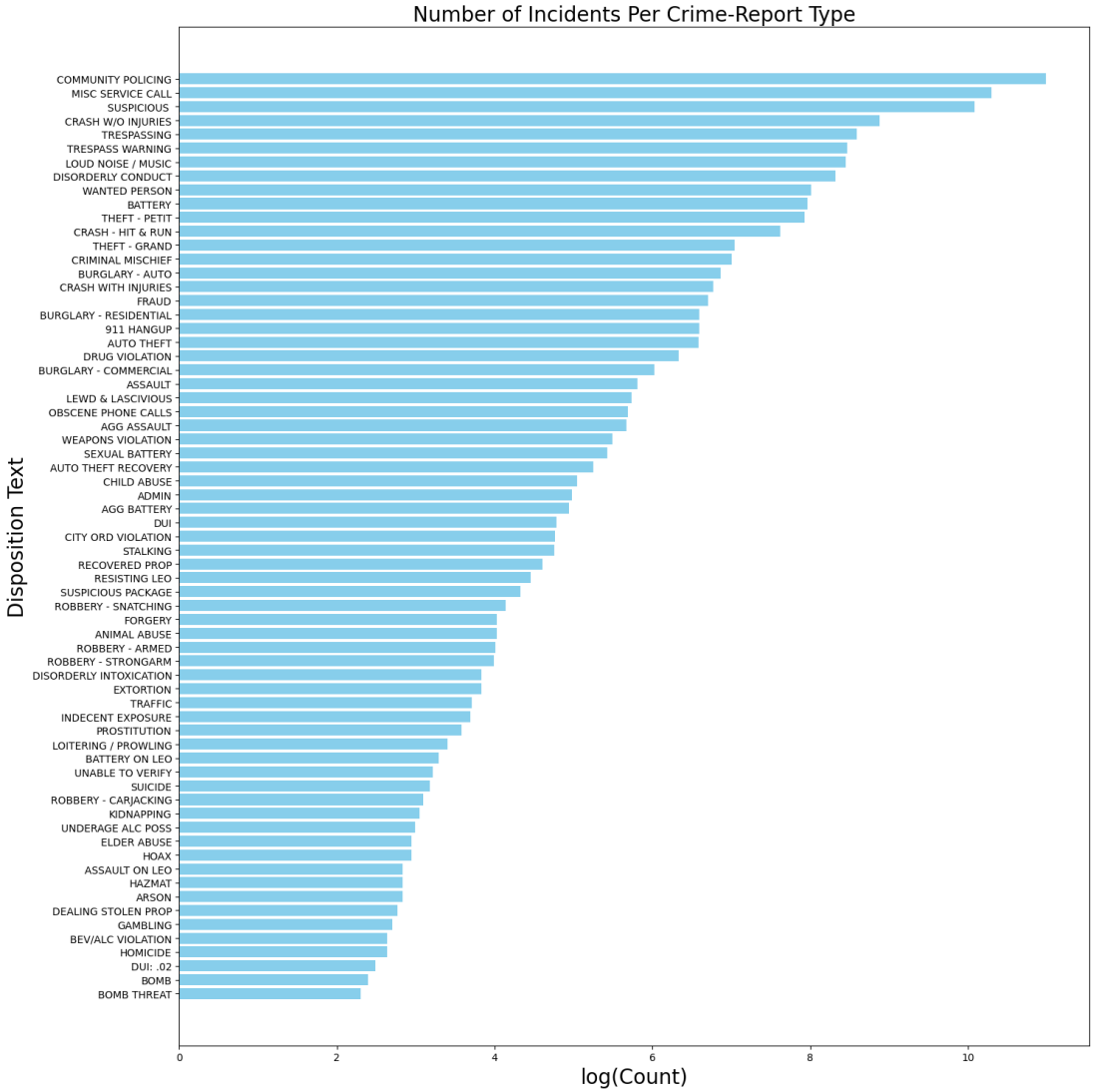



Figure: A bar chart for each type of crime report.

- The values on the $x$-axis correspond to the log of the actual count for visual purposes.
- On the $y$-axis all different types of crime reports are listed.
- There are 67 types of reports.
- We will filter out some from our analysis. For example, community policing occurs most often and it is not of interest for our purposes.

# Temporal Analysis

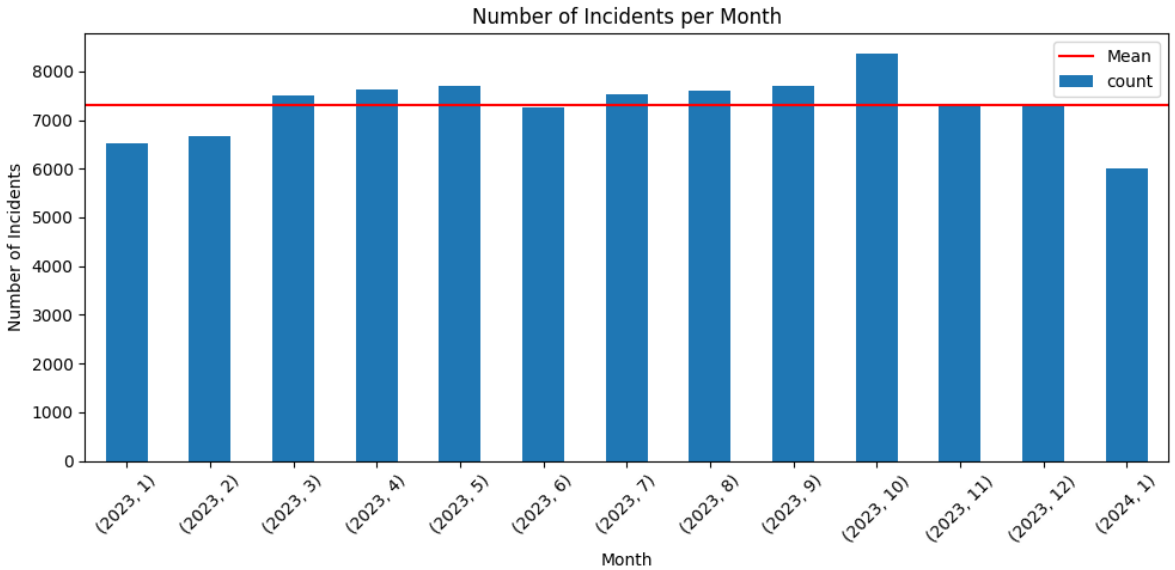
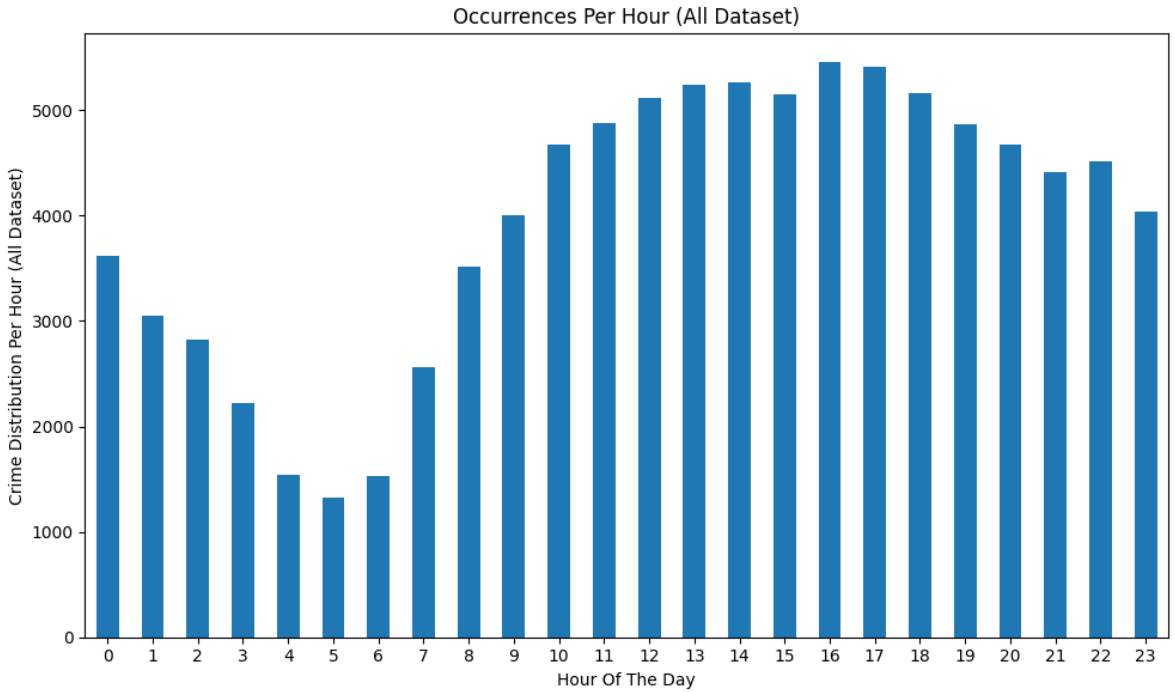



Figure: Crime Distribution Per Month

- Average # of reported crimes per month is 7311.
- Data includes all of 2023 and the first month of 2024.

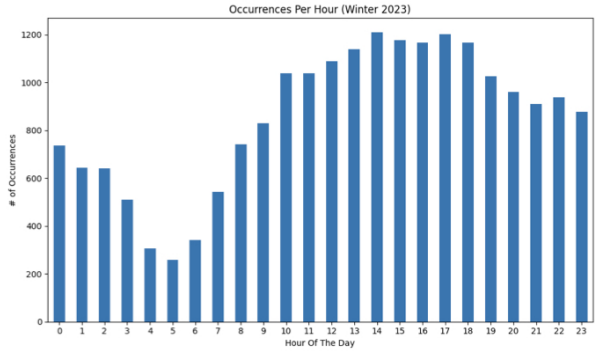
# Temporal Analysis

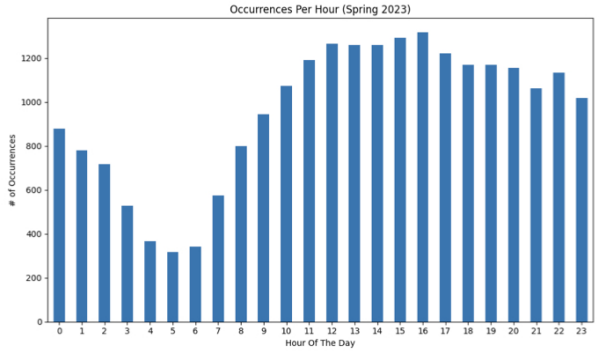


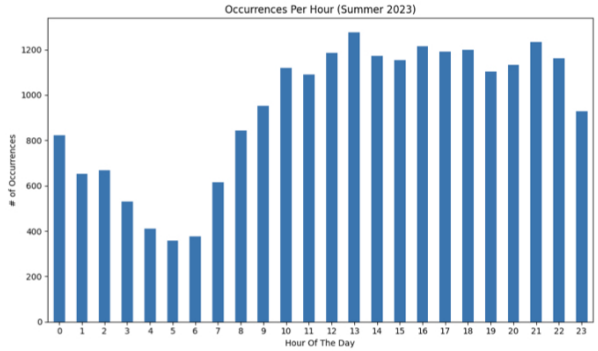

- Hourly analysis of the data reveals a fluctuating trend with peak hours.
- Data includes all of 2023.

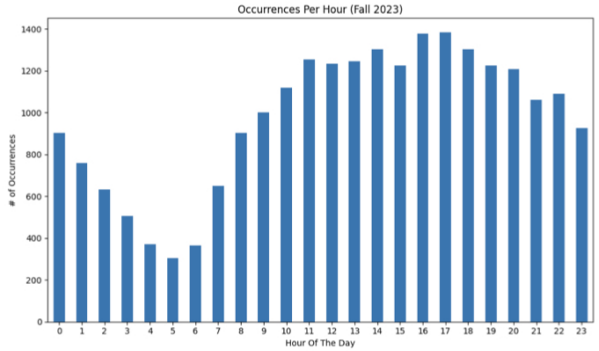
Figure: Crime Distribution Per Hour – All 2023

# Temporal Analysis



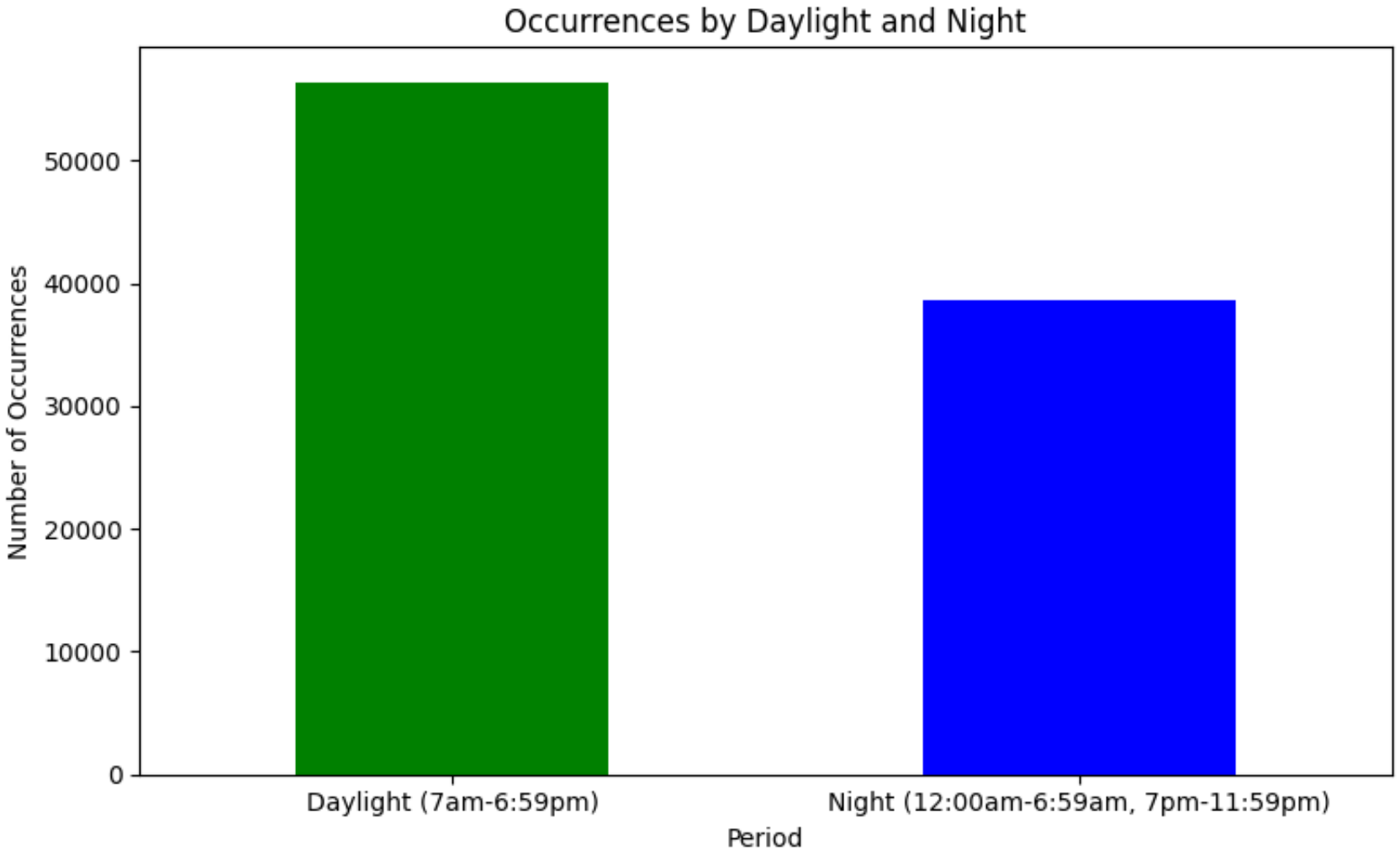



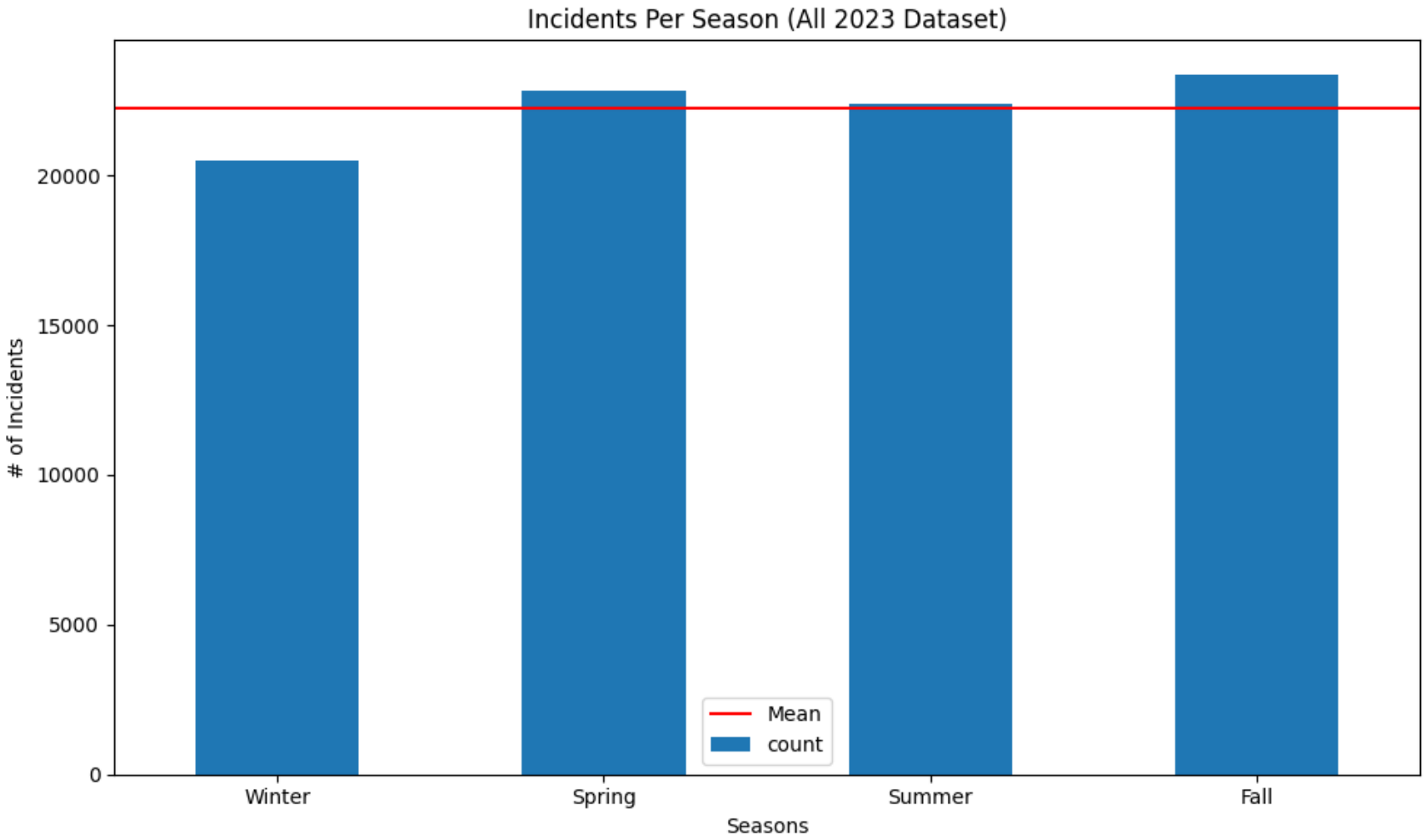

- Hourly crime distribution using portions of the data.
- Same trend across different seasons of the year 2023.

# Temporal Analysis



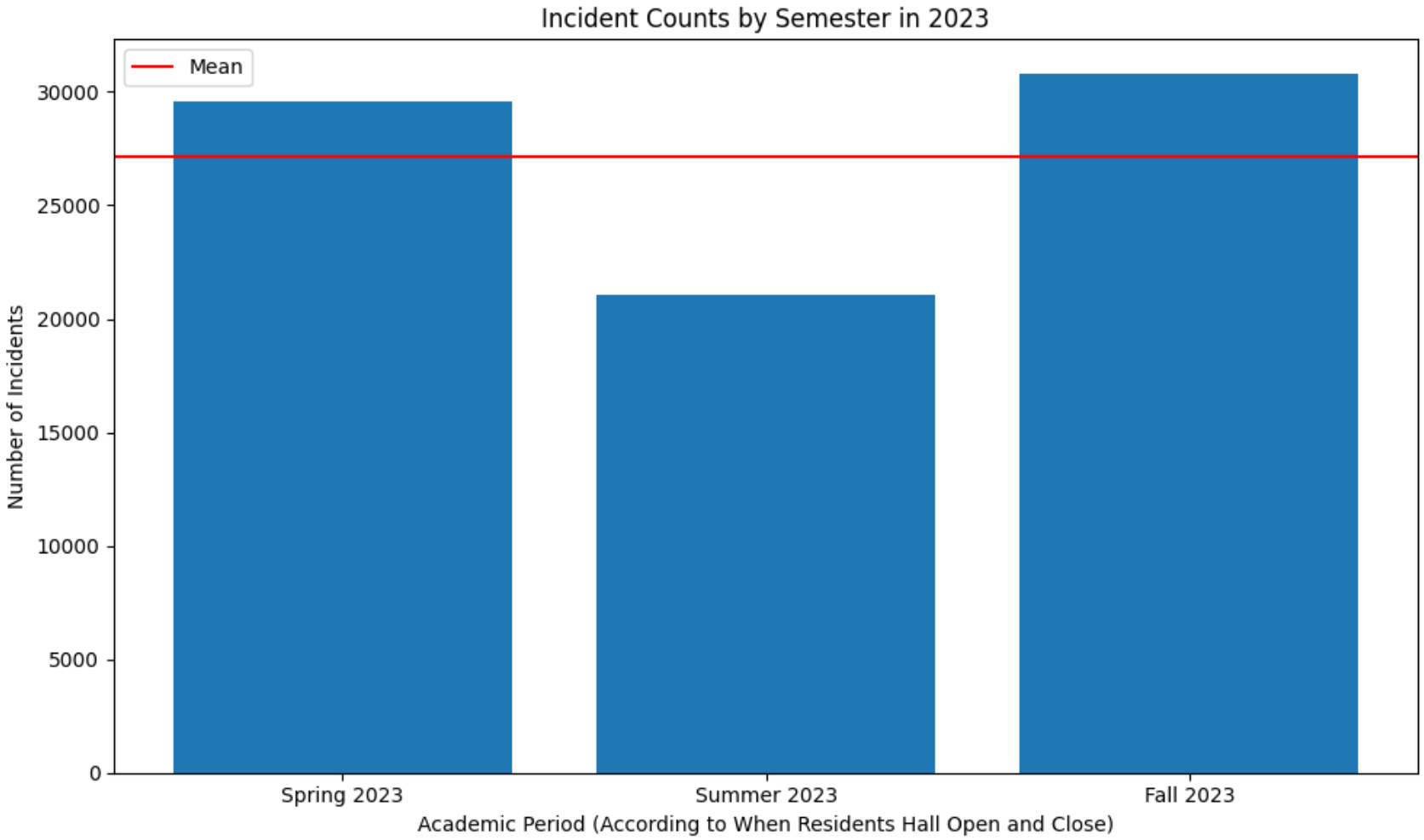

- Daylight vs no daylight. When is an incident more likely to occur?

# Temporal Analysis




- Crime-report distribution based on seasons.

# Temporal Analysis




- Tallahassee is a college town. (FSU & FAMU & TCC)
- Do students affect the number of crime reports?

# pix2pix

Brief explanation of GAN and pix2pix

# Results

Put the results of the pix2pix model, i.e., the generated heatmap and accuracy

# Improving the city via generated heatmap

Edit a geographical map and reduce the crime rate predicted by the model Explain how it can be used by city planners

# Conclusion

Summarize the results and a bit of future work (like a web app for the model)