Temporal Anomaly Detection Dataset Challenge

Suppose our business is a pop-up store and relies on selling items to large groups of people. We seek to make critical business decisions of where to locate our business based on anomalous activity on a certain pedestrian trail in Seattle. If there is an unusual amount of activity on the trail, we would like to relocate to the trail. Otherwise, we would find another location.

The dataset you will be using is collected by the City of Seattle using a combination of infrared and pressure sensors and consists of 5 features about the trail:

Feature Name	**Description**
Date	Timestamp with 1-hour cadence
Ped South	# of pedestrians walking south within the past hour
Ped North	# of pedestrians walking north within the past hour
Bike South	# of bikes riding south within the past hour
Bike North	# of bikes riding north within the past hour
BGT North of NE 70th Total	Total # of pedestrians and bikes within the past hour

Definition: The criteria for anomalous activity is at least 500 total people on the trail in the past hour.

Your task is to create an anomaly detection model which can use these features to determine if the activity on the trail 3 hours in the future will be anomalous.

Project specifications:

- Create an anomaly detection model to predict anomalies 3 hours in the future
- Provide clear visualizations to explain your results
- Consider experimental design choices for the results to be valid in production
- Describe how you would use these results to recommend an action to the business
- Please spend about 3 hours on this challenge
    - If you have extra time, please consider doing another investigation with the data that you think could help the business owners. This is completely optional and will only be used to kickstart our discussions of your work.

Files to submit:

- jupyter notebook
- requirements.txt -> we will use `pip install -r requirements.txt` in a virtualenv