MIS0855: Data Science

In-Class Exercise: Developing Hypotheses

Objective: Create hypotheses about things you experience in your daily lives.

Learning Outcomes:

- Develop testable hypotheses
- Propose an underlying rationale for that hypothesis
- Explain the difference between a hypothesis, its rationale, and a theory

Step 1: Develop Hypotheses and their Rationale (20 minutes)

- In groups of four, think about three different things you encounter in your daily lives. They can be very ordinary, like riding the elevator, or more exciting, like going to a concert.

- Now develop a question about something that you’ve experienced with each situation. Example: “Are elevators slower at certain times of the day (or is it just my imagination)?”

- From this, develop a hypothesis about what you believe is going on. Example: “Elevators take longer to arrive during the break between classes than during scheduled class time.”
  - Make sure your hypothesis is testable. Make a note of how you would test it.

- Develop an underlying rationale that justifies your hypothesis. Example: “More people are on the elevator during breaks as they move between floors. All those extra people mean there are extra stops and more time at each floor.”

- Designate a member of your group to be the spokesperson.

Step 2: Class Discussion (20 minutes)

We’ll compare notes.

First, each group will present its best hypotheses, why they think it’s interesting, and how they would test it.

Then we’ll discuss:

1) Were certain hypotheses more difficult to formulate than others?
2) What kind of data would you have to collect to test your hypothesis?
3) What mistakes could you make if you didn’t have a good rationale driving your hypotheses?