# .Case #1

Credit card fraud is a challenge every bank faces. The Bank of Athelonia wants to you to increase customer retention by preventing or minimizing credit card fraud. Build a set of hypothesis that can be tested later based on the data available.

**Hypotheses for Credit Card Fraud Prevention:**

1. The number of fraudulent transactions is higher during weekends or holidays.
2. The frequency of transactions in certain locations/countries is higher for fraudulent transactions.
3. Fraudulent transactions occur more often in specific merchant categories such as online marketplaces, gambling sites or adult websites.
4. Fraudulent transactions occur more frequently during specific times of the day or week such as late-night or early morning hours.
5. Fraudulent transactions occur more often for new
6.  customers or those with a short account history.
7. The transaction amount is a significant predictor of the likelihood of fraud.
8. The age and income of the cardholder are associated with different levels of fraud risk.
9. Certain types of card fraud such as account takeover or card-not-present fraud are more prevalent than others.

# Case #2

- Your client is a large MNC and they have 9 broad verticals across the organisation. One of the problems your client is facing is around identifying the right people for promotion (only for manager position and below) and prepare them in time. Currently the process, they are following is:
    1. They first identify a set of employees based on recommendations/ past performance
    2. Selected employees go through the separate training and evaluation program for each vertical. These programs are based on the required skill of each vertical
    3. At the end of the program, based on various factors such as training performance, KPI completion (only employees with KPIs completed greater than 60% are considered) etc., employee gets promotion

For the above mentioned process, the final promotions are only announced after the evaluation and this leads to delay in transition to their new roles. Hence, the company needs your help in identifying the eligible candidates at a particular checkpoint so that they can expedite the entire promotion cycle. Generate a comprehensive list of hypothesis.

**Hypotheses for Promotion Identification:**

1. Employees with higher KPI completion rates are more likely to be promoted.
2. Employee performance during training programs is predictive of future job performance.
3. Certain skill sets are more critical for success in different verticals.
4. There is a positive correlation between length of employment and promotion potential.
5. Past promotions are predictive of future promotions.
6. The recommendations of senior management are a significant factor in the promotion process.
7. Demographic factors such as age, gender and ethnicity play a role in promotion decisions.
8. Employees who are cross-trained in multiple verticals are more likely to be promoted.
9. Performance on behavioral assessments is predictive of job success in management roles.

# Case #3

Your client is a meal delivery company which operates in multiple cities. They have various fulfillment centers in these cities for dispatching meal orders to their customers. The client wants you to help these centers with demand forecasting for upcoming weeks so that these centers will plan the stock of raw materials accordingly.

**Hypotheses for Demand Forecasting for Meal Delivery Company:**

1. Historical sales data for each fulfillment center is a good predictor of future sales.
2. The day of the week and time of day are significant factors in predicting demand for meals.
3. Weather conditions such as temperature and precipitation can impact meal demand.
4. Special occasions such as holidays or sporting events may result in increased or decreased demand for meals.
5. Local events or festivals can affect demand in the areas around the fulfillment center.
6. Population density and demographics of the surrounding area can affect demand.
7. Competition from other meal delivery services or restaurants can impact demand.
8. Customer reviews and ratings can impact demand for meals.
9. Promotions and discounts offered by the company can affect demand.
10. Delivery times and options can affect customer demand and ordering patterns.

# Case #4

A retail company "ABC Private Limited" wants to understand the customer purchase behavior (specifically, purchase amount) against various products of different categories. Now, they want to build a model to predict the purchase amount of a customer against various products which will help them to create personalized offer for customers against different products.

**Hypotheses for Predicting Customer Purchase Amount:**

1. Historical customer purchase data is a good predictor of future purchase amounts.
2. The product category and brand are significant factors in predicting purchase amounts.
3. Price points and discounts can affect the purchase amounts of customers.
4. Customer demographics, such as age, gender, income, and education level, can impact purchase amounts.
5. Customer loyalty and purchase frequency can affect purchase amounts.
6. Online reviews and ratings can impact purchase amounts.
7. The timing of the purchase, such as day of the week or time of day, can impact purchase amounts.
8. The availability of certain products can affect purchase amounts.
9. The location of the store or online ordering platform can impact purchase amounts.
10. Promotions or discounts offered by the company can impact purchase amounts.