**Question 2.1**

Describe a situation or problem from your job, everyday life, current events, etc., for which a classification model would be appropriate. List some (up to 5) predictors that you might use.

# Classification models find use cases across a spectrum of Credit Risk functions. A typical example being classifying a particular transaction as risky or otherwise basis which it is either declined or authorized. Here risk implies that the individual might not be able to make the required payments in the future, and therefore transactions made are more riskier.

# Objective Function (Y): To classify individual transactions as risky (decline) or not

**Predictor Variables (Xi’s):** Someof the key predictor variables are:

## Past Delinquency*:* Delinquency implies that the individual was unable to keep up on his monthly payments previously and missed on his obligated payments. This is a key marker for credit risk, and past delinquent behavior hints towards potential future risk.

## Credit Utilization*:* Credit Utilization is defined as the ratio of current balance to overall credit limit accorded to the individual. Suppose a individual has a credit line of $10,000 and he already has utilized $ 9k of it. This individual is generally prone to more risk as compared to the individual who only has utilized say $ 2k of his $ 10k line

## Current Debt to Income ratio*:* This is a measure of Income to Debt Capacity of the individual. In other words, it stacks up the overall debt obligations of the individual across mortgage, auto loan, credit cards etc., against his total income. If a larger part of an individual’s income is directed towards his debt payment, than he/she again might be more susceptible to miss payments in the future and hence is riskier.

## Amount of Transaction: This is the dollar amount of the transaction. Intuitively a transaction of $20k is more risky than $5, since even if the individual misses his payment, the hit taken by the firm is restricted to only $5.