

# **PROBLEM STATEMENT**

Your client is an Insurance company and they need your help in building a model to predict whether the policyholder (customer) will pay next premium on time or not. An insurance policy is an arrangement by which a company undertakes to provide a guarantee of compensation for specified loss, damage, illness, or death in return for the payment of a specified premium. A premium is a sum of money that you pay regularly to an insurance company for this guarantee. For example, you may pay a premium of Rs. 5000 each year for a medical insurance cover of Rs. 200,000/- so that if, God forbid, you fall ill and need to be hospitalised in that year, the insurance provider company will bear the cost of hospitalisation etc. for upto Rs. 200,000. Now if you are wondering how can company bear such high hospitalisation cost when it charges a premium of only Rs. 5000/-, that is where the concept of probabilities comes in picture. For example, like you, there may be 100 customers who would be paying a premium of Rs. 5000 every year, but only a few of them (say 2-3) would get hospitalised that year and not everyone. This way everyone shares the risk of everyone else. Just like medical insurance, there is life insurance where every year you pay a premium of certain amount to insurance provider company so that in case of an unfortunate event of your death, the insurance provider company will provide a compensation (called 'sum assured') to your immediate family. Similarly, there can be a variety of insurance products for different kinds of risks. As you can imagine, if a large number of customers do not pay the premium on time, it might disrupt the cash flow and smooth operation for the company. A customer may stop making regular premium payments for a variety of reasons - some may forget, some may find it expensive and not worth the value, some may not have money to pay the premium etc. Building a model to predict whether a customer would make the premium payment can be extremely helpful for the company because it can then accordingly plan its communication strategy to reach out to those customers who are less likely to pay and convince them to continue making timely payment. Now, in order to predict whether the customer would pay the next premium or not, you have information about past premium payment history for the policyholders along with their demographics (age, monthly income, area type) and sourcing channel etc.