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# Assignment 1 – Basic probability

## Stock market

There are scenarios for the stock price change in days:

* The price goes up by 25% on all days and will be:

The probability for this scenario is

* The price goes up by 25% on3 days and down by 20% on 1 day and will be:

The probability for this scenario is (we have 4 options to the day of which the price goes down)

* The price goes up by 25% on 2 days and down by 20% on 2 days will be:

In this case the option worth is 0.

For the other scenarios – the stock price will be lower than 300$ which is the option price.

**The option worth:**

## Hitchhiker

Probability of no car passing the intersection in 20-minutes window: 0.1

The above actually equals the product:

**Probability of at least one car passing the intersection in a 5-minute window:**

**1-0.562 = 0.438**

## Credit scoring

We need to calculate P(bad | recent application, repaid loan) =

where:

Given that recent application is independent of repaying loan for each type of client:

**The probability that she is bad:**