[Cost function](https://www.coursera.org/learn/machine-learning/supplement/u3qF5/cost-function-intuition-i) is nothing but error in prediction. We tend to minimize the cost function or infact find such a value of parameters that our cost of prediction is least.

In gradient descent we try to find the parameters which give the minimum value of cost function.

How do we do this,

Simple intution: If increasing a parameter by certain amount increases the cost function (Error in prediction), then decrease that parameter, and vice versa.

I will break down the above statement into parts.

Let the parameter be *θ*1(area of house).

1)Increasing the parameter means *θ*1+(something) , decreasing the parameter means *θ*1-(something) .

2) Increase in parameter by certain amount if given by *α* , which is also termed as learning rate.

3)Increase in cost function is given by positive slope while decrease in cost function is given by negative slope.

Thus, at each step we update our parameter such that it leans towards decrease in cost function.

This is denoted by equation : *θ*1:=*θ*1−*αd/dθ*1*J*(*θ*1)

Thus, if the slope is positive (climbing up the hill) , then we decrease the parameter by certain amount, if the slope is negative(getting down from the hill), we increase the parameter (-(-slope)) by a certain amount.

We keep doing this until we stop observing any change in the parameter.

An important point to note is that as we approach near the valley, the slope will decrease, thus the change in parameter value (the step size) becomes smaller, and thus we can keep the learning rate fixed and get varying step size.