Information Engineering and Technology Faculty

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NETW 1013: Machine Learning

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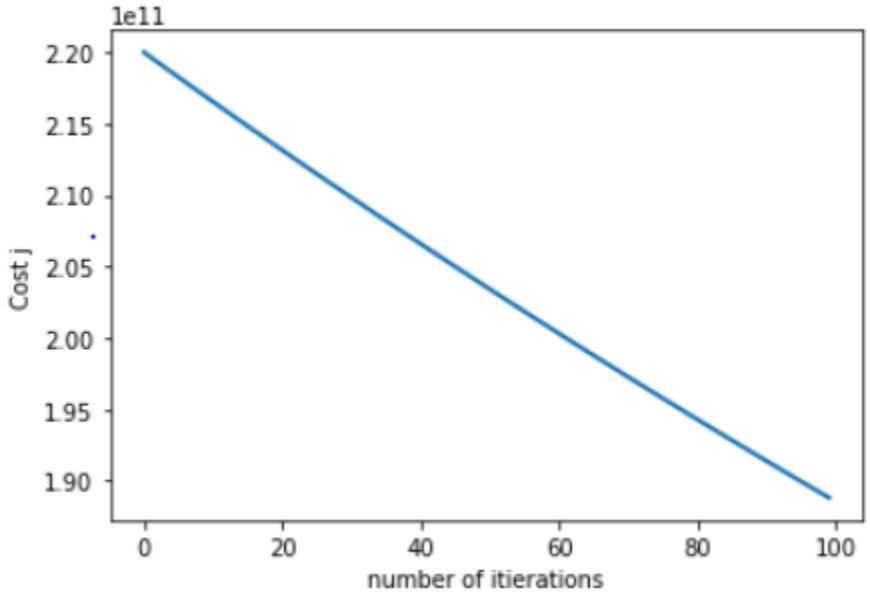
The dataset is split into three sets, train set ,test set, cross validation set in order to have an unbiased evaluation

Trial number 1:

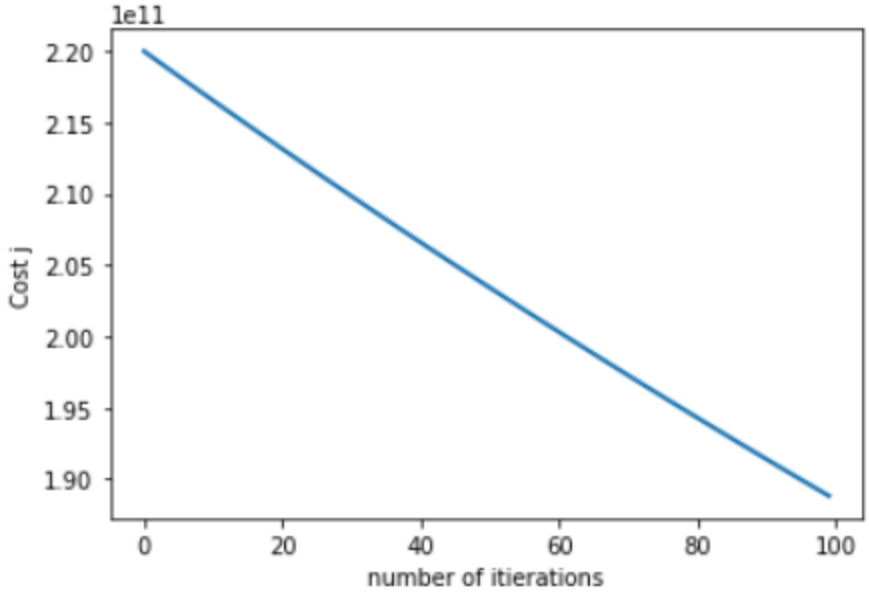
Alpha=0.001

Number of iterations=100

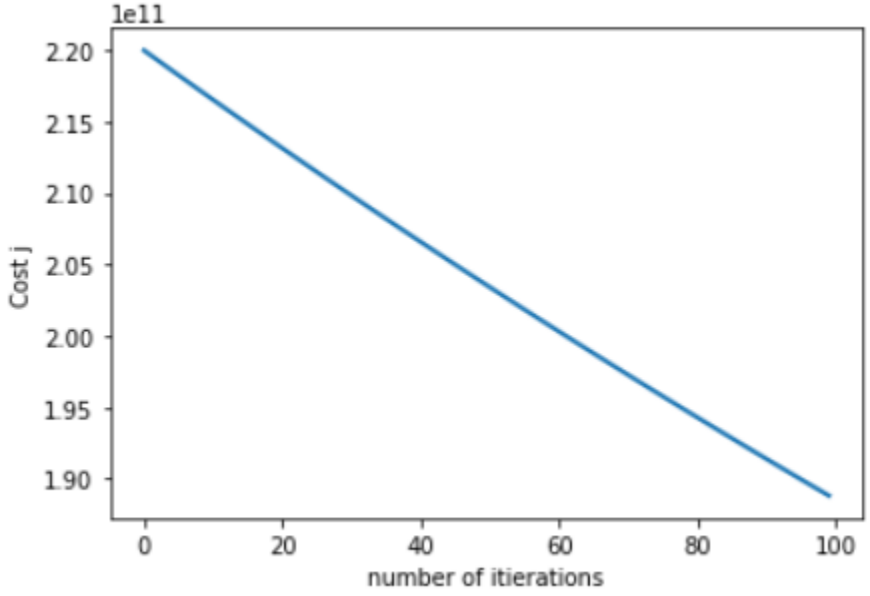
The plot below represents the convergence, it shows that it is taking too long so alpha needs to be increased, so alpha has to be increased, the dataset is divided into 3 sets, 60% train set, 20% test set, and 20% validation set.



Train Set



Cross Validation Set



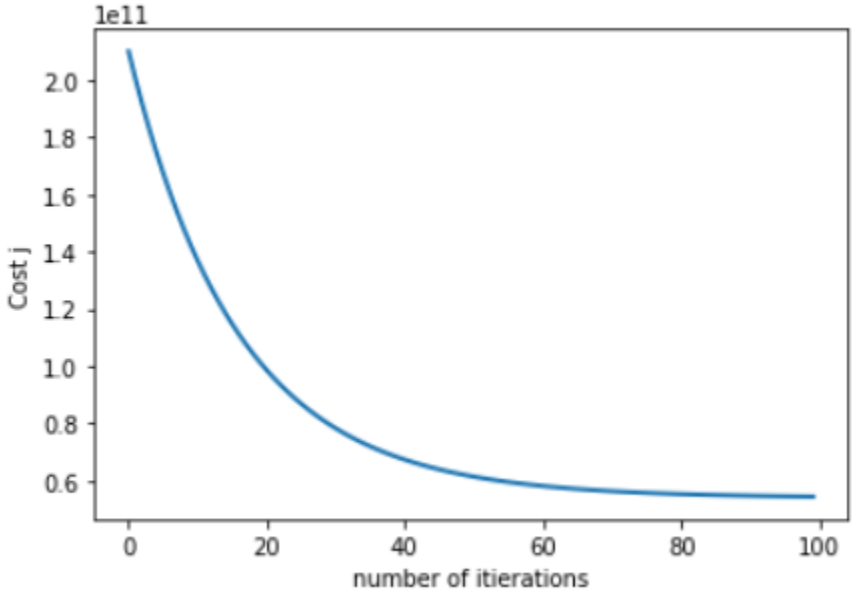
Test Set

Trial number two:

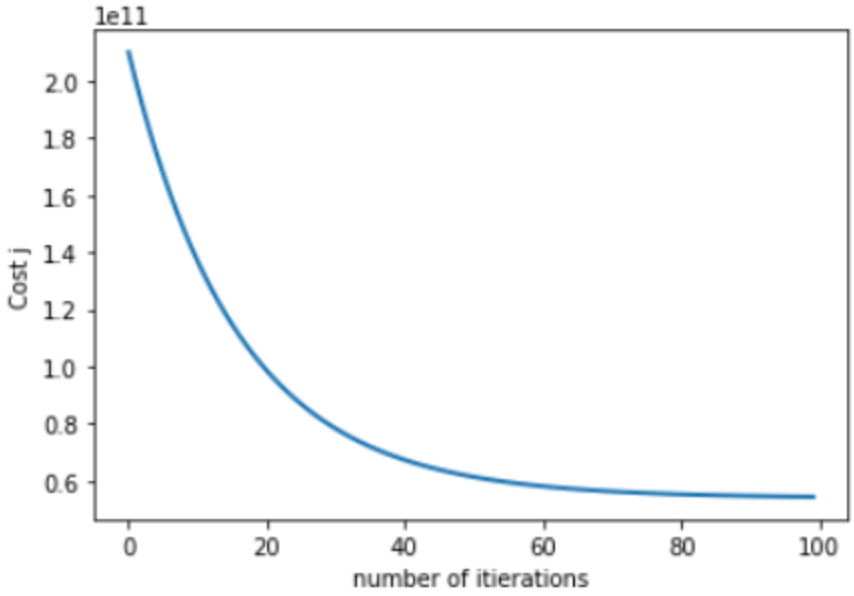
Alpha=0.03

Number of iterations =100

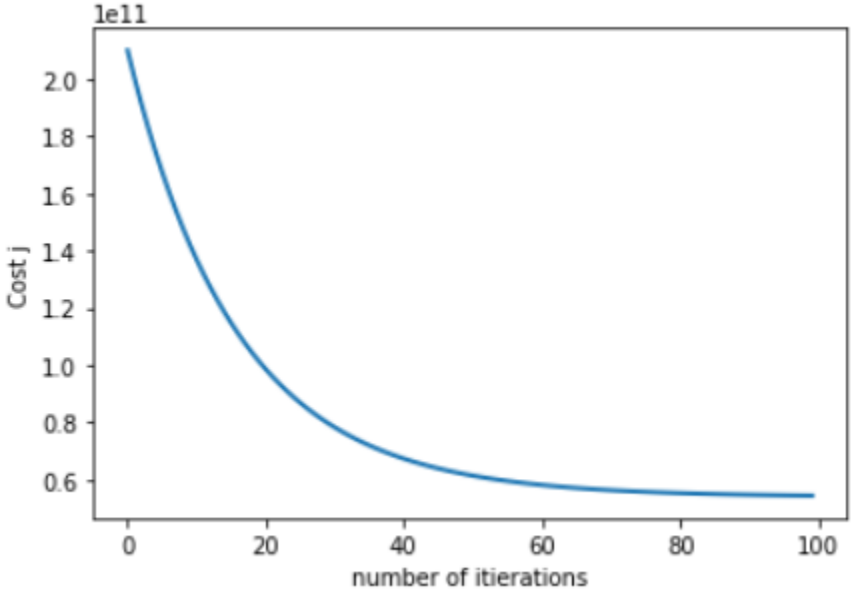
The below figures shows that the cost function has better convergence, so, we will increase alpha again.



Train Set



Cross Validation Set



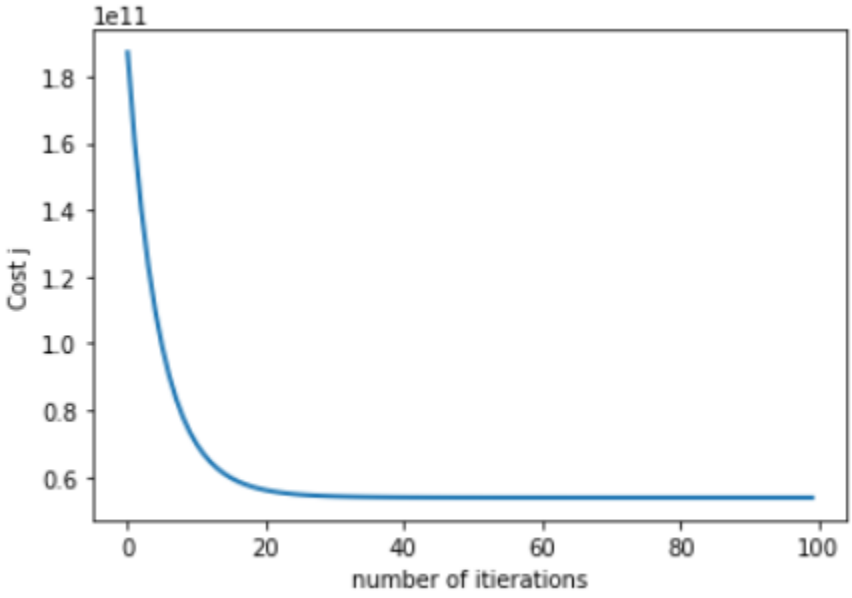
Test Set

Trial number 3:

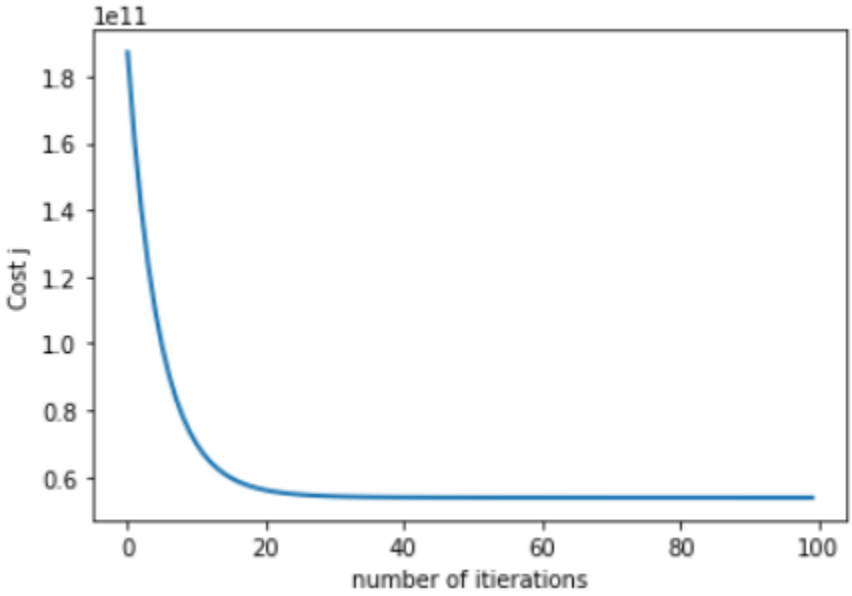
Alpha=0.1

Number of iterations =100

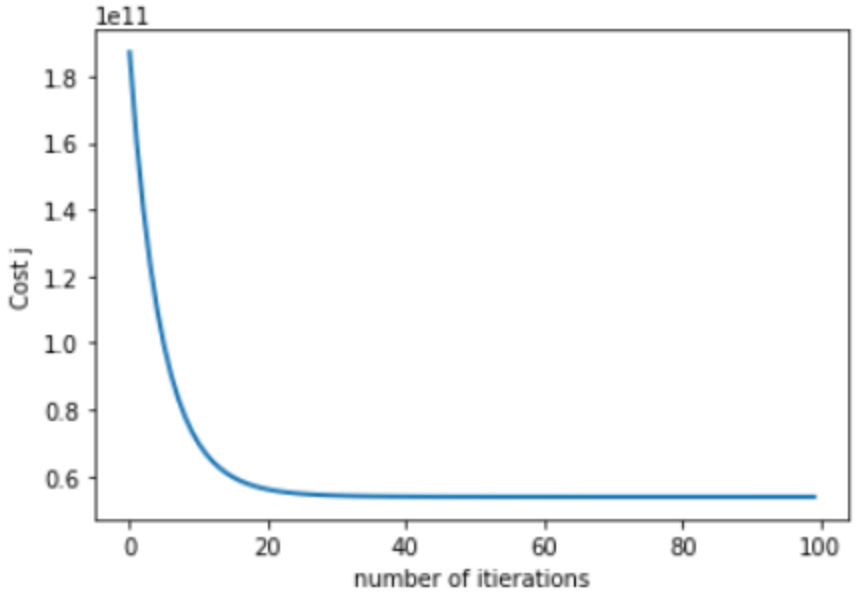
Here we have better convergence than the previous plots.



Train Set



Cross Validation Set



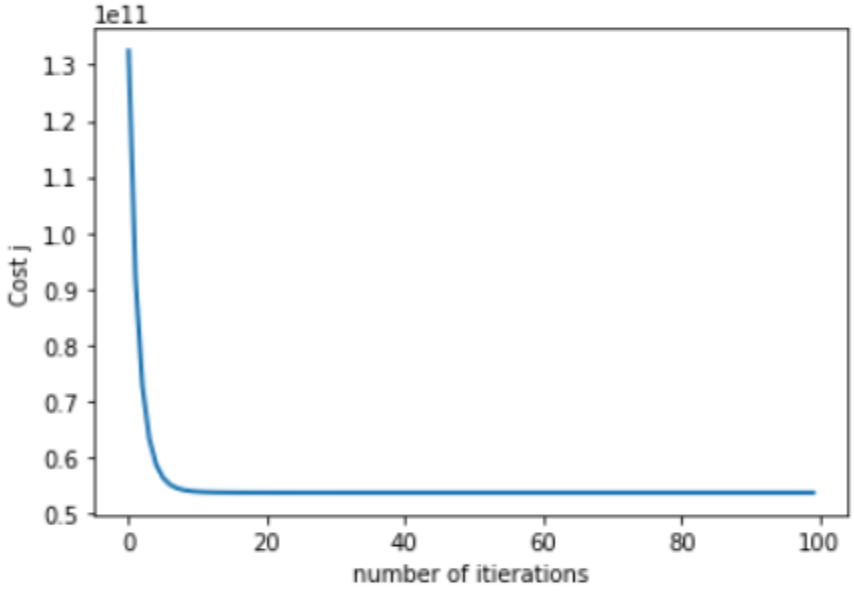
Test Set

Trial number 4:

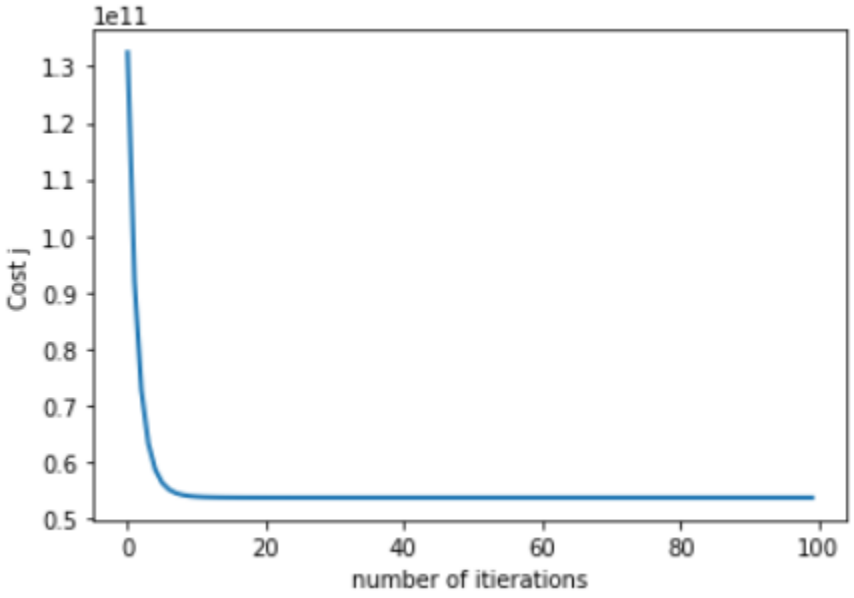
Alpha=0.3

Number of iterations =100

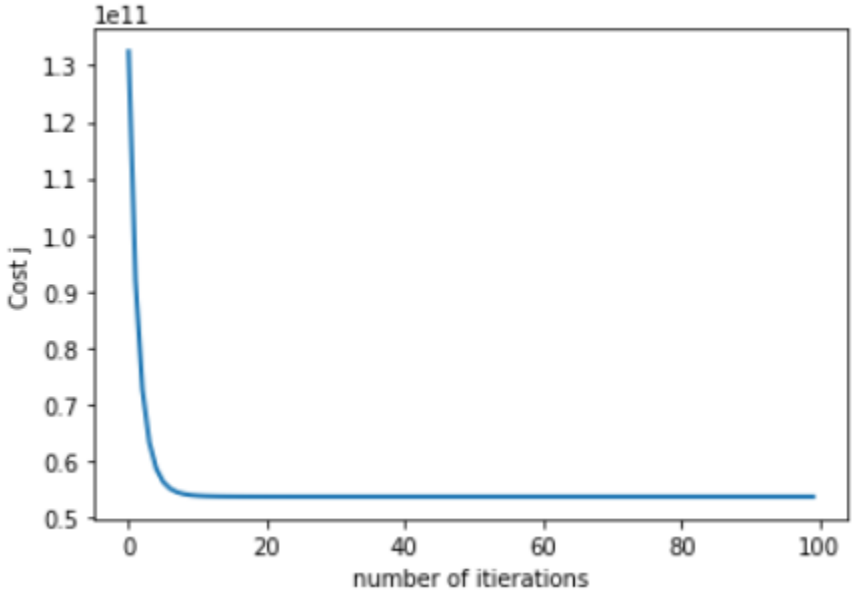
Here, we have the fastest convergence of cost function.



Train Set



Cross Validation Set



Test Set