**GRADIENT DESCENT**

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**COST AND ITERATION**

We attached a graph to show the relation between the cost and iteration and you can clearly see that cost decreased very rapidly in first 100 iterations as in our case it decreased from **32.7** to **0.068** very quickly then the cost kept decreasing but at slower rate and ended up at **0.024** which is the best cost after 1000 iterations.

**NUMBER OF MISMATCHES**

When we test the weight values for the remaining random 75 samples we get a **75** mismatches and the reason behind this is pretty clear as we are not rounding off the values 1 and 0.98 is also considered as a mismatch so we need a activation function in this matter that can round off the values in testing phase.

**AFTER ROUNDING OFF THE VALUES OF Y^**

After rounding the Y^ mismatch count gave values between **1** and **4** so we can say that it’s a great improvement.

**SPLITTING THE DATA IN 100:50**

Yes there is improvement after splitting data in 100 samples for training and 50 for testing as the testing started giving **0** mismatches result which is perfect.