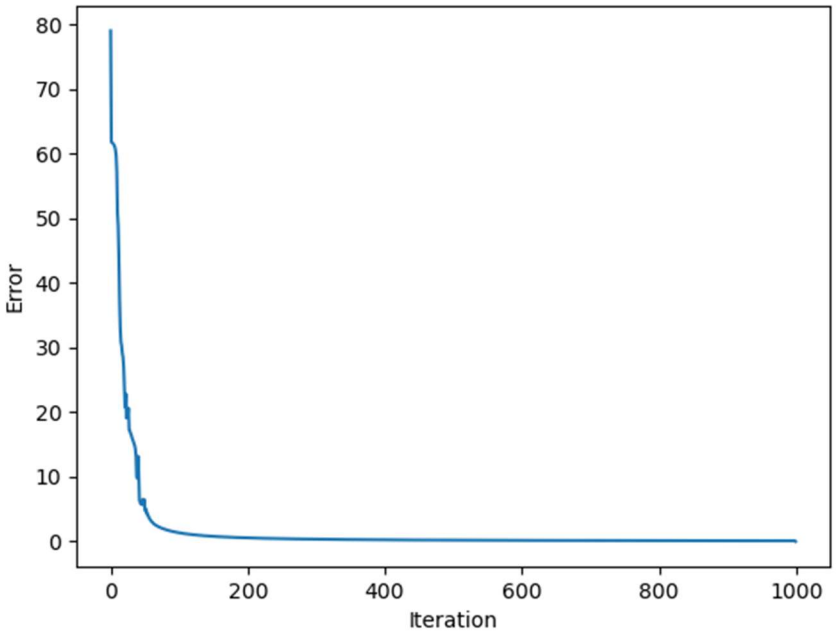
Berke Ataseven

DASC521 HW#2

In this homework, I have implemented a linear discrimination regression algorithm to classify images of letters. I have used the sigmoid function to predict the data for each iteration. I have selected my W and w0 parameters randomly as it was not provided. To increase the prediction accuracy, I have recalculated my W and w0 parameters by using the gradient descent method. To calculate the loss values, I have used the squared error function. Since the loss value took too many iterations to converge to epsilon, I have limited my iterations to 1000 iterations. My function values throughout the iterations and my confusion matrixes are as seen in the below figures.




```
Training Confusion Matrix:
[[25  0  0  0  0]
 [ 0 25  0  0  0]
 [ 0  0 25  0  0]
 [ 0  0  0 25  0]
 [ 0  0  0  0 25]]
```

```
Testing Confusion Matrix:
[[13  1  0  0  0]
 [ 1 11  0  0  2]
 [ 0  0 14  0  0]
 [ 0  0  0 14  0]
 [ 0  2  0  0 12]]
```