DA621

Deep Learning for Computer Vision

Assignment-1

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190106011
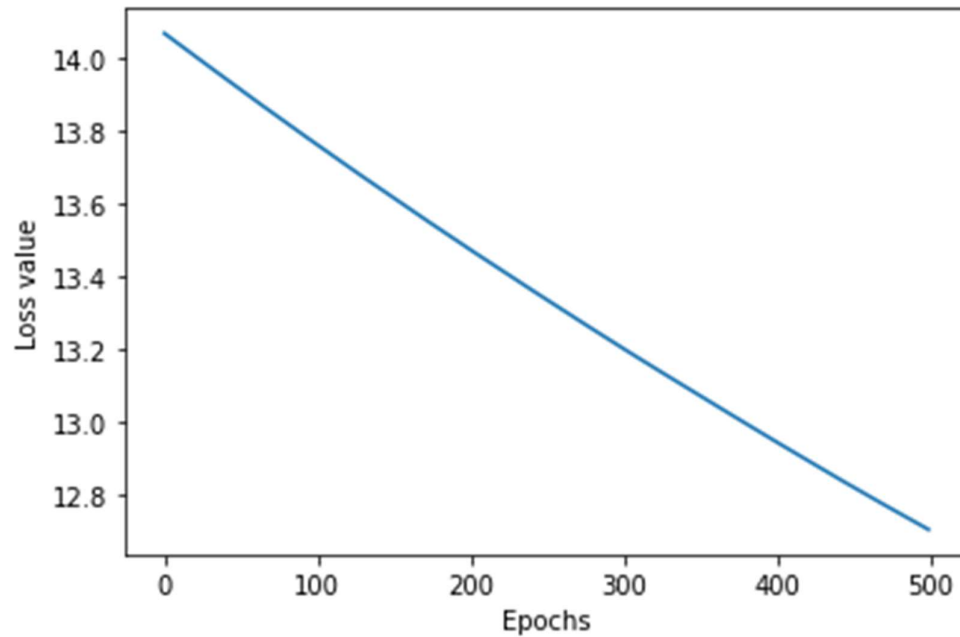
- K-Nearest Neighbour Classifier:

  o **Validation**:

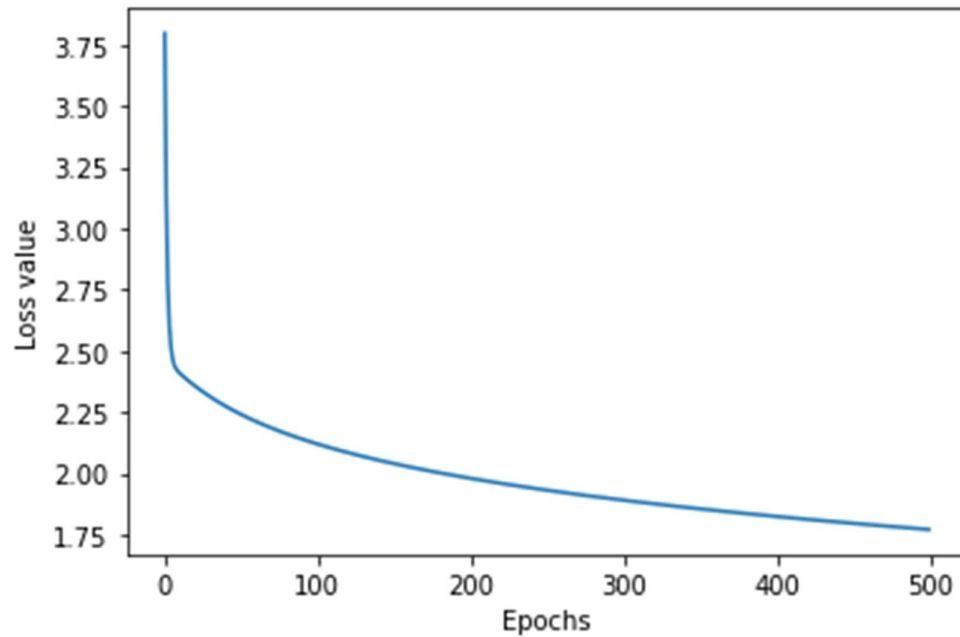| Neigbours (k)	Validation Accuracy
1	30%
2	30%
3	30%
4	40%
5	20%
6	30%
7	20%
8	20%
9	20%

  o **Testing**: For k = 4, test accuracy is 20.0 %

  o **Results**: k = 4 results in maximum validation accuracy of 40% and testing accuracy of 20%
  o **NOTE**: Only 10 images were selected during validation and testing to minimize time taken to run.

- Linear classifier with SVM (or, hinge) loss:
  - Loss value graph over 500 epochs of training

  - For initial training over 1000 samples with a learning rate of 1e-10 and regularization of 0 over 500 epochs, results achieved are:
    - Training accuracy: 9%
    - Validation accuracy: 10%
    - Testing accuracy: 9%

  - During grid search, with 100 training and validation samples over 10 epochs, best results were achieved using:
    - Learning Rate: 1e-08
    - Regularization: 10000
    - Results achieved:

- Linear classifier with the SoftMax loss:
  - Loss value graph over 500 epochs of training

  - For initial training over 1000 samples with a learning rate of 1e-10 and regularization of 0 over 500 epochs, results achieved are:
    - Training accuracy: 36%
    - Validation accuracy: 31%
    - Testing accuracy: 27%

  - During grid search, with 100 training and validation samples over 10 epochs, best results were achieved using:
    - Learning Rate: 1e-05
    - Regularization: 10000