

**The Experiment Report of**

***Deep Learning***

**College Software College**

**Subject Software Engineering**

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**1. Topic:**

**2. Time:**

**3. Reporter:**

**4. Purposes:**

**5. Data sets and data analysis:**

**6. Experimental steps:**

**7. Code:**

(Fill in the contents of 8-12 respectively for linear regression and linear classification)

1. **Selection of validation (hold-out, cross-validation, k-folds cross-validation, etc.):**

hold-out

1. **The initialization method of model parameters:**

np.random.normal()

1. **The selected loss function and its derivatives:**

L2

**11. Experimental results and curve:**

## Hyper-parameter selection (η, epoch, etc.):learning-rate, regularization parameter, max\_iterate, threshold

## Assessment Results (based on selected validation):

linear regression:

avg\_train\_loss:73.49406089058121,

avg\_val\_loss:73.55045788432349

linear classification:

avg\_train\_loss:0.522114676852641,

avg\_val\_loss:0.5618017028780596

## Predicted Results (Best Results):

linear regression:

min train loss:55.50353308622947,

min val loss:55.50353308622947

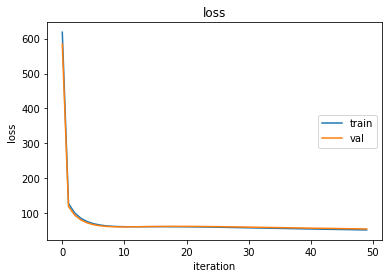
linear classification:

min train loss:0.33386760749395455,

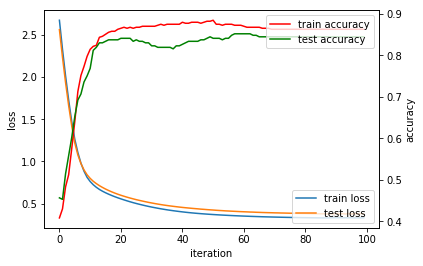
min val loss:0.37745552469952004

## Loss curve:

linear regression:



linear classification:



**12. Results analysis:**

**13. Similarities and differences between linear regression and linear classification:**

Linear regression and linear classification belong to supervised learning.

The difference between classification and regression is the type of output variable, Quantitative output is called regression and Qualitative output is called classification. The classification model can discretize the output of the regression model, regression models also allow the output of the classification model to be continuous.

**14. Summary:**