Load Data

A screenshot of a computer

Description automatically generated

1.[1 point] Prepare the data in one-against-the-rest strategy. This can be done by converting the "Species" column into 3 binary columns.

A screenshot of a computer

Description automatically generated

2. [2 points] Formulate the error function of the logistic regression with ridge regularization criterion.

A math equations on a grid

Description automatically generated

3. [2 points] Derive the gradient of the error function by deriving the partial derivative of the error function in Task 2.

A math equations on a grid

Description automatically generated

4. [2 point] Implement the gradient descent using all of the dataset in each iteration. (Use equation from Task 3)

A computer code with colorful text

Description automatically generated

A computer screen shot of a program

Description automatically generated

5. [1 point] Implement the stochastic gradient descent using the subset of dataset in each iteration. (Use equation from Task 3)

A screen shot of a computer program

Description automatically generated

A computer screen shot of a program

Description automatically generated

6. [1 point] Test to see the effect of l on the training process.

A computer screen with colorful text

Description automatically generated

A graph of different sizes and colors

Description automatically generated with medium confidence

7. [1 point] Test to see the effect of sampling proportion in Task 5

A computer screen with colorful text

Description automatically generated

A group of graphs showing different sizes and numbers

Description automatically generated with medium confidence