

Part B Report

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Assignment 6: Perceptron Classification and Training

CSE 415 Introduction to Artificial Intelligence, Winter 2021, University of Washington

Please answer each question using text in **Blue**, so your answers stand out from the questions.

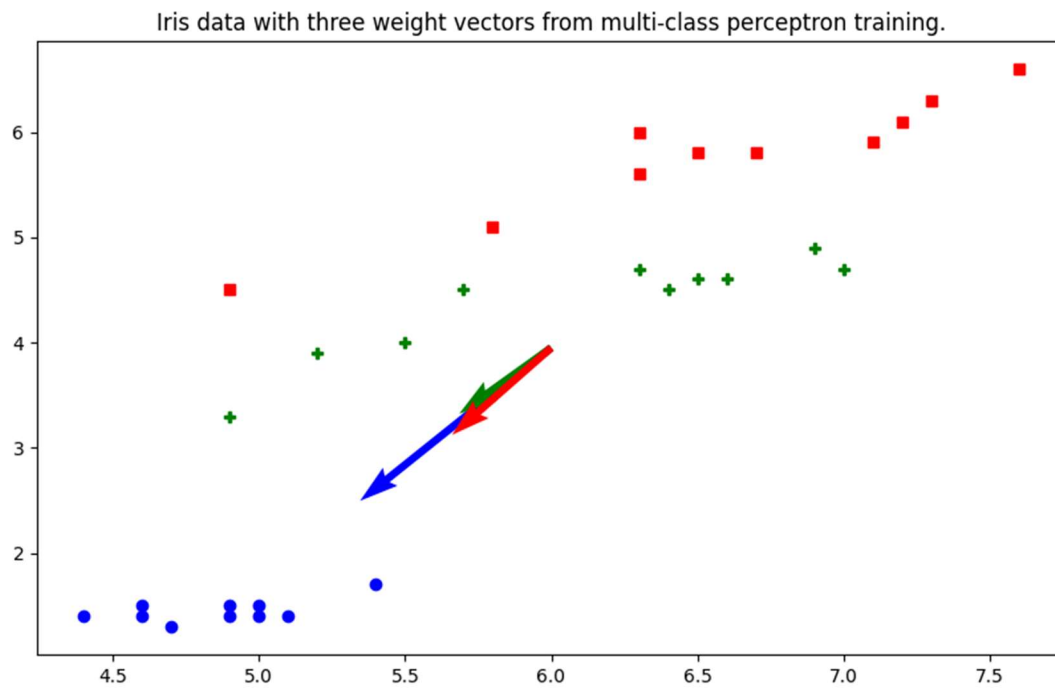
QB1. How many epochs were required to train your perceptron on the 3-class Iris data having 4 features (the given training file, with 30 examples) ?

My test did not converge

QB2. How many of the test data examples (out of 120) were mis-classified? Determine the percentage error rate and write that here.

80 errors out of 120 were misclassified, giving error rate of 66%

QB3. Capture the plot that is produced by the program showing the training data and the weight vectors when projected onto the 2-D subspace spanned by sepal length and petal length (which is the starter-code default in `run_3_class_4_feature_iris_data.py`). Paste it here, reduced to fit in the remaining space on this page.



QB4. In the file `run_3_class_4_feature_iris_data.py`, adjust the commenting near lines 23-25 so you can see the data in the plot projects to features 2 and 3 (petal length and petal width). Describe the how the data seems to be distributed in this view. Describe how the weight vectors seem to be pointing. Finally, describe the relationship between the weight vectors and the distribution of the data.

Too many errors and the relationship are incorrect.

A scatter plot with three clusters of data points and three arrows indicating movement directions. The x-axis ranges from 1 to 7, and the y-axis ranges from 0.0 to 2.5. The blue cluster (circles) is at the bottom left, the green cluster (pluses) is in the middle, and the red cluster (squares) is at the top right. The arrows point from the green cluster towards the blue and red clusters.

Cluster	Point Type	X	Y
Blue	Circle	1.2	0.2
Blue	Circle	1.3	0.2
Blue	Circle	1.4	0.2
Blue	Circle	1.5	0.1
Blue	Circle	1.6	0.3
Blue	Circle	1.7	0.4
Green	Plus	3.3	1.0
Green	Plus	3.9	1.4
Green	Plus	4.0	1.3
Green	Plus	4.5	1.3
Green	Plus	4.5	1.5
Green	Plus	4.6	1.3
Green	Plus	4.6	1.5
Green	Plus	4.7	1.4
Green	Plus	4.7	1.6
Green	Plus	4.9	1.5
Red	Square	4.5	1.7
Red	Square	5.1	1.9
Red	Square	5.6	1.8
Red	Square	5.8	1.8
Red	Square	5.8	2.2
Red	Square	5.9	2.1
Red	Square	6.0	2.5
Red	Square	6.1	2.5
Red	Square	6.3	1.8
Red	Square	6.6	2.1

