

Question 1

Question 1 (b)

Question 1(c): sample cluster data (10,000 points per cluster)

Question 2(b)

[-0.04318247]

[[[-0.57662085 1.29055288]]

0.818

Question 2(c)

Question 2(d)

Question 2(e) I Don't Know

Question 2(g)

Question 2(h)

('Predicted Positives: ', 6911)

('Predicted Negatives: ', 13089)
('Number of True Positives: ', 6589)
('Number of True Negatives: ', 9678)
('Number of False Negatives: ', 3411)
('Number of False Positives: ', 322)
('Precision: ', 0.9534076110548401)
('Recall: ', 0.6589)

Question 2(i) I Don't Know

Question 2(j) I Don't Know

Question 2(k) I Don't Know

Question 2(l) I Don't Know

Question 3

Question 3(b)

Training mean 93.49333333333333

Test mean 92.56

Question 5(a)

[0.5 0.5]

[nan 0.]

[-inf 0.]

Question 5(c)

(array([0.5, 0.5]), array([-0.69314718, -0.69314718]))

(array([1., 0.]), array([0., -1000.]))

(array([0., 1.]), array([-1000., 0.]))

Question 6

Learning Rate = 1

Last Training Loss and Accuracy 0.2493540928811836, 93.24166666666667

Last Test Loss and Accuracy 0.2707049764857453, 92.58

Question 7 I Don't Know