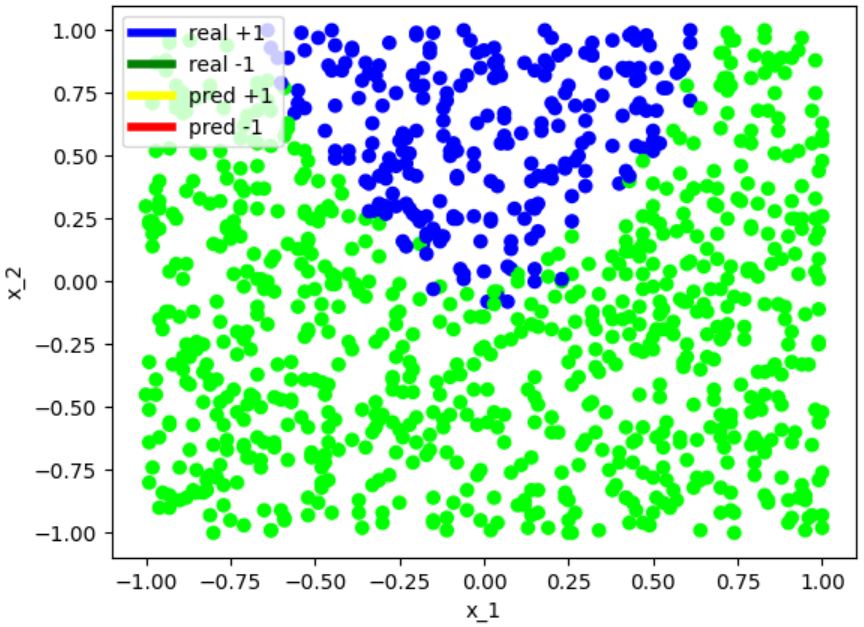
Machine Learning Report

Assignment 1 (Data set used: id:17--34-17)

(a) (i)



(a)(ii)

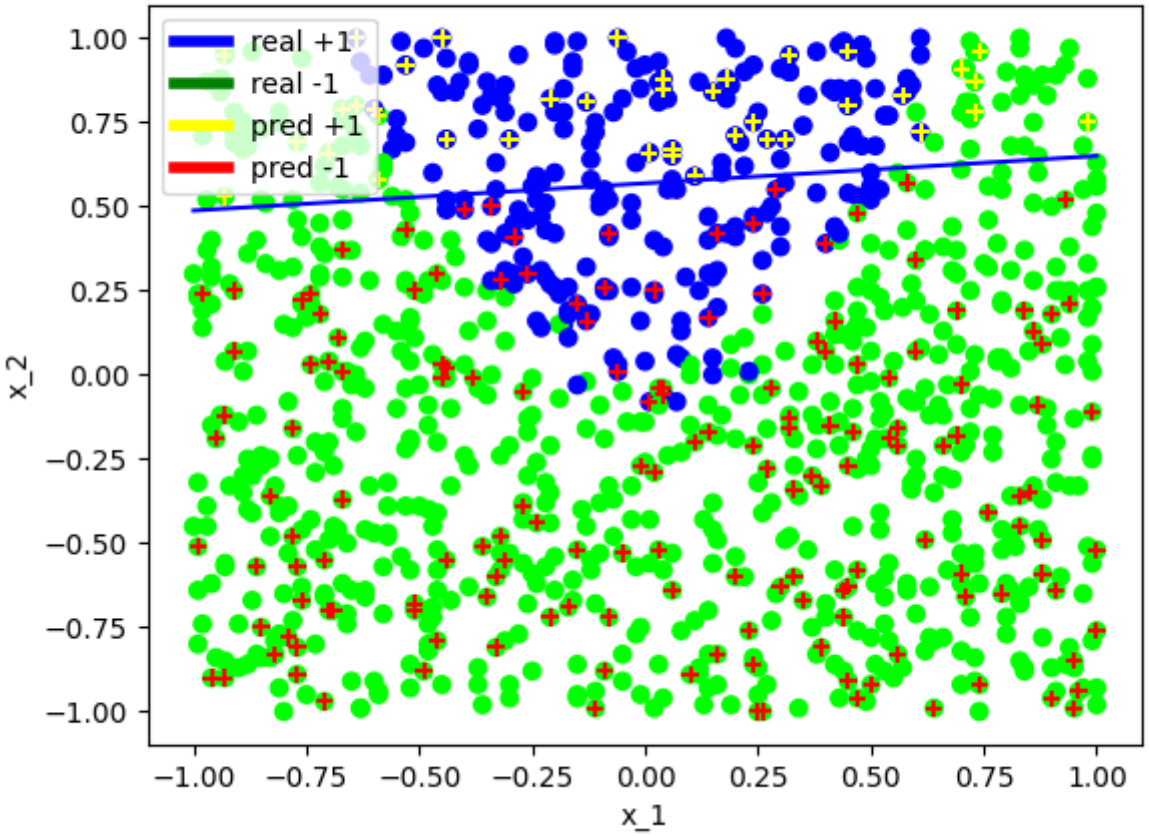


Figure 1

Figure 1 shows the original data and a plot of the logistic regression model predicting data that I don't know how to describe using the model

Figure 1 shows the training data overlaid with the predictions from the logistic regression classifier using the model $\widehat{y} = \theta_0 + \theta_1 x_1 + \theta_2 x_2$ where θ_0 =-2.266016, $\theta_1 = -0.027809$ and $\theta_2 = 4.060869$ are the weights, x_1 and x_2 are the input features and $\widehat{y}$ is the output prediction. From the classification model, it shows that x_2 has the most influence on the classification because its weight $\theta_2 = 4.060869$ has the largest magnitude. x_1 has the least influence on the model because its weight $\theta_1 = -0.027809$ has the smallest magnitude.

(a)(iii)

The decision boundary can be expressed as the linear equation $y = mx + c$ where $m = \frac{-\theta_1}{\theta_2}$ and $c = \frac{-\theta_0}{\theta_2}$.

(a)(iv)