YOU MUST SUBMIT ONLY ONE .ipnyb file

SN	Questions	Marks

1	Using the following dataset, implement the logistic regression algorithm. The implementation will be similar to the code demonstrated in class. However, there will be a few differences.
	
	1. Observe the dataset, unlike the example shown in class, here the labels are only 0's and 1's (Yes or No).
	2. **New loss function** - for the loss function implement the following equation
	
	$$L_{BCE} = -\frac{1}{n} \sum_{i=1}^{n} (Y_i \cdot \log \hat{Y_i} + (1 - Y_i) \cdot \log (1 - \hat{Y_i}))$$
	
	3. **Sigmoid function** - Previously we calculated Ypred using the formula Ypred = WX+b. However, this time you will use the following formula in order to calculate Ypred.
	   ○ Z=WX+b
	   ○ Ypred = sigmoid(Z)
	   ○ The formula for the sigmoid function is as follows:
	
	$$S(x) = \frac{1}{1 + e^{-x}}$$
	
	Train the model for 1000 epochs and show the declining values of loss with each epoch.
		10

2	Take the last 200 data points from the dataset. Now, test each of the data points and determine the predicted y's using the weights and bias you calculated in question 1. Afterwards using the **predicted y's** and the **actual y's**, determine the following metrics. **Accuracy, Precision, Recall and F1_score**. Similar to accuracy, only the **predicted y's** and the **actual y's** are required for their calculation. **NOTE that** These formulae are important for your quiz.	10
3	**Quiz** : Will be based on the **code** you submitted and the **class lecture**. Complete the assignment with **THOROUGH UNDERSTANDING** of the code and functions you are using.	10