```
CLASS LogReg

    CONSTRUCTOR INIT(x,y)

        SET intercept to NP.ONES( SHAPE(x)[0],1)
        SET x to NP.CONTINATE( Intercept, x, axis=1)
        SET Beta to NP.RANDOM.RAND (SHAPE(x)[1])
        SET y to y

    FUNCTION sigmoid(x, Beta)
        SET Z to NP.DOT(x, Beta)

        RETURN 1/(1+ NP.EXP(-Z))

    FUNCTION GRADIENT_DESCENT( X, h, y)

        SET g to NP.DOT( X.T, (h-y))/
                                SHAPE(y)[0]

        RETURN g

    FUNCTION fit( lr, epochs)

        FOR i = 0 to epochs
            SET sigma to call sigmoid( x, Beta)
            SET b to call GRADIENT_DESCENT
                    (x, sigma, y)
            SET Beta to ( Beta - lr*b)
```

```
FUNCTION predict (x_test)

    SET intercept to NP.ONES(SHAPE(x_test)
                                [0][0])
    SET result to call sigmoid (x_test, Beta)

    IF result > 0.5 THEN

        SET result to TRUE

    ELSE

        SET result to FALSE

    SET y_predictions to NP.ZEROS(results.
                                shape[0])
    FOR i=0 to LENGTH(y_predictions)

        IF result[i] == TRUE THEN
            SET y_predictions to 1

        ELSE
            CONTINUE
    RETURN y_predictions.
```