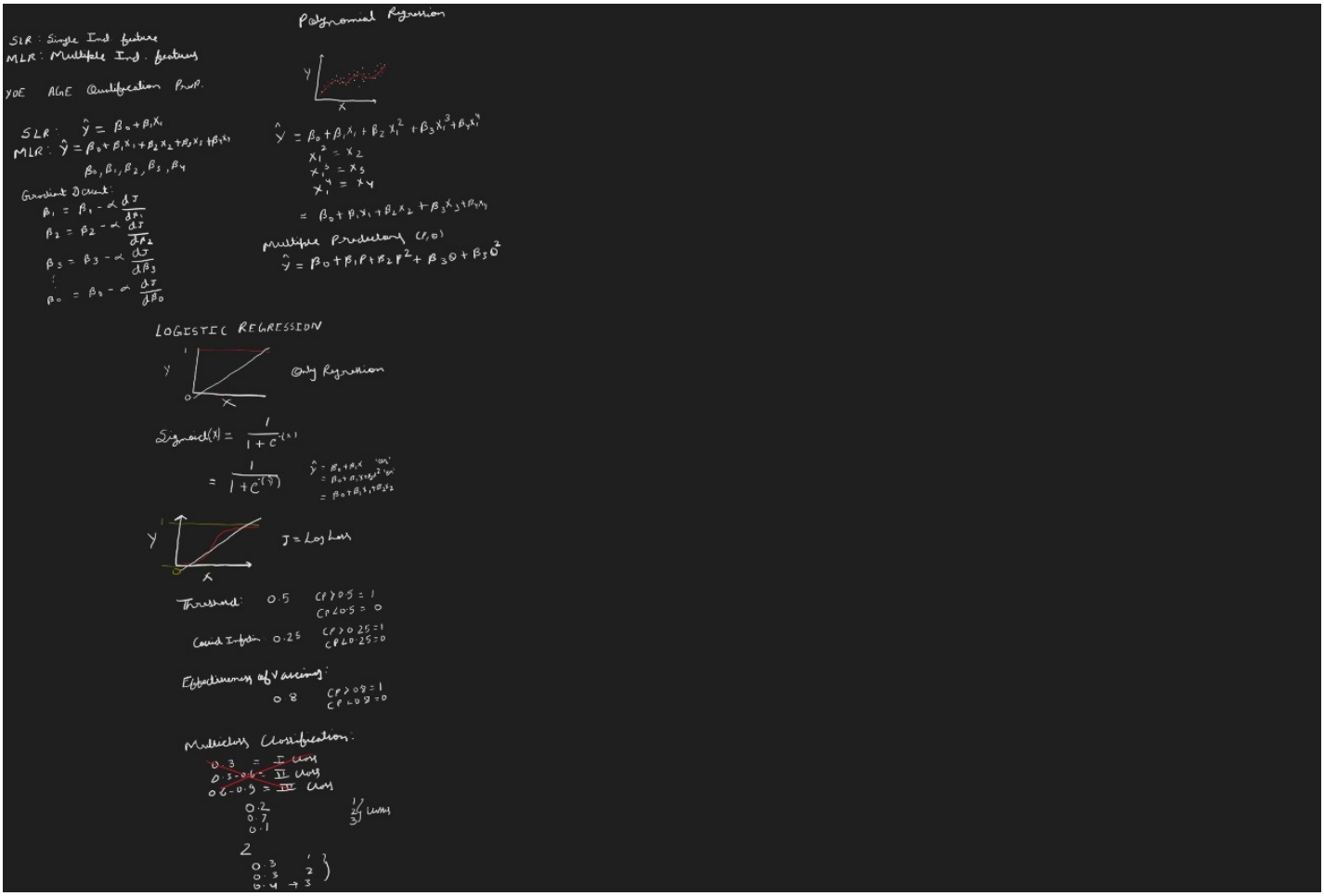
Polynomial Regression
SLR : Single Ind. feature
MLR : Multiple Ind. features
YOE AGE Qualification Prof.
SLR : $\hat{y} = \beta_0 + \beta_1 x_1$
MLR : $\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$
Gradient Descent:
$\beta_1 = \beta_1 - \alpha \frac{dJ}{d\beta_1}$
$\beta_2 = \beta_2 - \alpha \frac{dJ}{d\beta_2}$
$\beta_3 = \beta_3 - \alpha \frac{dJ}{d\beta_3}$
$\beta_0 = \beta_0 - \alpha \frac{dJ}{d\beta_0}$
$\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_1^2 + \beta_3 x_1^3 + \beta_4 x_1^4$
$x_1^2 = x_2$
$x_1^3 = x_3$
$x_1^4 = x_4$
$= \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$
multiple Predictors (2)
$\hat{y} = \beta_0 + \beta_1 P + \beta_2 P^2 + \beta_3 Q + \beta_3 Q^2$
LOGISTIC REGRESSION
Only Regression
$Sigmoid(\hat{y}) = \frac{1}{1+e^{-(\hat{y})}}$
$= \frac{1}{1+e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2)}}$
J = Log Loss
Threshold: 0.5 CP > 0.5 = 1 CP < 0.5 = 0
Count Infection 0.25 CP > 0.25 = 1 CP < 0.25 = 0
Effectiveness of Vaccine: 0.8 CP > 0.8 = 1 CP < 0.8 = 0
Multiclass Classification:
0.3 = I class
0.5 - 0.6 = II class
0.6 - 0.9 = III class
0.2
0.7
0.1
1/3 class
2
0.3
0.5 2
0.4 → 3