1.2

T: play data2, to win the game

p: Percentage of opponents defeated

e: train with itself

target function： $v(b) = 100$ if win

$v(b) = -100$ if loss

representation of target funtion: $V(b) = w_0 x_1 + w_! x_2 + w_3 x_3 + w_4 x_4$

x_1 the count of killing

x_2 the count of death

x_3 how much money the player has

x_4 how many tower the player hold

1.3

$E = \sum (V_{train}(b) - V(b)^2$

$V(b) = w_0 x_1 + w_! x_2 + w_3 x_3 + w_4 x_4$

$\frac{\partial E}{\partial w_i} = 2(V_{train}(b) - V(b)) \frac{\partial V_{train}((b) - V(b))}{\partial w_i} = 2(V_{train}(b) - V(b))(-x_i)$

$w_i = w_i + (1/2\eta) \frac{-\partial E}{\partial w_i}$

Therefor,gradient descent is achievement by updating each weight in proportion to $\frac{-\partial E}{\partial w_i}$