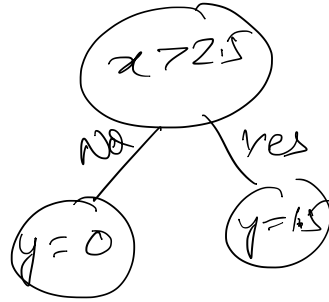
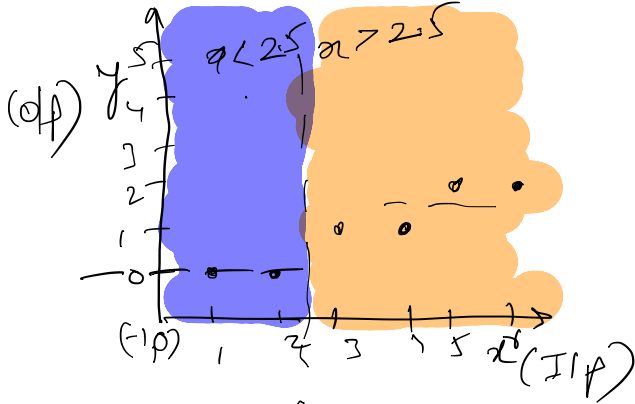


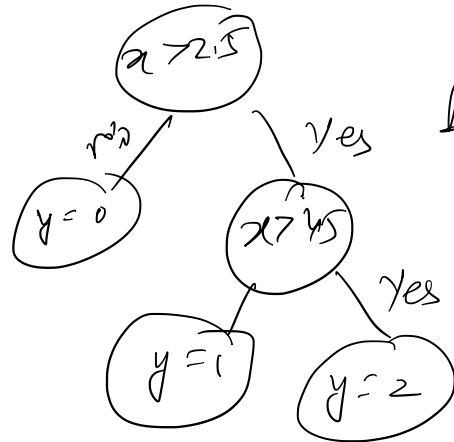
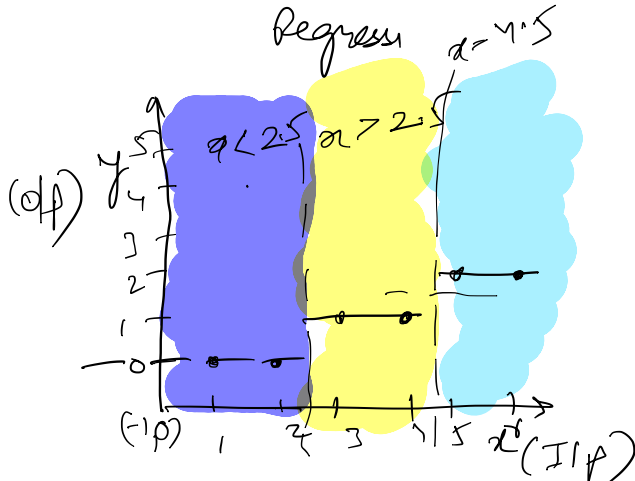
DECISION TREE REGRESSION

9 JAN 2019

Decision Tree Regression



Depth = 1



Depth
2
tree

Feature x

split ' s ' ,

$x \leq s$
Region 1 (R_1)

$x > s$
Region 2 (R_2)

$$c_1 = \text{Mean}(y_i | x_i \in R_1) \quad c_2 = \text{Mean}(y_i | x_i \in R_2)$$

Minimize (s) $(y_i - c_1 | x_i \in R_1)^2 + (y_i - c_2 | x_i \in R_2)^2$

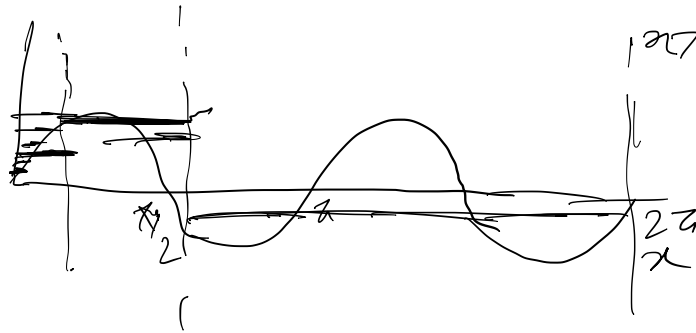
How to find optimum ' s '

① Sort the $\langle x, y \rangle$ in increasing order of x

② Evaluate optimum on all s which is of $\frac{x_i + x_{i+1}}{2}$

Question

y



Draw regression tree
for
 $y = \sin(x)$

$$N = 10^4$$

$$0, 1, \dots, \dots, 23$$

└──────────────────┘
10⁴