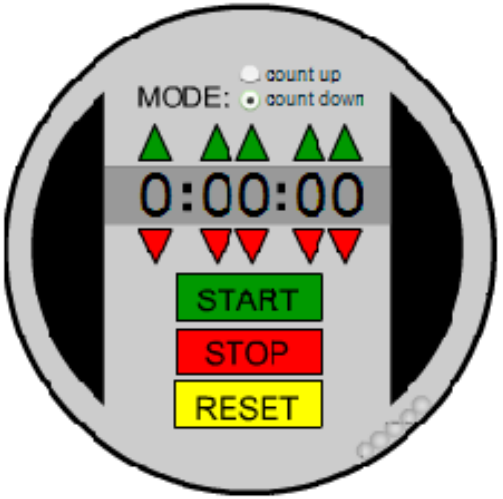

MODE:
count up
count down
0:00:00
START
STOP
RESET

Linear Regression Review

Scatterplots

- Direction/Association +/−
- Form
- Strength (r)

Linear Regression $\hat{y} = a + bx$

Slope b computer: variable

Intercept a computer: constant

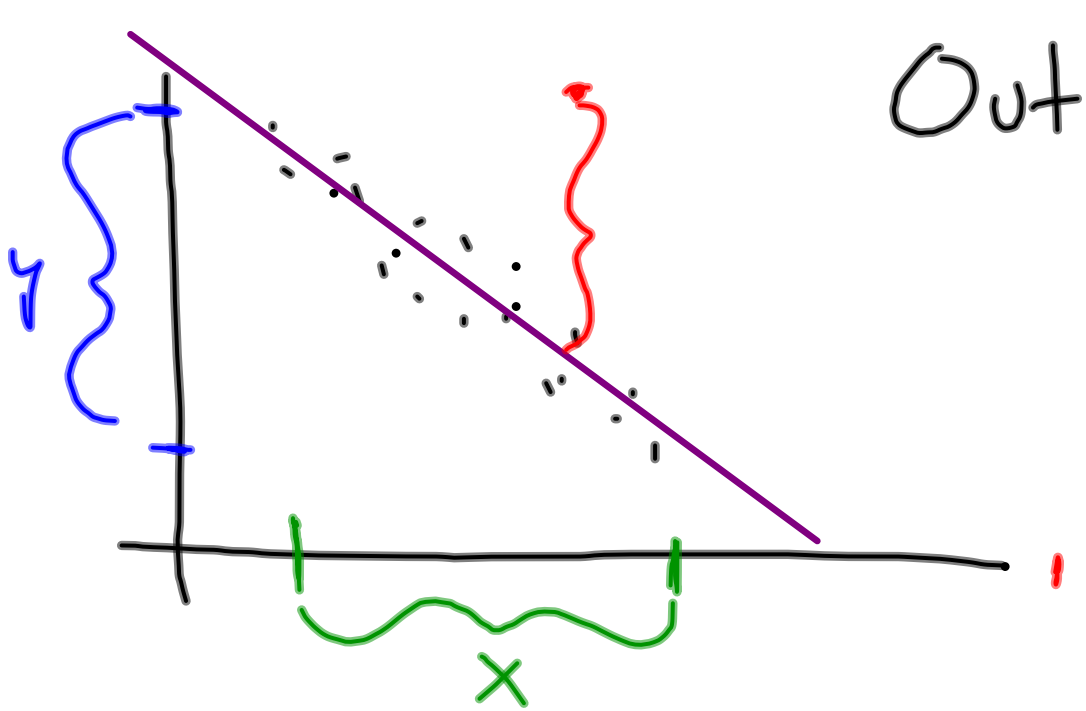
Prediction plug in for x

Extrapolation – predicting outside range of data

Coefficient of Determination – r^2

___% of the variation in __y__ can be explained by the regression line on __x__

Outliers



- Influential / potentially

Residual = Actual − Predicted

Residual Plots – Patterns are Bad

Sum of residuals = 0

Non-linear Regression

Exponential

$(x, \log y)$

$\log \hat{y} = a + bx$

$\hat{y} = 10^a \cdot (10^b)^x$

$x = 6$

$\log \hat{y} = 2 + 3(6)$

$\log \hat{y} = 20$

$10^{20} = \hat{y}$

Power

$(\log x, \log y)$

$\log \hat{y} = a + b \log x$

$\hat{y} = 10^a \cdot x^b$

Linear

x	y
1	3
2	10
3	17
4	24
5	31
6	38

add

Exp

x	y
1	4
2	12
3	36
4	108
5	324
6	972

mult

Process

Plot your Data
Linear Regression
r and r-squared
Residual Plot - pattern
Repeat for exponential & power if necessary