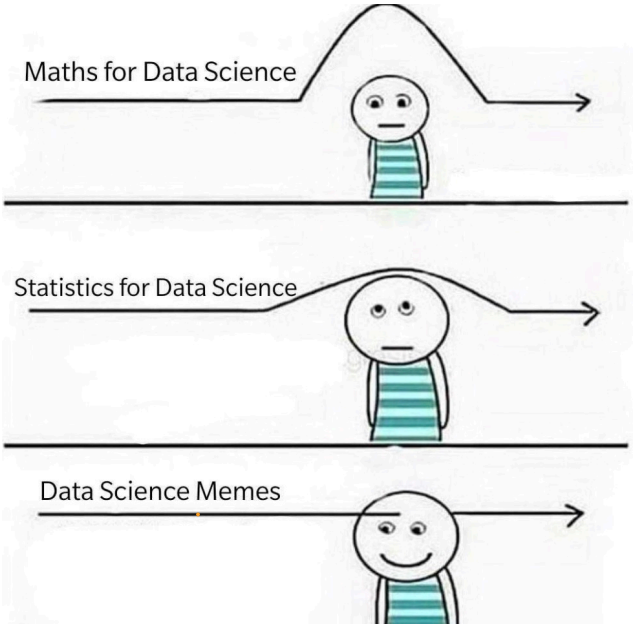
22nd March



let's start @ 9:05

Agenda

- t test
- t test ind from stats
- ANOVA
- χ^2 - chi^2 test

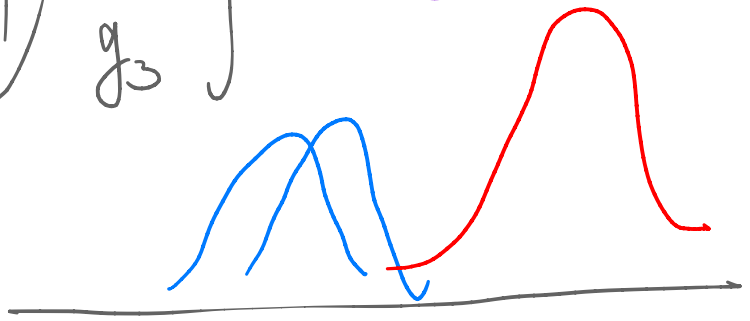
Intution

Setup-1

281
481
781

g_1
g_2
g_3

H_A

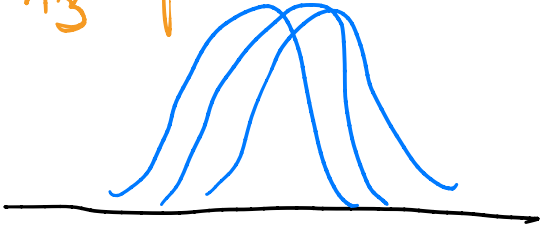


Setup-2

$\Rightarrow H_0$

h_1
h_2
h_3

random groups



$$F\text{-ratio} = \frac{\text{Variance b/w groups}}{\text{Variance within groups}}$$

Which setup higher Fratio ✓

F ratio → RV ∽ distribution.

↓

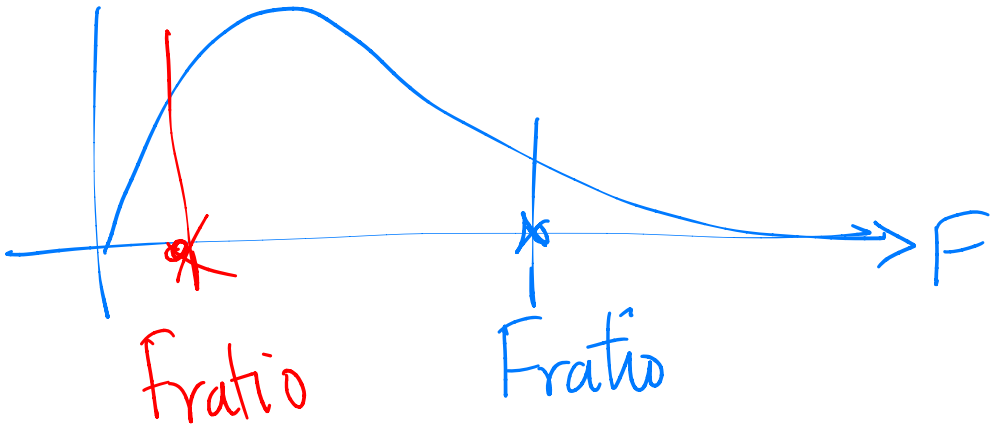
F-distribution

F higher → variance b/w groups.

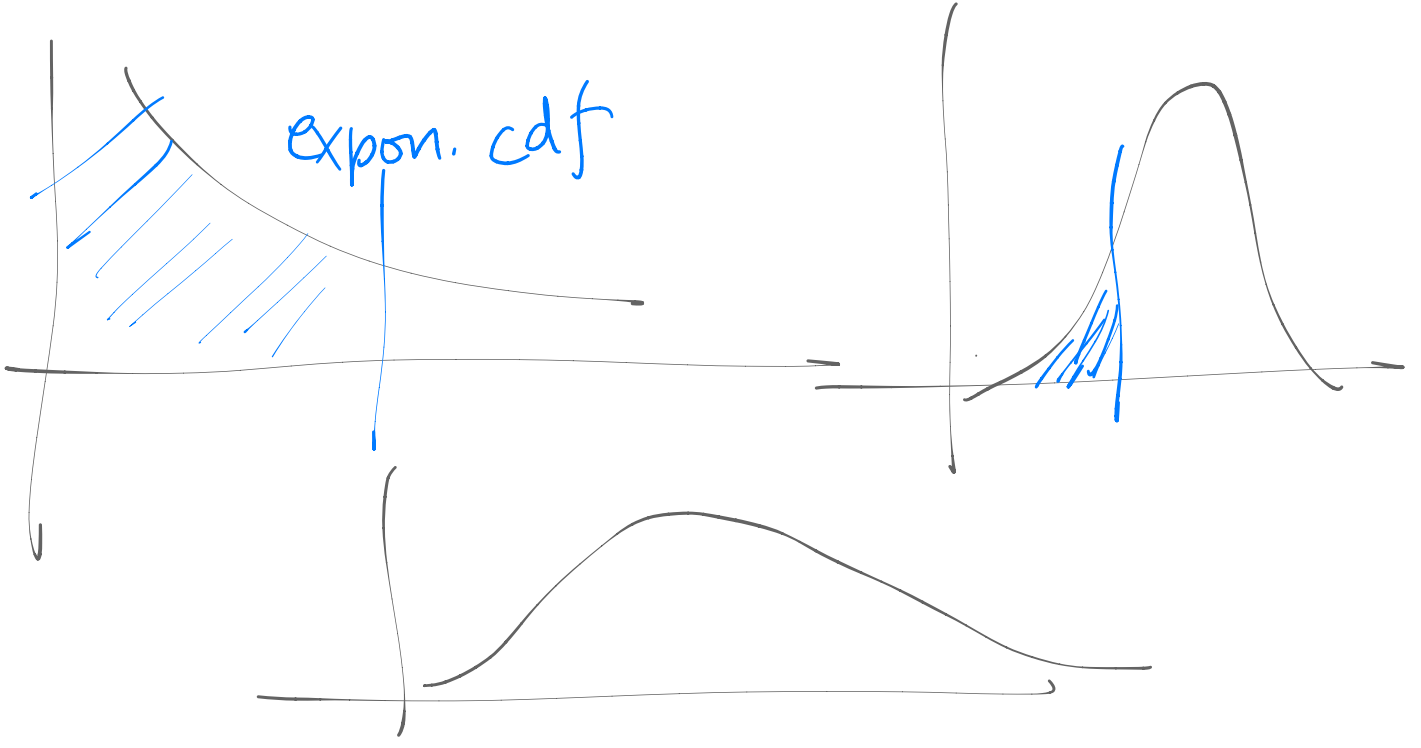
↓

p value lower.

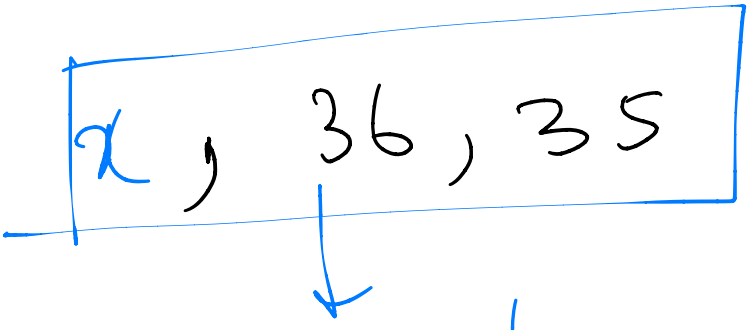
$< \alpha$



↳ for random groups → p value high ✓


expon. cdf

①

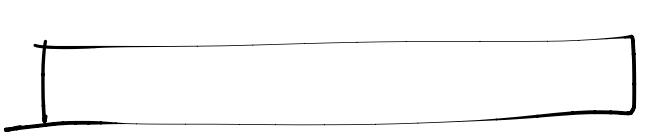


Avg. Salary

35

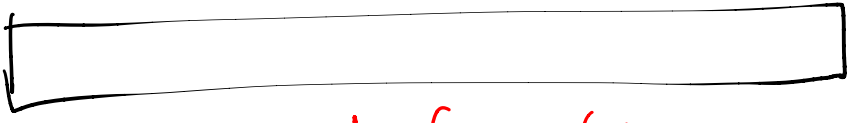
Min. value = 2 → dof

②



5 → avg

4



7 → avg. 6

$dof = (n_1 + n_2 - 2)$

Sachin

Century \ Win	N	Y	
N	160	154	314
Y	16	30	46
	176	184	360

$(2-1)\cdot(2-1)$

$= 1 \times 1$

$= 1$

Min value $\longrightarrow$ dof $= 1$ ✓

4 politicians - A B C D

3 Cities X Y Z

	A	B	C	D	Total
X	90	60	104	95	349
Y	30	50	51	20	151
Z	30	40	45	35	150
Total	150	150	200	150	650

how many · min value → 6

dof = 6 ⇒ 2 × 3

dof = (# row − 1) × (# colums − 1)

(# row − 1) → 2

(# colums − 1) → 3

Chi squared → ?

Online v/s offline shopping

	Males	Females	
offline	527	72	599 → 66%
Online	206	102	308 → 34%
	733	174	907

Expected

OFFLINE. 599/907 ≈ 0.66.

733 males → 733 × 0.66 → 484

174 females → 174 × 0.66 → 115

ONLINE

Males - 733 × 0.34 → 249

females - 174 × 0.34 → 59

Observed

	M	F
ON	527	72
OFF	206	102

Expected

	M	F
ON	484	115
OFF	249	59

Ho is True

What is dof → 1 ✓