Flight Overbooking ->

Booking -> check in?

↳ No Seat no design

[100 seats] -> = 100 seat ← Booking
> 100 -> ✓
< 100

Train -> [RAC]

-> Cancellation
-> Flight Missing -> 10% Not come
-> No show
-> change of plans

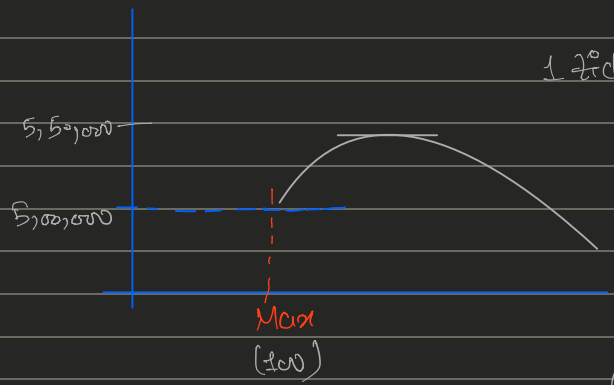
Booking for -> 110 seats

110 -> Come -> 10 -> Rebooking
+
pay for them

Aim -> No of overbooking that can be done

Goal -> Max (Revenue)

Actual Size -> 100 -> 200 ? / or / 150 ? / or / 140 ? -> How much to book



Simple equations

(Historic)
100 -> 90

T.id	P_id	Arrive
1	P_1	Y
1	P_2	Y
1	P_3	Y
1	P_4	N
1	P_5	N

$P(\text{showing up}) = P(S) = \frac{90}{100} = 90\%$

$P(NS) = 10\%$

$\frac{(100 + x) \times 90}{100} \leq 100$

100 -> 90
200 -> 180
300 -> 270

$90 + \frac{90}{100}x \leq 100$

$\frac{90x}{100} \leq 10$

$x \leq \frac{100}{9} \Rightarrow x \leq 11.11$

$x \simeq 11$ seats

-> The problem is with that what if all 111 people turned up

↳ what charges for overbooking & customer satisfaction.

Binomial Theorem:

$$(x+y)^n = \sum_{k=0}^{n} {}^nC_k \, x^{n-k} y^k$$

eg: roulette 0 to 36

$$P(G) = \frac{1}{37}$$

100 $ bet → 36,00 get on winning

what is the expected value of not winning while betting $100 on the no 5?

⇒ T/p 100 → Except $?

Not winning = $ 3500

$$E.V = P(\text{win}) \times 3500 + P(\text{lose})(-100)$$

$$E.V = \frac{1}{37} \times 3500 + \frac{36}{37}(-100)$$

$$E.V = -2.70\ \$$$

E V of not winning when $100 on number 5 is $-\$ 2.70$

-> 1st flight -> 110 -> ₹(105) -> 1.92
-> 108 -> ₹(1) = 5L

2nd flight -> < 100 -> ₹(5.5L)

3rd flight -> 101 -> ₹(5.01L)

Airbnb ->

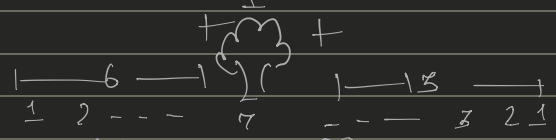
-> we have to tell the threshold images for a property to list on our website

Optimal -> 11 to 15

Minimum -> 10

Additional Problems

(1) -> tree is 7th from left end & the same tree 14th from right end. find how many trees in row?



(2) :> what is the day on which a spider's web, which doubles in size every day, will be 25% complete, given that spider takes 13 days to completely build the web?

=> 13 Days -> 100%

14 Day -> 50%

13 Day -> 25%

(3) :> B is twice as old as A but twice younger than P. C is half the age A but twice other than D. Find out who among them is second oldest?

=> A B C D P

$2A = B \rightarrow (1)$ P is older

$2B = P \rightarrow (2)$ B is second oldest

$\frac{A}{2} = C$

$2D = C$

(4) -> Look at series 7, 10, 8, 11, 9, 12, ... which number should come next?

Ans -> 10

(5) > How many such pairs of letters are there in the word SENDING, each of which has as many letters as b/w it & two letters as there are b/w them in English alphabet

Ans >

I (N) G
D (IN) G
S (ENDI) N