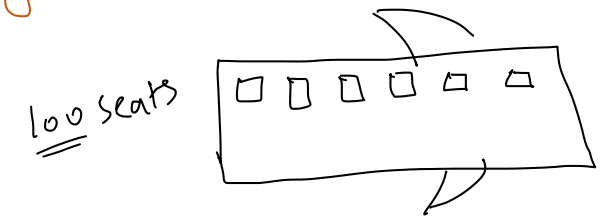
Business Cases

Friday, 12 November 2021 7:51 PM

Overbooking Problem



P_id	arrived
101	1
103	1

What data?

flight_id	P_id	arrived
		1
		1
		1
		0
		1
		1
		0
		0

Attempt-1

90%

'x' tickets

$(100 + x)\ 90\% \leq 100$

$x = 11$

Attempt-2

Revenue per ticket = 5K

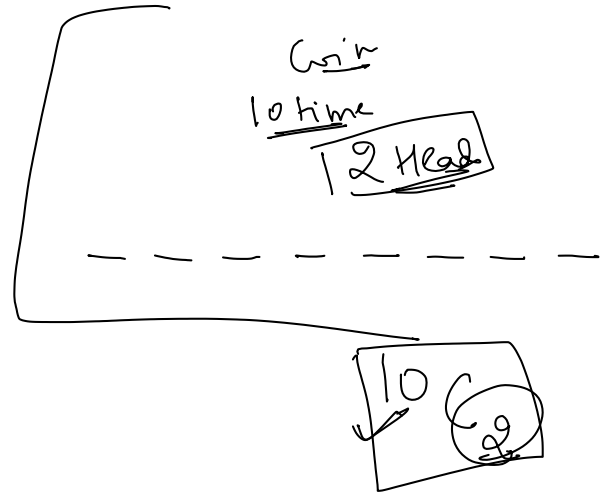
Penalty Bumped Passenger = 5K, 10K, 50K, 1L

penalty - 10K

Decided 110 tickets. ⇒ Revenue = 110 x 5K

= ₹5.5L

If no extra passanger arrive ≤ 100 ⇒



If 1 extra passanger show up.

110

101

$(0.9) \times (0.9) \times \qquad (0.9)$

$P(+1) \Rightarrow {}^{110}C_{101} (0.9)^{101} \times (0.1)^{9}$

Probability of 1 extra passanger shows up.

$P(+1) \Rightarrow 0.11$

$\Rightarrow 11\%$

Expected Penalty for 1 extra passanger = 1.1K x 0.11

Expected value for [illegible] =

⇒ Rs 1100