REVENUE OPTIMISATION

THE REVENUE OPTIMISATION IS DONE AS PER RICK'S REQUEST.

To find exact price so that most profit is adhered at v_gamma venue; we first need to analyse certain problems.

If the price is too high, fewer people buy and vice versa. Crowd energy affects how much extra money people are willing to spend further on goodies after show. We need a price such that the venue goes full and energy remains high.

Given ;

Venue capacity = 800 (max)

Fixed costs per show = $5000

Variable costs per person = $8

Assumptions :

1] After checking price x audience in EDA; the v__gamma is only venue that tolerates higher prices and eventually leading to drop in demand comparative to other venues

2] the energy factor - after noticing how low energy tends to less audience and less revenue over goodies like merch, drinks, etc; we can assume least $20 per person on such.

If energy is high, we can increase these spending by 50% more; and vice versa if energy is low.

Calculations -

Total profit =

(ticket_price * predicted_audience) + (predicted_audience * estimated spend) minus (Fixed costs + variable costs)

The model we used does following -

a] If ticket's price is around $50 : Audience tends to be packed ~ 780s leading to moderate energy levels; after $8 per head and $5k fixed cost, profit is quiet slim

So, it gives off a little for much hard work

b] if $160 - the audience seems to be quiet less ~200s adding in low energy levels ultimately leading not enough heads to cover up basic fixed cost efficiently. Even the merch sale won't go planned as the vibes were bad

c] if ticket price is between $110-$125 - the audience is comfortably full ~600s and energy appears high. The crowd feels they are at premium event and the finance aids enough to generate massive revenue and boost in comodities sales which was $20 beforehand to approximately $35 per head (increment by 50%)

So by using the ML model made - **$95 per head; With audience at best 420 with maximum profit of $40,146 approx.**