

## ASSUMPTIONS AND OPTIMIZATION

Characteristics used by the model for predicting the Crowd\_Energy :

1. Venue\_ID
2. Day\_of\_Week
3. Volume\_Level
4. Ticket\_Price
5. Band\_Outfit

Now we have to find the optimal ticket price for the concert at V\_Gamma

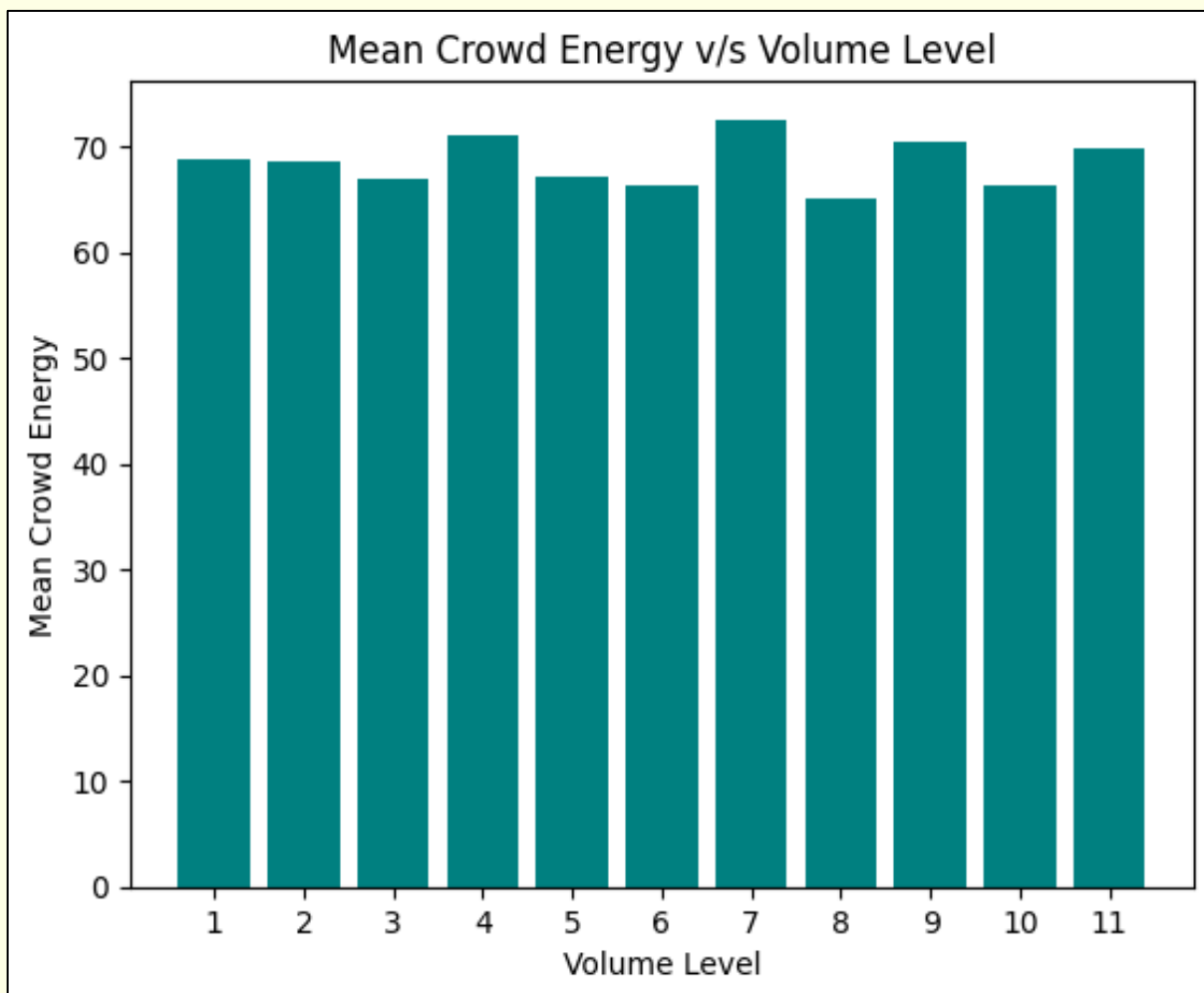
So, Venue\_ID = V\_Gamma

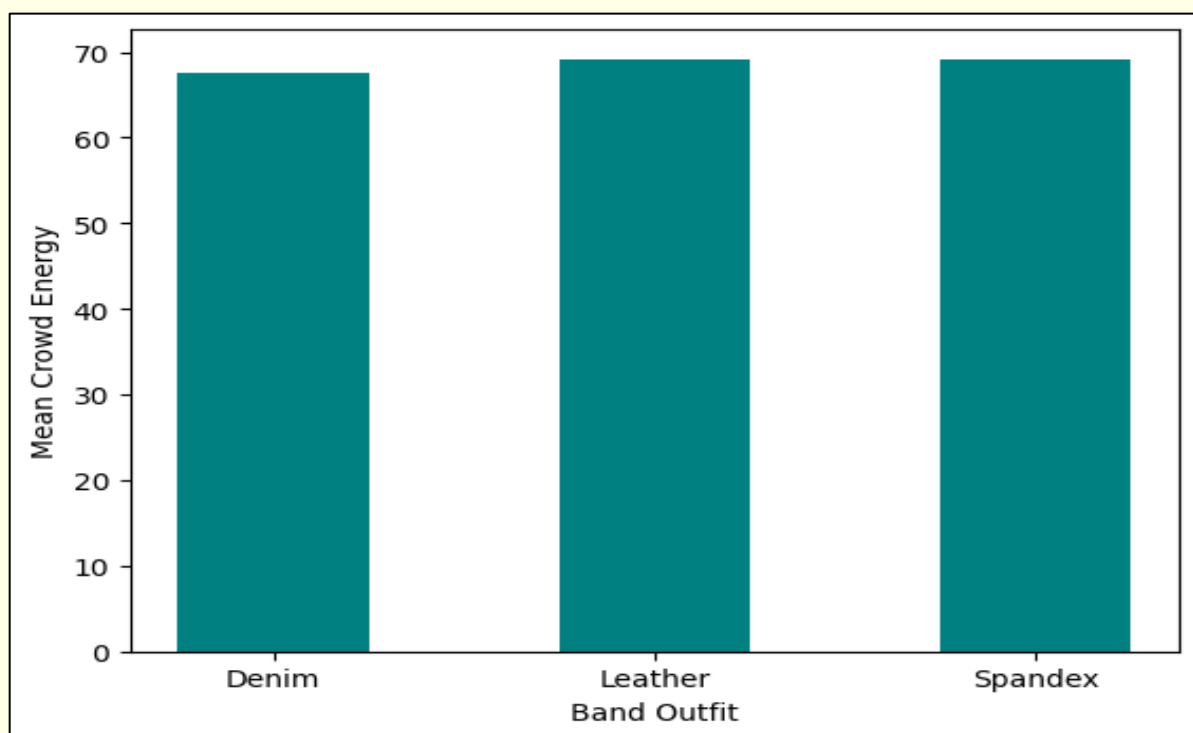
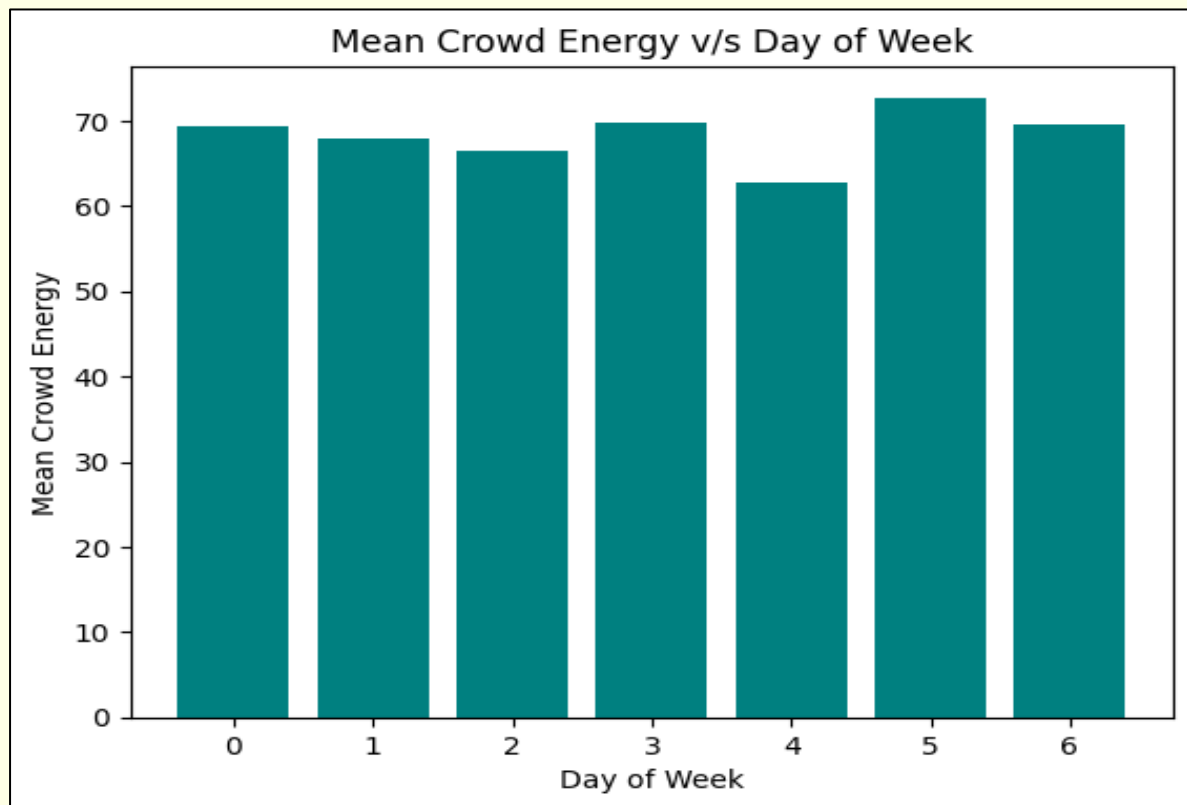
As the Saturday's are the most energetic so choosing Day\_of\_Week = 5 (Saturday)

Also Volume\_Level = 7 is set as inferred from graph for maximum mean.

And Band\_Outfit = Spandex

The below graphs justify the choice.

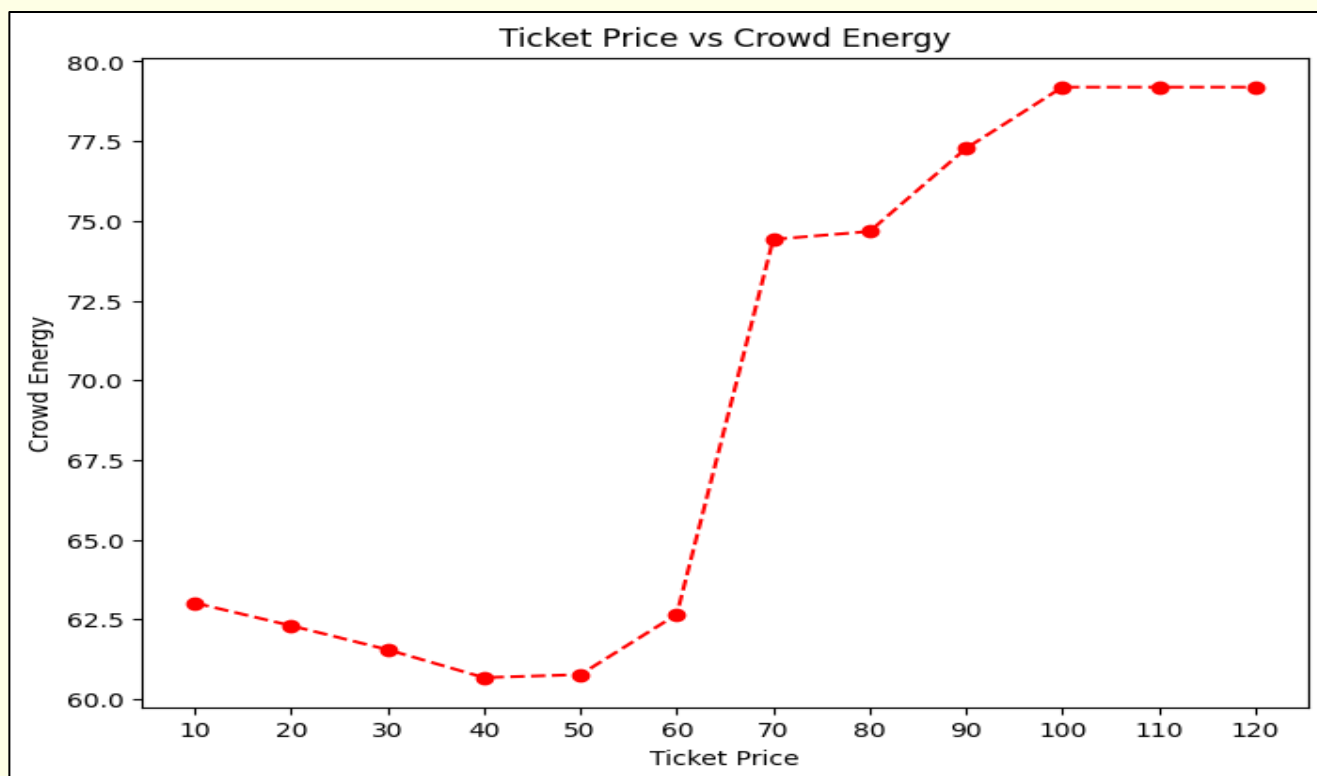




## APPROACH FOR FINDING OPTIMAL PRICE

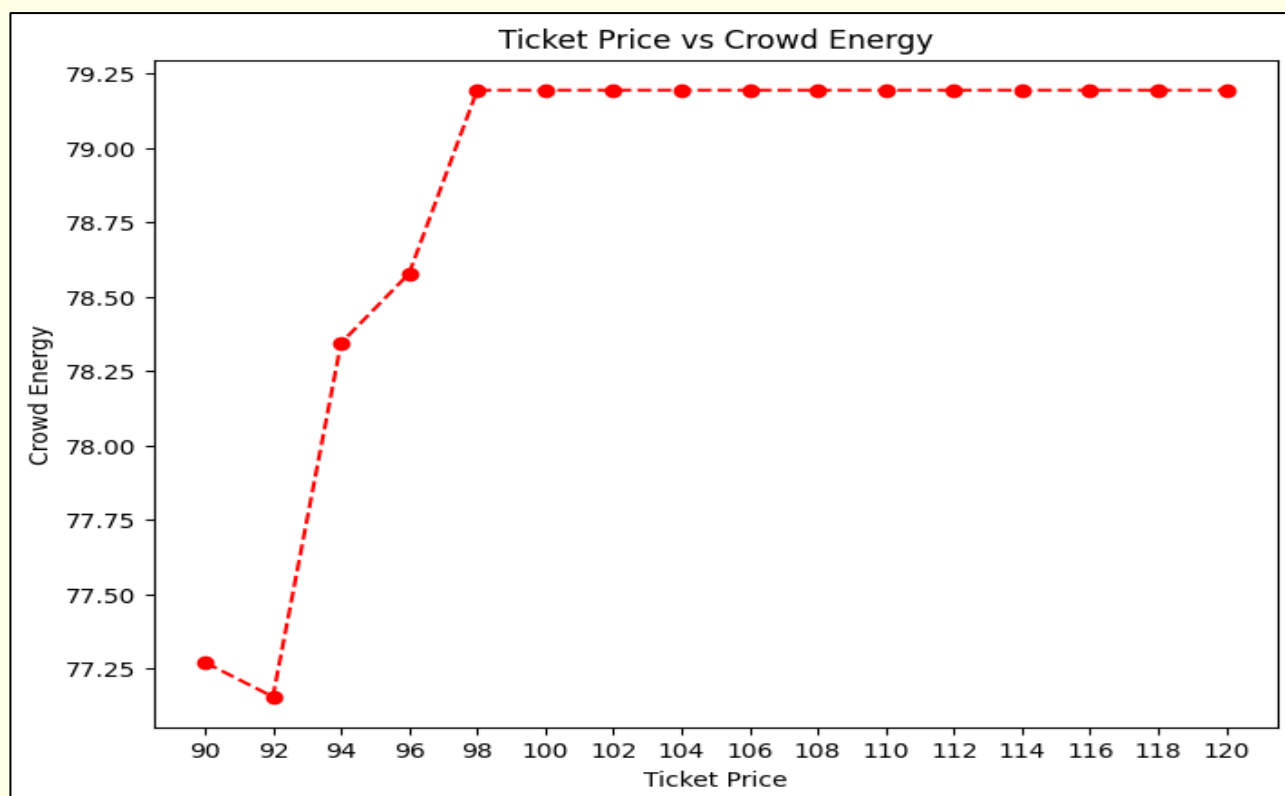
The Crowd\_Energy is predicted using the model trained and keeping different values of Ticket\_Prices.

Ticket\_Prices in range(10,121,10)



This shows that maximum Crowd\_energy will be around \$100 - \$120

So now plotting for Ticket\_prices in range(90, 121, 2)



Thus it is clear that that ticket price in range \$98 – \$120 have the highest predicted crowd\_energy. This is also in accordance with EDA carried on V\_Gamma which showed that higher priced shows had more energy.

So the optimal value of Ticket\_Price could be taken as \$110 as taking more price than this could have opposite effect.

Recommended Optimal Price = \$110

N = no. of tickets sold

The revenue generated with this price = \$110\*N

$$\begin{aligned}\text{The total profit} &= \$110*N - \$8*N - \$5000 \\ &= \$102*N - \$5000\end{aligned}$$

which will be profitable when  $N \geq 50$ , this is highly probable from data of previous shows here.

