

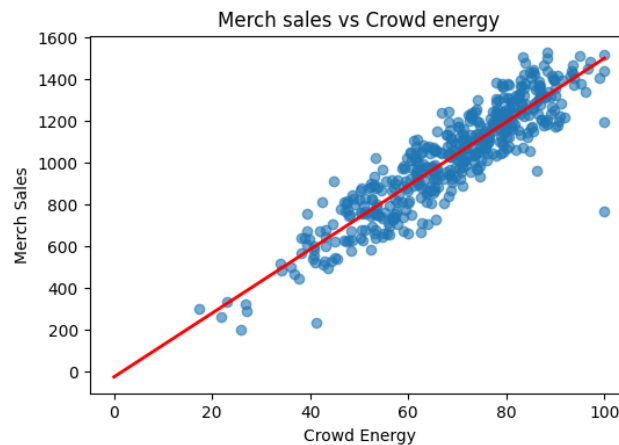
# Revenue Optimization

## Assumptions

- Fixed costs of ~\$5,000 at  $V_{\text{Gamma}}$ .
- Venue Capacity: 800 seats
- Variable cost per attendee: \$8
- Merch Sales average at around \$30 per sale.
- Crowd\_Size depends on similar features as Crowd\_Energy.
- It is a night show.
- It is not a weekend show.

## Observations

- Merch sales have a linear relationship with the Crowd Energy.



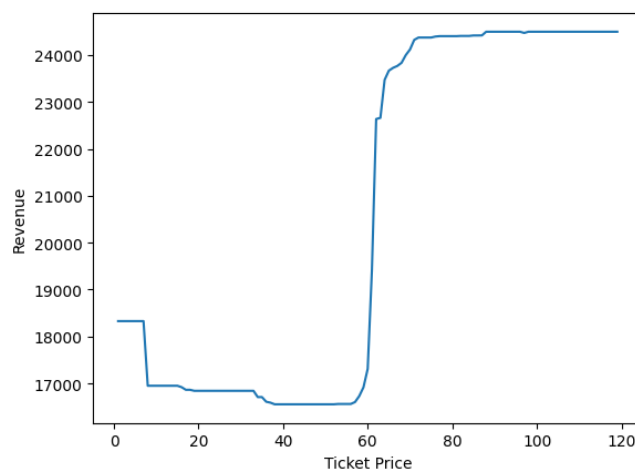
- Could not find a clear relationship that determines crowd size. Trained an AdaBoostRegressor model on the data.

## Formula Used

$$\text{Net Revenue} = \$30 \times \text{Predicted Merch Sales} - \$8 \times \text{Predicted Crowd Size} - \$5000$$

## Optimization

Iterating over different price points from \$1 to \$120, we can plot a graph of the net revenue vs the price point.



*From the graph, maximum revenue is achieved around a ticket price of **\$90**, and the curve flattens out after that.*