# Impact of live music in New York bars (Team 6)

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**Purpose**

The purpose of the project is two-fold. First, we would like to identify whether investing in live-music in a bar increases the average ratings and sentiment score of reviews. Second, we would like to quantify the impact of introducing live-music in a bar on the bar’s average ratings, sentiment scores of reviews and the number of reviews. Number of reviews will be used as a proxy for number of customers.

**Business problem**

Investing in live-music in a bar requires considerable investment from the owners. First, there could be a fixed cost involved in restructuring the layout. Second, there will be a variable cost for musicians. Finally, there could be a lost opportunity cost due to restructuring the layout of the bar. Hence, it is imperative for bar owners to know whether the introduction of live music will result in an increase in ratings, sentiment scores and number of reviews. Since 94% of people book online to decide which bar to go and 45% of these people look at Yelp to decide which bar to go, monitoring Yelp reviews will help us gauge the clientele of a bar.

**Data and analytical process**

Once the business problem was formulated, solving the problem required a combination of web-scraping, natural language processing and regression analysis. The data required for the analysis was scraped from [Yelp](https://www.yelp.com/). Yelp is a crowd-sourced business review site and has dedicated section for restaurants. 35,317 customer reviews were scraped for hundred bars in New York city and saved individually for each bar in csv files. Fifty of the bars have live music and the remaining bars have other forms of music such as karaoke, jukebox and DJ. TextBlob, a Python library was then used for sentiment analysis. Finally, we developed a regression model to estimate the impact of live-music on average rating of the bar, the sentiment score of reviews and the number of reviews.

**Findings**

Introducing live-music in bars was found to have a positive impact on the bar’s ratings, the sentiment scores of reviews and the number of reviews. With 95% confidence, we can say that introducing live-music has a higher impact on ratings, sentiment scores and number of reviews than karaoke, jukebox and DJ.

**Conclusion**

A new bar owner in New York can consider investing in live music instead of other forms of music to increase the bar’s rating, sentiment score and the number of reviews (proxy for number of customers). An existing bar owner can consider switching to live music from the current form of music.