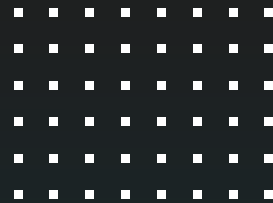# Artist Recommendation System

Capstone Project
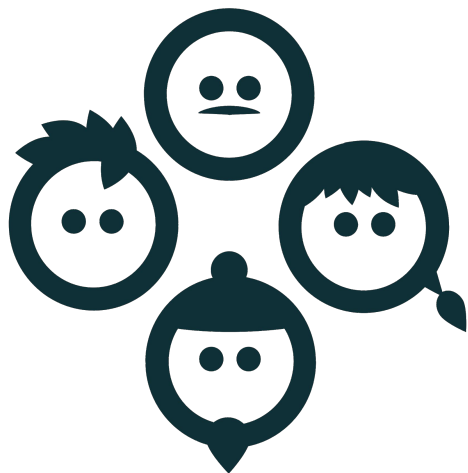
2019 Forecasted revenue in the music events segment is **$15,611MM** and is expected to show an annual growth rate of **7.7%**.

The average revenue per user currently amounts to **$191.34**.
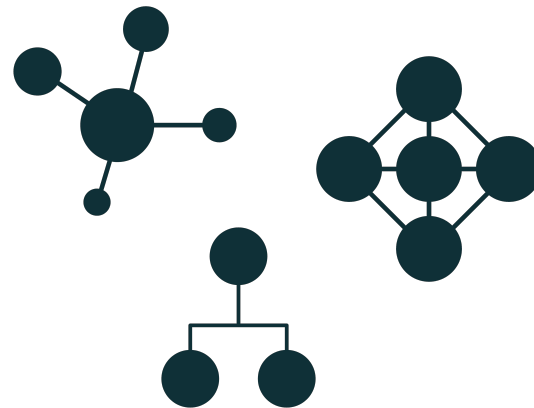
Problem Definition

How do we help customers discover new artists based on genre?

Customer demographics, mosaic segments, and artist genre for 2018 purchase activity was considered.
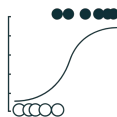

The two best regression models (Adaboost and Gradient Boost Trees) provided 58% recall.

Each of the five models were created after the initial dataset was cleaned and encoded into numerical values.

The outputs for each model's recall scores are noted below. For recommendation systems, recall is more important than precision and accuracy.

Two Best Models

Linear Regression
K-fold Cross-Validation
Model
24%

Logistic Regression
Model
54%

Random Forest Model
100%

AdaBoost Model
58%

Gradient Boosted
Trees Model
58%

$140.00

Average spent per customer in 2018

GENDER

Male (414,002) ■ ■ ■ ■

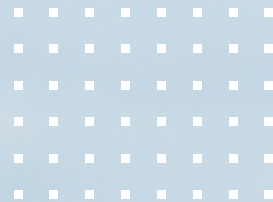Female (353,209) ■ ■ ■ ☐

TOP HEADLINE ARTIST

The Lumineers

TOP Venue

Red Rocks Amphitheater

OTHER INSIGHTS

GENRE

Rock
Pop
Dance / Electronic

MOSAIC

Power Elite
Booming with Confidence
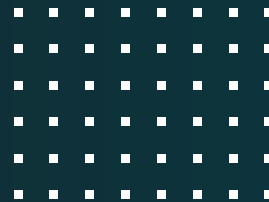Flourishing Families

STATE

California
Colorado
New York

AGE

25 to 34
35 to 44
45 to 54

#18485

For this anonymous customer, his/her top artist recommendations are:

01 the Gazette

A Japanese visual kei rock band from Kanagawa.

02 The Fixx

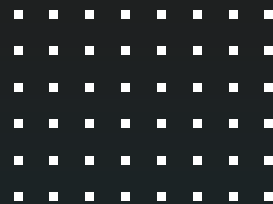A rock and new wave band formed in 1979.

03 Shallou

Ambient, house melodies and soulful vocals

04 Of Montreal

An American indie pop band from Athens, Georgia

05 Mike Gordon

An American bass guitarist and vocalist most recognized as a founding member of the band Phish.

AXS

A digital marketing ticketing platform for sports and entertainment events.

TICKETMASTER

An American ticket sales and distribution company merged with Live Nation in 2009

LIVE NATION ENTERTAINMENT

An American global entertainment company found in 2010 after the merger

MARKET SHARE

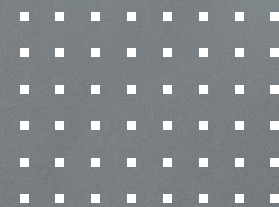**2%** AXS at 13th position

3% Live Nation at 7th position

5% Ticketmaster at 3rd position

	👤	🎟	☆	💬
AXS	Yes	Yes	---	---
Live Nation	Yes	Yes	Yes	Yes
Ticketmaster	Yes	Yes	Yes	Yes

Missing from AXS.com
Favorite Artists & Recommend Artists

Summary

The most important features determined in the recommendation model dataset are **revenue from 2018, headline artist** and **venue name**.

In order to accommodate new customers and remain competitive, the AXS.com site should enhance its online user profile management to allow individual users to manage their **favorite artists** and see **related artist event recommendations** that predict matches based on the user's preference and/or past purchase history.

The best way to validate the recommendation engine's performance is to measure the **Click-Through Rate (CTR)** and **Conversion Rate (CR)** of the recommendations.
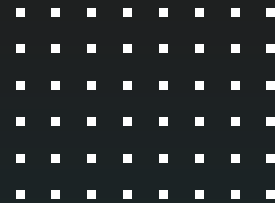
Next Steps

It would be interesting to find another dataset that provided artist ratings (popularity score, industry ranking, fan scores, etc.) that could be merged into this dataset to produce results based on ratings rather than ticket quantity or revenue of sales.

Other areas to explore are:

- Try and chain all of the steps together into one function that asks users for ratings for a certain number of artist, then all of the above steps are performed to return the top n recommendations.
- Make a recommender system that only returns items that come from a specified genre.
- Create a user interface to allow users to easily choose items and get recommendations.

THANK YOU!