

Milwaukee Bucks

Milwaukee Bucks

Predicting Ticket Plans

Dataset

Milwaukee Bucks

Account Level

AccountNumber
SingleGameTickets
PartialPlanTickets
GroupTickets
STM
AvgSpend
GamesAttended
FanSegment
DistanceToArena
BasketballPropensity
SocialMediaEngagement

Game Level

Game
Giveaway

Seat Level

Season
AccountNumber
Game
GameDate
GameTier



FanSegment

- A Family-oriented fan with money to spend, but limited interest in attending games**
- B Fan who attends game for social experience and not the Bucks**
- C Fan who is willing to spend, but wants an exciting fan experience**
- D Fan who loves basketball and will attend as many games as their discretionary income allows**
- E Fan who is in their honeymoon phase of their relationship with the Bucks and is willing to spend more**
- F Fan with money and passion**
- G Fan who is among the Bucks biggest spenders**
- Limited Data Fan with not enough data to be assigned a fan segment**

The Ticket Plans

Value Plan

focuses on affordable tickets for weekday games

Opponent Plan

featuring games against high-profile opponents

Weekend Plan

highlighting weekend games for fans looking for weekend entertainment

Giveaway Plan

centered around games with promotional giveaways

Research Question

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How can fan data be used to push out new personalized ticket plans for each fan to enjoy?

Imputations on the Datasets

AccountLevel

KNN and Median

GameLevel

Labeled Giveaway

Data Merging

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Type of Merges

**AccountLevel &
SeatLevel**

Inner Join

**GameLevel &
SeatLevel**

Inner Join

**AccountLevel
&
GameLevel**

Not Needed

**AccountLevel &
GameLevel &
SeatLevel**

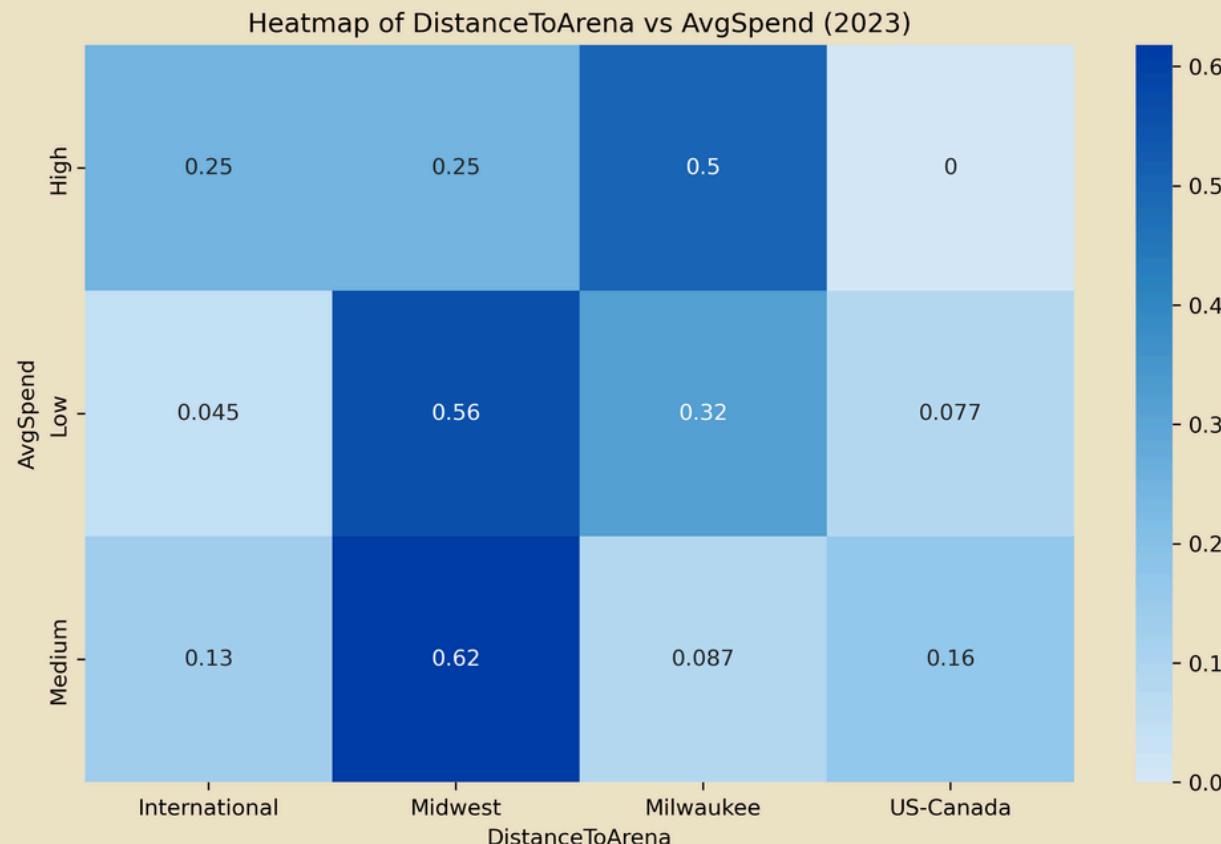
Inner Join

Data Visualization

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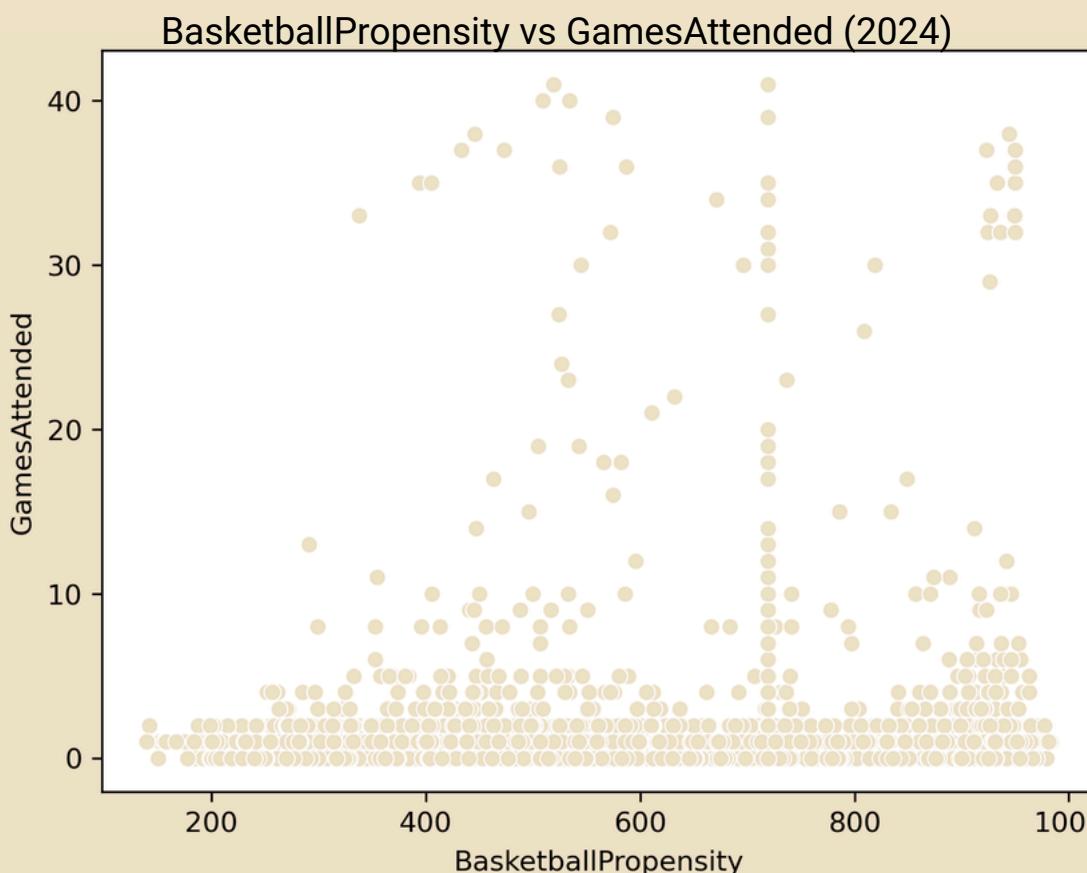
Categorical vs Categorical

Heatmap



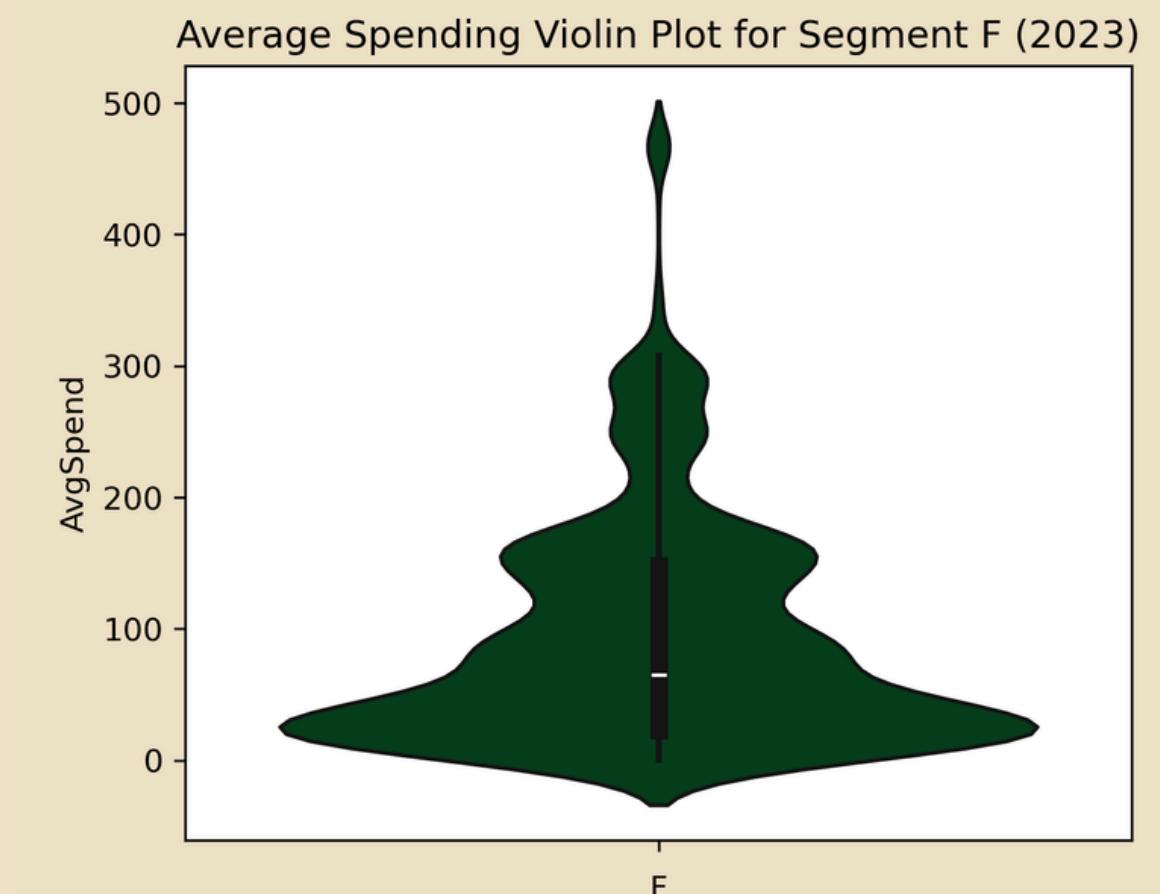
Numerical vs Numerical

Scatterplot



Numerical vs Categorical

Box Plots Violin Plots



Hypothesis Testing

Kruskal-Wallis
Mann-Whitney U-Test

**DistanceToArena vs
FanSegment**

A vs B, E, F
B vs E, F, G
C vs E, F, G
D vs E, F, G
E vs F, G

**SocialMediaEngagement
vs BasketballPropensity**

Low vs High
Medium vs High

Two Sample T-test
No Post-Hoc

STM vs DistanceToArena
No Significance

STM vs GamesAttended
No Significance

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Chi-Squared
Pairwise Chi-Squared

STM vs FanSegment
A vs B, C, D, E, F, G
B vs C, D, E, F, G
C vs D, E, F, G
D vs G
E vs G
F vs G

STM vs GameTier
No Association

Machine Learning

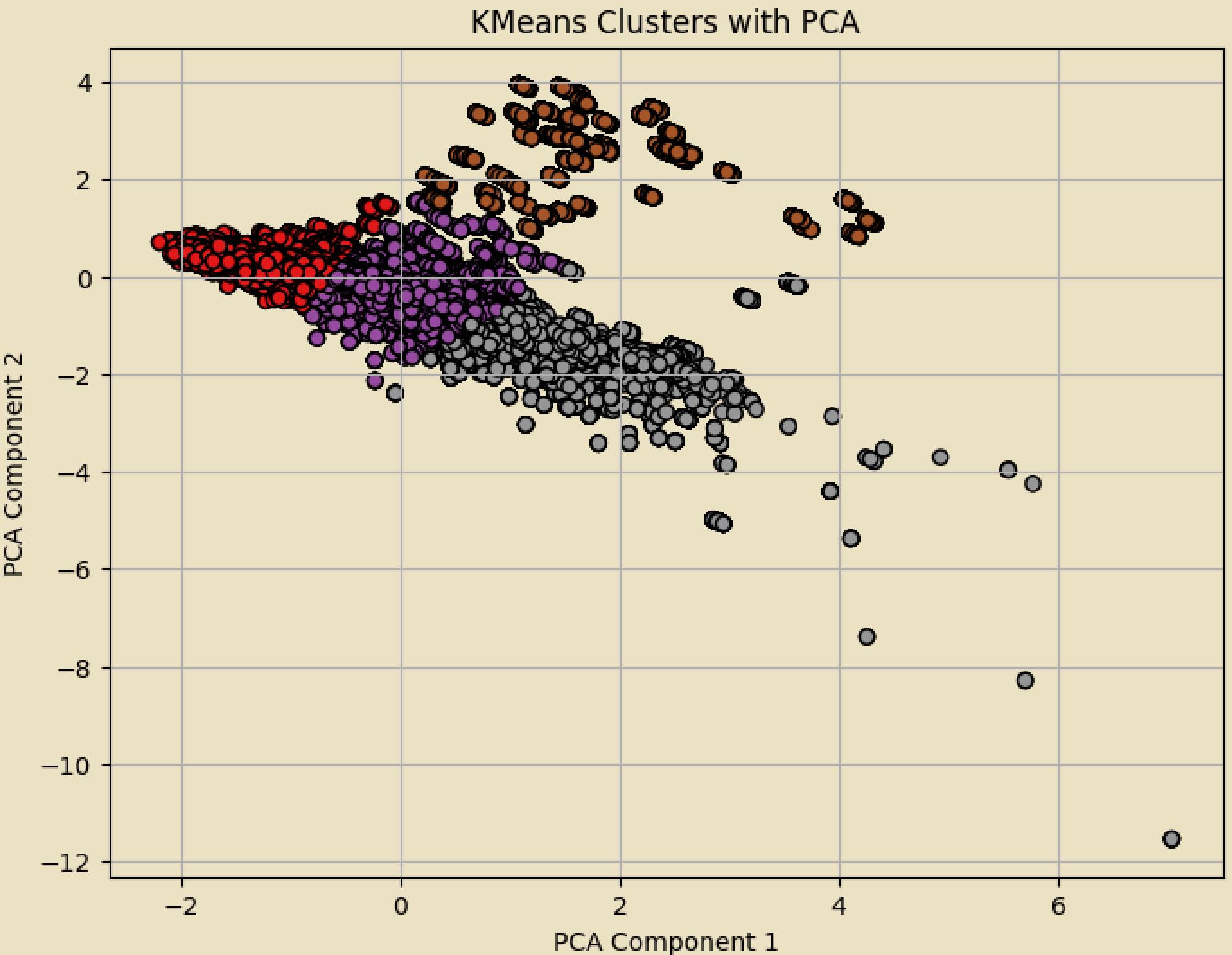
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Categorical Features

STM GameTier FanSegment
SocialMediaEngagement

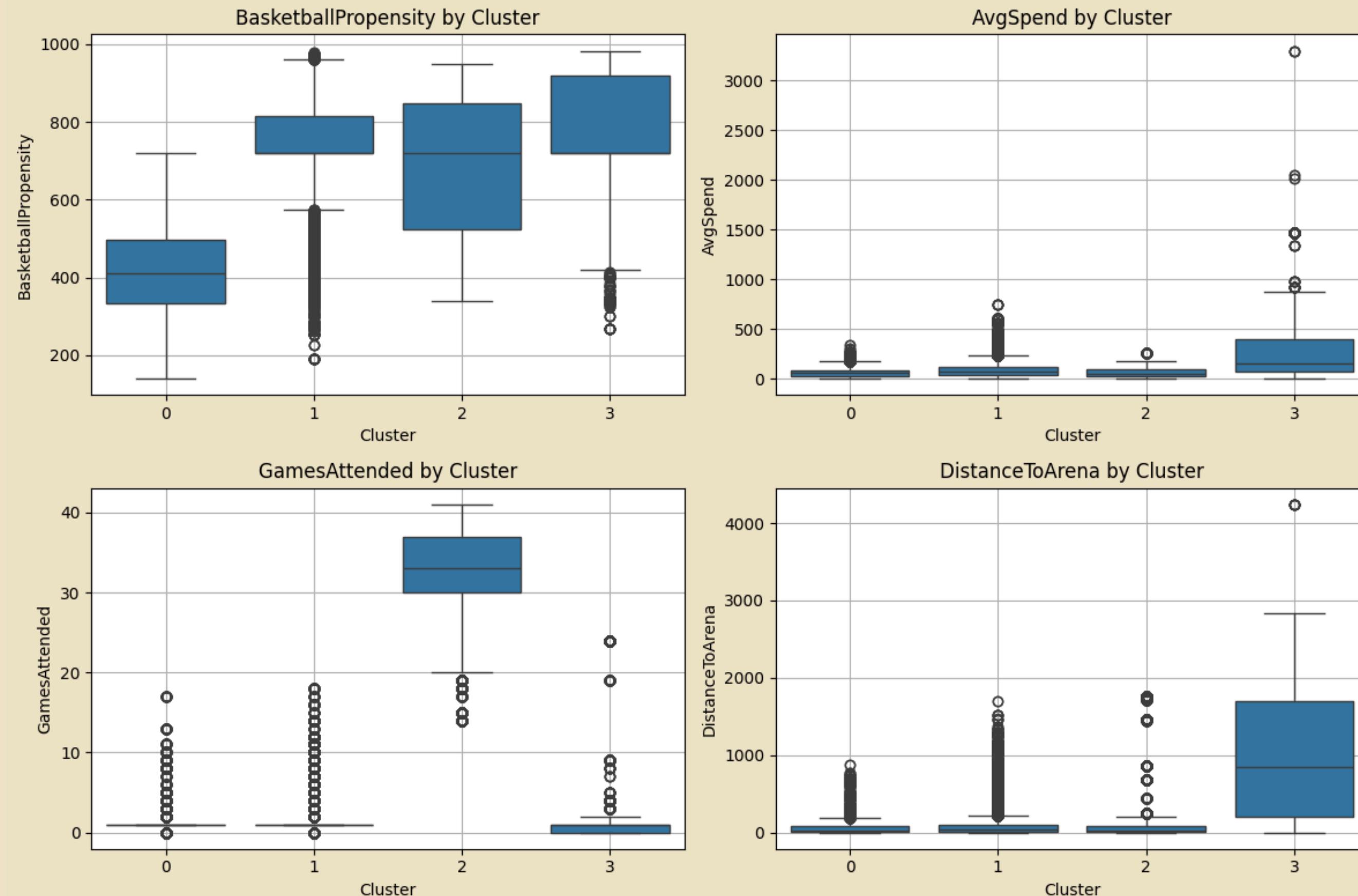
Numerical Features

BasketballPropensity
AvgSpend GamesAttended
DistanceToArena



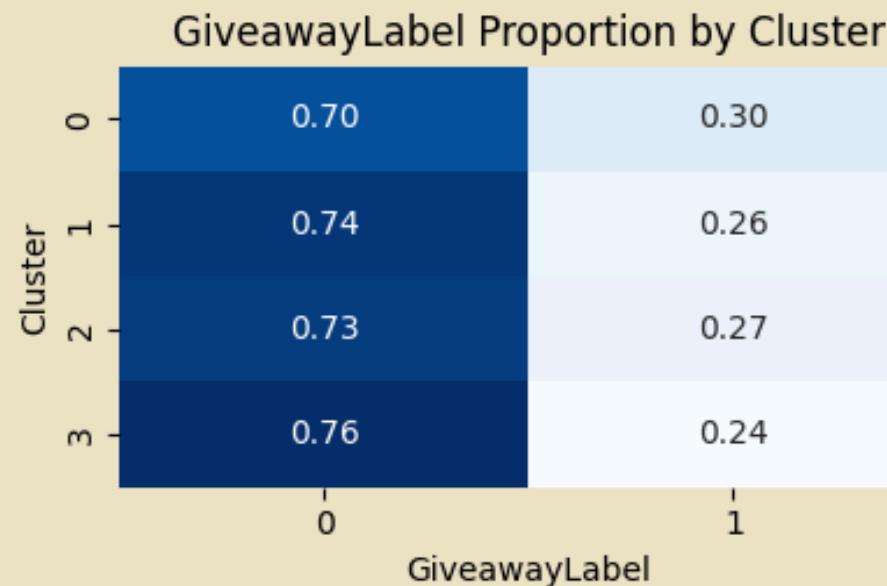
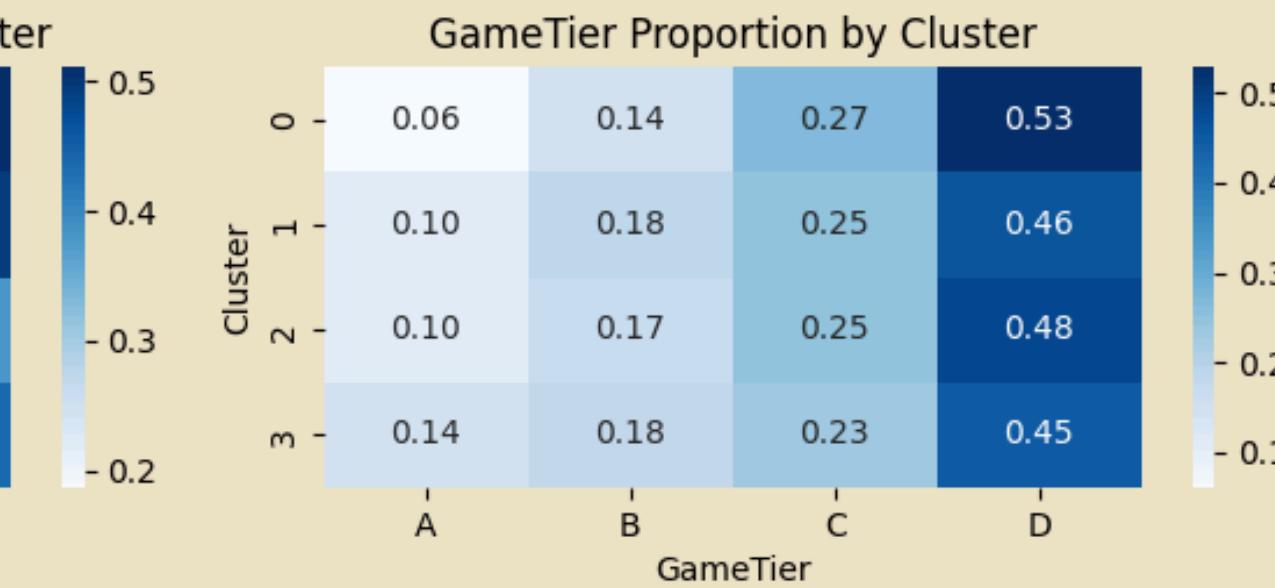
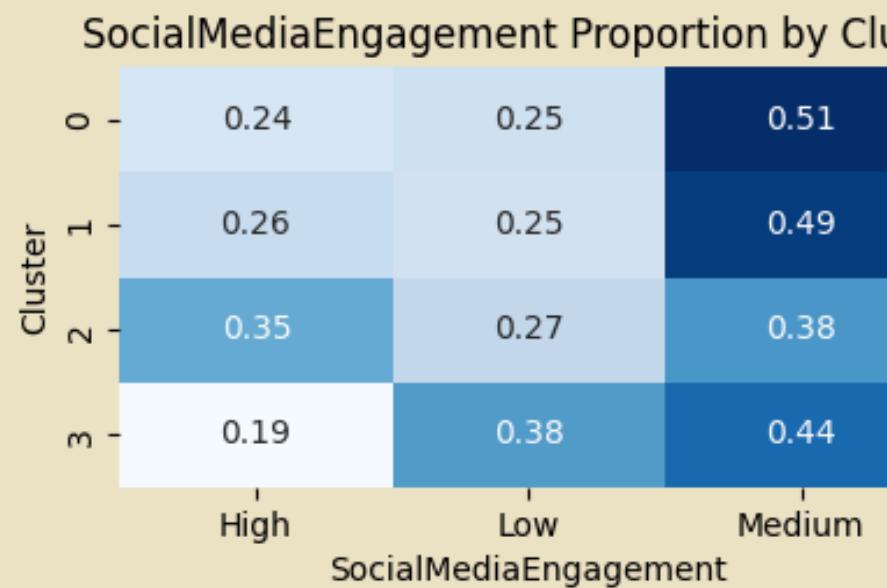
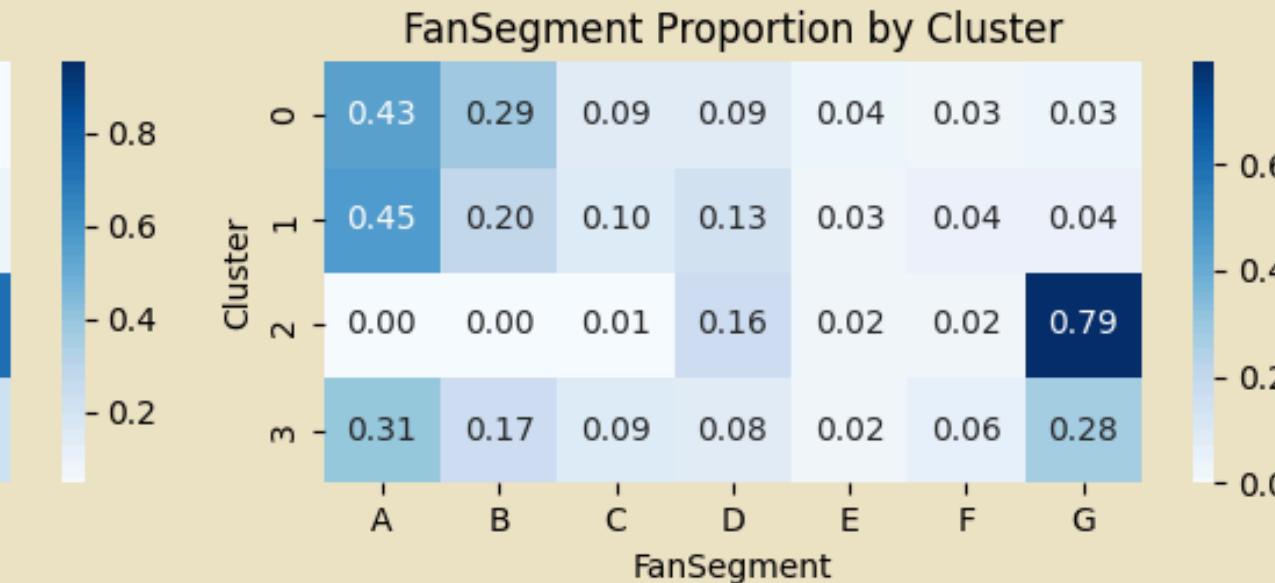
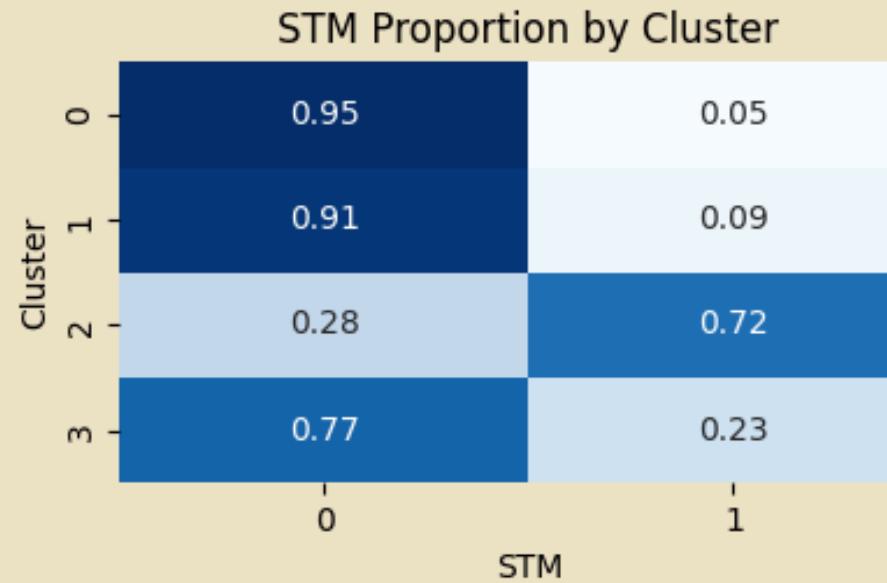
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Conclusion

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Future Changes

Exploring model accuracy with real-world data based on user input and validation

Explore relationships between the numerical and categorical data using Pearson's Correlation

Explore converting numerical features into categorical features