



FC CINCINNATI ANALYSIS

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KEY TAKEAWAYS

- Games on the weekend should not move to other days•
- Winning percentage impacts attendance fractionally
- Previous match's results have a positive impact on the crowd, it has been observed that the number of people attends game if the club has won the last game
- Changing match start time to 3.00 or 6.00 PM will have a negative impact on attendance
- Number of days between games has a positive impact on attendance; home games can be scheduled in equidistance duration to attract more people to the stadium

**Objective:**

- Develop game-by-game attendance forecast model for the 2020

Tools Used:

- R
- Tableau

Additional Feature:

Following additional features are created;

- Winning Percentage : it's a running percentage of total wins to the matches played, please refer to the slide 10 for calculation
- Result Previous: I have assigned result of previous game to current game to analyzed impact of results on attendance
- Goal accepted previous: I have assigned number of goals accepted by FC Cincinnati in previous game to current game to analyzed its impact on attendance
- Goal Scored previous: I have assigned number of goals scored by FC Cincinnati in previous game to current game to analyzed its impact on attendance
- Game Difference: I have calculated number of days between each game to analyzed its impact on attendance
- Days between wins: I have calculated number of days since last win to analyzed its impact on attendance



Additional Feature (Cont.):

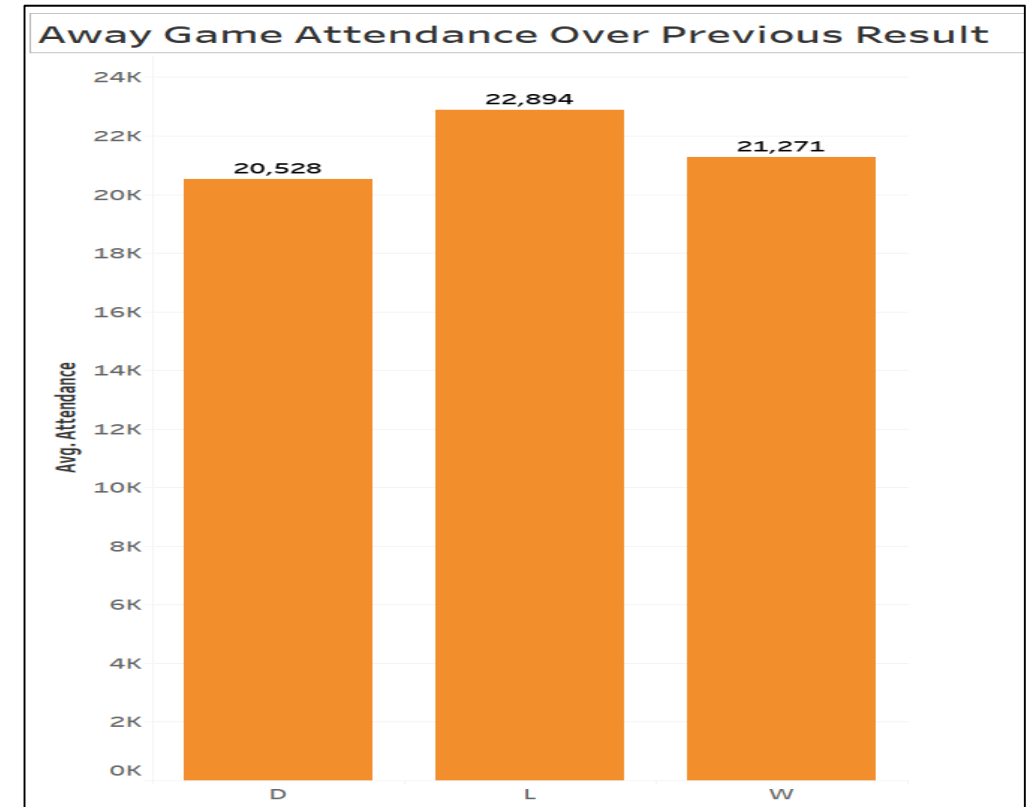
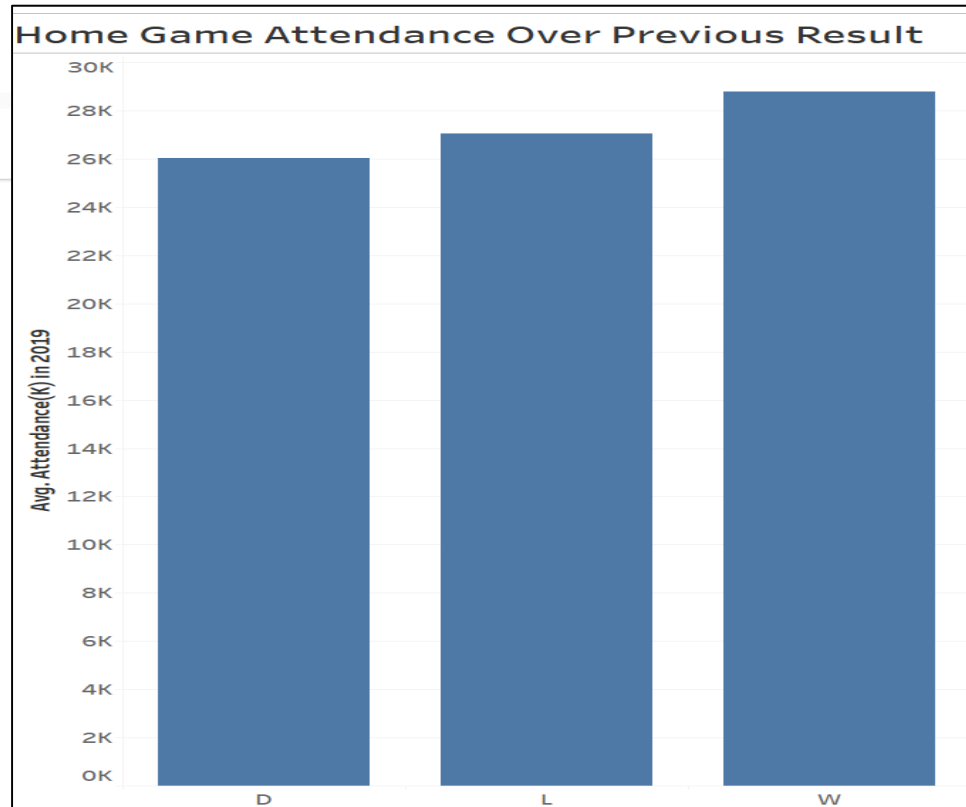
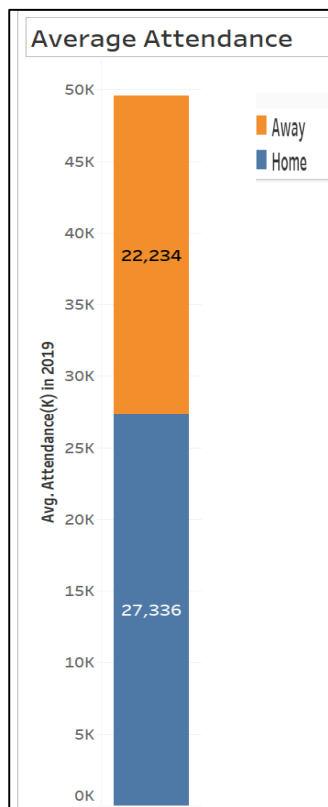
- Goal Difference Category: I have categorized goal differences between the matches and categorize them into Positive and Negative to analyzed its impact on attendance
- Opponent Region: I have categorized opponents into five regions namely East, West, North, South and Central to identify whether any particular pattern exists between attendance and opponent team's region

Technique Used:

- Linear and Stepwise Regression



DESCRIPTIVE ANALYSIS

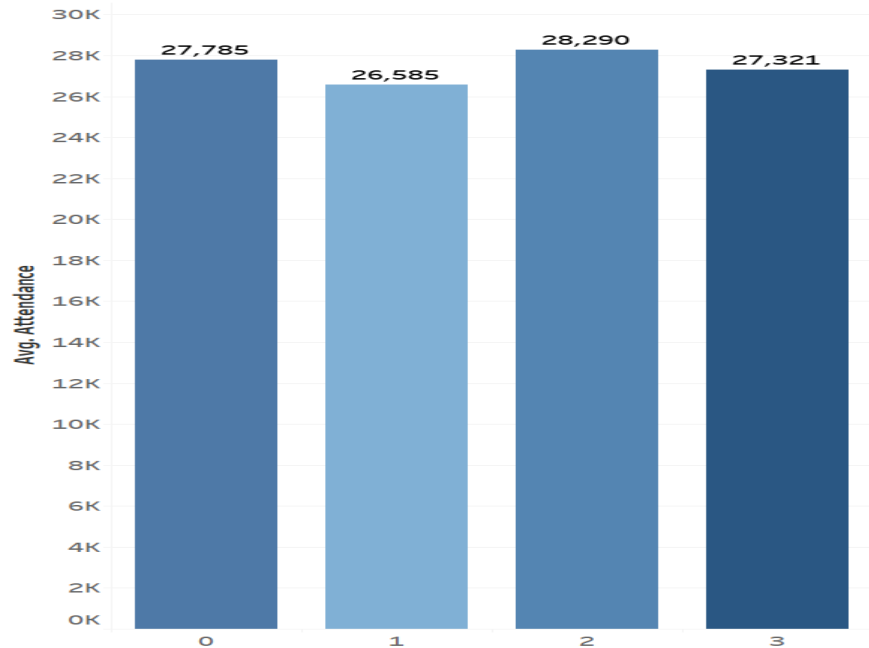


More supporters will turn up to the home stadium (Nippert) if FC Cincinnati has won the previous game. This indicates supporters are showing love and come in numbers to boost their team 's confidence. On the contrary, over the away games, if FC Cincinnati has won the previous match, less number of supporters will turn up to the away (opponent) stadium to support their respective teams.

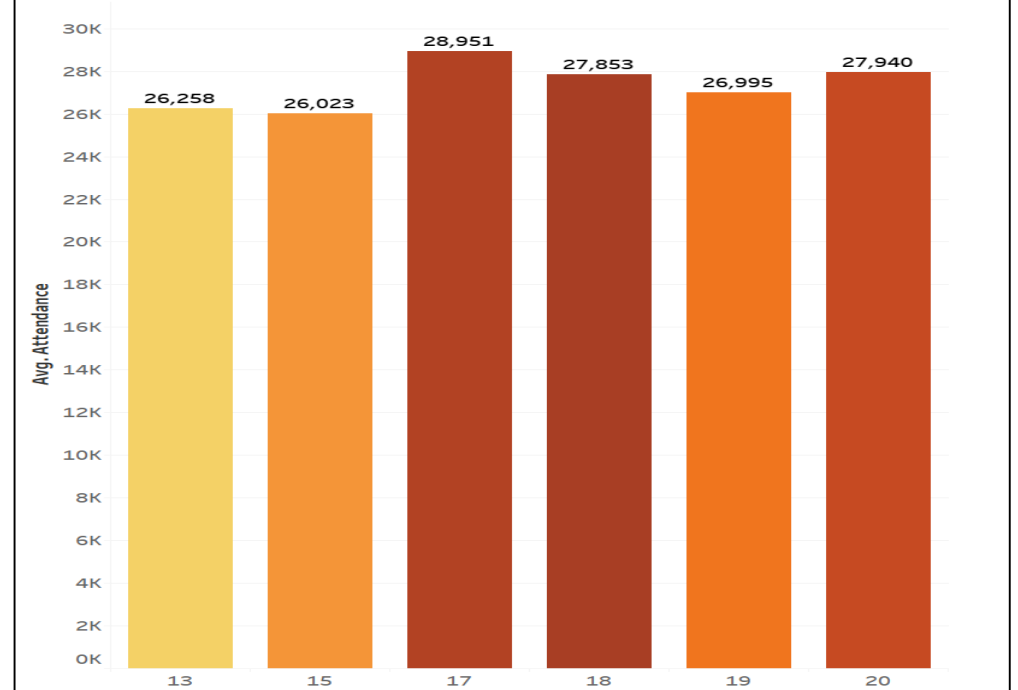


DESCRIPTIVE ANALYSIS

Attendance Over Number of Goals Scored in Previous Game



Game -Time vs Attendance



As we can observe in the figure, attendance over a number of goals scored in the previous game is not impacting much on the average audience. However, we can see a high number of people are coming to watch the team's play during evening matches as compared to day matches



FORCAST MODEL

Regression Output

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	28046.56	1817.76	15.429	2.08e-05	***
gamediff	414.74	65.90	6.293	0.00149	**
win_per	-187.84	47.27	-3.973	0.01060	*
GA1	-1911.45	472.48	-4.046	0.00987	**
Day_Sat	2256.13	1217.70	1.853	0.12311	
Day_Sun	22987.55	3714.16	6.189	0.00161	**
Day_Thu	5834.79	1549.13	3.767	0.01307	*
`Time_15:00`	-18244.78	3081.15	-5.921	0.00196	**
`Time_18:00`	-12831.38	3025.03	-4.242	0.00816	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 948 on 5 degrees of freedom

Multiple R-squared: 0.941, Adjusted R-squared: 0.8467

F-statistic: 9.975 on 8 and 5 DF, p-value: 0.01072

Significant Parameters

- Difference between two consecutive home games
- Winning Percentage
- Goal Conceived during last game
- Matches on Sunday
- Matches on Thursday
- Match time at 15.00 PM
- Match time at 18:00 PM

Winning percentage and Matches on Thursday are significant on 5% significance.

R-Squared: 0.941

Adjusted R-Squared: 0.846



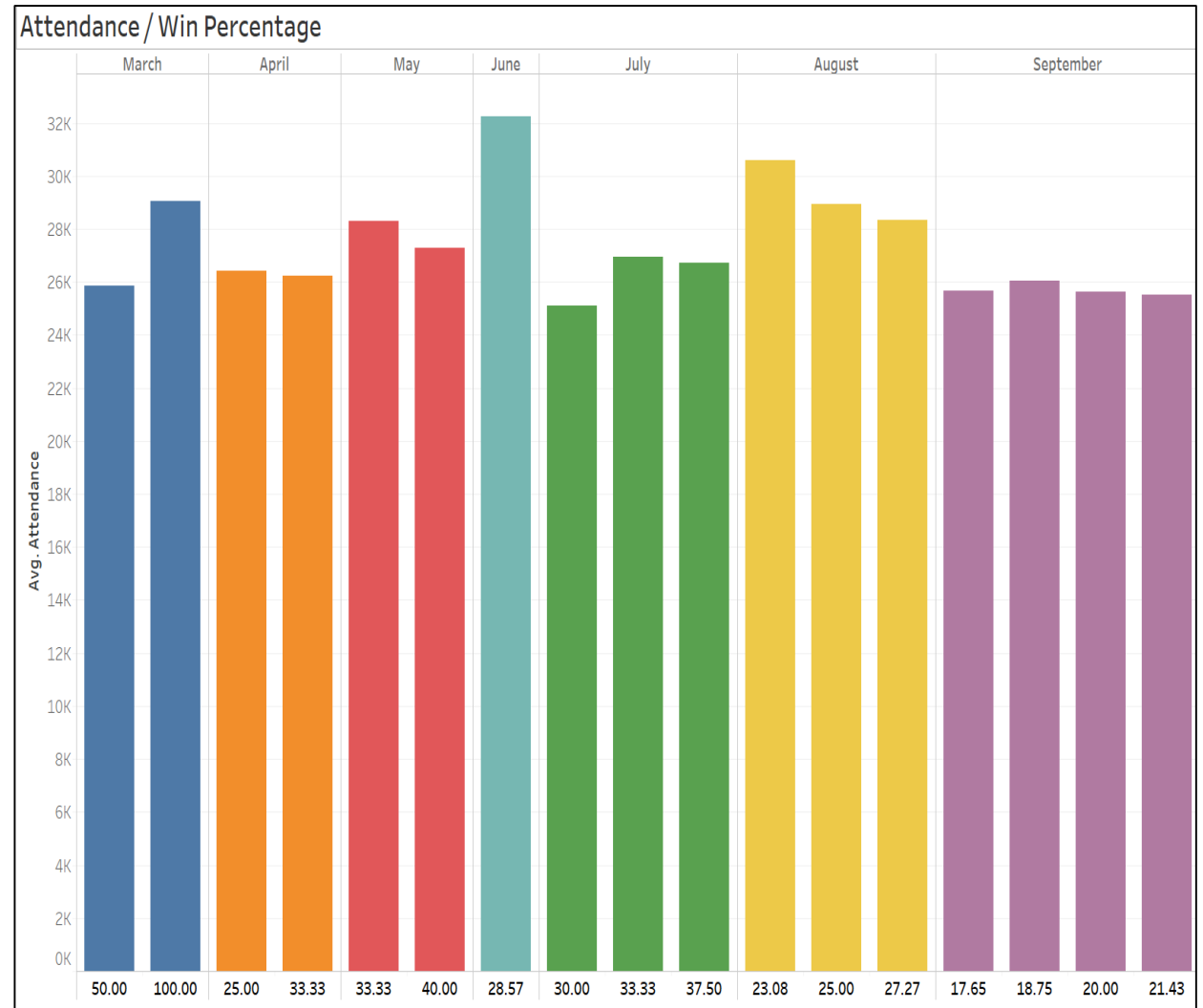
Winning Percentage:

As per the regression output, a 1 percent increase in the winning rate will decrease the number of people coming to the stadium by 187

Considering the average attendance, this decrease in attendance will be ~1% of the average number of people coming to watch the home game

It has been observed that for most of the season, average attendance has dropped fractionally if the winning rate is high.

Also, it has been observed that whenever the winning rate is low, fans have come to the stadium in numbers to support the home team.





FORECAST MODEL

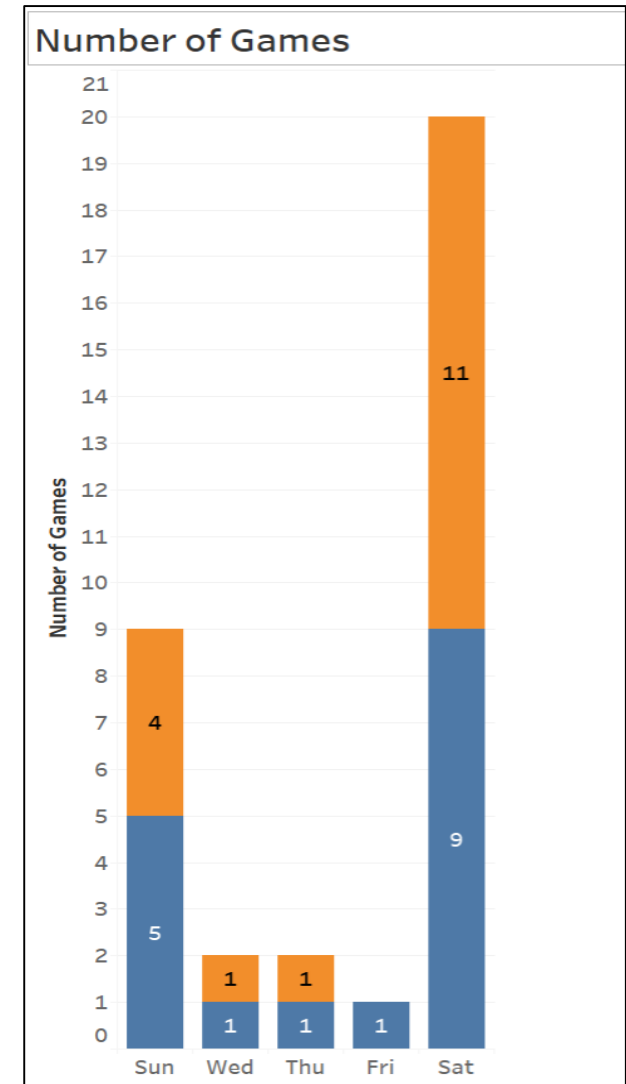
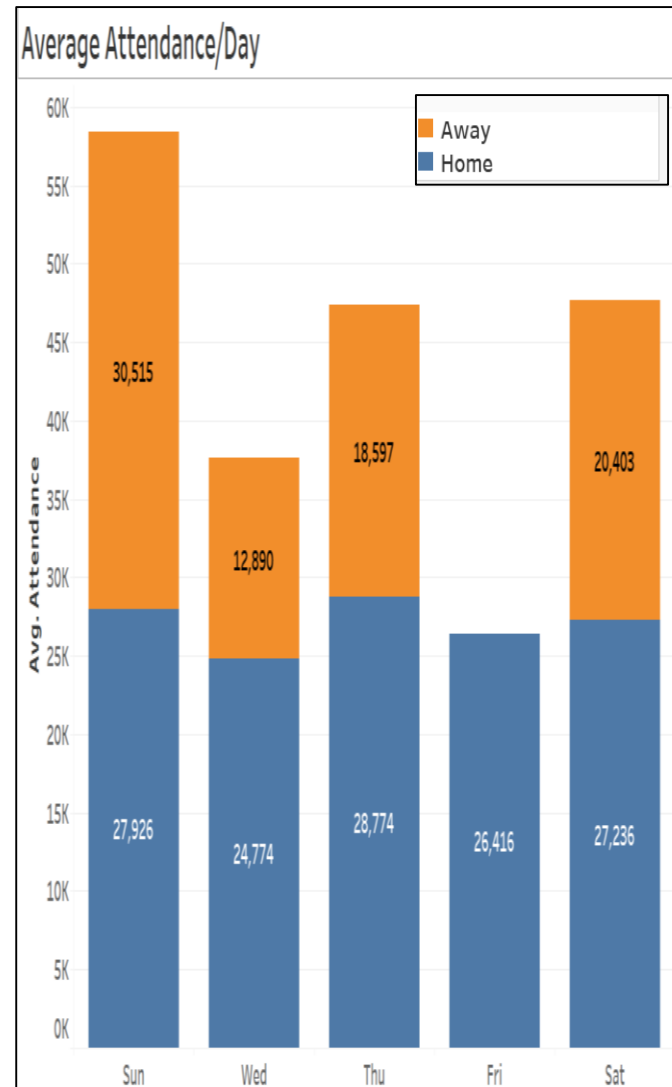
Week-end Game:

As per the regression output, if the game is moved to Thursday, it likely to draw ~5000 more people to the stadium.

Though statistically, this parameter is essential, considering the number of games FC Cincinnati played on Thursday in 2019; I will not suggest moving game to Thursday.

One of the prime reasons is FC Cincinnati has played only two games in the entire season on Thursday, and over 85% of their games have played on Saturday and Sunday.

Also, considering the weekend, more people are expected to come and watch the game on weekends rather than a weekday.





SCOPE AND LIMITATION

- Study is limited to the 2019 seasons' Score and Fixture of the FC Cincinnati available on the fbref.com
- Dataset contains only game-by-game home attendance records (~17 records) for FC Cincinnati's 2019 season
- Winning percentage Calculation:

No.of games	Result	Winning Percentage
1	W	100
2	L	50
3	D	33.33333333
4	L	25
5	W	40
6	L	33.33333333
7	L	28.57142857
8	W	37.5
9	L	33.33333333
10	L	30
11	L	27.27272727
12	L	25
13	L	23.07692308
14	L	21.42857143
15	L	20
16	D	18.75
17	D	17.64705882



Thank You!!