The best locations to open a sports bar/pub using UK football stadiums data

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1 Introduction

1.1 Business description

Football is the UK's national sport and as such it is home to many football (soccer) teams and football leagues. Football generated a turnover of approximately 375 million pounds in 2018. On match days football stadiums around the UK are filled with fans excited to support their teams and celebrate their victories, and pubs and bars located close to football stadiums are able to capitalise on this large customer base.

The aim of this analysis is to predict the best locations to open a new sports bar/pub within close proximity to football stadiums in the UK. It is hypothesised that football stadiums with the highest capacity (most potential customers) and lowest number of existing pubs/bars (least competition) are likely to provide the best locations for a new venue. Stadium location data scraped from the web and Foursquare data of existing venues will be used to determine the best locations.

1.2 Stakeholder interest

This data is of interest to owners of existing sports bar/pub chains who are looking to expand and open new venues.

2 Data acquisition and cleaning

2.1 Data sources

Football stadium data is easily available on many websites, including Wikipedia. Stadium data including stadium name, maximum capacity, longitude, and latitude will be scraped from the web. Foursquare will be used to obtain venue information and the number of nearby pubs/bars based on the stadium location data.

	Name	Team	Capacity	Latitude	Longitude	Easting	Northing	Grid Reference	Also known as
0	Abbey Stadium	Cambridge United	10847	52.212799	0.154298	547284	259362	TL472593	NaN
1	Adams Park	Wycombe Wanderers	10284	51.630600	-0.800299	483134	193102	SU831931	NaN
2	Alexandra Stadium	Crewe Alexandra	10153	53.087502	-2.435690	370916	354565	SJ709545	Gresty Road
3	Almondvale Stadium	Livingston	10122	55.886398	-3.522070	304893	666964	NT048669	NaN
4	Amex Stadium	Brighton and Hove Albion	22374	50.860901	-0.080140	535213	108577	TQ352085	Falmer Stadium

2.2 Data cleaning

Data has been scraped and cleaned as shown below to provide a dataframe containing stadium name, football club, maximum capacity, longitude, and latitude coordinates for all top 5 English leagues and top 4 Scottish leagues. Dataframe contains 141 stadiums.

	Stadium_name	Team_name	Capacity	Latitude	Longitude
0	Abbey Stadium	Cambridge United	10847	52.212799	0.154298
1	Adams Park	Wycombe Wanderers	10284	51.630600	-0.800299
2	Alexandra Stadium	Crewe Alexandra	10153	53.087502	-2.435690
3	Almondvale Stadium	Livingston	10122	55.886398	-3.522070
4	Amex Stadium	Brighton and Hove Albion	22374	50.860901	-0.080140
5	Anfield	Liverpool	45522	53.430801	-2.960960
6	Ashton Gate	Bristol City	21497	51.439999	-2.620210
7	B2net Stadium	Chesterfield	10400	53.253502	-1.427200
8	Balmoor	Peterhead	4000	57.511200	-1.795990
9	Bayview Stadium	East Fife	2000	56.188900	-2.999140

Foursquare used to retrieve venue information within a 500-meter radius of each stadium as shown below.

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all_stadium_venues.head()
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	Stadium_name	Stadium Latitude	Stadium Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Abbey Stadium	52.212799	0.154298	Pipasha	52.213388	0.154665	Indian Restaurant
1	Abbey Stadium	52.212799	0.154298	Abbey Stadium	52.212570	0.154379	Soccer Stadium
2	Abbey Stadium	52.212799	0.154298	Abbey Leisure Complex	52.209225	0.154829	Gym Pool
3	Abbey Stadium	52.212799	0.154298	B&Q	52.211464	0.149038	Hardware Store
4	Abbey Stadium	52.212799	0.154298	Cambridge United FC	52.211833	0.154815	Sports Club