Property Capstone

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Contents

Introduction

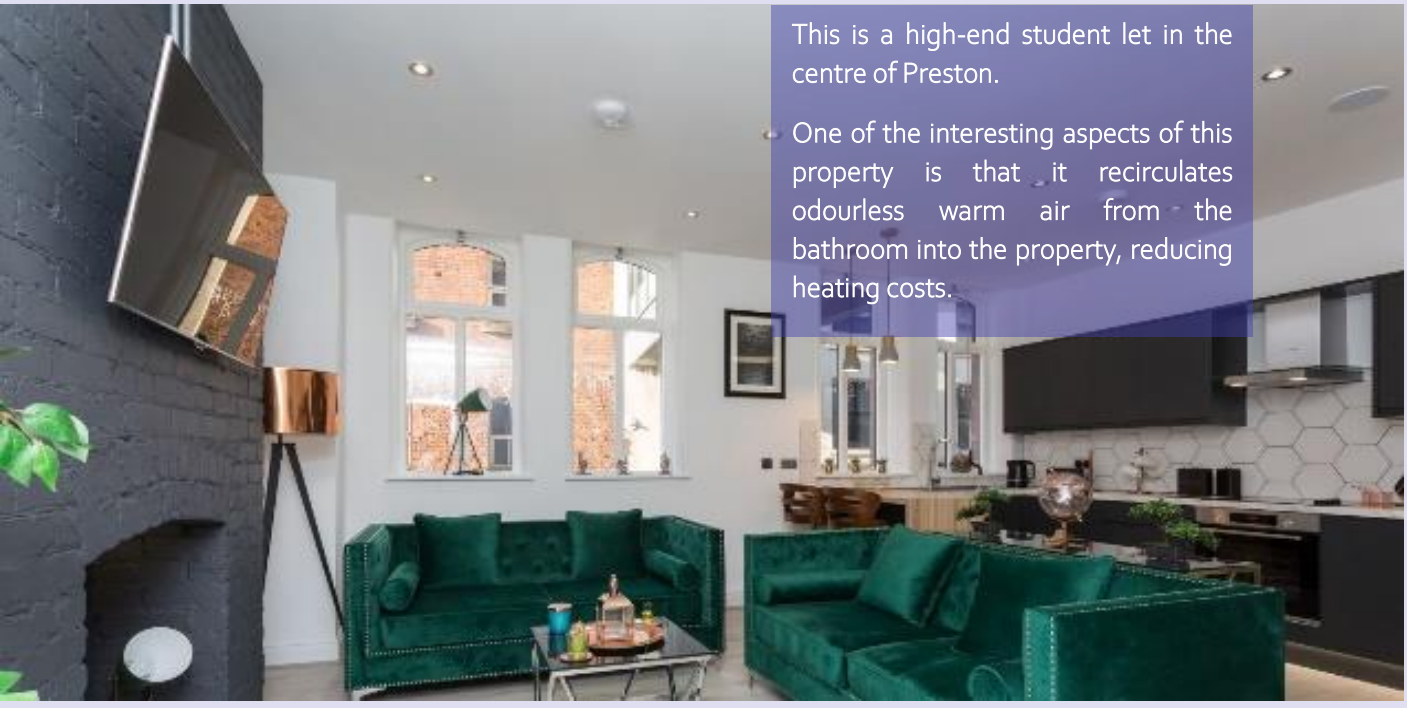
This research focuses on finding a suitable location for purchasing a property in Preston, UK. The property will be acquired by a fictitious independent property developer who is looking to purchase a property then convert it into a serviced accommodation rental. This is simply a short-term let (usually let for a couple of days and booked through the Airbnb.co.uk or Booking.com).

In the first section, the business context will be covered. This section is an undervalued part of data science. However, it sets the criteria by which the quality of the data analysis will be judged as data should aid decision-making. Careful consideration has been taken to ensure that this section covers the key factors that will guide the analysis.

The second section will focus on how serviced accommodation are delivered through online platforms (such as Airbnb and Booking.com) and directly. This type of accommodation offers short-term lets (typically days instead of months) to travellers. Properties are usually occupied by corporate travellers from Monday afternoon to Friday morning and by recreational travellers from Friday afternoon to Monday morning. Both types of travellers are referred to as guests, but the importance of the distinction between corporate and recreational travellers will be explained in this section. It will also establish why this market in Preston may be undervalued.

The third section will cover the data that will be used to assert where the best location to build a serviced accommodation would be based on K-Means clustering, which is an unsupervised form of machine learning.

The conclusion will summarise the findings and how the data analysis could have been improved.



This is a high-end student let in the centre of Preston.

One of the interesting aspects of this property is that it recirculates odourless warm air from the bathroom into the property, reducing heating costs.

Business Context

This research focuses on finding a suitable location for purchasing a property in Preston, UK. The fictitious client is an independent property developer who is looking to purchase a property then convert a property into a serviced accommodation rental.

Preston, Lancashire UK

Preston is a city in the northwest of the United Kingdom; it is roughly 50 minutes driving or 34.7 miles from Manchester. According to the Office for National Statistics, the independent research agency based in the UK, there were 313,332 people who lived in Preston in 2018. The city also possesses strong local sectors, such as nuclear/energy, advanced manufacturing and engineering. The manufacturing, waste and water management and construction industries account for 4,000, 400, and 4,500 jobs, respectively[1]. However, the industries with the greatest number of jobs are social care and retail with 17,000 and 16,000 jobs, respectively[2]. These figures should be considered in conjunction with the types of enterprises where people work. There were 4,750 micro-enterprises (less than nine employees per enterprise) registered in Preston, making this the most common type[3]. The importance of smaller enterprises is well-established, especially their contribution to job creation and local communities.

The University of Central Lancashire is located in Preston; the university has roughly 38,000 students and staff, making it one of the largest providers of graduate education in the UK[4]. This position has also been matched by the university rising 27 places in the Complete University Guide 2020, a respected reference pointed used by prospective university students[5]. Its also set to complete the final stage of the £200 million investment into its Preston Campus in 2021[6].

Serviced Accommodation

There are predominantly two types of guests/travellers who would use this short-term let. The first is corporate guests who would be occupy the property from Monday afternoon to Friday morning. The second are weekend guests who would occupy the property from Friday afternoon to Monday morning. Weekend guests visit Preston for occasions such as weddings and leisure trips. This is because Preston is one of the largest cities in the county of Lancashire, so visitors from the region have access to more facilities than in the local towns. The city is also home to Preston North End football club who play in the Championship, which is the second tier in England after the Premier League.

The market for short-term lets is dominated by property management firms who have built relationships with large firms or smaller firm who are utilising platforms such as Airbnb and Booking.com. There have also been notable property developments in the city, including the conversion of the old Royal Mail Sorting Office into luxury apartments.

The shift from hotels to serviced accommodation has been material. For example, occupancy stood at 61.8% Q1 2020 for serviced accommodation in London[7]. In comparison, the average occupancy rate for hotels in London was 59.4%, a 23.0% decline from the same period a year earlier. In addition, prior to COVID-19, hotels' revenue per available room had been lower than serviced accommodation. The material impact in the short to medium term will be that guests (both corporate and leisure) will be seeking self-contained accommodation or smaller hotels, according to analysis by the Financial Times[8].

Data

Course Data

Using the FourSquare API and K-Means clustering, this analysis will show the similarities between five different clusters in Preston.

The longitudinal and latitudinal data is from doogal.co.uk; there are 5,945 postcodes in the CSV file but only 3,425 are active postcodes[9]. However, the data has to be sampled due to the limitations placed on the free version of the Four Square API. Also, given that the fictitious independent property developer focuses on properties in PR0, PR1 and PR2 postcodes, the data frame has been limited to these postcodes.

The postcodes will be grouped by the FourSquare API. Following this, the data will be interpreted, highlighting the key differences between the areas. Therefore, knowing what is nearby will allow them to make an informed decisions about where to locate their property.

The algorithm will cluster the postcodes based on the categories to which the ten most common venues belong. For example, one of the categories is restaurant. However, the API may not specify the type of restaurant that is located close to the postcode.

Additional Data

Research from other sources will also be used to support the analysis. For example, the average price of properties will be used in conjunction with k-means clustering. The main source of this data is the HM Land Registry Open Data[10]. This the UK government website that publishes data on the prices paid for properties, transactions and the changes in the value of residential properties.

The additional data will aim to bring together more of the skills from the other courses in the IBM Data Science Professional Certificate. The aim is also to visualise this data using Python packages such as Matplotlib.

[1] https://www.nomisweb.co.uk/reports/localarea?compare=E07000123
[2] https://www.nomisweb.co.uk/reports/localarea?compare=E07000123
[3] https://www.nomisweb.co.uk/reports/localarea?compare=E07000123
[4] https://www.nomisweb.co.uk/reports/localarea?compare=E07000123
[5] https://www.uclan.ac.uk/news/uclan-is-uks-biggest-riser-in-new-league-table
[6] https://www.uclan.ac.uk/news/uclan-is-uks-biggest-riser-in-new-league-table
[7] https://www.savills.co.uk/research_articles/229130/301061-0
[8] https://www.ft.com/content/5c1e5b4c-d33d-45dc-a6ae-8f2d1c6baa84
[9]https://www.doogal.co.uk/AdministrativeAreas.php?district=E07000123
[10] https://landregistry.data.gov.uk/