

# Identification of Ideal Locations for Student Accommodation

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# Outline

- 1 Business Problem
- 2 Data Wrangling
- 3 Exploratory Data Analysis
- 4 Results
- 5 Conclusions and future directions

# Identify best areas around Nottingham Trent University for student accommodation

- Nottingham is ranked as the 6th best city in the UK for students and 48th in the world, according to the QS Best Student Cities 2019.
- University halls are limited in number, expensive and have access restrictions.
- Business opportunity:
  - Accommodation services to the university students ensuring maximum safety, accessibility to amenities and minimising distance to the University

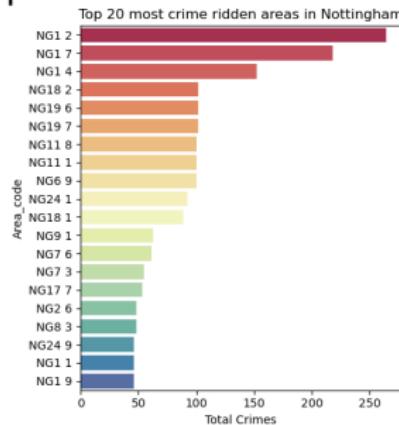
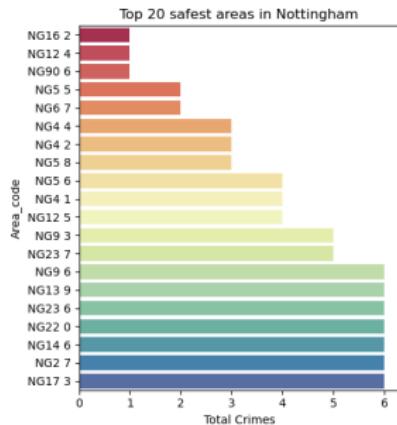
*Identify ideal locations around Nottingham Trent University (NTU) such that the locations have access to wide range of amenities, are safe and are at close proximity to the university (within 5 km).*

# Data Wrangling

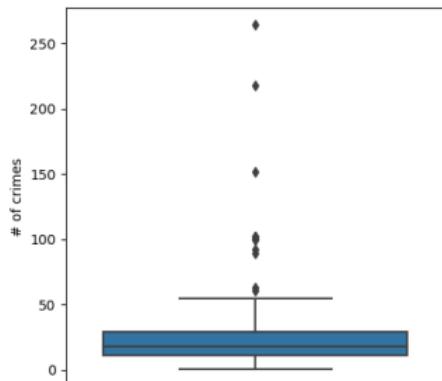
- Datasets
  - Nottingham Postcode data (49 features, 37,461 entries)
  - Nottingham Crime data (12 features, 12,592 entries)
  - NTU info - postcode
- Engineered features
  - Area code from postcode(eg. NG1 4)
  - Aggregating total crimes
  - Crime scores
- Cleaned and merged data (13 features, 59 entries - 59 area codes)

# Reported crimes in Nottingham

Top 20 best and the worst areas based on crimes reported

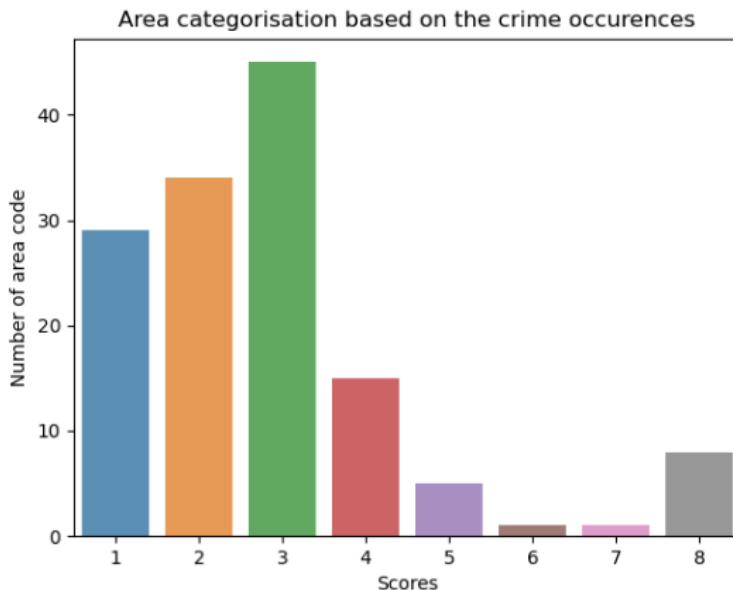


Distribution of crimes reported in Nottingham areas



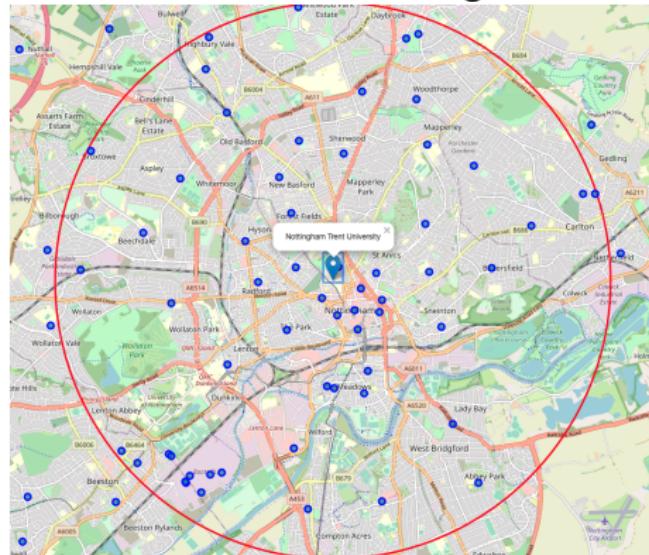
# Area categorisation based on the engineered ‘Crime score’

- Engineered crime scores

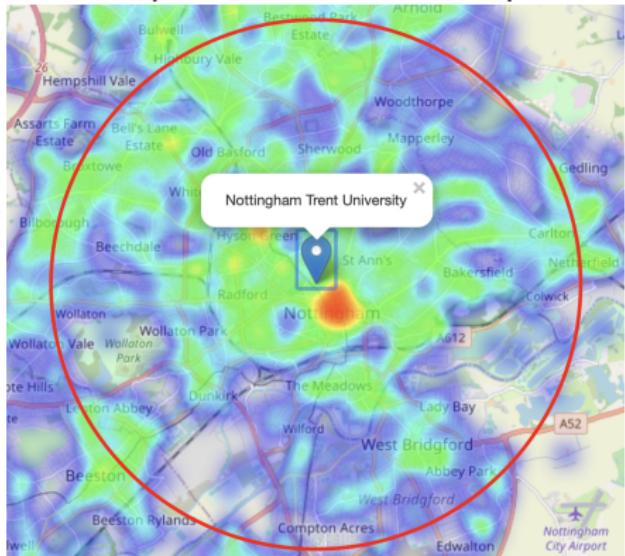


# Geospatial visualisation

Area codes in Nottingham

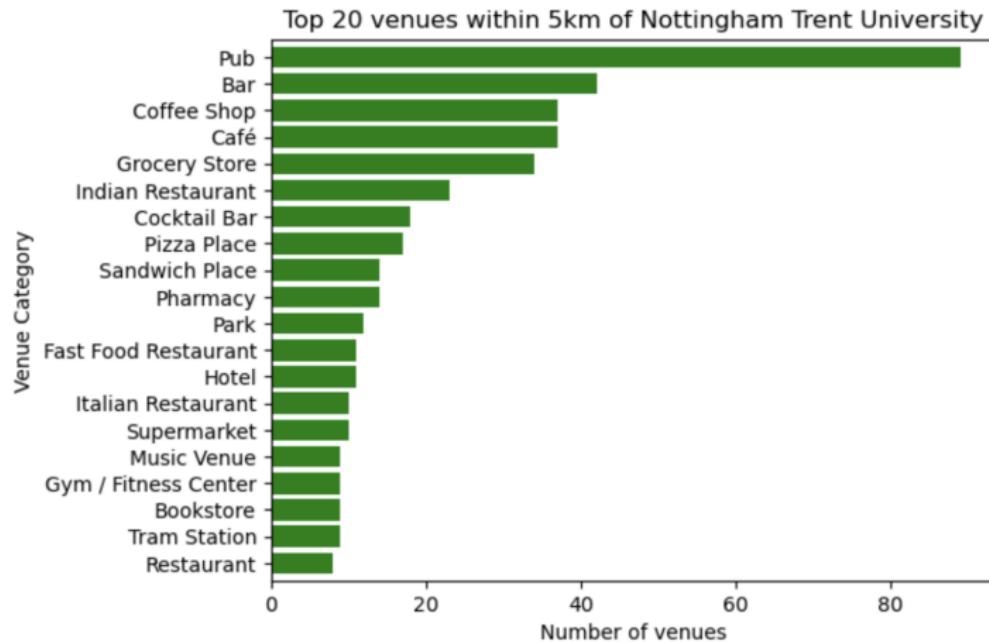


Heatmap based on crimes reported



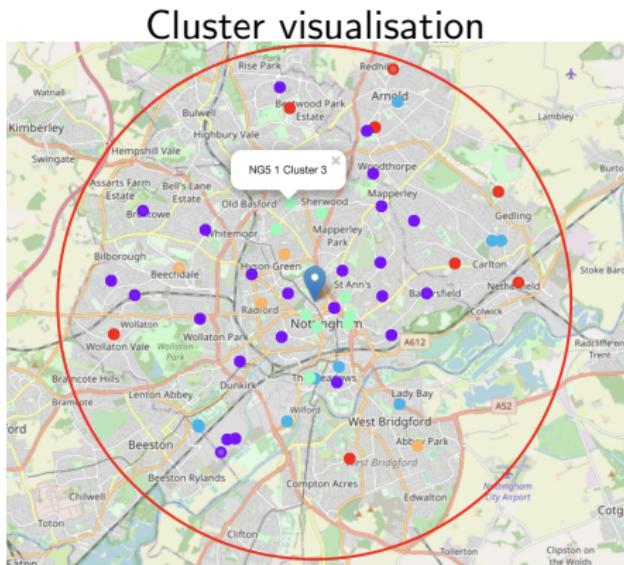
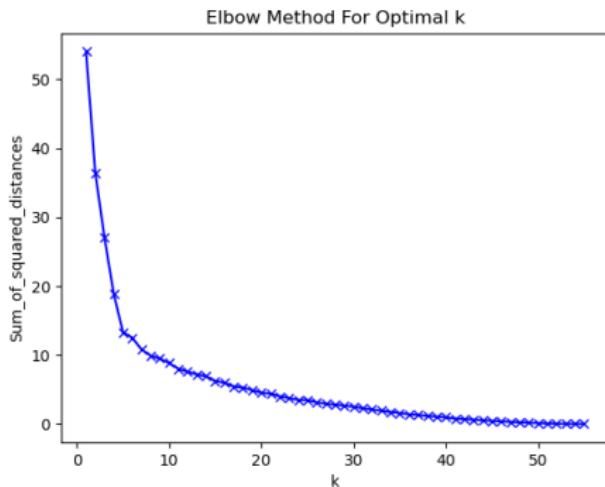
# Top 20 venues within 5 km of NTU

- Venues indicate a wide array of amenities available around NTU which is desirable.



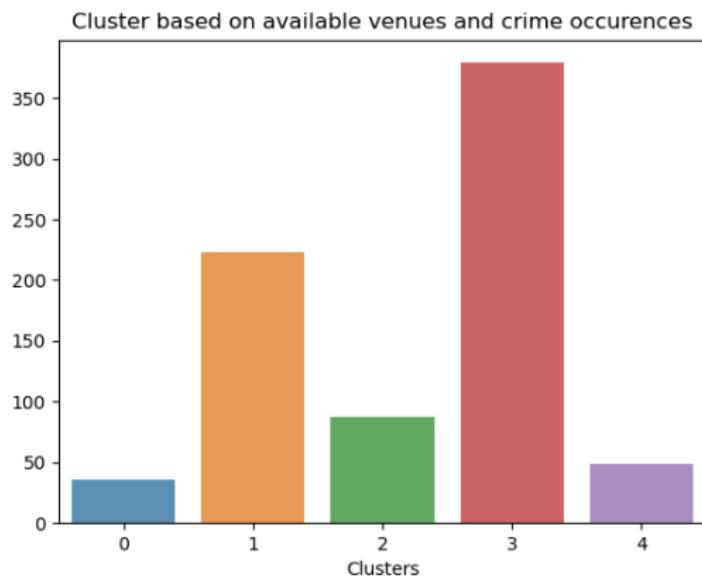
# Cluster analysis

Elbow method indicates best number of clusters to be 5



# Comparing identified clusters based on available amenities around

- Clusters 1 and 3 offer best facilities of amenities and safety.



# Best areas that provide maximum connectivity and safety

Area codes in the best two clusters	
Cluster 1	Cluster 3
<code>[ 'NG1 3' 'NG7 2' 'NG7 4' 'NG7 5' 'NG7 1' 'NG3 6' 'NG3 4' 'NG3 3' 'NG3 7' 'NG3 2' 'NG3 5' 'NG2 2' 'NG2 4' 'NG8 1' 'NG8 6' 'NG8 4' 'NG8 9' 'NG8 5' 'NG90 5' 'NG90 4' 'NG90 7' 'NG5 0' 'NG5 9' 'NG5 4']</code>	<code>[ 'NG1 1' 'NG1 9' 'NG1 5' 'NG1 6' 'NG7 7' 'NG3 1' 'NG2 1' 'NG5 2' 'NG5 1']</code>

Table: Clusters and area codes within each cluster

# Conclusions and future directions

- Explored Nottingham location around Nottingham Trent University and provided best areas to establish business for student accommodation.
- Identified two clusters of regions that offers best connectivity to amenities and safety.
- Future improvements:
  - Further categorise types of crimes.
  - Add transportation facilities data.
  - Add real state values around the area data.