

EDA project

neue fische - data science bootcamp

Max Langer

The stakeholder

- *Amy Williams* is an italian mafiosi
- works in King County (Washington, USA)
- sells central houses
 - is interested only the top 10% of the houses
- needs average houses in the outskirts
 - to hide from the FBI from time to time



zdf.de

The data set

- information on houses in King County (Washington, USA)
- includes houses with sales dates from 2014 and 2015
- contains information such as
 - location
 - prices
 - number of rooms
 - square footages
 - grade and condition rating of King County



govtech.com

Quality of the data

- the data quality was ok for most of the information
- missing entries could be filled in by understanding the data
- such information were
 - viewings by buyers
 - whether the house has a view on the water
 - the year of the last renovation
- a few outliers could also be found



iqint.org

The challenge

- What is a central, what an outskirts house?
- What makes up the top 10% of houses?
- What makes an average outskirts house?



istockphoto.com

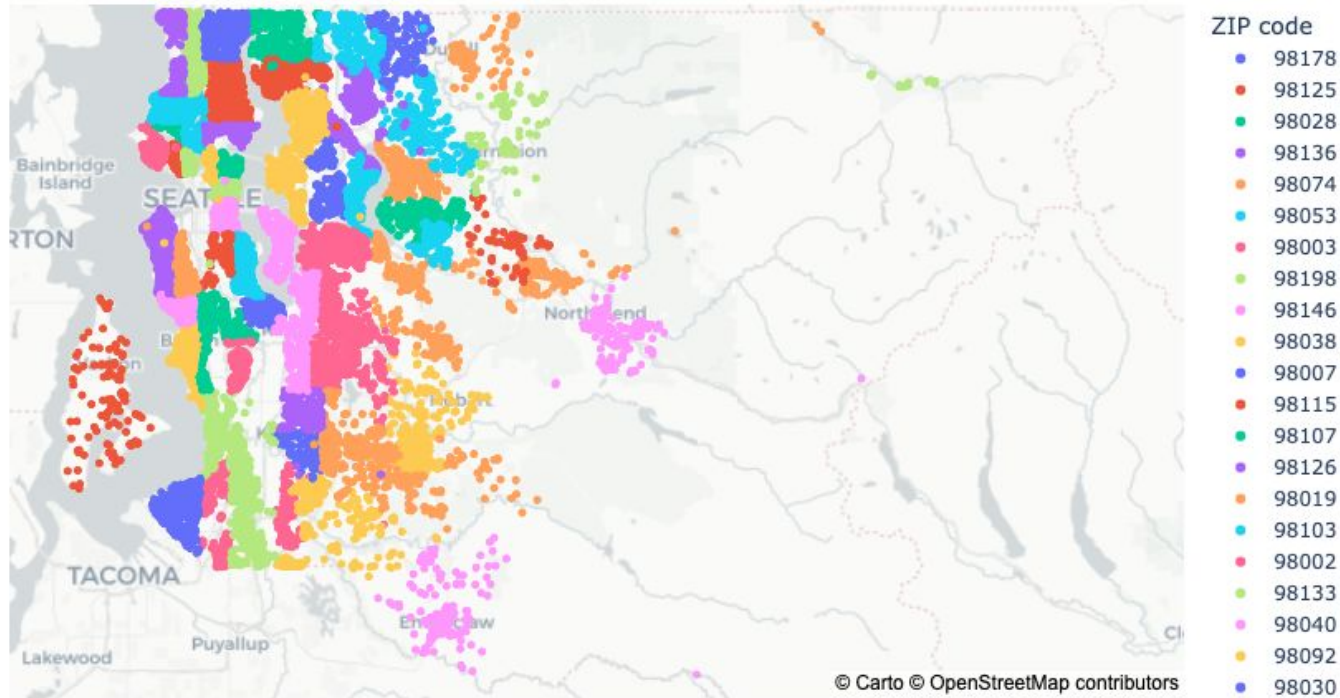
What is a central, what an outskirt house?

- Does the ZIP code define an outskirt or central house?
 - **Hypothesis:** Outskirt and central houses can be distinguished by their ZIP code

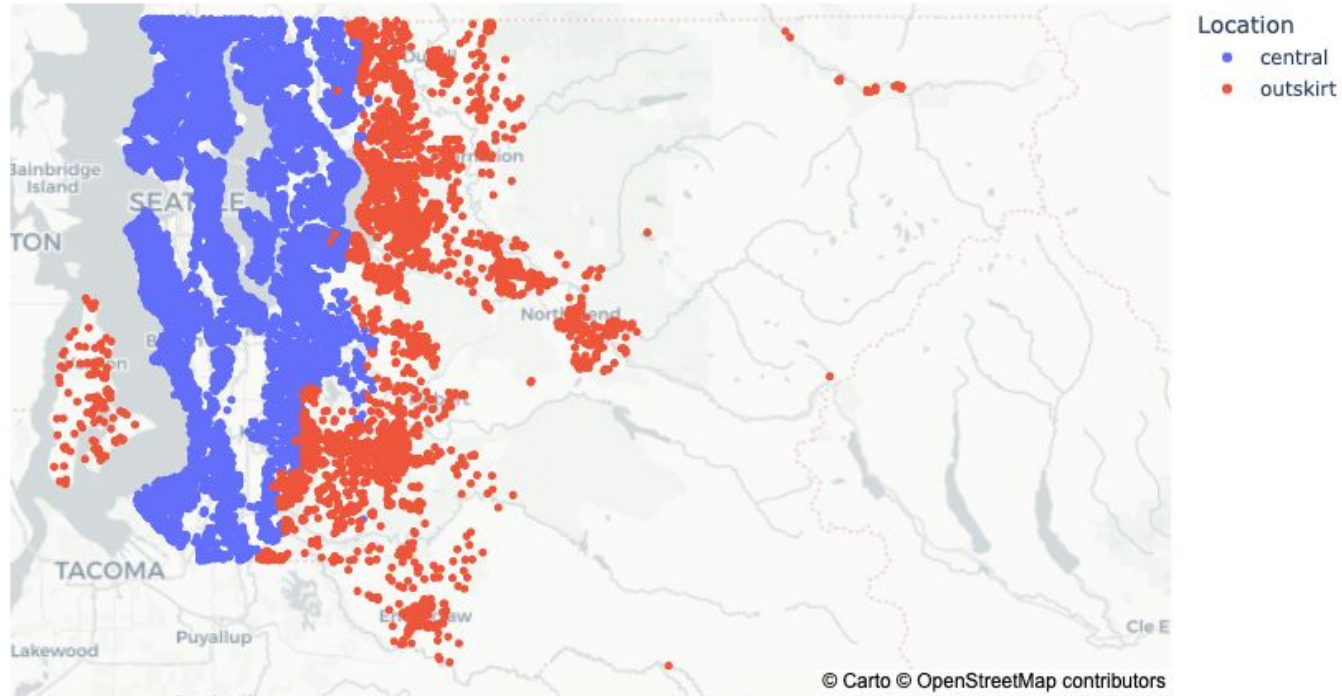


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Does the zip code define a central or outskirts house?



Central and outskirt houses



What is a central, what an outskirt house?

- Does the ZIP code define an outskirt or central house?
 - **Answer:** Yes, they can be distinguished by ZIP code



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What is a central, what an outskirt house?

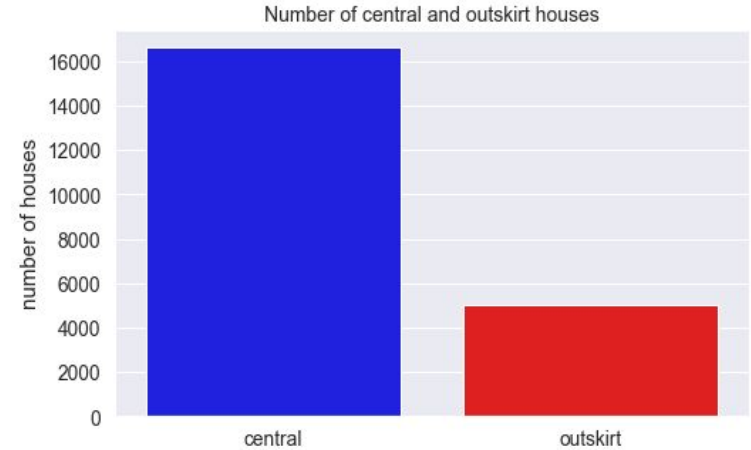
- Is the number of houses in the central area higher than in the outskirt area?
 - **Hypothesis:** There are more houses in the central area



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What is a central, what an outskirt house?

- Is the number of houses in the central area higher than in the outskirt area?
 - **Answer:** Yes, there are more houses in the central area



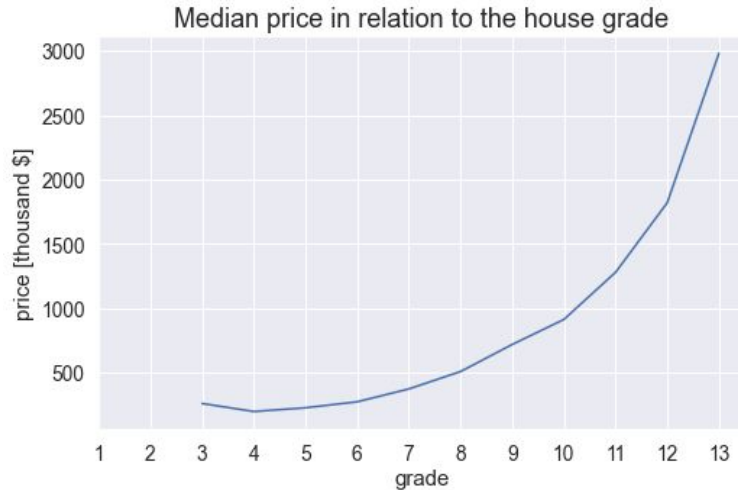
What makes up the top 10% of houses?

- Do the grading, condition rating and living space impact the prices?
 - **Hypothesis:** A better grade, condition rating and larger living space increase the price

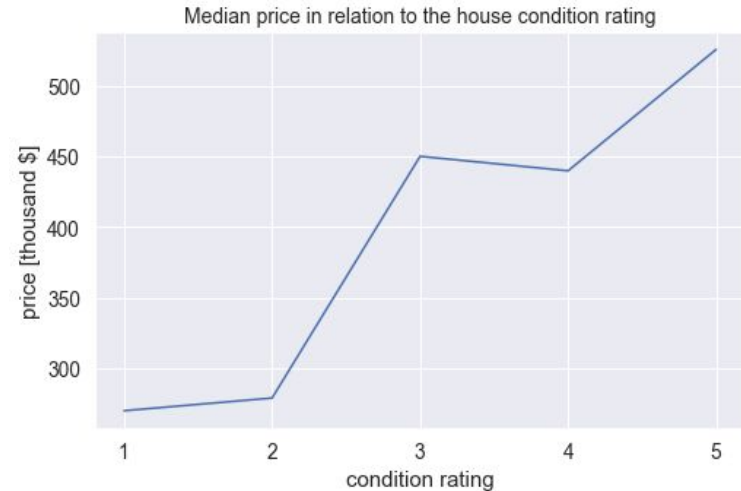


luxuryhomemagazine.com

Impact of grade and condition on the price



correlation coefficient between price and grade: 0.66



correlation coefficient between price and condition rating: 0.018

Impact of living space on the price



correlation coefficient between price and living space is:

- 0.717 for central houses
- 0.782 for outskirt houses

What makes up the top 10% of homes?

- Do the grading, condition rating and living space impact the prices?
 - **Answer:**
 - Yes, a higher grade and larger living space correlate with the price of a house
 - No, condition is only a minor factor



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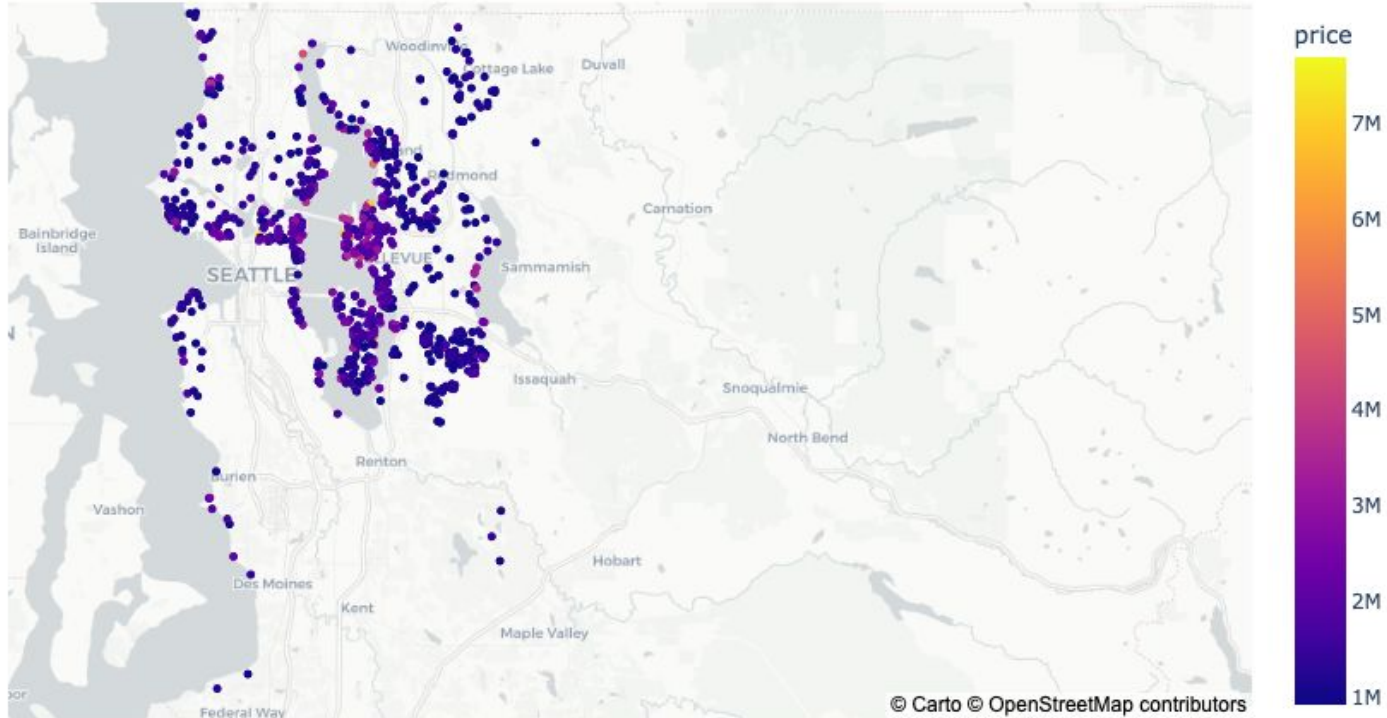
What makes up the top 10% of houses?

- Three recommendations to find central houses that are in the top 10%
 - house prices higher than 920000\$
 - grades of 9 or higher
 - a minimum of 3140 sqft living space



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These are the top 10% of homes



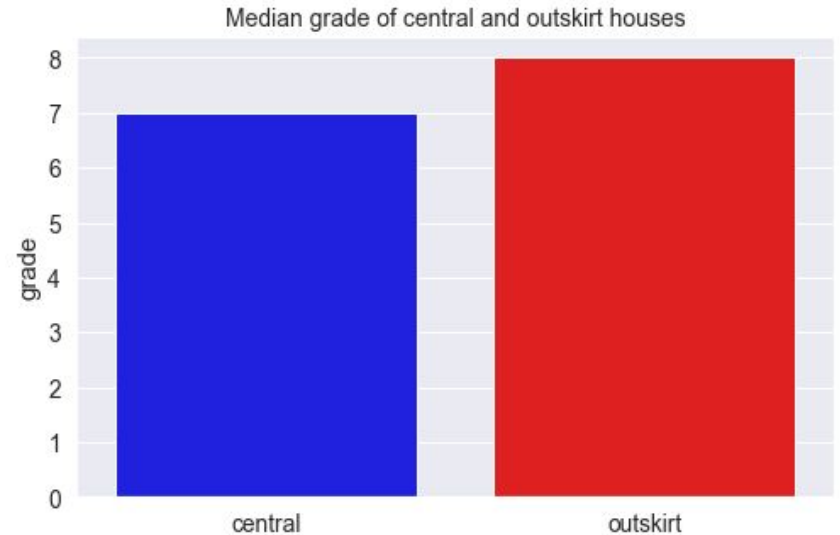
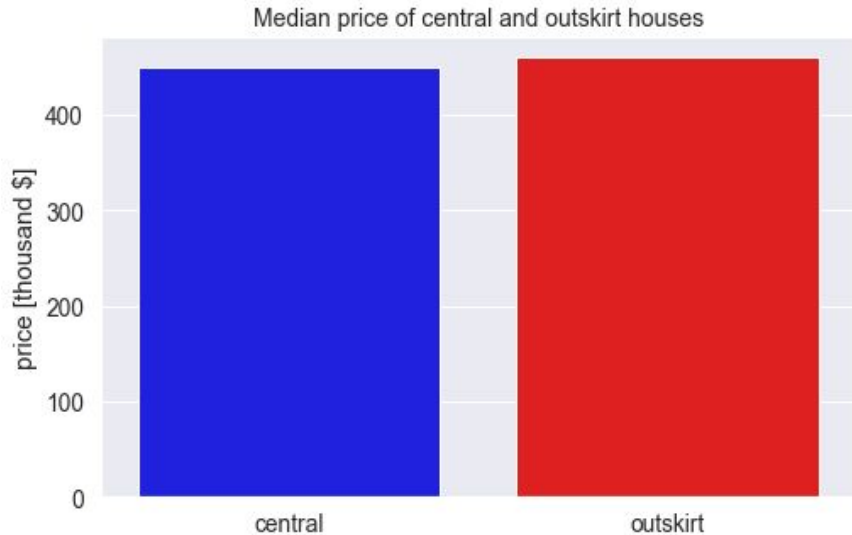
What makes an average outskirts house?

- Does the average price differ between outskirts and city houses?
 - **Hypothesis:** Houses in central areas are in average pricier
- Is the average grade lower in the outskirts?
 - **Hypothesis:** Houses in the outskirts areas have overall lower grades
- Do outskirts houses have more lot than central houses?
 - **Hypothesis:** Houses in the outskirts areas have more lot



minimalblogs.com

Price and grade between central and outskirt



What makes an average outskirts house?

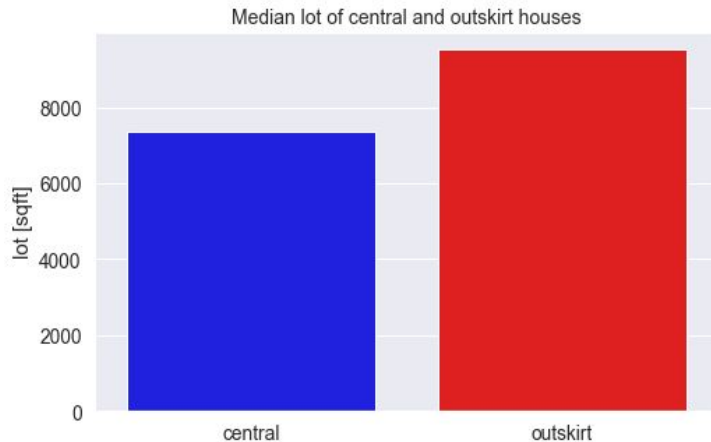
- Does the average price differ between outskirts and central houses?
 - **Answer:** No, house in outskirts and central areas are in the same price range
- Is the average grade lower in the outskirts?
 - **Answer:** No, outskirts houses are in general one grade higher



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What makes an average outskirts house?

- Do outskirts houses have more lot than central houses?
 - **Answer:** Yes, houses in the outskirts have more lot



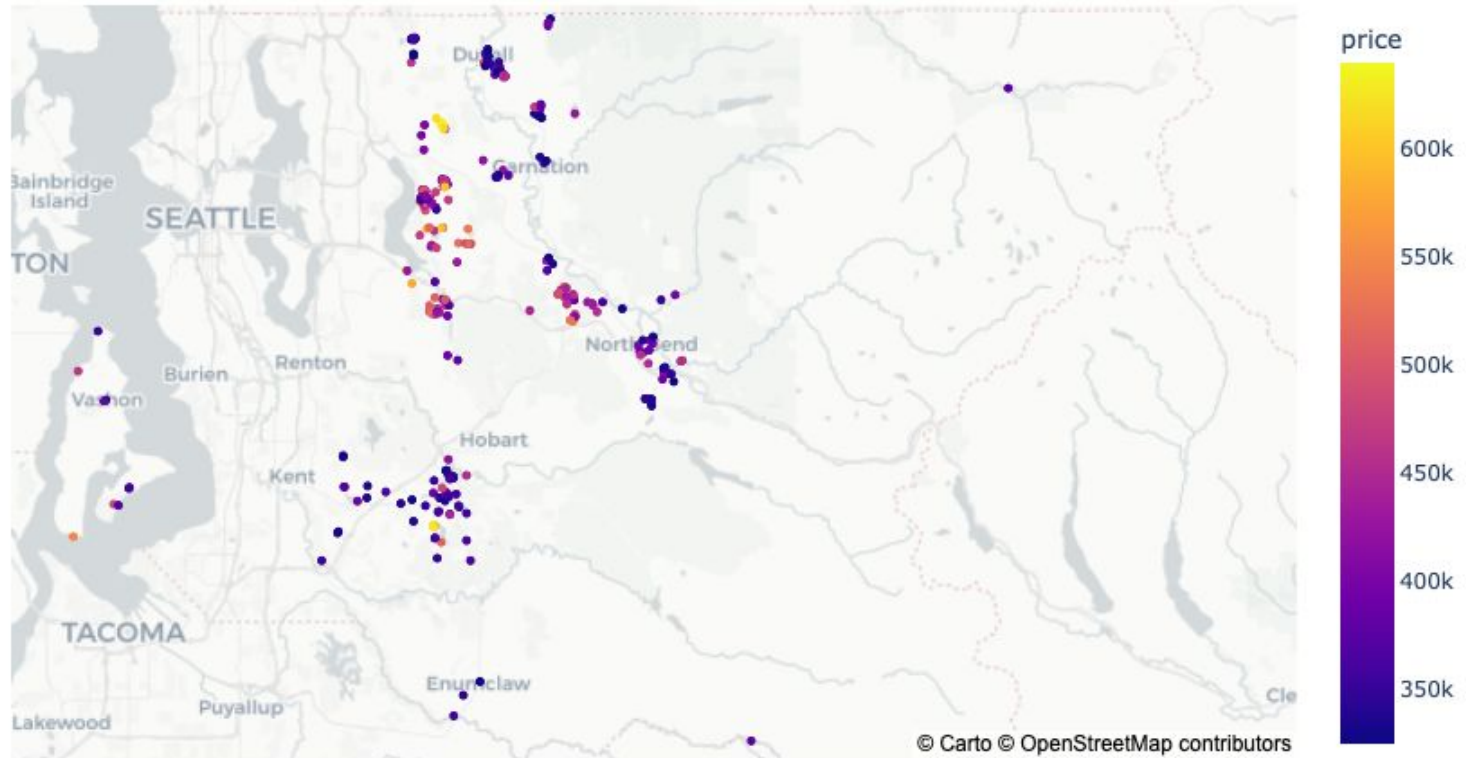
What makes an average outskirts house?

- Three recommendations to find an average outskirts house?
 - house prices of around 460000\$
 - grades of 8
 - lot of around 9500 sqft



minimalblogs.com

The average outskirts houses



Outlook

- could help Amy to find objects to buy/sell and also to hide in
- a different approach could be used for
 - distinguishing between outskirts and central
 - based on the latitudinal and longitudinal data
- the view of water has not been considered as a factor yet
 - but seems to play a role for the top 10% houses



[tripadvisor.com](https://www.tripadvisor.com)