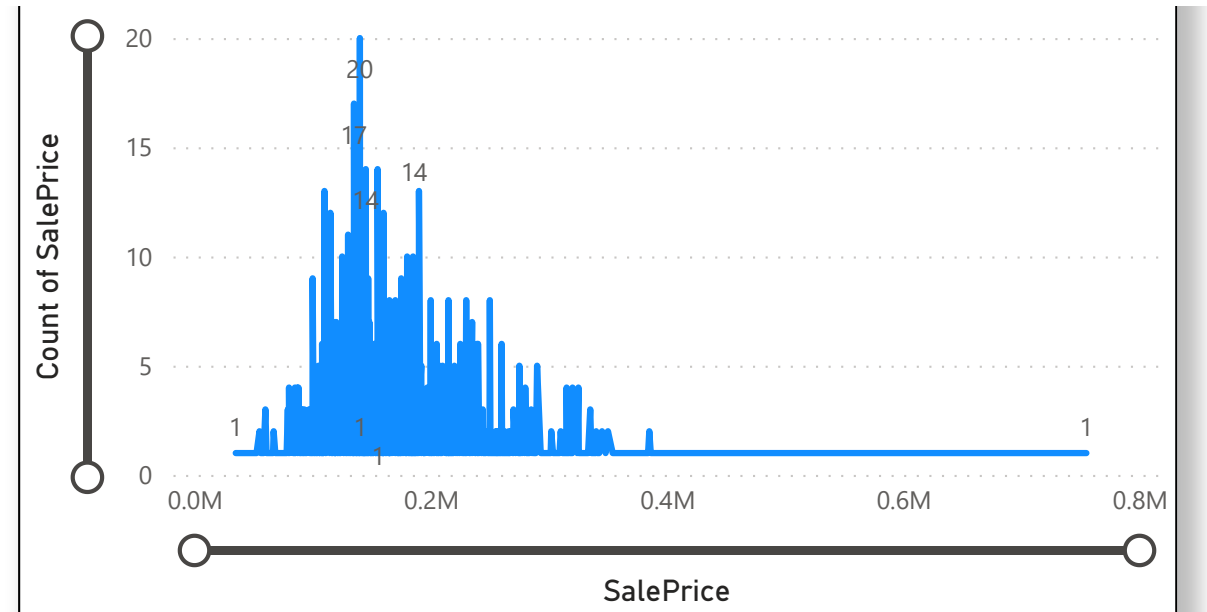


The Unknown Stories Behind Boston House Prices

A Glance into the data:

This dataset contains information collected by the U.S Census Service concerning housing in the area of Boston Mass. It was obtained from the StatLib archive (<http://lib.stat.cmu.edu/datasets/boston>), and has been used extensively throughout the literature to benchmark algorithms like linear regression. The target variable in the data is SalePrice. The Exploratory Data Analysis helps to get the real meaning of The Boston House Price.



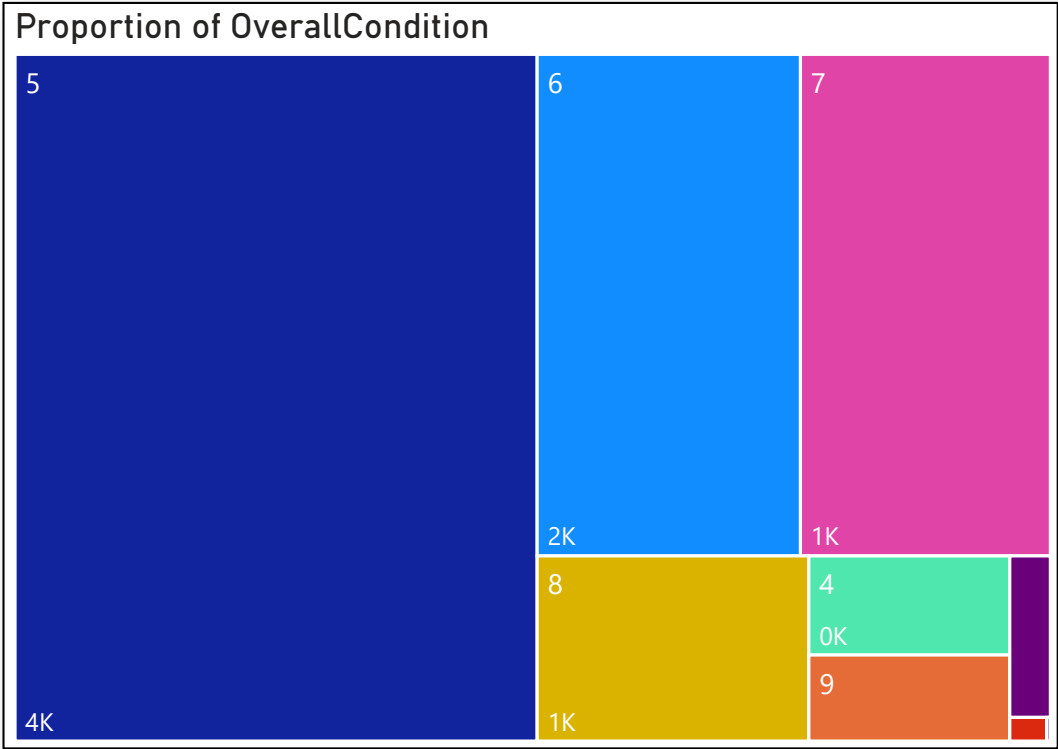
Distribution of the target Variable:

The distribution of the target variable SalePrice is positively /right skewed. That means most of the houses are sold at a lower price than the mean price. This gives a picture about the financial status of American Society. There more number of less rich people than the number of more rich people. Only less number of people like to invest on big budget houses.

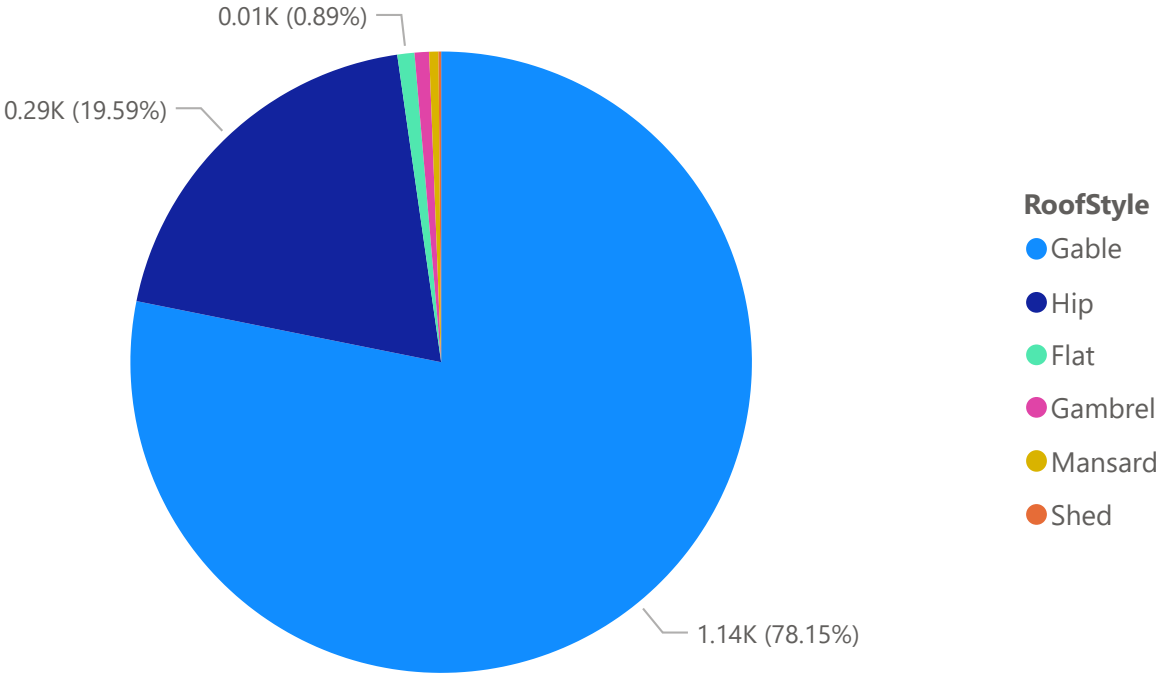
Understanding Proportions:

Proportion of Overall Condition:

The major share of the area in the treemap belongs to average overall condition. This means that most of the houses for sale are of average rating. Then 6(above average) and 7 (good) takes up equal shares approximately. We observe that there are only a few number of houses which are poorly built and maintained. This shows how rich and developed the American community is.



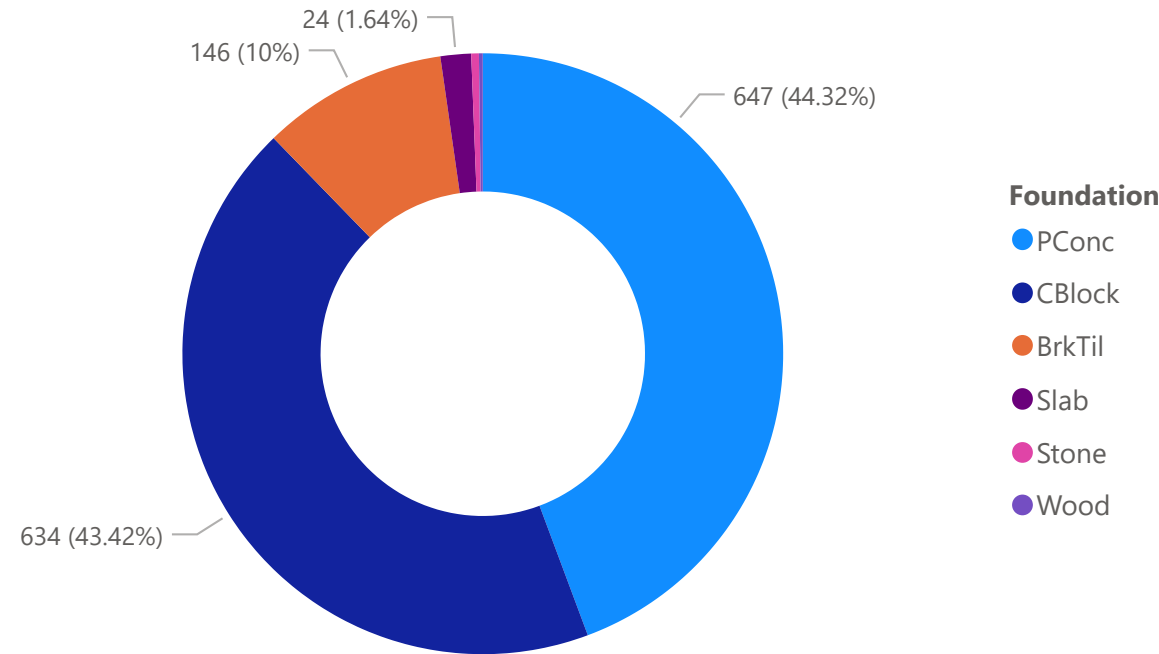
Proportion of Roof styles



Proportion of Roof styles:

Most common roofstyle seen in the data is Gable (78.15%).With its low cost, simple design and exceptional water drainage qualities, a gable roof is one of the most popular types of roofing in theAmerican terrain.The gable roof allows for exceptional water drainage, as the way the pitch is angled means rain and snow can slide off the roof easily. The pitched shape of gable roofs means that they offer the most space for an attic or vaulted ceilings. Not only that, the additional space also helps to improve ventilation within the property.

Proportion of type of Foundation



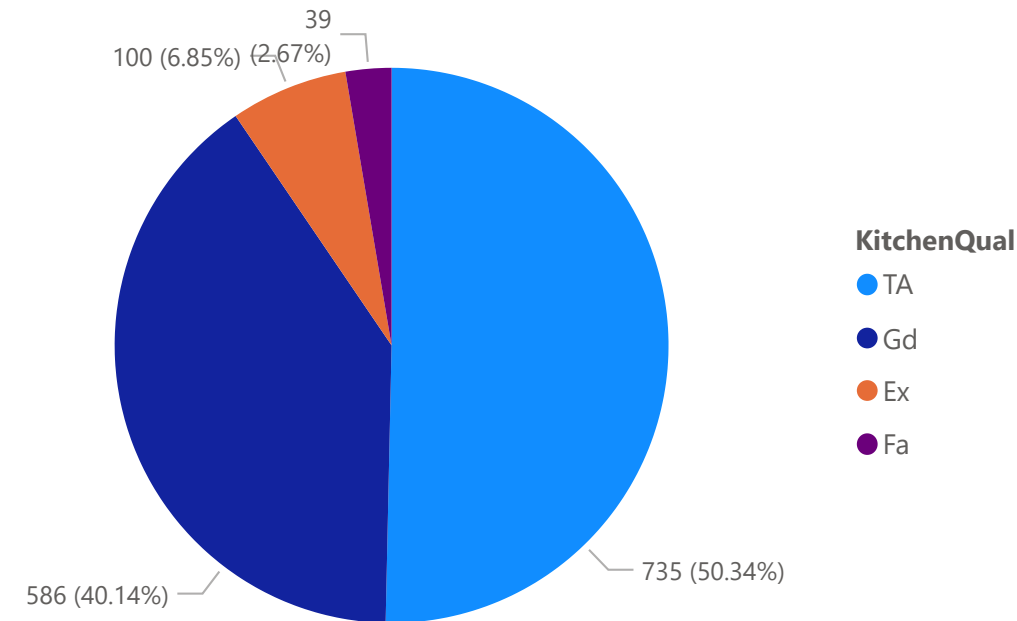
Grades of Kitchen Quality:

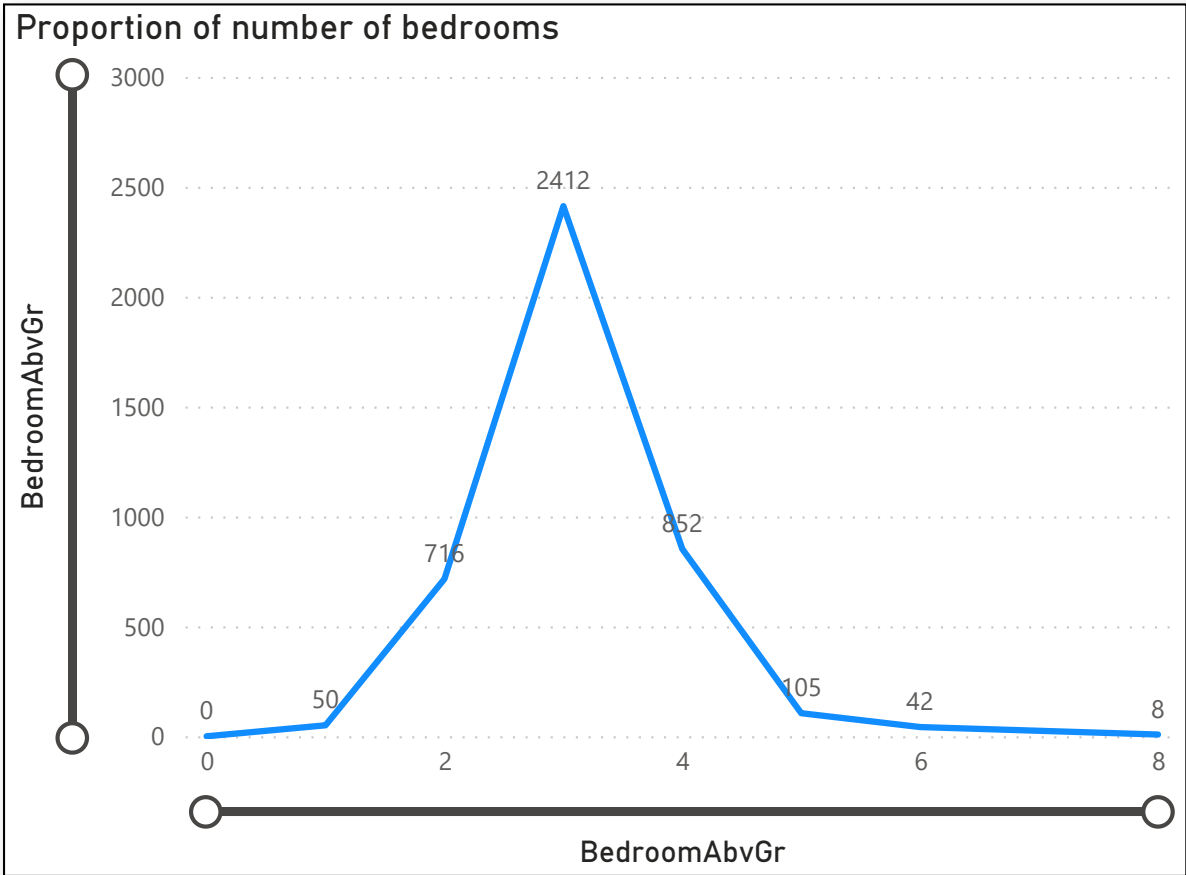
The lion's share in the plot is taken up by the typical/average quality kitchens and then comes good quality kitchen. As we saw, the majority of houses for sale is of average condition, very similar is the case of kitchens. However, the plot is biased towards high quality, expensive kitchens. This portrays the American ideology that the kitchen is the most important room in the house and for that reason a good deal of attention is be spend on its design and architecture.

Propotion of type of Foundation:

The most preffered foundation material is Poured Contrete and the next is Cinder Block. These materials are the best suitable for the American climate and lifestyle. Generally, concrete foundations are the cheapest option and they require the least amount of maintenance, adding to their pricing value. Cinder block foundations can hold more weight . For this reason, cinder block wall foundation is often the choice of engineers and architects. But stone and wood foundations are the least used because they are way expensive and more prone to damages and corrosion.

Grades of KitchenQuality



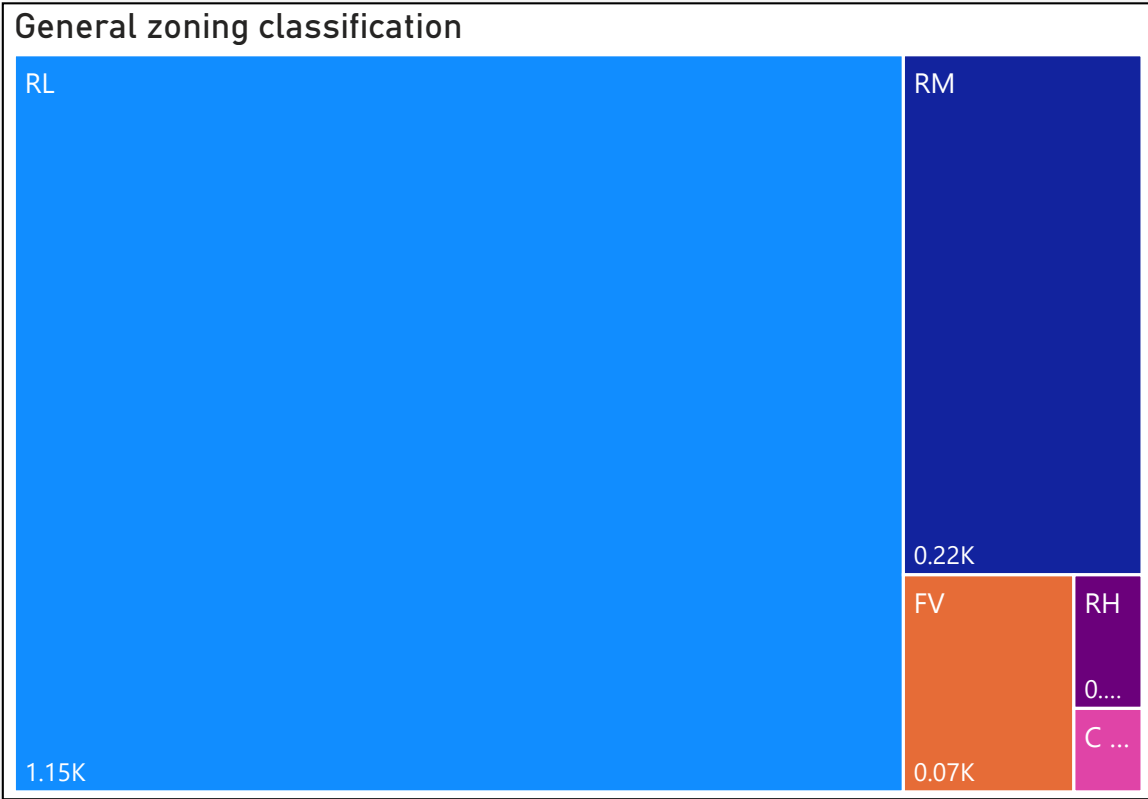


Proportion of number of bedrooms:

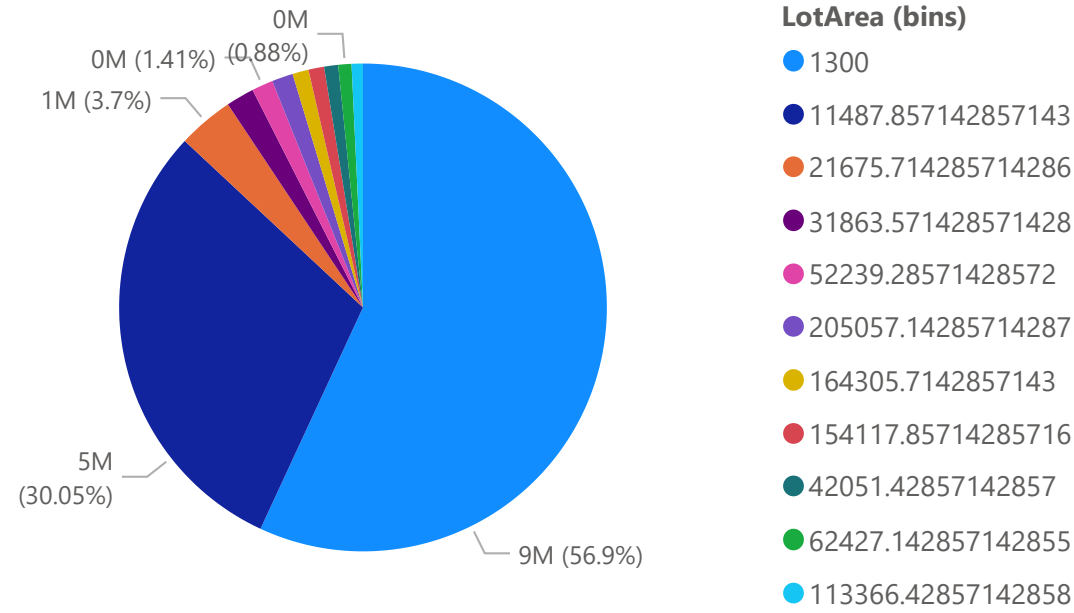
This plot is normally distributed with average number of bedrooms equal to three. The life style of Americans indicate that they are very fond of nuclear families. So, for a family, three rooms are more recommended. If you can afford it, a four-bedroom house is optimal. We say three is better than two because you need to prepare for both girls and boys. This is the reason behind the higher count of three and four bedrooms when compared to two.

General Zoning Classification:

Majority of the American public prefers low density residential areas. Given that the metropolitan cities are getting denser, homebuyers are shifting to low-density homes for a serene and peaceful living environment with more space. They can enjoy privacy while living in a close-knit community of like-minded people. A low population density means a greater share of amenities and open spaces per resident. Even the shared areas like elevators and lift lobbies feel much less 'public'. With a few residences, even the roads remain free from congestion.



Distribution of Lot Area

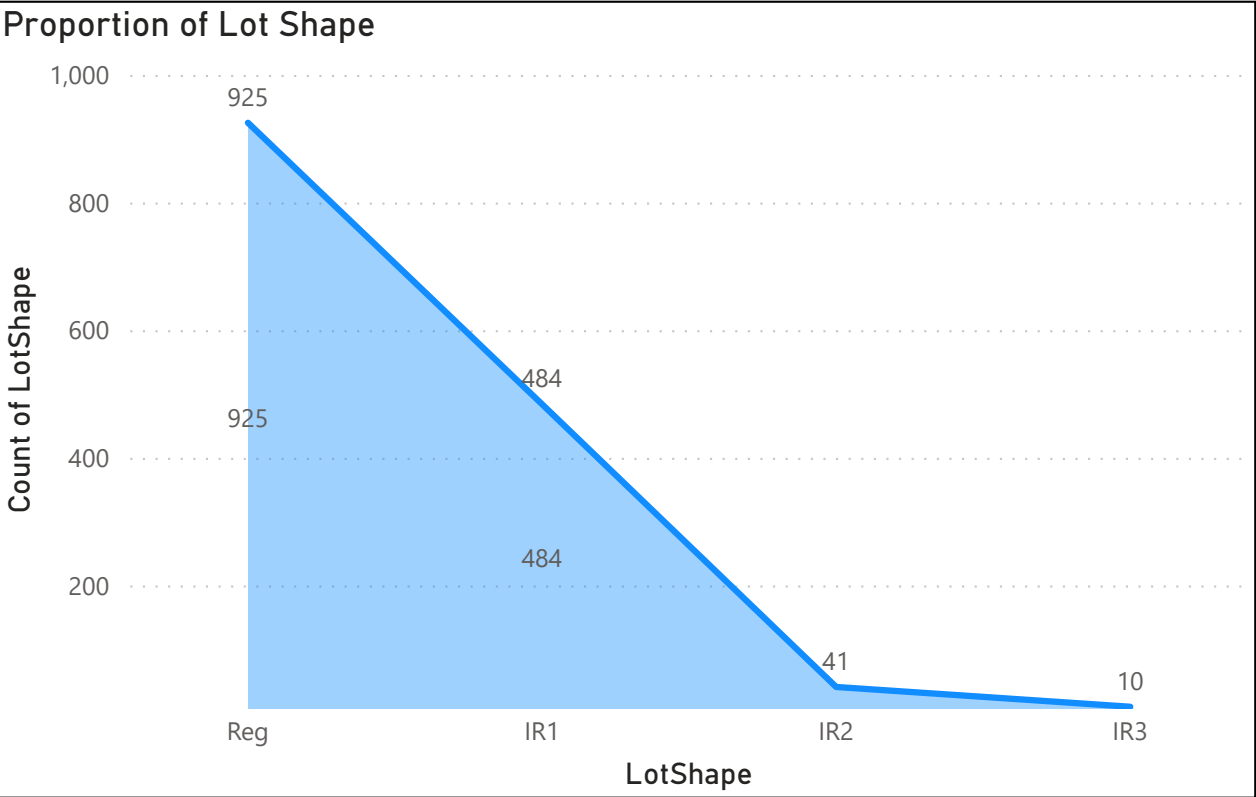


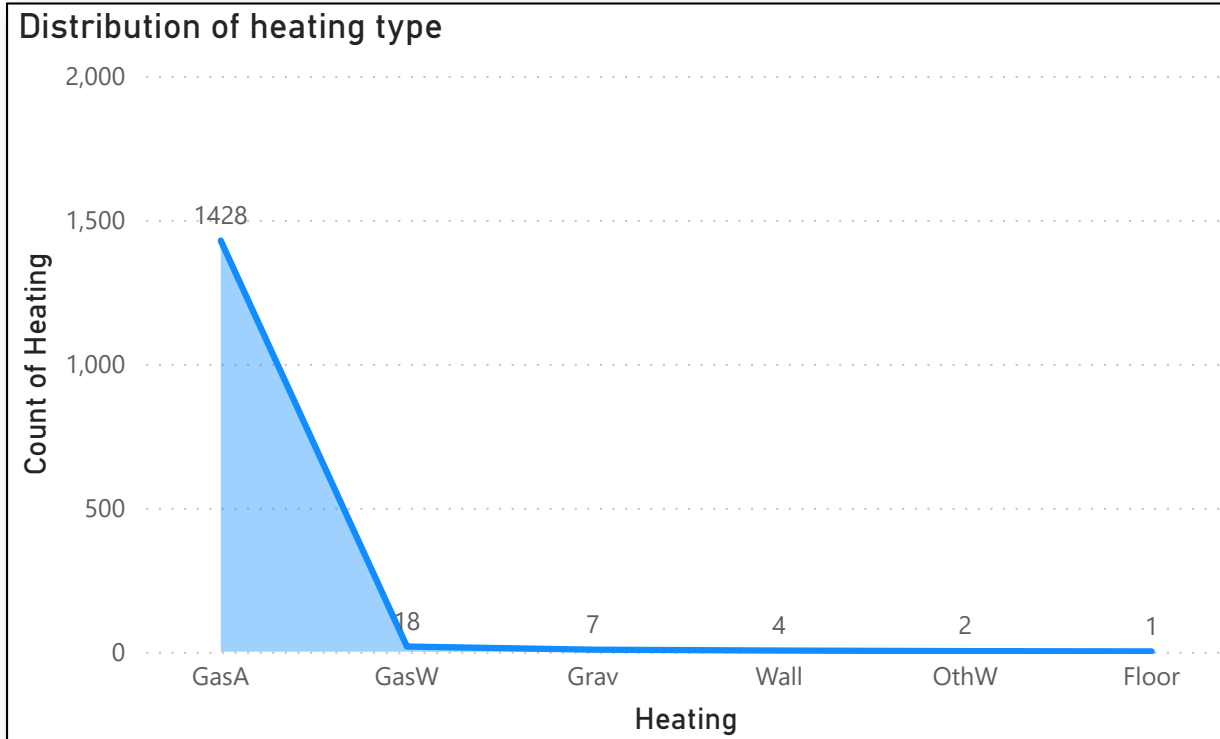
Proportion of Lot Shape:

For constructing a house ,regular lot shape is always preffered. Regular shaped plots are very convinient to construct a house. Such houses are easy to construct ,maintain and maximum utilisation of space is possible. But if the plot is a long rectangular shaped or irregular, the house built on that needs to be lengthwise large and breadthwise small and the option for customising such houses or plots are very less.This is the reason behind the highest count for regular shaped plots and then slightly irregular plots. The count is very low for moderately irregular and highly irregular plots.

Distribution of Lot Area:

Almost 57% of the houses for sale have very less lot area and this shows the trend towards narrow lot homes.Narrow or small lot homes offer value to buyers and this makes them an attractive option. The reason being that purchasing less space will usually cost you less money. Smart investors can take advantage of these opportunities by opting for a double storey build that specifically fits their block of land. With clever building methods and structural designs, truly impressive things can be achieved on a narrow or small lot.





Distribution of month of sale:

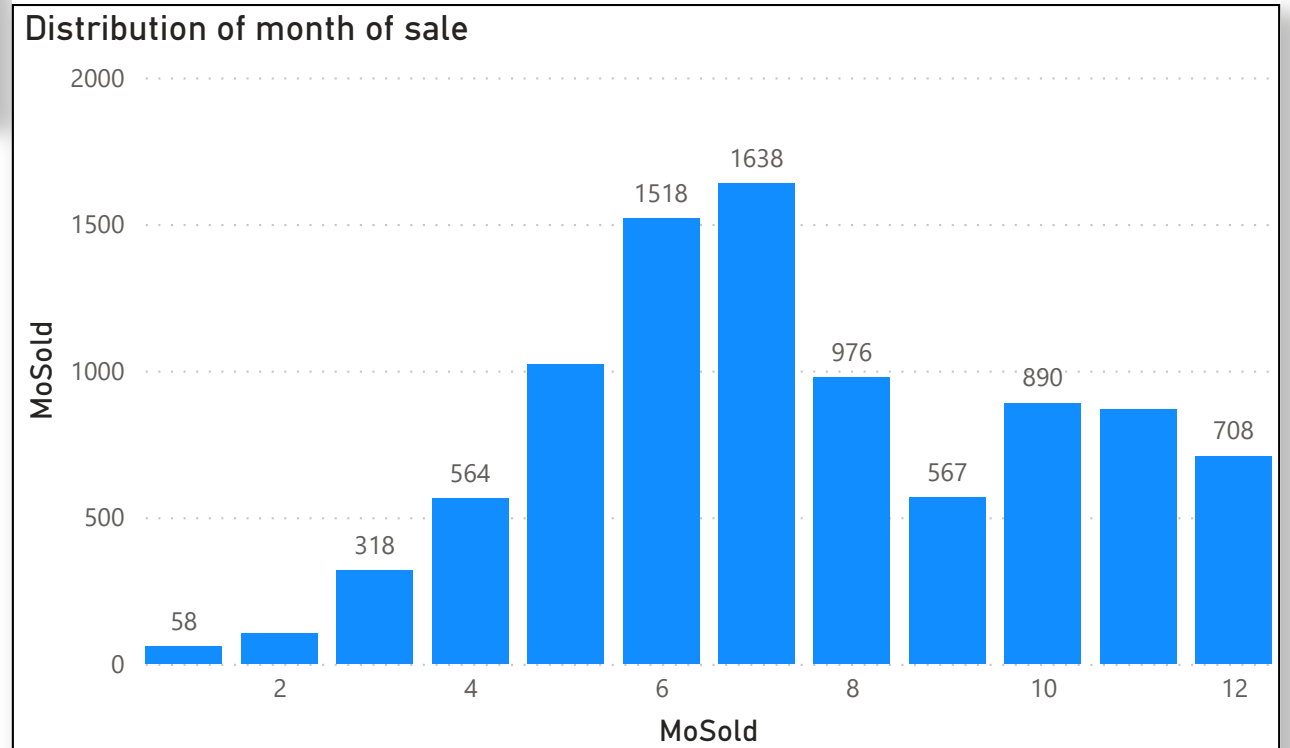
Most of the sales have happened during June and July .Buyers and sellers with children typically do not want to uproot their family in the middle of the school year and will wait until its end so they have more free time for moving and the chance for a fresh start once the next school year begins. Studies have shown the busiest moving times of the year occur during the summer, with June being one of the busiest months and July 31 the single busiest day, meaning people are likely shopping the housing market at the end of the school year and as the summer draws to a close.

Distribution of heating type:

Almost all of the houses for sale makes use of Gas forced warm air furnace for heating purposes.

Forced air is a comprehensive, affordable option that's both sensible and effective. The heating is quick and makes sense for a lot of homeowners. Other systems, like radiant heaters, are more expensive than forced air heating. For the efficiency of the heating that you're getting, forced air heating is highly effective while maintaining a reasonable price.

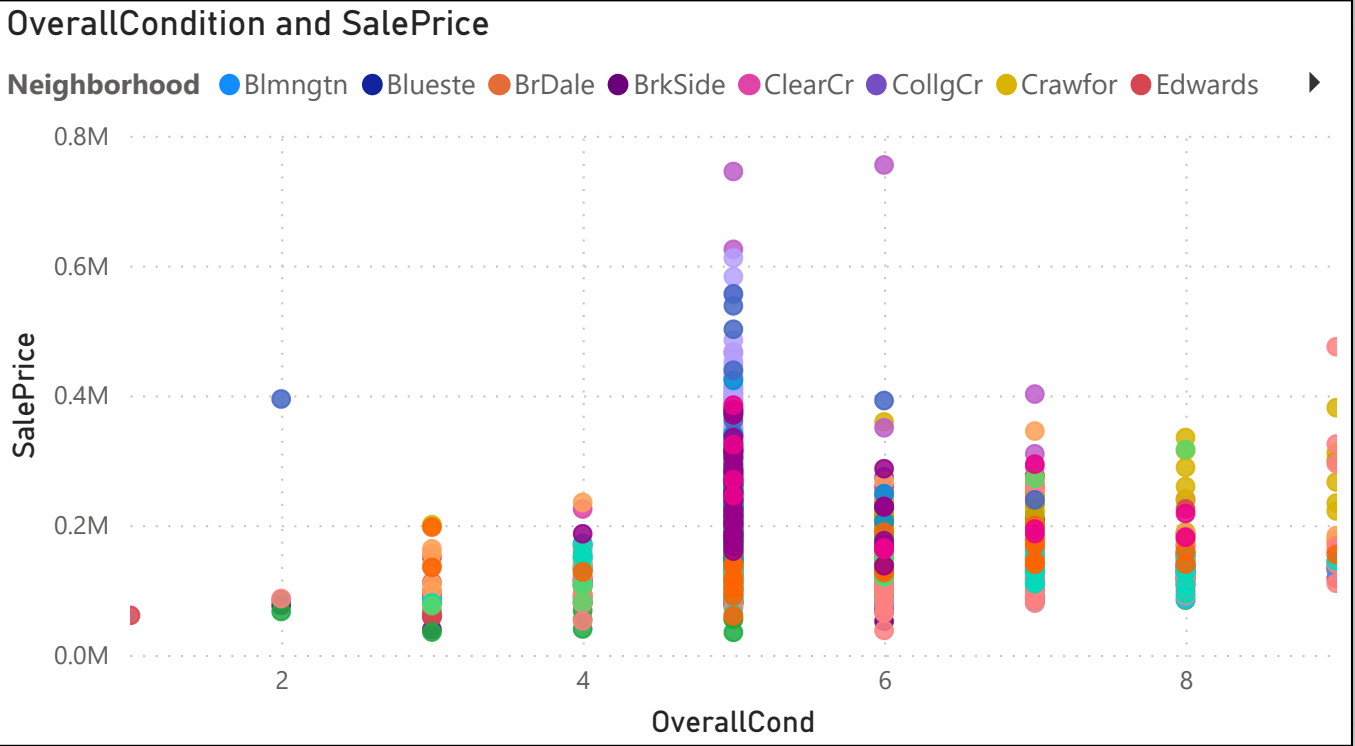
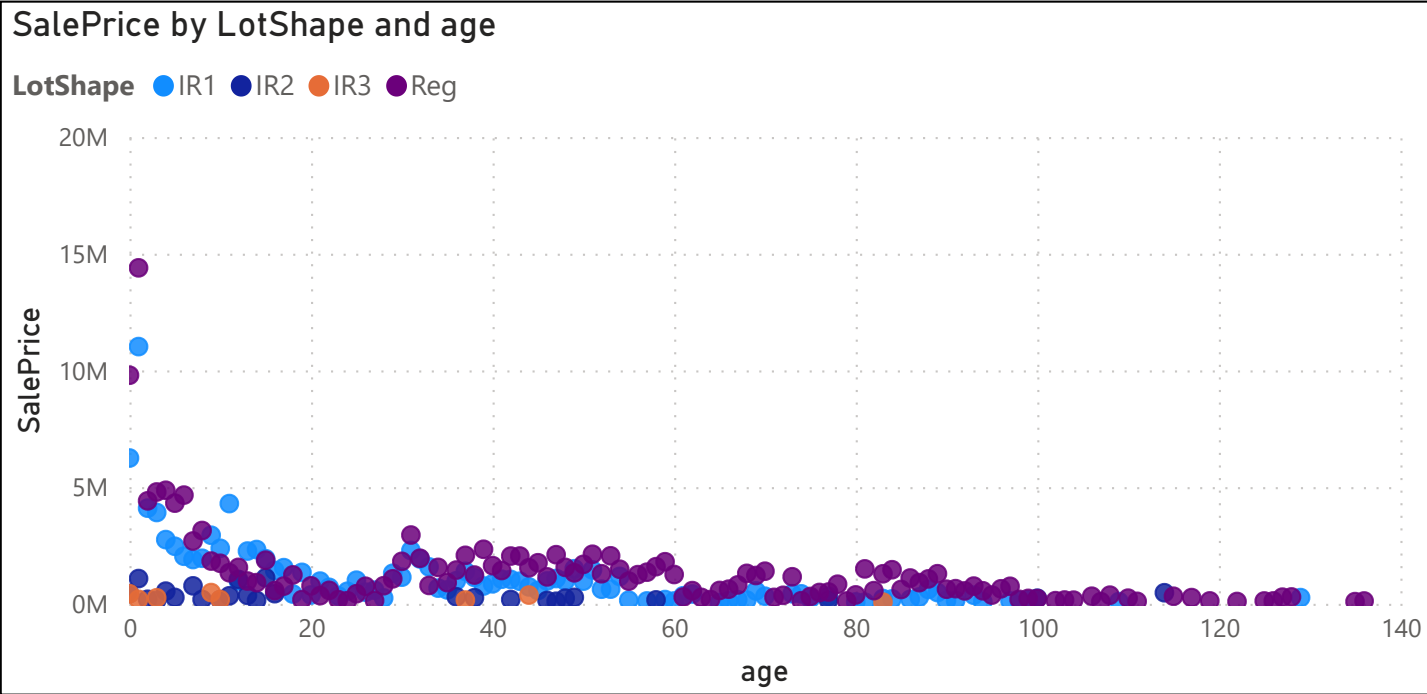
Heating systems that use electricity or heat pumps have a much higher probability of breaking down than forced air heating systems.



Defining Relationships

SalePrice by Age and Lot Shape:

We observe that as the age of the house increases, its price decreases. Also people prefer to buy houses whose lot area is regular shape by giving higher prices. Here observe the inclination of people towards new houses with regular lot. They are ready to pay higher prices for these type of houses. Such houses are easy to construct, maintain and maximum utilisation of space is possible.

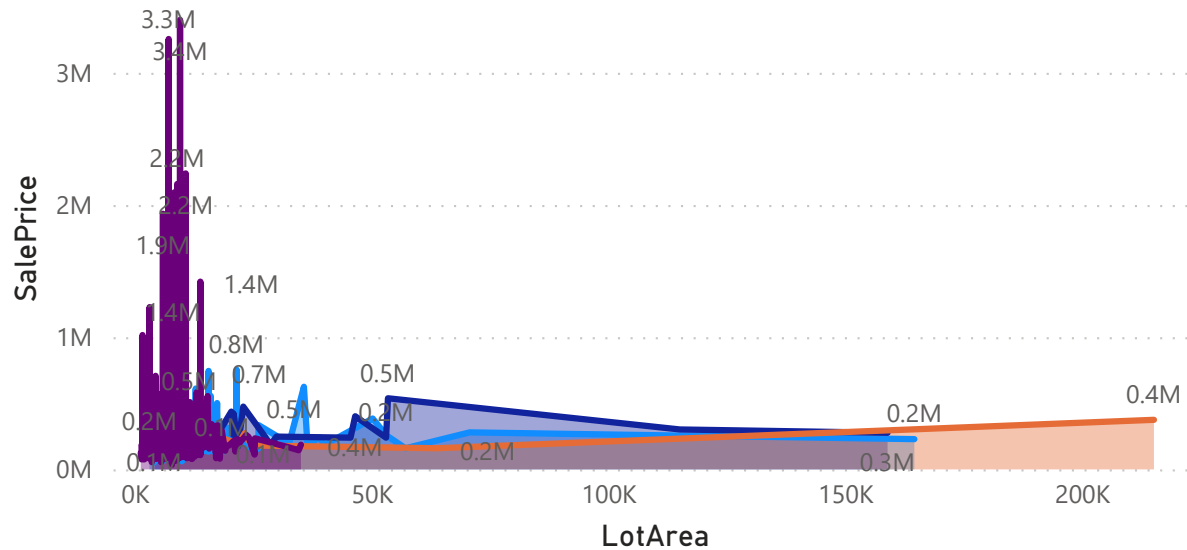


Relationship between Overall Condition and Sale Price:

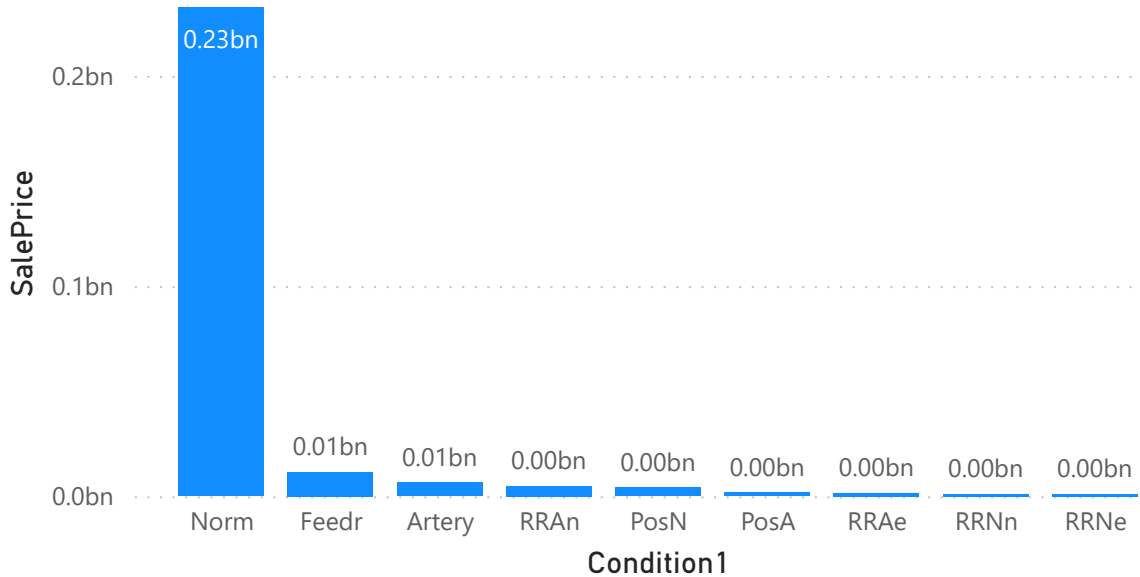
From this plot, we observe that by selling houses whose overall condition is average or good, one can earn large sums of profit because these are the category of houses which are sold at higher prices. The houses which don't have any ridges nearby are way expensive. A ridge or a mountain ridge is a geographical feature consisting of a chain of mountains or hills that form a continuous elevated crest for some distance. The sides of the ridge slope away from narrow top on either side. Planning and design of buildings in a hill settlement are tedious and challenging task due to difficult terrain, steep gradient, adverse climatic conditions, rich flora and proneness to natural hazards.

SalePrice by LotArea and LotShape

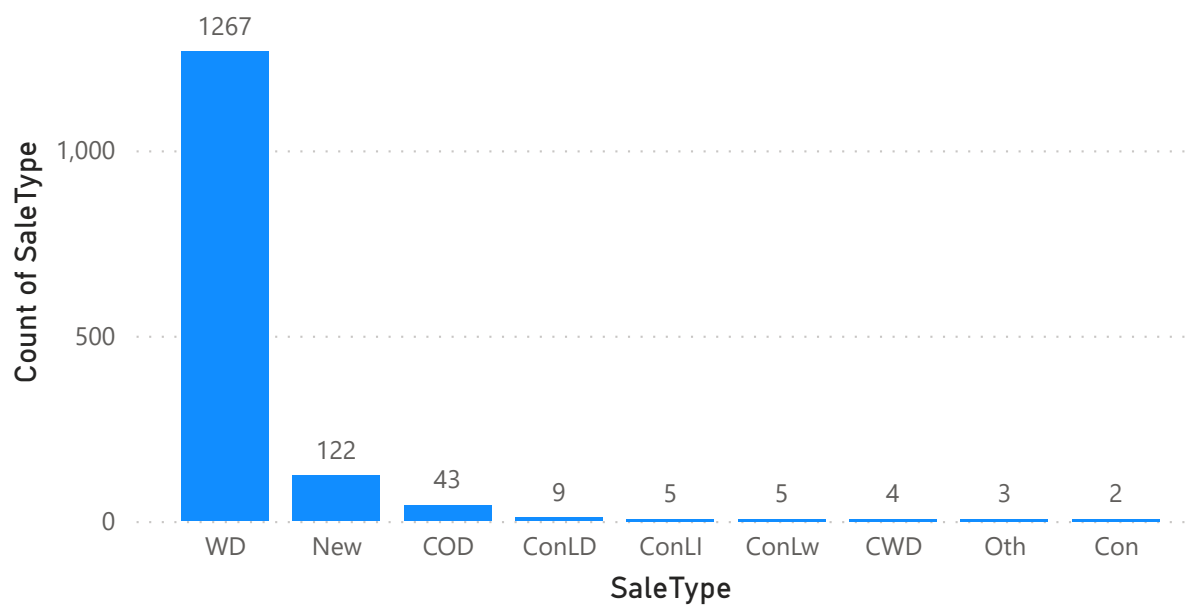
LotShape IR1 IR2 IR3 Reg



SalePrice by proximity to various conditions

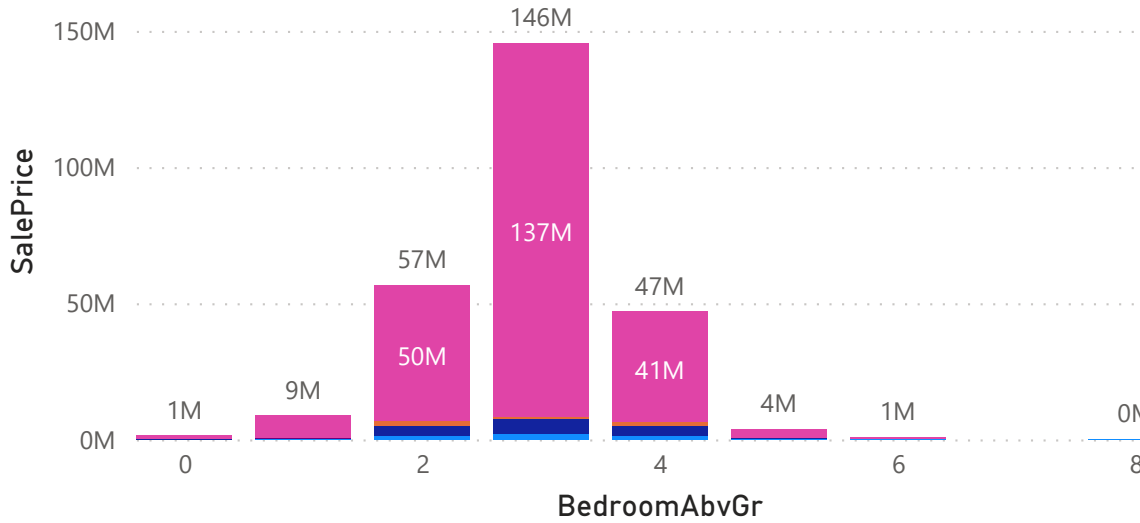


Count of SaleType by SaleType



SalePrice by average no: of bedrooms and basement condition

BsmtCond Fa Gd NA Po TA



Conclusion

In the Boston House Price dataset, the total number of properties listed are 1460 and the total sale amount is 264 million. From the exploratory data analysis performed, new houses with regular lot shape are highly priced than the others. By selling houses whose overall condition is average or good, one can earn large sums of profit because these are the category of houses which are sold at higher prices. The houses which don't have any ridges nearby are way expensive. Lot area does not have any evident relationship with the sales price. But people are willing to invest more on regularly shaped lots. Some of the properties with regular lot shape are too way expensive even though the lot area is very less. Normal type of houses with three bedrooms are the most sold ones and the most common type of sale is conventional warranty deed. A warranty deed is the most beneficial for the home buyer because it provides the most protection. It's a guarantee from the current owners (also referred to as grantors) that they have full ownership of the property and have disclosed all encumbrances, liens, easements and judgments.