# House Prices Case Studies

- **Variation in number of houses sold per year in house prices dataset**

The house prices dataset consists huge number of features. Not all the features are analysed and discussed as it would make another report. This dataset shows the records of only years from 2006 to 2010. When the statistical summaries from both packages are generated, there are number of insights seen for the number of houses sold in each year. In terms of frequency, highest number of houses sold were 338 in 2009 and with very small difference 329 houses were sold in the year 2007. Least number of houses were sold in year 2010. It can be noticed that there was a huge decrease in sales from year 2009 to year 2010. Below is a bar plot showing a percentage of houses sold in each year. There are several key insights in the plot. Firstly, it confirms the above explained statistical results of the houses sold each year. The height of bars is very small in 2010. It can also be noticed that highest number of sales within year 2009 were of houses priced at 110000$ (light red bar) which is unusually high from other bars. Although least number of houses sold within year 2010 are 145000$ (turquoise bar) but second lowest sales are of houses priced at 110000$. This variation in 2009 and 2010 have a lot of different reasons but one major reason for this variation is an effect of 2008 financial crisis [1]. The most stable number of houses sold are in price range of 155000$ (blue bar) for each year.
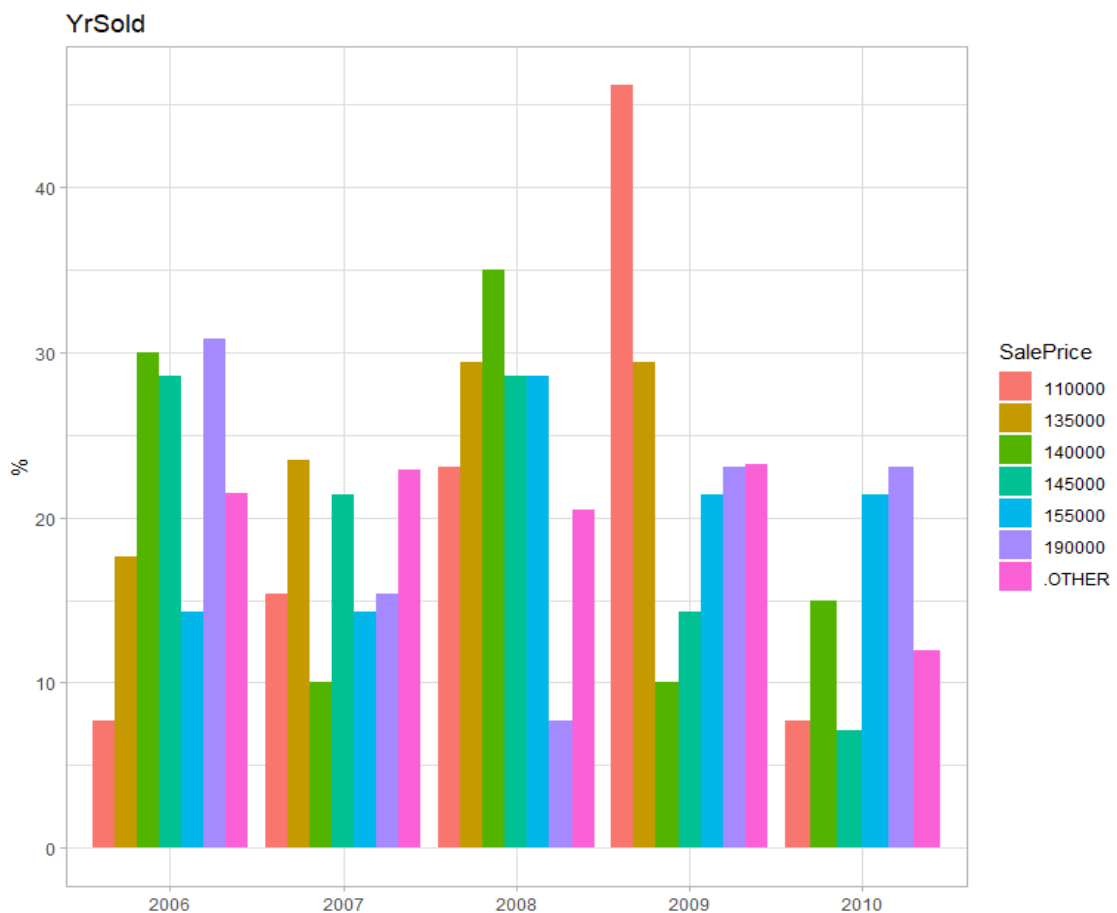
- **Garage type effect on sale price of houses in houses dataset**

The garage is one of the most important factors for people buying a house. There are numerous advantages of having a garage in the house besides parking a car. It can be used as a repair room in the house and can be converted to workspace many building different things. Generally, garage area is seen to be an important factor when choosing the house but very less attention is given to the type of the garage. In this case-study it is looked in depth. The statistical summary shows that out of all the houses sold between 2006-2010, 59.59% houses had attached garage and second highest are the detached garage type 26.51%. Least number of garage type sold are houses with two garage type which is obvious as only few expensive houses have this option. Second and third least type of garage sold are Car Port and Basement, respectively. It was unexpected to see that basement garage type is third least type as they are generally not seen at all. The below bar plot shows some further insights to the above explained statistics. Out of all the attached garage type houses sold, 190000$ range houses are most of them. This explains that attached garage type houses are generally most expensive as compared to the other garage type houses. Within detached garage type houses, 110000$ range houses are sold in highest number. One unique insight is that two type of garage houses are mostly in price range of 1450000$. Similarly, basement garage type houses are also mostly in range of 145000$ or 140000$.