

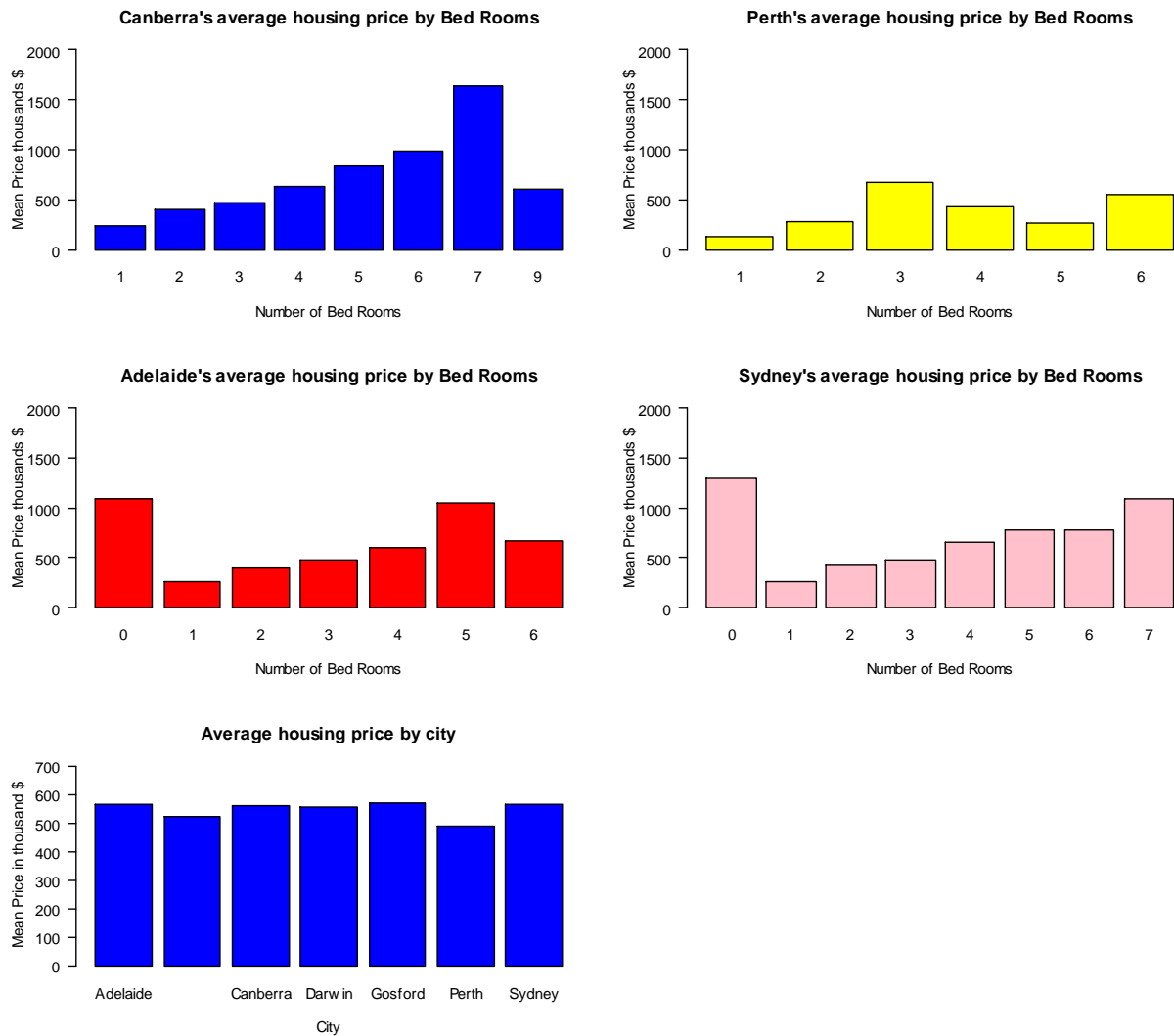
INTRODUCTION

The purpose of the of this report is elementing statistics in the company "Dream Home" by considering several aspects such as the year of manufacture of the house. In this report using statistics to analyze the relationship City in Austalia and bedrooms to be sold by the company "Dream Home" by means of **supported by visual representation**, with recommendations and solutions to be offered to the company.

Summary statistic

In summary statistics can be seen using descriptive statistics that function to see patterns and behavior of the data used, in this case data obtained from the company "Dream Home" with two variables,namely Variable City and bedrooms variable. Further details can be seen in figure 1 bar chart below.

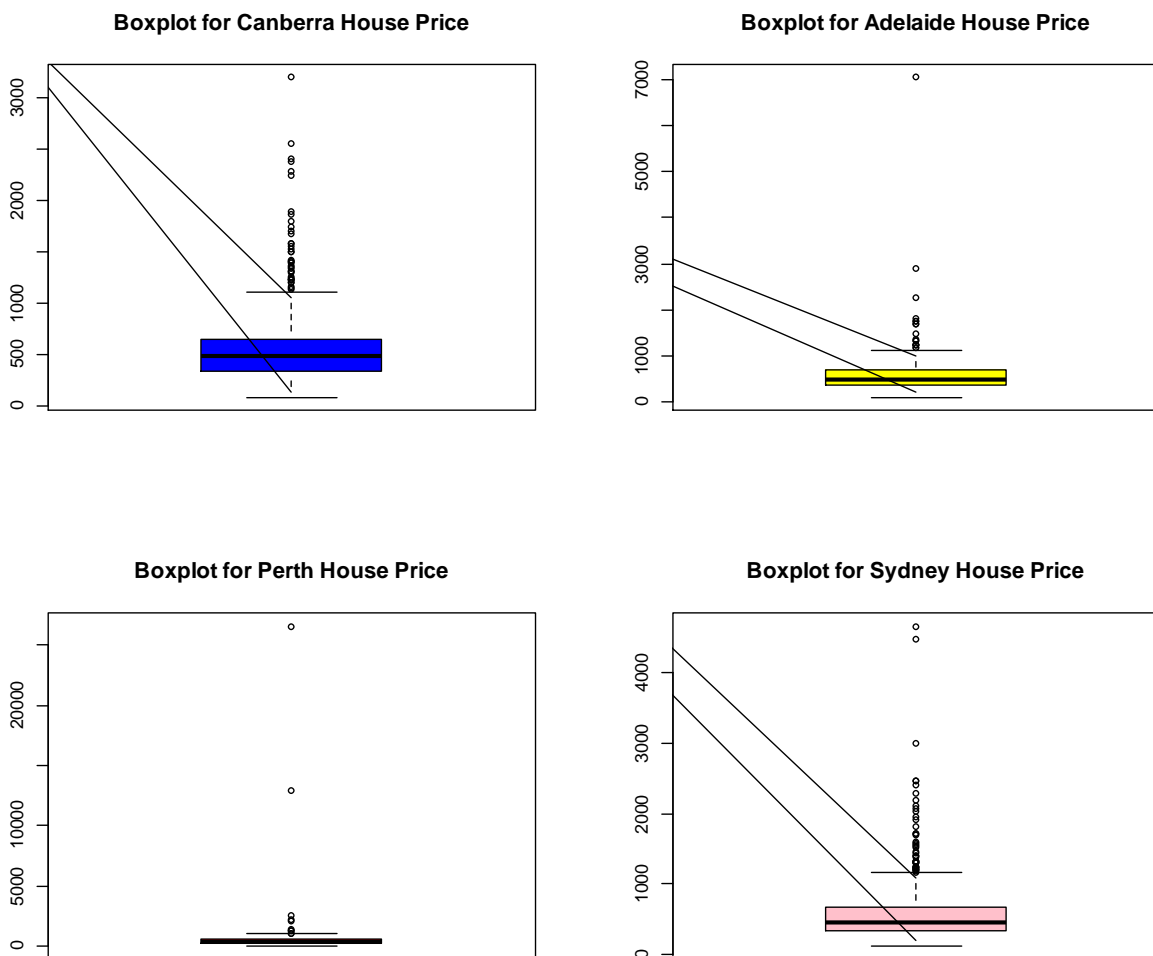
Figure 1. Bar Chart



From figure 1 it can be seen that in running its business the company "Dream House" is influenced by two factors, namely the city variable and the bedrooms variable, the most important factor is the city in Australia, such as the city of Canberra, Alices Spring, Sydney, and Adelaides. The city of Canberra is a city that has keriteria that a dream house is a house that has many bedrooms with at least 1 bedrooms and a maximum of 9 bedrooms in one house, then for the city of Sydney dream house is not always about the number of bedrooms as an important factor but many other factors that can make a house a dream home in this case could be the number of bathrooms, Year of development, until the price is appropriate This statement can be strengthened by looking at the bar chart of the city of Sydney where many people choose vacant land and then build houses that are suitable

from the budget they have because when buying vacant land obtained a relatively cheaper price and can build a house according to their own wishes. From the bar chart average housing price by city, it is concluded that the highest average house price in Australia is around 550 Australian dollars, namely the cities of Adelaide, Canberra, Darwin, and Sydney. The city with the lowest average house price is Perth with an estimated 450 Australian dollars. As for seeing the value of each variable by looking at descriptive statistics and shown by Figure 2. The following Box Plot:

Figure 2. Box Plot



From Figure 2 it appears that the median house price in the city of Canberra is around 500 Australian dollars and the most expensive house price is around 3000 dollars. So it

can be concluded that the purchase of houses in the city of Canberra is very significant, ranging from the lower class to the upper class interested in building a house in the city, this can be proven by looking at the level of data distribution ranging from quartile 1 to quartil 3 with outer values as follows:

2384.000 1400.000 1200.000 1395.000 2280.000 1425.000 1135.000 1
 225.000 1580.000 1870.000 1800.000 1150.000
 3200.000 1500.000 1340.000 1532.500 1750.000 1500.000 1307.000 1
 250.000 2400.000 1370.000 1157.200 1702.500
 2238.888 1225.000 1200.000 1575.000 1315.000 1300.000 1346.400 1
 225.000 1264.000 1895.000 2555.000 1550.000
 1400.000 1680.000

Furthermore, for the city of Adelaide, it can be seen that the purchase of houses at fairly low prices occurs in this city with a median value of around 50 Australian dollars with a centralized distribution of data around the median and there are few enthusiasts to buy a house in this city even though the price is quite cheap, this can be seen from the value of qurtil 1 to quartil 3 which is not too far from the middle price of houses in the city, For more details, you can see the outer of the city of Adelaide as follows:

1230.0 1240.0 1795.0 1180.0 7062.5 2888.0 1365.0 1325.0 1485.0 2
 250.0 1184.0 1228.0 1688.0 1240.0 1335.0
 1735.0 1695.0 1735.0

The city with the least interest in buying a house is the city of Perth with a very low distribution value where the median value of the city is around 10 dollars australia with quartile 1 and quartile 3 values almost the same. This indicates that there is very little market share in demand to buy or build a house even though house prices in this city are not too expensive. This can be proven by looking at the outer of this city, which is as follows:

1234.582 12899.000 2110.000 2199.900 26590.000 1020.000 2560.498
 1337.044 1036.200 1288.333

This statement can be seen in figure 3. Table of Deskriptif Statistic below:

Figure 3. Table of Deskriptif Statistic

```
> describe(mydata$price)
  vars    n  mean    sd median trimmed   mad min  max range  skew kurtosis   se
x1    1 4600 551.96 563.83 460.94  489.08 233.51   0 26590 26590 24.77  1042.76  8.31
```

Based on Figure 3 it can be seen that the average price of houses in Australia is \$ 551.96 with a total sample used of 4600, the level of data distribution from the average value is not too far away at \$ 563.83 this means that home purchases in Australia are around \$ 551.96. The highest price for buying a house in Australia is \$ 26590 with price distribution tends to increase shown by the value of skewness which is positive and house prices in Australia have a fairly expensive price with a decent level of expensiveness from the cheapest price, this is shown by the value of kurtosis which is positive. This statement can be proven by looking at the following Figur 4. line plot:

Figure 4. Line Plot (three variable vs price)

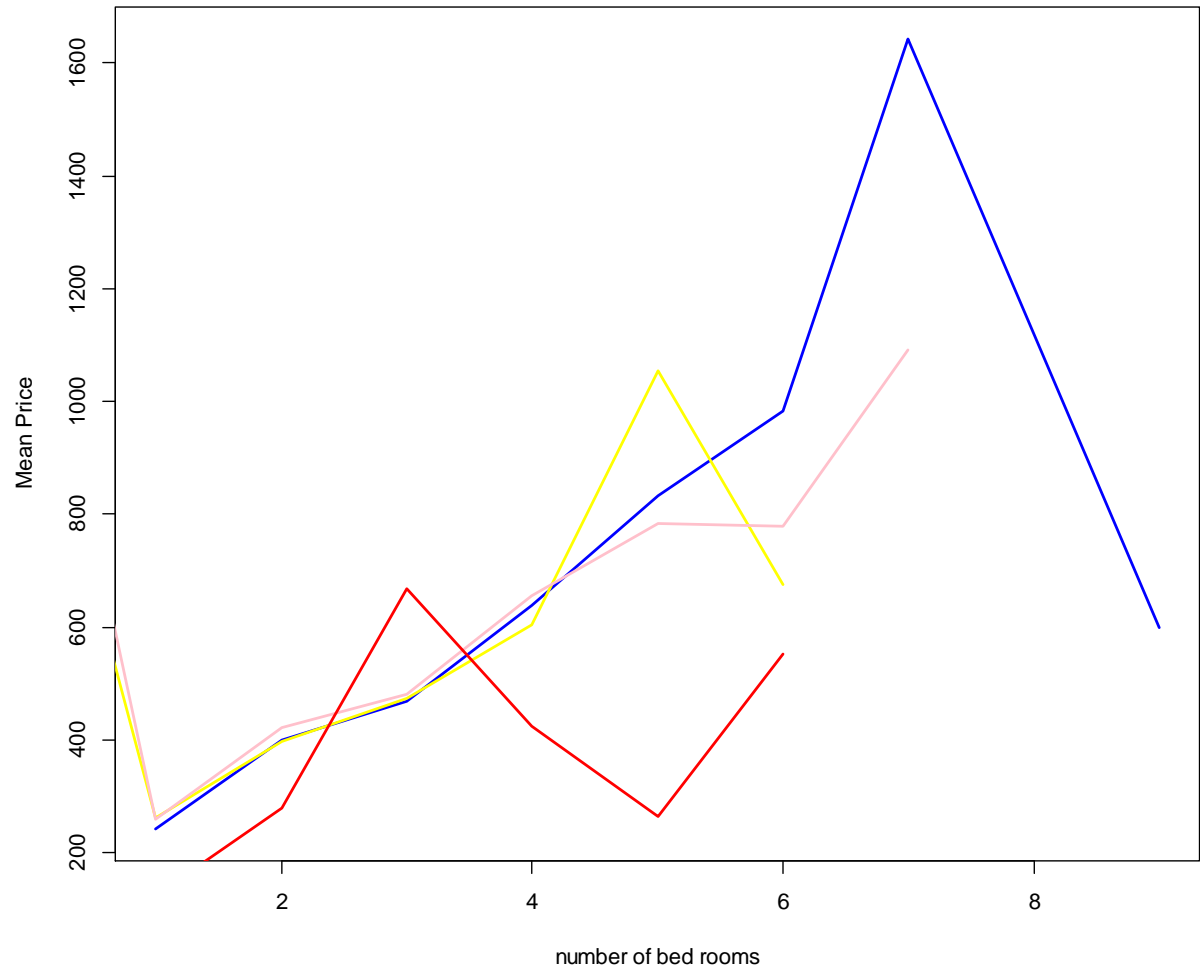
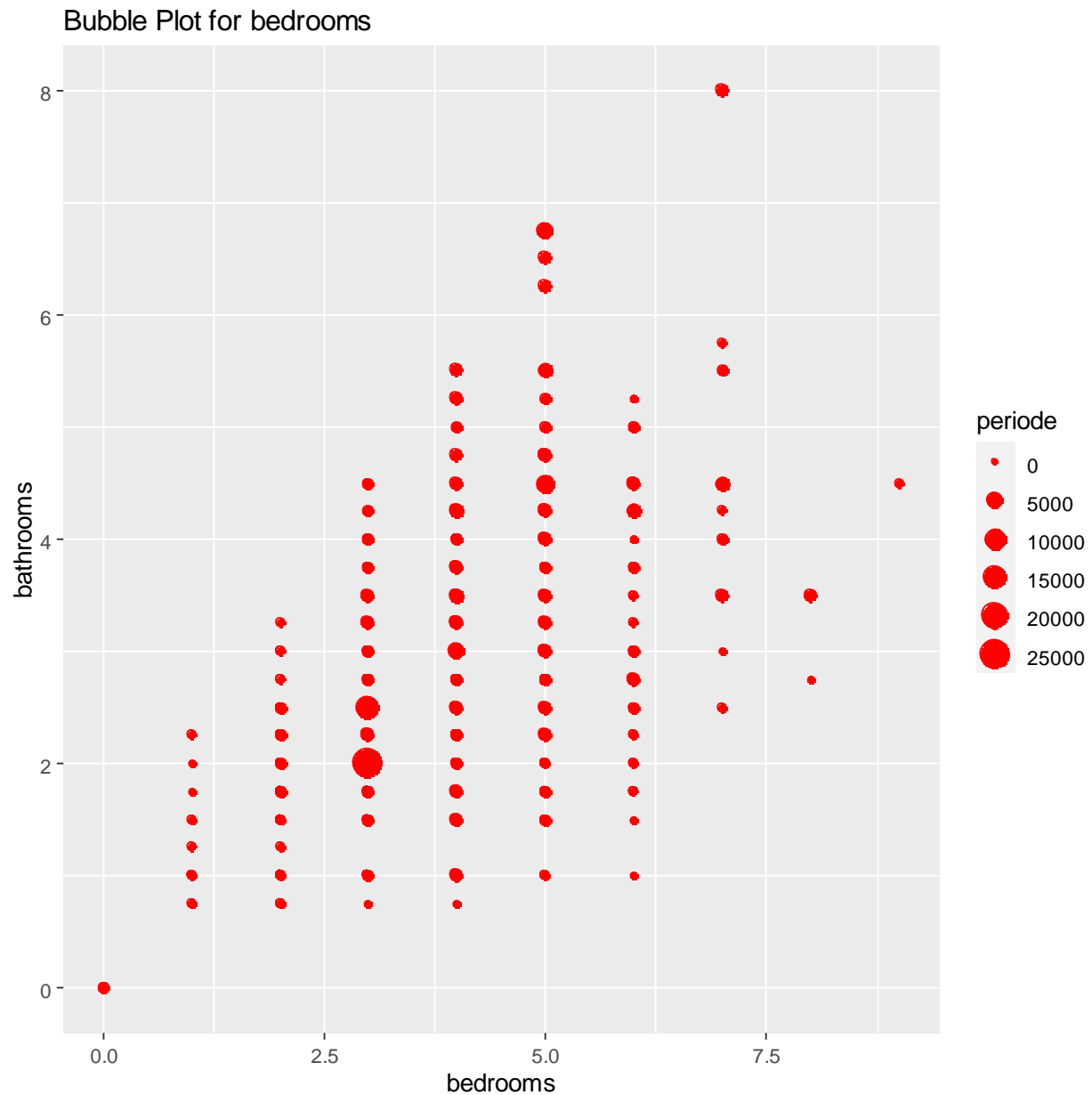


Figure 5. Bedrooms vs price



From figure 5 it is known that the pattern of data from Bedrooms followed by bathrooms is in accordance with our statement at the beginning that the number of bedrooms must be at least equal to the number of bathrooms so that the company "Dream Home" has its own appeal and can meet market needs if there are 5 bedrooms then the bathrooms must be exactly as many as 5, more clearly at least in each bedrooms there is one bathrooms.

Recommendations

From the analysis above, both statistical analysis with plots or using descriptive statistics, it is concluded that if the "Dream House" company wants to win the market, several aspects are needed such as the number of bedrooms at an affordable price. In addition, the favorite city to build a house or buy a house is the city of Canberra which is the capital of Australia which is an environmentally friendly city so for this reason Australians are busy buying houses or building houses in the city.

The city of Perth is the loneliest city for enthusiasts to build a house because the city of Perth is a cultural city with all aspects of beauty in it, the city of Perth is far from the hustle and bustle of the city center and the average foreign tourist in the country, for this reason the city of Perth is not a spot to be used as a place to settle more on vacation so many hotels or apartments, This is evidenced by looking at barcharts, boxplots, and line plots where from the city to the city in Australia the city of Perth is the quietest city for enthusiasts to build a house.

The conclusion of this analysis is that the city of Canberra which is the capital of Australia is the city that is most interested in building or buying a house because it is not far from administrative activities and community work, similar things happen in the city of Sydney where the level of house construction is increasing The findings can be seen from the tapered pink line plot which means that house construction will continue to increase over time because the city of Sydney is city government. The findings are in contrast to the city of Canberra, the capital of Australia, where people have begun to change their lifestyles with the rate of house construction tends to decrease based on findings using line plots. So the advice that can be given is that dream house companies can pay more attention or glance to start their business in the cities of Sydney and Perth.

Refferences

McNeese, B., 2016. Are the Skewness and Kurtosis Useful Statistics? [online] SPC For Excel. Available at: <https://www.spcforexcel.com/knowledge/basic_statistics/are-skewness-and-kurtosis-useful-statistics> (Accessed 10 March 2022)

Wilson, C., 2016. Mean vs median: What do they mean and when do you use them?, [online] Michigan State University. Available at: <https://www.canr.msu.edu/news/mean_vs.median_what_do_they_mean_and_when_do_you_use_them> [Accessed 10 March 2022]

Purnamasari, I., & Hayati, M.N., 2018. Analisis Deskriptif Pada Faktor-Faktor Yang Mempengaruhi Minat Siswa Untuk Melanjutkan Pendidikan Ke Tingkat Perguruan Tinggi. Jurnal.unimus.ac.id. [6:2]. Doi: <https://doi.org/10.26714/jsunimus.v6i2.4315.g3994>

APPENDIX

```
library(moments)
```

```
library(dplyr)
```

```
library(psych)
```

```
mydata<-read.csv("C:/Users/LENOVO/DOWNLOADS/DPBS.csv")
```

```
#-----histogram-----#
```

```
par(mfrow=c(2,2))
```

```
#-----CANBERRA CITY-----#
```

```
canberra = subset(mydata, city == "Canberra")
```

```
canberrahouse = canberra %>% group_by.bedrooms) %>% summarise(max_price= max(price),  
min_price=min(price), avg_price = mean(price))
```

```
colnames = canberrahouse$bedrooms
```

```
canberrahouseprice = canberrahouse$avg_price
```

```
barplot(canberrahouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=colnames,xlab =  
"Number of Bed Rooms", ylab = "Mean Price thousands $", main="Canberra's average housing  
price by Bed Rooms")
```

```
mean(canberrahouse)
```

```
#-----ALICE SPRING CITY-----#
```

```
perth = subset(mydata, city == "Perth")
```

```
perthhouse = perth %>% group_by.bedrooms) %>% summarise(max_price= max(price),  
min_price=min(price), avg_price = mean(price))
```

```
colnames = perthhouse$bedrooms
```

```
perthhouseprice = perthhouse$avg_price
```

```
barplot(perthhouseprice,las=1,col="yellow",ylim=c(0,2000),names.arg=colnames,xlab =  
"Number of Bed Rooms", ylab = "Mean Price thousands $", main="Perth's average housing  
price by Bed Rooms")
```

```
#-----DARWIN CITY-----#
```

```

adelaide = subset(mydata, city == "Adelaide")

adelaidehouse = adelaide %>% group_by.bedrooms) %>% summarise(max_price= max(price),
min_price=min(price), avg_price = mean(price))

colnames = adelaidehouse$bedrooms

adelaidehouseprice = adelaidehouse$avg_price

barplot(adelaidehouseprice,las=1,col="red",ylim=c(0,2000),names.arg=colnames,xlab =
"Number of Bed Rooms", ylab = "Mean Price thousands $",    main="Adelaide's average housing
price by Bed Rooms")

```

```

#-----SIDNEY CITY-----#

```

```

sydney = subset(mydata, city == "Sydney")

sydneyhouse = sydney %>% group_by.bedrooms) %>% summarise(max_price= max(price),
min_price=min(price), avg_price = mean(price))

colnames = sydneyhouse$bedrooms

sydneyhouseprice = sydneyhouse$avg_price

barplot(sydneyhouseprice,las=1,col="pink",ylim=c(0,2000),names.arg=colnames,xlab = "Number
of Bed Rooms", ylab = "Mean Price thousands $",    main="Sydney's average housing price by
Bed Rooms")

```

```

#_____summary of city_____#

```

```

citysummary = mydata %>% group_by(city) %>% summarise(avg_price = mean(price))

colnames = citysummary$city

cityhouse = citysummary$avg_price

barplot(cityhouse,las=1,col="blue",ylim=c(0,700),names.arg=colnames,  xlab = "City", ylab =
"Mean Price in thousand $",main="Average housing price by city")

describe(mydata$price)

```

```

#-----boxplot-----

```

```

boxplot(canberra$price,main="Boxplot for Canberra House Price",col="blue")

```

```
boxplot.stats(canberra$price)$out
```

```
boxplot(adelaide$price,main="Boxplot for Adelaide House Price",col="yellow")
```

```
boxplot.stats(adelaide$price)$out
```

```
boxplot(perth$price,main="Boxplot for Perth House Price",col="red")
```

```
boxplot.stats(perth$price)$out
```

```
boxplot(sydney$price,main="Boxplot for Sydney House Price",col="pink")
```

```
boxplot.stats(sydney$price)$out
```

```
# _____ line plot _____ #
```

```
priceByBedroomCanberra = aggregate(price ~ bedrooms, canberra, mean)
```

```
priceByBedroomAdelaide = aggregate(price ~ bedrooms, adelaide, mean)
```

```
priceByBedroomSydney = aggregate(price ~ bedrooms, sydney, mean)
```

```
priceByBedroomPerth = aggregate(price ~ bedrooms, perth, mean)
```

```
plot(priceByBedroomCanberra$bedrooms, priceByBedroomCanberra$price, type = "l", lwd = 2,  
col = "blue",xlab="number of bed rooms",ylab="Mean Price")
```

```
lines(priceByBedroomAdelaide$bedrooms, priceByBedroomAdelaide$price, lwd = 2, col =  
"yellow")
```

```
lines(priceByBedroomSydney$bedrooms, priceByBedroomSydney$price, lwd = 2, col = "pink")
```

```
lines(priceByBedroomPerth$bedrooms, priceByBedroomPerth$price, lwd = 2, col = "red")
```