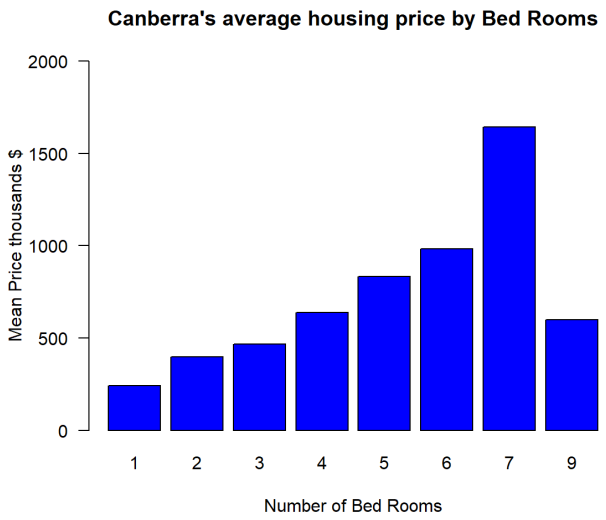
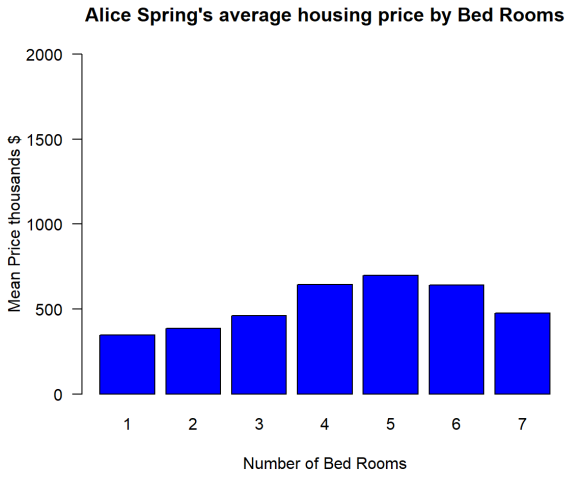
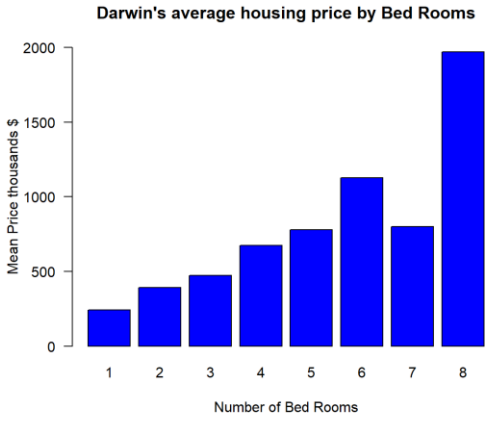
```
> View(A2DATA)
> library(moments)
> library(dplyr)
```



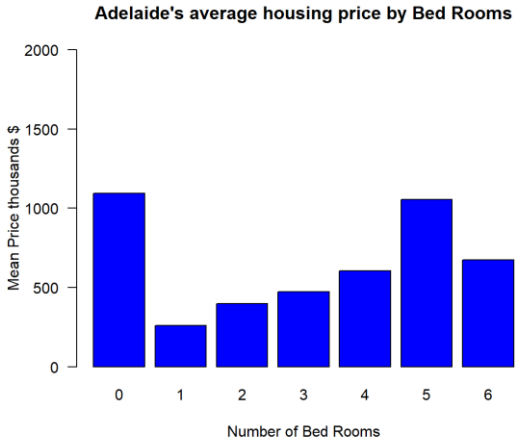

```
> canberra = subset(A2DATA, city =="Canberra")
> canberrahouse = canberra %>% group_by(bedrooms) %>% summarise(max_price=
max(price), min_price=min(price), avg_price = mean(price))
> colnames = canberrahouse$bedrooms
> canberrahouseprice = canberrahouse$avg_price
> barplot(canberrahouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=col
names,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Canberra's average housing price by Bed Rooms")
```



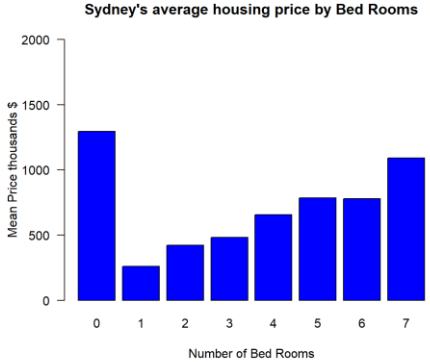

```
> alicesprings = subset(A2DATA, city =="Alice Springs")
> alicespringshouse = alicesprings %>% group_by(bedrooms) %>% summarise(ma
x_price= max(price), min_price=min(price), avg_price = mean(price))
> colnames = alicespringshouse$bedrooms
> alicespringshouseprice = alicespringshouse$avg_price
> barplot(alicespringshouseprice,las=1,col="blue",ylim=c(0,2000),names.arg
=colnames,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Alice Spring's average housing price by Bed Rooms")
```



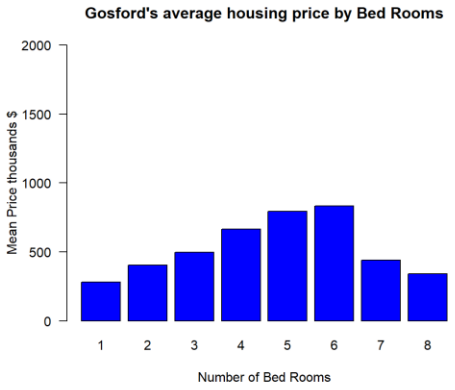

```
> darwin = subset(A2DATA, city =="Darwin")
> darwinhouse = darwin %>% group_by(bedrooms) %>% summarise(max_price= max
(price), min_price=min(price), avg_price = mean(price))
> colnames = darwinhouse$bedrooms
> darwinhouseprice = darwinhouse$avg_price
> barplot(darwinhouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=colna
mes,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Darwin's average housing price by Bed Rooms")
```



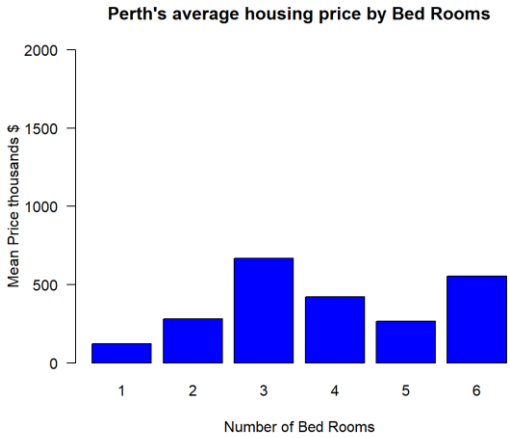

```
> adelaide = subset(A2DATA, city =="Adelaide")
> adelaidehouse = adelaide %>% group_by(bedrooms) %>% summarise(max_price=
max(price), min_price=min(price), avg_price = mean(price))
> colnames = adelaidehouse$bedrooms
> adelaidehouseprice = adelaidehouse$avg_price
> barplot(adelaidehouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=col
names,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Adelaide's average housing price by Bed Rooms")
```



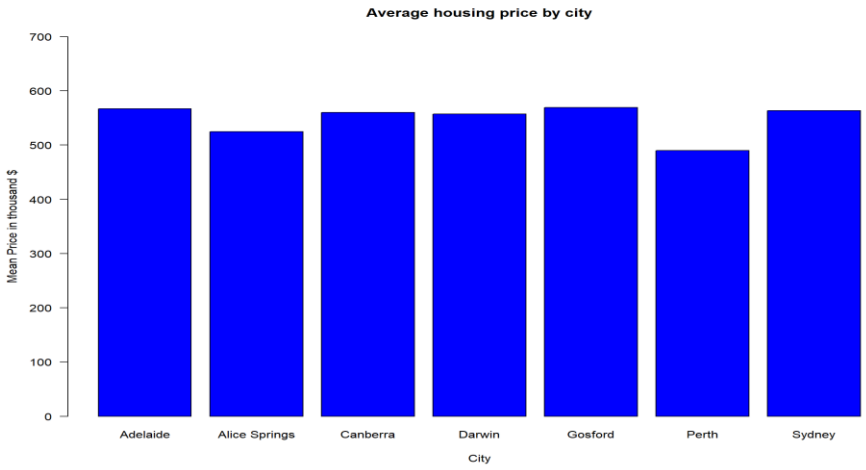
```
> sydney = subset(A2DATA, city =="Sydney")
> sydneyhouse = sydney %>% group_by(bedrooms) %>% summarise(max_price= max
(price), min_price=min(price), avg_price = mean(price))
> colnames = sydneyhouse$bedrooms
> sydneyhouseprice = sydneyhouse$avg_price
> barplot(sydneyhouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=colna
mes,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Sydney's average housing price by Bed Rooms")
```



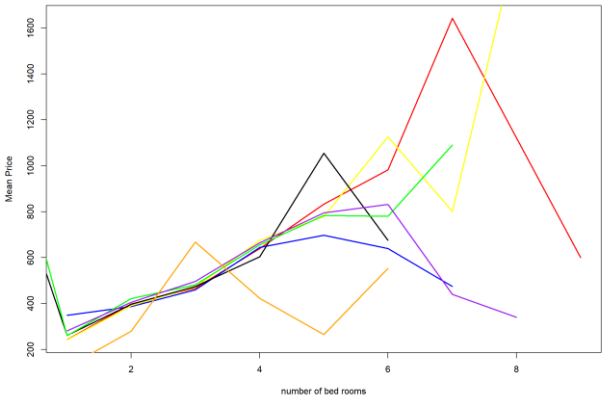

```
> gosford = subset(A2DATA, city =="Gosford")
> gosfordhouse = gosford %>% group_by(bedrooms) %>% summarise(max_price= m
ax(price), min_price=min(price), avg_price = mean(price))
> colnames = gosfordhouse$bedrooms
> gosfordhouseprice = gosfordhouse$avg_price
> barplot(gosfordhouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=coln
ames,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",
main="Gosford's average housing price by Bed Rooms")
```



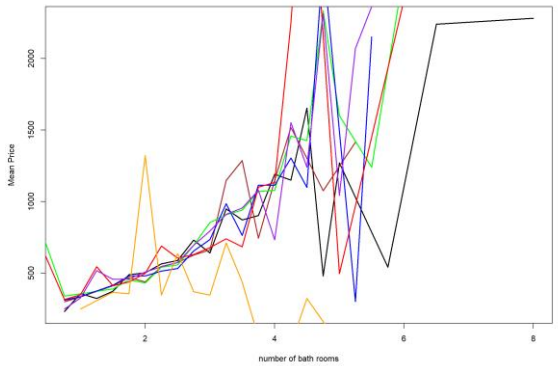

```
> perth = subset(A2DATA, city =="Perth")
> perthhouse = perth %>% group_by(bedrooms) %>% summarise(max_price= max(p
rice), min_price=min(price), avg_price = mean(price))
> colnames = perthhouse$bedrooms
> perthhouseprice = perthhouse$avg_price
> barplot(perthhouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=colnam
es,xlab = "Number of Bed Rooms", ylab = "Mean Price thousands $",        m
ain="Perth's average housing price by Bed Rooms")
```




```
> citysummary = A2DATA %>% group_by(city) %>% summarise(avg_price = mean(p
rice))
> 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 pri
ce by city")
```




```
> priceByBedroomCanberra = aggregate(price ~ bedrooms, canberra, mean)
> priceByBedroomAliceSprings = aggregate(price ~ bedrooms, alicesprings, m
ean)
> priceByBedroomDarwin = aggregate(price ~ bedrooms, darwin, mean)
> priceByBedroomAdelaide = aggregate(price ~ bedrooms, adelaide, mean)
> priceByBedroomSydney = aggregate(price ~ bedrooms, sydney, mean)
> priceByBedroomGosford = aggregate(price ~ bedrooms, gosford, mean)
> priceByBedroomPerth = aggregate(price ~ bedrooms, perth, mean)
> plot(priceByBedroomCanberra$bedrooms, priceByBedroomCanberra$price, type
= "l", lwd = 2, col = "red",xlab="number of bed rooms",ylab="Mean Price")
> lines(priceByBedroomAliceSprings$bedrooms,  priceByBedroomAliceSprings$p
rice,  lwd = 2, col = "blue")
> lines(priceByBedroomDarwin$bedrooms,  priceByBedroomDarwin$price,  lwd =
2, col = "yellow")
> lines(priceByBedroomAdelaide$bedrooms,  priceByBedroomAdelaide$price,  l
wd = 2, col = "black")
> lines(priceByBedroomSydney$bedrooms,  priceByBedroomSydney$price,  lwd =
2, col = "green")
> lines(priceByBedroomGosford$bedrooms,  priceByBedroomGosford$price,  lwd
= 2, col = "purple")
> lines(priceByBedroomPerth$bedrooms,  priceByBedroomPerth$price,  lwd = 2
, col = "orange")
```

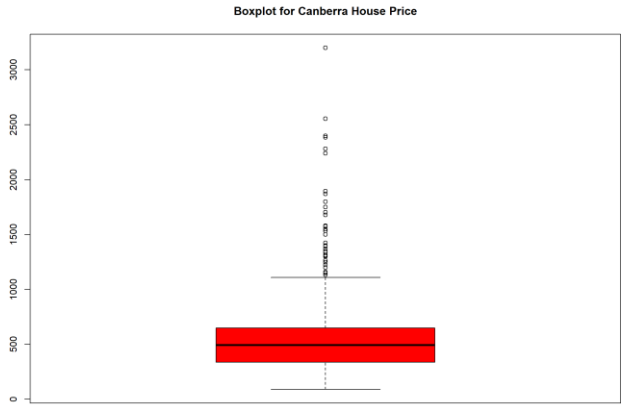



```
> priceByBathroomCanberra = aggregate(price ~ bathrooms, canberra, mean)
> priceByBathroomAliceSprings = aggregate(price ~ bathrooms, alicesprings,
mean)
> priceByBathroomDarwin = aggregate(price ~ bathrooms, darwin, mean)
> priceByBathroomAdelaide = aggregate(price ~ bathrooms, adelaide, mean)
> priceByBathroomSydney = aggregate(price ~ bathrooms, sydney, mean)
> priceByBathroomGosford = aggregate(price ~ bathrooms, gosford, mean)
> priceByBathroomPerth = aggregate(price ~ bathrooms, perth, mean)
> plot(priceByBathroomCanberra$bathrooms, priceByBathroomCanberra$price, t
ype = "l", lwd = 2, col = "black",xlab="number of bath rooms",ylab="Mean P
rice")
> lines(priceByBathroomAliceSprings$bathrooms,  priceByBathroomAliceSpring
s$price,  lwd = 2, col = "blue")
> lines(priceByBathroomDarwin$bathrooms,  priceByBathroomDarwin$price,  lw
d = 2, col = "brown")
> lines(priceByBathroomAdelaide$bathrooms,  priceByBathroomAdelaide$price,
lwd = 2, col = "red")
> lines(priceByBathroomSydney$bathrooms,  priceByBathroomSydney$price,  lw
d = 2, col = "green")
> lines(priceByBathroomGosford$bathrooms,  priceByBathroomGosford$price,
lwd = 2, col = "purple")
> lines(priceByBathroomPerth$bathrooms,  priceByBathroomPerth$price,  lwd
= 2, col = "orange")
```

Descriptive Statistics

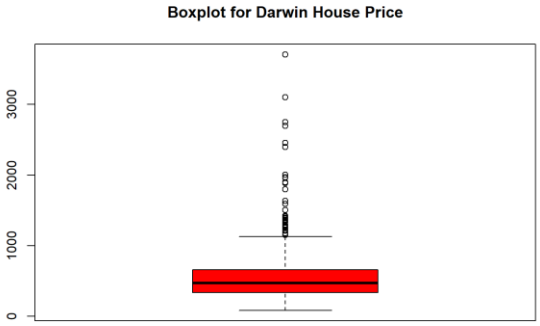
```
> mean(A2DATA$price)
[1] 551.963

> var(A2DATA$price)
[1] 317909.6

> sd(A2DATA$price)
[1] 563.8347

> skewness(A2DATA$price)
[1] 24.78285

> kurtosis(A2DATA$price)
[1] 1046.216
```

Outliers



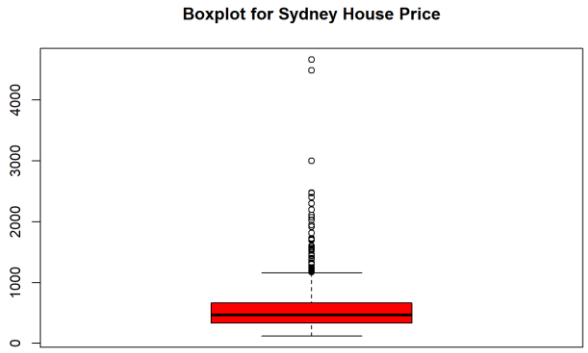

```
> boxplot(canberra$price,main="Boxplot for Canberra House Price",col="red"
)
> boxplot.stats(canberra$price)$out
 [1] 2384.000 1400.000 1200.000 1395.000 2280.000 1425.000 1135.000 1225.0
00
 [9] 1580.000 1870.000 1800.000 1150.000 3200.000 1500.000 1340.000 1532.5
00
[17] 1750.000 1500.000 1307.000 1250.000 2400.000 1370.000 1157.200 1702.5
00
[25] 2238.888 1225.000 1200.000 1575.000 1315.000 1300.000 1346.400 1225.0
00
[33] 1264.000 1895.000 2555.000 1550.000 1400.000 1680.000
```


```
> boxplot(alicesprings$price,main="
Boxplot for Alice Springs House Pri
ce",col="red")
> boxplot.stats(alicesprings$price)$out
 [1] 1400.0 1120.0 1222.5 1255.0 2100.0 1085.0 2000.0 1270.0 1216.0 1405.0
[11] 1190.0 1300.0 1212.5 1275.0 1125.0 1800.0 1100.0 1690.0 1506.0 1580.0
[21] 1220.0 1185.0 1550.0 2700.0 1130.0 1600.0 1170.0 1150.0 1180.5 2150.0
[31] 1325.0 1610.0 1200.0 2000.0 1680.0 1570.0 1795.0 1655.0 1100.0 1381.0
[41] 1600.0 1710.0 1149.0
```

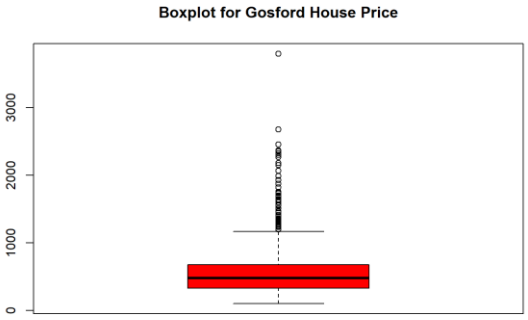



```
> boxplot(darwin$price,main="Boxplot for Darwin House Price",col="red")
> boxplot.stats(darwin$price)$out
 [1] 1285.000 1175.000 1400.000 1210.000 1970.000 1400.000 2453.500 3100.0
00
 [9] 2750.000 1425.000 2400.000 1385.000 1365.000 1886.700 1256.500 3710.0
00
[17] 1505.000 1595.000 1250.000 1965.221 1298.000 1270.000 1901.000 2400.0
00
[25] 2005.000 1300.000 1800.000 1415.000 1300.000 1150.000 1370.000 1280.0
00
[33] 2700.000 1635.000 1339.000 1150.000 1350.000 1900.000 1225.000
```

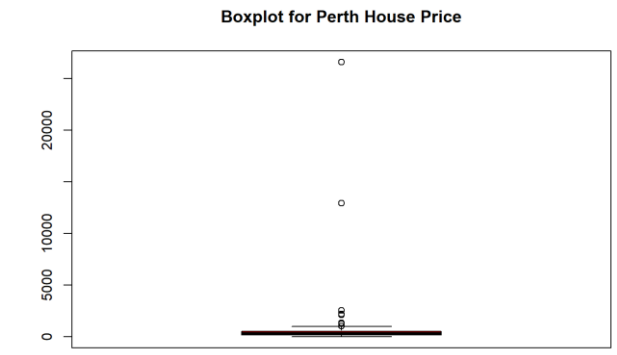

```
> boxplot(adelaide$price,main="Boxplot for Adelaide House Price",col="red"
)
> boxplot.stats(adelaide$price)$out
 [1] 1230.0 1240.0 1795.0 1180.0 7062.5 2888.0 1365.0 1325.0 1485.0 2250.0
[11] 1184.0 1228.0 1688.0 1240.0 1335.0 1735.0 1695.0 1735.0
```



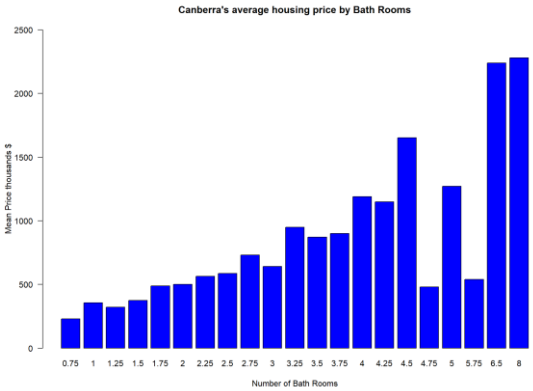

```
> boxplot(sydney$price,main="Boxplot for Sydney House Price",col="red")
> boxplot.stats(sydney$price)$out
 [1] 1712.500 1920.000 4668.000 1170.000 1200.000 1538.000 1185.001 2027.0
00
 [9] 2475.000 1728.000 1555.000 1325.000 1384.000 1600.000 4489.000 1400.0
00
[17] 3000.000 1399.950 1525.000 1325.000 1309.500 2200.000 1440.000 1240.0
00
[25] 1815.000 1950.000 1300.000 1462.497 2110.000 2400.000 1320.000 1240.0
00
[33] 2075.000 1580.000 1220.000 1700.000 1215.000 2466.350 1295.648 1250.0
00
[41] 1200.000 2300.000 1229.000
```



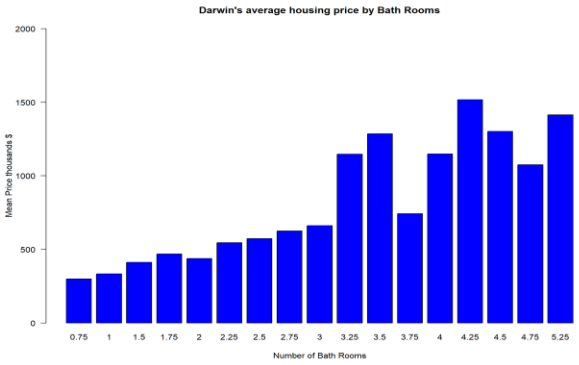

```
> boxplot(gosford$price,main="Boxplot for Gosford House Price",col="red")
> boxplot.stats(gosford$price)$out
 [1] 1355.000 1700.000 1330.000 1280.000 1250.000 1340.000 1388.000 1990.0
00
 [9] 1387.800 1410.000 1619.999 1820.000 1195.000 1600.000 1200.000 1230.0
00
[17] 1925.000 1730.000 1309.500 1510.000 2065.000 1198.000 1297.000 3800.0
00
[25] 1695.000 1640.000 2300.000 1565.000 2367.000 1356.925 1300.000 2271.1
50
[33] 2147.500 1411.600 1195.000 1875.000 1755.000 1625.000 2351.956 1200.0
00
[41] 1738.000 1280.000 1275.000 1636.000 1450.000 1360.000 1300.000 1195.0
00
[49] 2458.000 1205.000 1675.000 2180.000 1355.000 1465.000 1250.000 1681.0
00
[57] 2680.000 2321.000 1240.000 1550.000
```




```
> boxplot(perth$price,main="Boxplot for Perth House Price",col="red")
> boxplot.stats(perth$price)$out
 [1]  1234.582 12899.000  2110.000  2199.900 26590.000  1020.000  2560.498
 [8]  1337.044  1036.200  1288.333
```

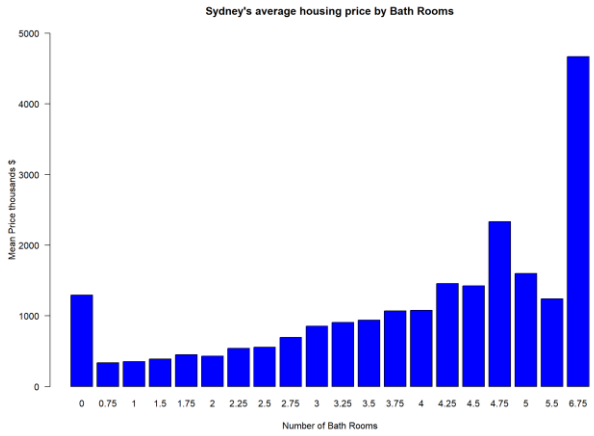



```
> canberrahouse = canberra %>% group_by(bathrooms) %>% summarise(max_price
= max(price), min_price=min(price), avg_price = mean(price))
> colnames = canberrahouse$bathrooms
> canberrahouseprice = canberrahouse$avg_price
> barplot(canberrahouseprice,las=1,col="blue",ylim=c(0,2500),names.arg=col
names,xlab = "Number of Bath Rooms", ylab = "Mean Price thousands $",
main="Canberra's average housing price by Bath Rooms")
```

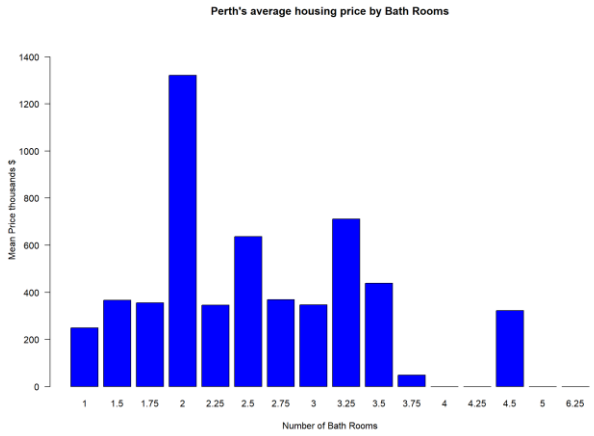



```
> darwinhouse = darwin %>% group_by(bathrooms) %>% summarise(max_price= ma
x(price), min_price=min(price), avg_price = mean(price))
> colnames = darwinhouse$bathrooms
> darwinhouseprice = darwinhouse$avg_price
```

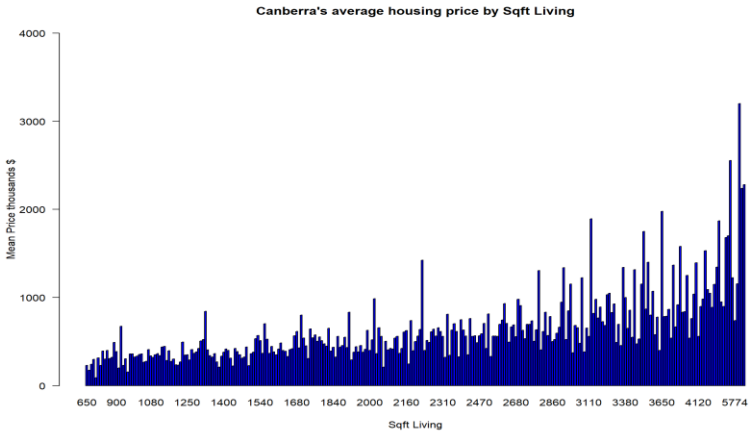
```
> barplot(darwinhouseprice,las=1,col="blue",ylim=c(0,2000),names.arg=colna
mes,xlab = "Number of Bath Rooms", ylab = "Mean Price thousands $",
main="Darwin's average housing price by Bath Rooms")
```



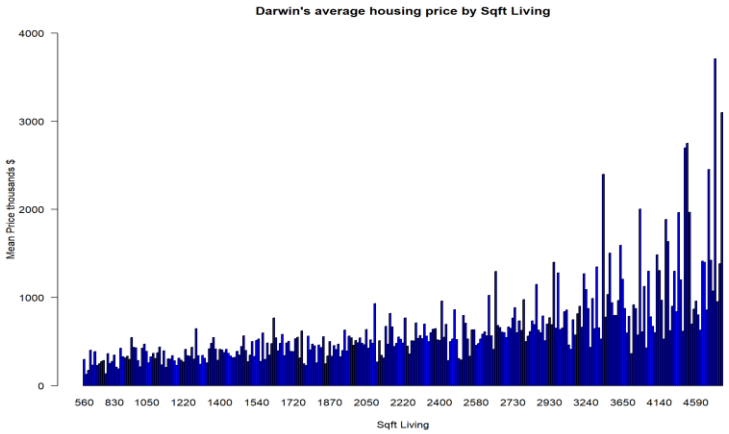

```
> sydneyhouse = sydney %>% group_by(bathrooms) %>% summarise(max_price= ma
x(price), min_price=min(price), avg_price = mean(price))
> colnames = sydneyhouse$bathrooms
> sydneyhouseprice = sydneyhouse$avg_price
> barplot(sydneyhouseprice,las=1,col="blue",ylim=c(0,5000),names.arg=colna
mes,xlab = "Number of Bath Rooms", ylab = "Mean Price thousands $",
main="Sydney's average housing price by Bath Rooms")
```



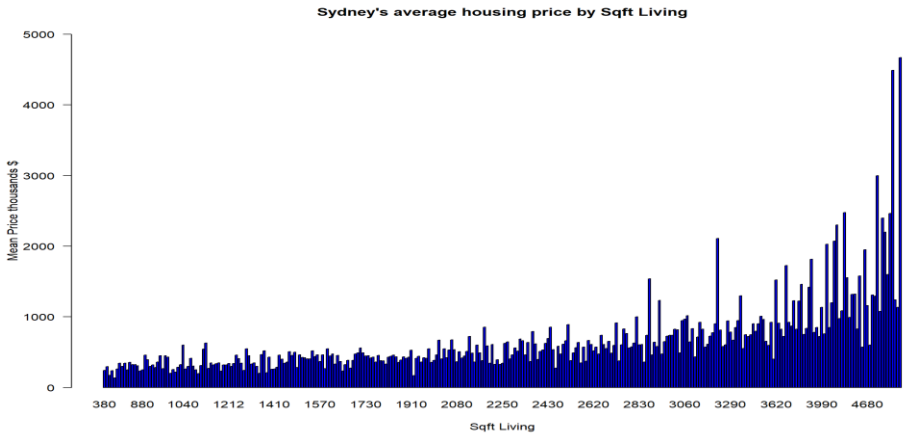

```
> perthhouse = perth %>% group_by(bathrooms) %>% summarise(max_price= max(
price), min_price=min(price), avg_price = mean(price))
> colnames = perthhouse$bathrooms
> perthhouseprice = perthhouse$avg_price
> barplot(perthhouseprice,las=1,col="blue",ylim=c(0,1500),names.arg=colnam
es,xlab = "Number of Bath Rooms", ylab = "Mean Price thousands $",
main="Perth's average housing price by Bath Rooms")
```



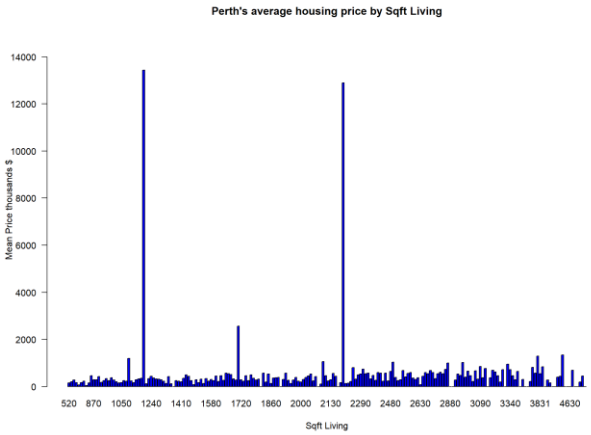

```
> canberrahouse = canberra %>% group_by(`sqft living`) %>% summarise(max_p
rice= max(price), min_price=min(price), avg_price = mean(price))
> colnames = canberrahouse$`sqft living`
> canberrahouseprice = canberrahouse$avg_price
> barplot(canberrahouseprice,las=1,col="blue",ylim=c(0,4000),names.arg=col
names,xlab = "Sqft Living", ylab = "Mean Price thousands $",        main="
Canberra's average housing price by Sqft Living")
```




```
> darwinhouse = darwin %>% group_by(`sqft living`) %>% summarise(max_price
= max(price), min_price=min(price), avg_price = mean(price))
> colnames = darwinhouse$`sqft living`
> darwinhouseprice = darwinhouse$avg_price
> barplot(darwinhouseprice,las=1,col="blue",ylim=c(0,4000),names.arg=colna
mes,xlab = "Sqft Living", ylab = "Mean Price thousands $",        main="Da
rwin's average housing price by Sqft Living")
```



```
> sydneyhouse = sydney %>% group_by(`sqft living`) %>% summarise(max_price
= max(price), min_price=min(price), avg_price = mean(price))
> colnames = sydneyhouse$`sqft living`
> sydneyhouseprice = sydneyhouse$avg_price
> barplot(sydneyhouseprice,las=1,col="blue",ylim=c(0,5000),names.arg=colna
mes,xlab = "Sqft Living", ylab = "Mean Price thousands $",        main="Sy
dney's average housing price by Sqft Living")
```




```
> perthhouse = perth %>% group_by(`sqft living`) %>% summarise(max_price=
max(price), min_price=min(price), avg_price = mean(price))
> colnames = perthhouse$`sqft living`
> perthhouseprice = perthhouse$avg_price
> barplot(perthhouseprice,las=1,col="blue",ylim=c(0,15000),names.arg=colna
mes,xlab = "Sqft Living", ylab = "Mean Price thousands $",        main="Pe
rth's average housing price by Sqft Living")
```