

King County House Sales

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#1. Used the read.csv() function to read the data into R. Called the loaded data House. Made sure that the working directory was set to the correct location for the data. If not, use the setwd() function to change the working directory to the right location. Used the attach() function to attach House to the R search path.

```
House<-read.csv("kc_house_sales.csv")
attach(House)

#2. Used the summary() function to obtain a numerical summary of the variables in the data set.

summary(House)

##      date      price      bedrooms      bathrooms
## Length:21613      Min.   : 75000      Min.   : 0.000      Min.   :0.000
## Class :character      1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750
## Mode :character      Median :450000      Median : 3.000      Median :2.250
##      Mean   :540182      Mean   : 3.371      Mean   :2.115
##      3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500
##      Max.   :7700000      Max.   :33.000      Max.   :8.000
## sqft_living sqft_lot      floors      waterfront
## Min.   : 290      Min.   : 520      Min.   :1.000      Min.   :0.000000
## 1st Qu.:1427      1st Qu.: 5040      1st Qu.:1.000      1st Qu.:0.000000
## Median :1910      Median : 7618      Median :1.500      Median :0.000000
## Mean   :2000      Mean   :15107      Mean :1.494      Mean :0.007542
## 3rd Qu.:2550      3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:0.000000
## Max.   :13540      Max.   :1651359      Max.   :3.500      Max.   :1.000000
## view      condition      grade      sqft_above
## Min.   :0.0000      Min.   :1.000      Min.   : 0.0      Min.   : 290
## 1st Qu.:0.0000      1st Qu.:3.000      1st Qu.: 7.000      1st Qu.:1190
## Median :0.0000      Median :3.000      Median : 7.000      Median :1560
## Mean   :0.2343      Mean   :3.499      Mean : 7.657      Mean :1788
## 3rd Qu.:0.0000      3rd Qu.:4.000      3rd Qu.: 8.000      3rd Qu.:2210
## Max.   :4.0000      Max.   :3.000      Max.   :13.000      Max.   :9410
## sqft_basement yr_built      yr_renovated      zipcode
## Min.   : 0.0      Min.   :1900      Min.   : 0.0      Min.   :98001
## 1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0      1st Qu.:98033
## Median : 0.0      Median :1975      Median : 0.0      Median :98005
## Mean   :201.5      Mean :1971      Mean : 84.4      Mean :98078
## 3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0      3rd Qu.:98118
## Max.   :4820.0      Max.   :2015      Max.   :2015.0      Max.   :98199
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
```

#3.Among the variables, the date was treated as a categorical variable in the numerical summary. Converted it to dates using the as.Date() function. In the function, the upper case Y means the first 4 digits represent the year, while lower case m and d mean the next 2 digits each represent month and day, respectively.

```
dates<-Date(date,format="%Y%m%d")

#4. Waterfront, view, and zipcode variables were categorical, however, they were treated as numerical variables in the numerical summary.
Converted them to categorical variables using the as.factor() function

view<-as.factor(view)
waterfront<-as.factor(waterfront)
zipcode<-as.factor(zipcode)
```

#5.Obtained a numerical summary of the data set one more time using summary(House).

```
summary(House)

##      date      price      bedrooms      bathrooms
## Length:21613      Min.   : 75000      Min.   : 0.000      Min.   :0.000
## Class :character      1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750
## Mode :character      Median :450000      Median : 3.000      Median :2.250
##      Mean   :540182      Mean   : 3.371      Mean   :2.115
##      3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500
##      Max.   :7700000      Max.   :33.000      Max.   :8.000
## sqft_living sqft_lot      floors      waterfront
## Min.   : 290      Min.   : 520      Min.   :1.000      Min.   :0.000000
## 1st Qu.:1427      1st Qu.: 5040      1st Qu.:1.000      1st Qu.:0.000000
## Median :1910      Median : 7618      Median :1.500      Median :0.000000
## Mean   :2000      Mean   :15107      Mean :1.494      Mean :0.007542
## 3rd Qu.:2550      3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:0.000000
## Max.   :13540      Max.   :1651359      Max.   :3.500      Max.   :1.000000
## view      condition      grade      sqft_above
## Min.   :0.0000      Min.   :1.000      Min.   : 0.0      Min.   : 290
## 1st Qu.:0.0000      1st Qu.:3.000      1st Qu.: 7.000      1st Qu.:1190
## Median :0.0000      Median :3.000      Median : 7.000      Median :1560
## Mean   :0.2343      Mean   :3.499      Mean : 7.657      Mean :1788
## 3rd Qu.:0.0000      3rd Qu.:4.000      3rd Qu.: 8.000      3rd Qu.:2210
## Max.   :4.0000      Max.   :3.000      Max.   :13.000      Max.   :9410
## sqft_basement yr_built      yr_renovated      zipcode
## Min.   : 0.0      Min.   :1900      Min.   : 0.0      Min.   :98001
## 1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0      1st Qu.:98033
## Median : 0.0      Median :1975      Median : 0.0      Median :98005
## Mean   :201.5      Mean :1971      Mean : 84.4      Mean :98078
## 3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0      3rd Qu.:98118
## Max.   :4820.0      Max.   :2015      Max.   :2015.0      Max.   :98199
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200

#6.Obtained a numerical summary of the four variables created in the global environment in question 3 and 4 using summary(data.frame(date,
view, waterfront, zipcode)).

summary(data.frame(date,view,waterfront,zipcode))

##      date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163
```

As a result, all four variables are still considered numerical.

#6.Obtained a numerical summary of the four variables created in the global environment in question 3 and 4 using summary(data.frame(date, view, waterfront, zipcode)).

```
summary(data.frame(date,view,waterfront,zipcode))

##      date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

#7.Eliminated the fair variables in House and add date, view, waterfront, and zip code in the global environment to House. Obtained numerical
summary of the variables in-house.

House<-data.frame(House[,-c(1,8,9,16)],date,view,waterfront,zipcode)
summary(House)

##      price      bedrooms      bathrooms      sqft_living
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0
## Median :1560      Median : 0.0      Median :1975      Median : 0.0
## Mean   :1780      Mean :201.5      Mean :1971      Mean : 84.4
## 3rd Qu.:2210      3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0
## Max.   :9410      Max.   :4820.0      Max.   :2015      Max.   :2015.0
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
## date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

#8. Used the unique() function to produce different levels of zipcode. To analyze how many levels it has.

unique(zipcode)

## [1] 98178 98125 98028 98136 98074 98053 98083 98108 98146 98038 98007 98115
## [13] 98107 98126 98019 98103 98002 98133 98040 98002 98030 98119 98112 98052
## [25] 98007 98117 98008 98001 98005 98010 98013 98070 98105 98105 98042 98009
## [37] 98009 98122 98144 98004 98005 98034 98075 98116 98010 98118 98199 98032
## [49] 98045 98102 98077 98108 98108 98177 98005 98029 98006 98109 98022 98033
## [61] 98115 98011 98011 98011 98016 98072 98108 98014 98005 98019
## [73] 98001 98002 98003 98004 98005 98006 98007 98008 98010 ... 98199
```

It has 70 zipcode levels.

#9.Used the pairs() function to obtain a scatter-plot matrix of price, bedrooms, and bathrooms

```
pairs(House[,1:3])

##      price      bedrooms      bathrooms
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0
## Median :1560      Median : 0.0      Median :1975      Median : 0.0
## Mean   :1780      Mean :201.5      Mean :1971      Mean : 84.4
## 3rd Qu.:2210      3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0
## Max.   :9410      Max.   :4820.0      Max.   :2015      Max.   :2015.0
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
## date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

#10.Used the table() function to produce a frequency table of bedrooms. Analysing any unusual observations.

table(bedrooms)

##      bedrooms
##      0      1      2      3      4      5      6      7      8      9     10     11     13
## 13 199 2760 9824 6882 1601 272 38 13 6 3 1 1
```

There are 33 bedrooms in one house.

#11.One house has 33 bedrooms. Printing the observations with more than 30 bedrooms

```
House[bedrooms>30,]

##      price      bedrooms      bathrooms      sqft_living sqft_lot floors condition grade
## 15871 640000      33      1.75      1620      6000      1      5      7
## sqft_above sqft_basement yr_built yr_renovated lat long
## 15871      1840      580      1947      0 47.6878 -122.331
## sqft_living15 sqft_lot15 date view waterfront zipcode
## 15871      1330      4700 2014-08-25      0      98103

#12. It is obvious that the above observation (observation #15871) was incorrectly recorded since it had 33 bedrooms while its living space was
only 1620 sf. Changing the number of bedrooms of this observation to 3 using the following function:

House[15871,2]=3
detach(House)
attach(House)

## The following objects are masked by _globalEnv:
##      date, view, waterfront, zipcode

#13. Used the pairs() function to obtain a scatter-plot matrix of price, bedrooms, and bathrooms one more time. Discovered a relationship between
the three variables.

pairs(House[,1:3])

##      price      bedrooms      bathrooms
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0
## Median :1560      Median : 0.0      Median :1975      Median : 0.0
## Mean   :1780      Mean :201.5      Mean :1971      Mean : 84.4
## 3rd Qu.:2210      3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0
## Max.   :9410      Max.   :4820.0      Max.   :2015      Max.   :2015.0
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
## date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

## The price of a house increases
```

with the number of bedrooms and bathrooms.

#14.Used the plot() function to produce side-by-side box plots of price for two waterfront categories and five categories of view.

```
plot(waterfront,price)

##      price
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0
## Median :1560      Median : 0.0      Median :1975      Median : 0.0
## Mean   :1780      Mean :201.5      Mean :1971      Mean : 84.4
## 3rd Qu.:2210      3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0
## Max.   :9410      Max.   :4820.0      Max.   :2015      Max.   :2015.0
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
## date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

#15. Used the hist() function to produce histograms of price, sqft_living, and sqft_lot

hist(price)

##      price
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0.0      1st Qu.:1951      1st Qu.: 0.0
## Median :1560      Median : 0.0      Median :1975      Median : 0.0
## Mean   :1780      Mean :201.5      Mean :1971      Mean : 84.4
## 3rd Qu.:2210      3rd Qu.:560.0      3rd Qu.:1997      3rd Qu.: 0.0
## Max.   :9410      Max.   :4820.0      Max.   :2015      Max.   :2015.0
## lat      long      sqft_living15      sqft_lot15
## Min.   :47.16      Min.   :-122.5      Min.   :399      Min.   : 651
## 1st Qu.:47.47      1st Qu.:-122.3      1st Qu.:1490      1st Qu.: 5100
## Median :47.57      Median :-122.2      Median :1840      Median : 7620
## Mean   :47.56      Mean   :-122.2      Mean :1987      Mean :12768
## 3rd Qu.:47.68      3rd Qu.:-122.1      3rd Qu.:2300      3rd Qu.:10083
## Max.   :47.78      Max.   :-121.3      Max.   :6210      Max.   :871200
## date      view      waterfront      zipcode
## Min.   :2014-05-02      0:130489      0:21450      98103 : 602
## 1st Qu.:2014-07-22      1: 332      1: 163      98038 : 590
## Median :2014-10-16      2: 963      98115 : 503
## Mean   :2014-10-29      3: 651      98002 : 574
## 3rd Qu.:2015-02-17      4: 319      98117 : 553
## Max.   :2015-05-27      5: 98199      98042 : 548
##      (Other):18163

#16. Used the command

par(mfrow=c(2,2)) or par(mfcol=c(2,2)) to divide the plots window into four regions and repeat questions 14 and 15. You can modify the
arguments to these functions to divide the window in a different way. To return to the original setting, Used the command par(mfrow=c(1,1)).

par(mfrow=c(2,2))
plot(waterfront,price)
hist(price)
hist(price,breaks=30,col="2")

##      price
## Min.   : 75000      Min.   : 0.000      Min.   :0.000      Min.   : 290
## 1st Qu.:221950      1st Qu.: 3.000      1st Qu.:1.750      1st Qu.:1427
## Median :450000      Median : 3.000      Median :2.250      Median :1910
## Mean   :540182      Mean   : 3.371      Mean :2.115      Mean : 2000
## 3rd Qu.:645000      3rd Qu.: 4.000      3rd Qu.:2.500      3rd Qu.:2550
## Max.   :7700000      Max.   :33.000      Max.   :8.000      Max.   :12540
## sqft_lot      floors      condition      grade
## Min.   : 520      Min.   :1.000      Min.   :1.000      Min.   : 1.000
## 1st Qu.: 5040      1st Qu.:1.000      1st Qu.:3.000      1st Qu.: 7.000
## Median : 7618      Median :1.500      Median :3.000      Median : 7.000
## Mean   :15107      Mean   :1.494      Mean :3.499      Mean : 7.657
## 3rd Qu.:10688      3rd Qu.:2.000      3rd Qu.:4.000      3rd Qu.: 8.000
## Max.   :1651359      Max.   :3.500      Max.   :3.000      Max.   :13.000
## sqft_above sqft_basement yr_built yr_renovated
## Min.   : 290      Min.   : 0.0      Min.   :1900      Min.   : 0.0
## 1st Qu.:1190      1st Qu.: 0
```