

# Melbourne Housing Data Regression Analysis

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## Reading Melbourne\_Housing dataset

```
##Loading packages
require(tidyverse)

## Loading required package: tidyverse

## Warning in library(package, lib.loc = lib.loc, character.only = TRUE,
## logical.return = TRUE, : there is no package called 'tidyverse'

require(ISLR)

## Loading required package: ISLR

require(MASS)

## Loading required package: MASS

##Reading the dataset
MelbourneData <-
read.csv("http://www.utdallas.edu/~nxv170005/Datasets/Melbourne_housing_FULL.
csv", header = T, stringsAsFactors = F)
#View(MelbourneData)

#Making it a dataframe
Melbourne_housing_FULL <- data.frame(MelbourneData, stringsAsFactors = F)
#class(Melbourne_housing_FULL)

##Find out the columnnames of this dataset
colnames(Melbourne_housing_FULL)

## [1] "Suburb"      "Address"     "Rooms"       "Type"
## [5] "Price"       "Method"      "SellerG"     "Date"
## [9] "Distance"    "Postcode"    "Bedroom2"    "Bathroom"
## [13] "Car"         "Landsize"    "BuildingArea" "YearBuilt"
## [17] "CouncilArea" "Lattitude"   "Longtitude"  "Regionname"
## [21] "Propertycount"

#Find out the structure of this dataset
str(Melbourne_housing_FULL)

## 'data.frame': 34857 obs. of 21 variables:
## $ Suburb : chr "Abbotsford" "Abbotsford" "Abbotsford" "Abbotsford"
## ...
## $ Address : chr "68 Studley St" "85 Turner St" "25 Bloomburg St"
"18/659 Victoria St" ...
```

```
## $ Rooms      : int  2 2 2 3 3 3 4 4 2 2 ...
## $ Type       : chr   "h" "h" "h" "u" ...
## $ Price      : int  NA 1480000 1035000 NA 1465000 850000 1600000 NA NA
NA ...
## $ Method     : chr   "SS" "S" "S" "VB" ...
## $ SellerG    : chr   "Jellis" "Biggin" "Biggin" "Rounds" ...
## $ Date       : chr   "03-09-16" "03-12-16" "04-02-16" "04-02-16" ...
## $ Distance   : chr   "2.5" "2.5" "2.5" "2.5" ...
## $ Postcode   : chr   "3067" "3067" "3067" "3067" ...
## $ Bedroom2   : int   2 2 2 3 3 3 3 3 4 3 ...
## $ Bathroom   : int   1 1 1 2 2 2 1 2 1 2 ...
## $ Car        : int   1 1 0 1 0 1 2 2 2 1 ...
## $ Landsize   : int  126 202 156 0 134 94 120 400 201 202 ...
## $ BuildingArea : num  NA NA 79 NA 150 NA 142 220 NA NA ...
## $ YearBuilt   : int   NA NA 1900 NA 1900 NA 2014 2006 1900 1900 ...
## $ CouncilArea : chr   "Yarra City Council" "Yarra City Council" "Yarra
City Council" "Yarra City Council" ...
## $ Latitude   : num  -37.8 -37.8 -37.8 -37.8 -37.8 ...
## $ Longitude   : num   145 145 145 145 145 ...
## $ Regionname  : chr   "Northern Metropolitan" "Northern Metropolitan"
"Northern Metropolitan" "Northern Metropolitan" ...
## $ Propertycount: chr   "4019" "4019" "4019" "4019" ...
```

### #Descriptive Analysis

[summary](#)(Melbourne\_housing\_FULL)

```
##      Suburb      Address      Rooms      Type
## Length:34857 Length:34857 Min.    : 1.000 Length:34857
## Class :character Class :character 1st Qu.: 2.000 Class :character
## Mode  :character Mode  :character Median : 3.000 Mode  :character
##                                     Mean  : 3.031
##                                     3rd Qu.: 4.000
##                                     Max.   :16.000
##
##      Price      Method      SellerG
## Min.    : 85000 Length:34857 Length:34857
## 1st Qu.: 635000 Class :character Class :character
## Median : 870000 Mode  :character Mode  :character
## Mean    :1050173
## 3rd Qu.:1295000
## Max.    :1120000
## NA's    :7610
##      Date      Distance      Postcode      Bedroom2
## Length:34857 Length:34857 Length:34857 Min.    : 0.000
## Class :character Class :character Class :character 1st Qu.: 2.000
## Mode  :character Mode  :character Mode  :character Median : 3.000
##                                     Mean    : 3.085
##                                     3rd Qu.: 4.000
##                                     Max.    :30.000
##                                     NA's    :8217
```

```
##      Bathroom      Car      Landsize      BuildingArea
## Min.   : 0.000   Min.   : 0.000   Min.    :    0.0   Min.    :    0.0
## 1st Qu.: 1.000   1st Qu.: 1.000   1st Qu.:  224.0   1st Qu.:  102.0
## Median : 2.000   Median : 2.000   Median :  521.0   Median :  136.0
## Mean   : 1.625   Mean    : 1.729   Mean    :  593.6   Mean    :  160.3
## 3rd Qu.: 2.000   3rd Qu.: 2.000   3rd Qu.:  670.0   3rd Qu.:  188.0
## Max.   :12.000   Max.    :26.000   Max.    :433014.0   Max.    :44515.0
## NA's   :8226    NA's    :8728    NA's    :11810    NA's    :21115
##      YearBuilt   CouncilArea      Lattitude      Longitude
## Min.    :1196   Length:34857   Min.     :-38.19   Min.     :144.4
## 1st Qu.:1940   Class :character 1st Qu.   :-37.86   1st Qu.   :144.9
## Median :1970   Mode  :character Median    :-37.81   Median    :145.0
## Mean    :1965                                Mean     :-37.81   Mean     :145.0
## 3rd Qu.:2000                                3rd Qu.   :-37.75   3rd Qu.   :145.1
## Max.    :2106                                Max.     :-37.39   Max.     :145.5
## NA's    :19306                                NA's     :7976    NA's     :7976
##      Regionname      Propertycount
## Length:34857      Length:34857
## Class :character   Class :character
## Mode  :character   Mode  :character
##
##
##
##
```

## Data Preprocessing : Removing NA Values from the dataset :

```
library(ggplot2)
#Melbourne_housing_FULL <-
read.csv("D:/Melbourne_housing_FULL.csv",stringsAsFactors = FALSE)
Melbourne_housing_FULL_1<-
data.frame(lapply(Melbourne_housing_FULL,function(x) { gsub("#N/A", NA, x)
})))
#class(Melbourne_housing_FULL)
```

*#Find The number of NA values in each column*

```
NA_count_of_each_col<-sapply(Melbourne_housing_FULL,function(x)
sum(is.na(x)==TRUE))
NA_count_of_each_col
```

```
##      Suburb      Address      Rooms      Type      Price
##      0          0          0          0          7610
##      Method      SellerG      Date      Distance      Postcode
##      0          0          0          0          0
##      Bedroom2      Bathroom      Car      Landsize      BuildingArea
##      8217          8226          8728          11810          21115
##      YearBuilt      CouncilArea      Lattitude      Longitude      Regionname
##      19306          0          7976          7976          0
## Propertycount
##      0
```

```
# Find percent of nulls in each column

for(i in 1:ncol(Melbourne_housing_FULL)) {
  colName <- colnames(Melbourne_housing_FULL[i])
  pctNull <-
sum(is.na(Melbourne_housing_FULL[,i]))/length(Melbourne_housing_FULL[,i])
  if (pctNull > 0.50) {
    print(paste("Column ", colName, " has ", round(pctNull*100, 3), "% of
nulls"))
  }
}
```

```
## [1] "Column BuildingArea has 60.576 % of nulls"
## [1] "Column YearBuilt has 55.386 % of nulls"
```

```
#Drop columns with more than 50 percent NA values
```

```
Melbourne_housing_FULL[,c("BuildingArea", "YearBuilt")]<-NULL
```

```
Melbourne_housing_FULL_clean<-na.exclude(Melbourne_housing_FULL)
```

```
Melbourne_housing_FULL_clean$Suburb<-
as.factor(Melbourne_housing_FULL_clean$Suburb)
Melbourne_housing_FULL_clean$Type<-
as.factor(Melbourne_housing_FULL_clean$Type)
Melbourne_housing_FULL_clean$Method<-
as.factor(Melbourne_housing_FULL_clean$Method)
Melbourne_housing_FULL_clean$SellerG<-
as.factor(Melbourne_housing_FULL_clean$SellerG)
Melbourne_housing_FULL_clean$Propertycount<-
as.numeric(Melbourne_housing_FULL_clean$Propertycount)
Melbourne_housing_FULL_clean$Regionname<-
as.factor(Melbourne_housing_FULL_clean$Regionname)
Melbourne_housing_FULL_clean$CouncilArea<-
as.factor(Melbourne_housing_FULL_clean$CouncilArea)
Melbourne_housing_FULL_clean$Distance<-
as.numeric(Melbourne_housing_FULL_clean$Distance)
```

```
head(Melbourne_housing_FULL_clean)
```

##	Suburb	Address	Rooms	Type	Price	Method	SellerG	Date
## 2	Abbotsford	85 Turner St	2	h	1480000	S	Biggin	03-12-16
## 3	Abbotsford	25 Bloomburg St	2	h	1035000	S	Biggin	04-02-16
## 5	Abbotsford	5 Charles St	3	h	1465000	SP	Biggin	04-03-17
## 6	Abbotsford	40 Federation La	3	h	850000	PI	Biggin	04-03-17
## 7	Abbotsford	55a Park St	4	h	1600000	VB	Nelson	04-06-16
## 11	Abbotsford	129 Charles St	2	h	941000	S	Jellis	07-05-16

```
## Distance Postcode Bedroom2 Bathroom Car Landsize CouncilArea
## 2 2.5 3067 2 1 1 202 Yarra City Council
## 3 2.5 3067 2 1 0 156 Yarra City Council
## 5 2.5 3067 3 2 0 134 Yarra City Council
## 6 2.5 3067 3 2 1 94 Yarra City Council
## 7 2.5 3067 3 1 2 120 Yarra City Council
## 11 2.5 3067 2 1 0 181 Yarra City Council
## Latitude Longitude Regionname Propertycount
## 2 -37.7996 144.9984 Northern Metropolitan 4019
## 3 -37.8079 144.9934 Northern Metropolitan 4019
## 5 -37.8093 144.9944 Northern Metropolitan 4019
## 6 -37.7969 144.9969 Northern Metropolitan 4019
## 7 -37.8072 144.9941 Northern Metropolitan 4019
## 11 -37.8041 144.9953 Northern Metropolitan 4019
```

### Finding Top 10 Suburbs with highest no. of observations:

```
require("dplyr")

## Loading required package: dplyr

##
## Attaching package: 'dplyr'

## The following object is masked from 'package:MASS':
##
## select

## The following objects are masked from 'package:stats':
##
## filter, lag

## The following objects are masked from 'package:base':
##
## intersect, setdiff, setequal, union

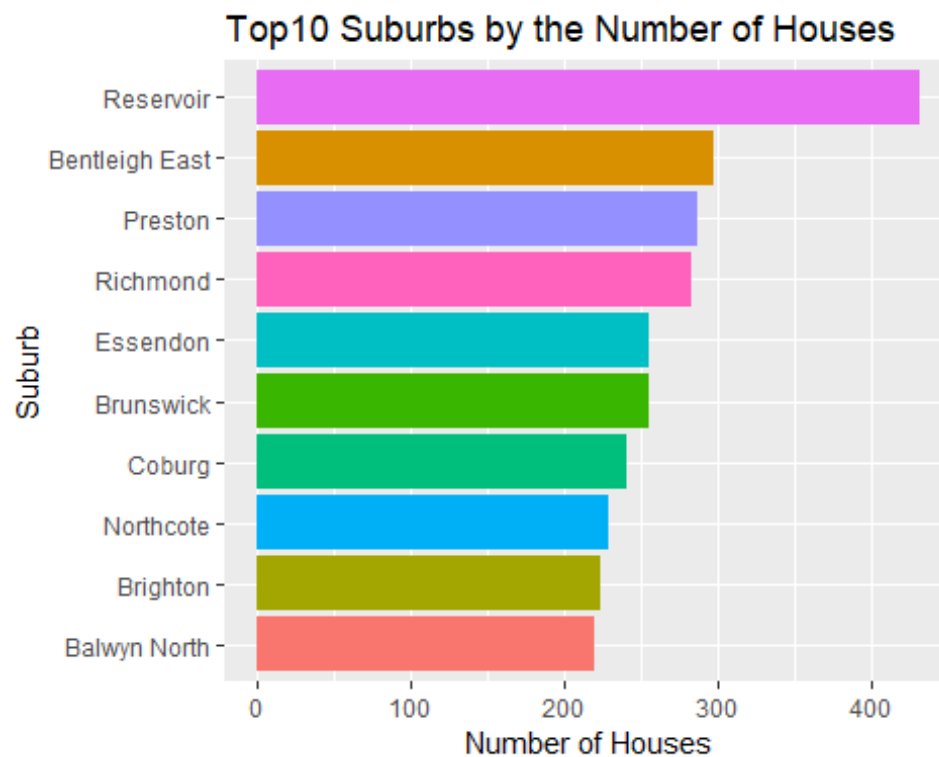
require("ggplot2")

top10sub_by_houses <- Melbourne_housing_FULL_clean %>% group_by(Suburb) %>%
  summarise(Number = n()) %>% arrange(desc(Number)) %>%
  head(10)
top10sub_by_houses

## # A tibble: 10 x 2
## Suburb Number
## <fct> <int>
## 1 Reservoir 431
## 2 Bentleigh East 297
## 3 Preston 287
## 4 Richmond 282
## 5 Brunswick 255
## 6 Essendon 255
```

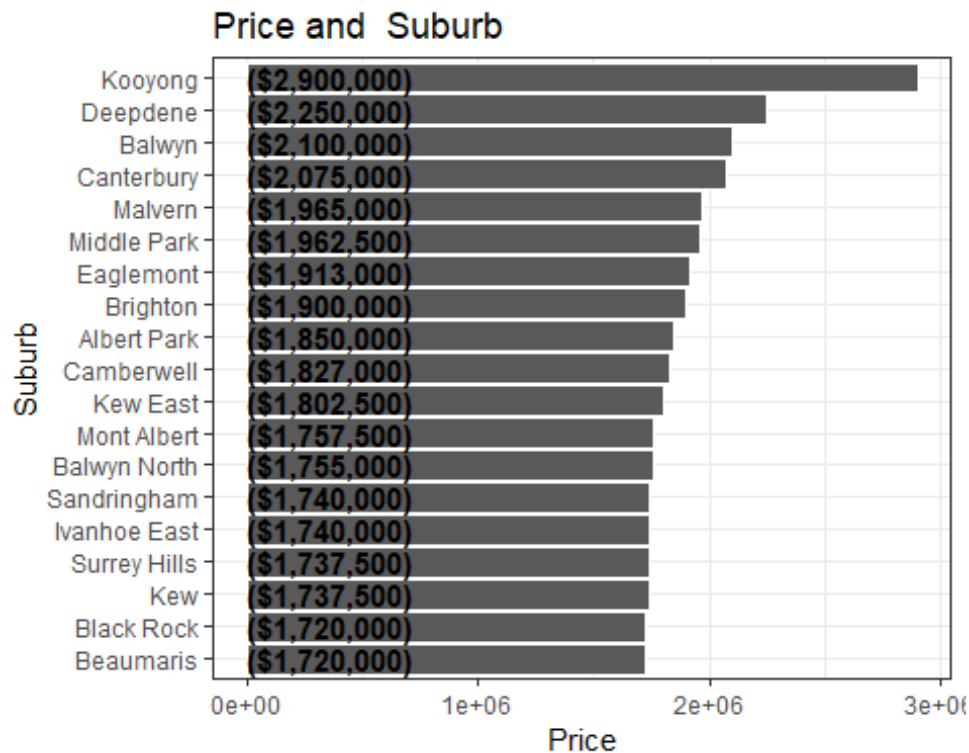
```
## 7 Coburg          240
## 8 Northcote       229
## 9 Brighton       223
## 10 Balwyn North   219
```

```
ggplot(top10sub_by_houses, aes(reorder(Suburb, Number), Number, fill =
Suburb))+
  geom_bar(stat = "identity")+
  theme(legend.position = "none")+
  labs(x = "Suburb", y = "Number of Houses",
       title = "Top10 Suburbs by the Number of Houses")+
  coord_flip()
```



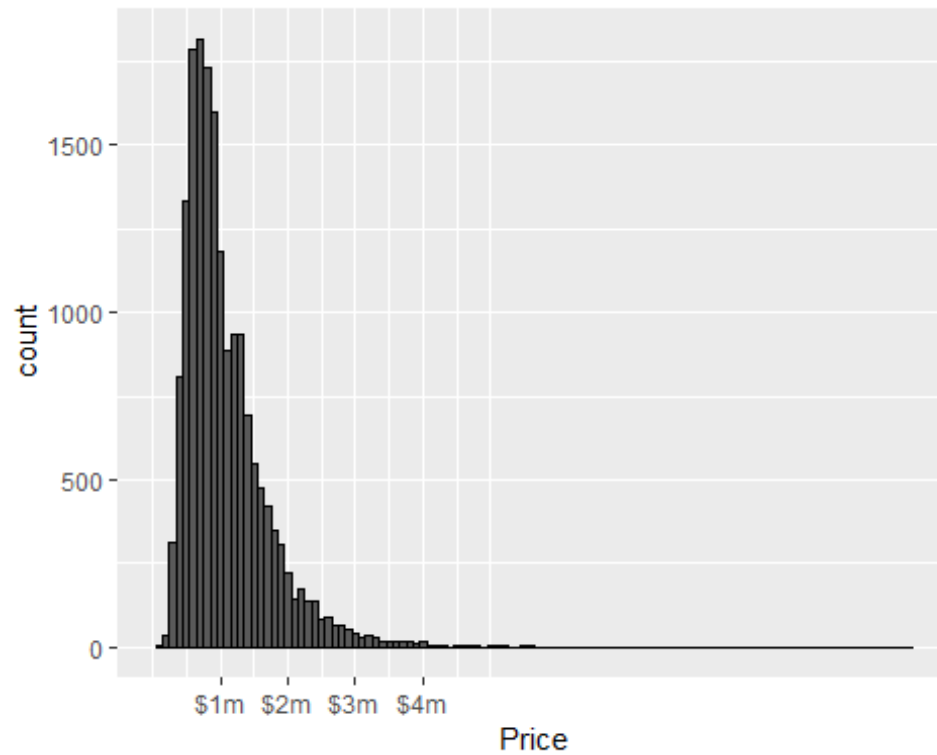
## Suburb Price Analysis (table format)

### Top 20 Most Costliest Suburbs



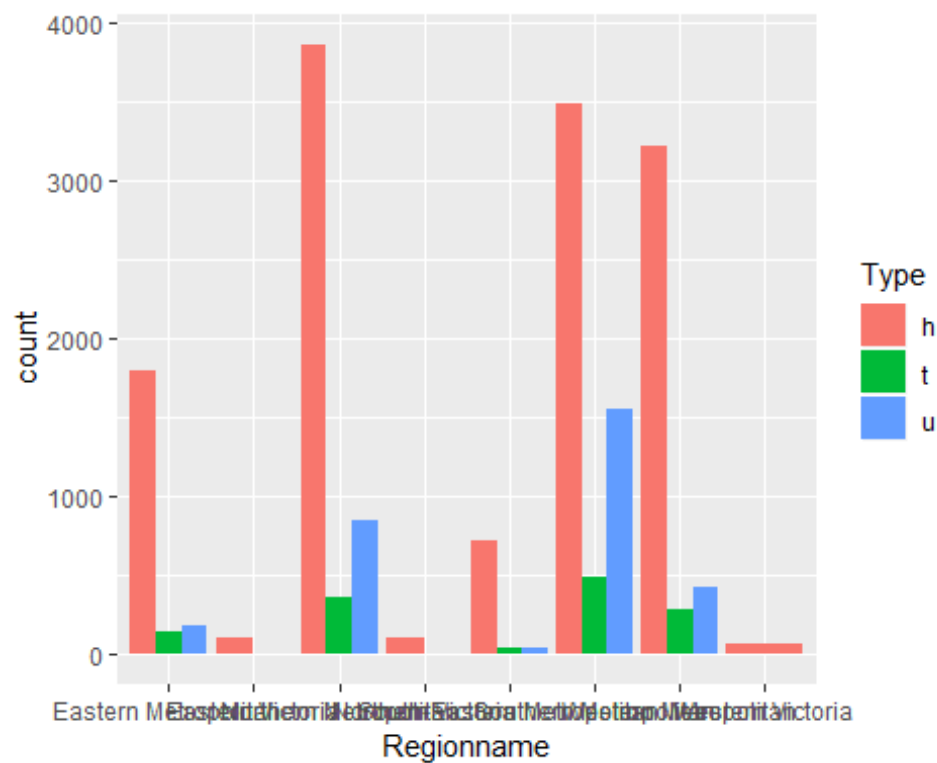
### Plot for distribution of observations in different price range

```
ggplot(Melbourne_housing_FULL_clean, aes(Price))+  
  geom_histogram(binwidth = 100000,color = "black")+  
  scale_x_continuous(breaks = c(1000000,2000000,3000000,4000000),  
    labels = c("$1m", "$2m", "$3m", "$4m"))
```



Distribution of different Type of houses over the regions:

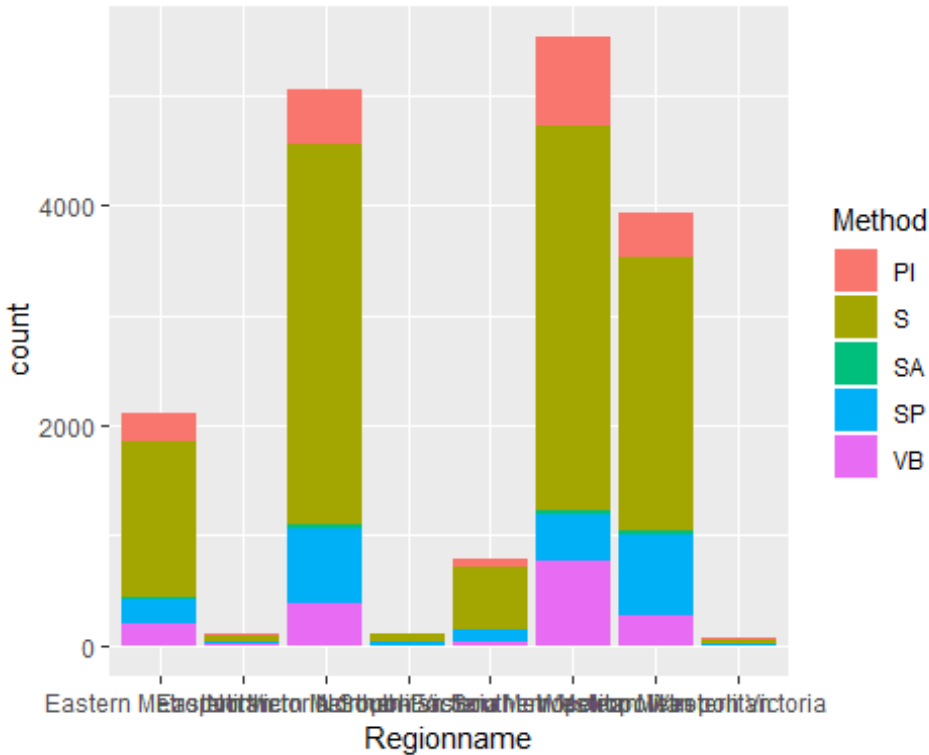
```
ggplot(data =Melbourne_housing_FULL_clean) +  
  geom_bar(mapping = aes(x = Regionname, fill = Type),position = "dodge")
```





## Distribution of observations for different Method used for selling over the Regions:

```
ggplot(data=Melbourne_housing_FULL_clean)
+geom_bar(mapping=aes(x=Regionname,fill=Method))
```



## Finding Correlation between Categorical Variables :

*#Finding correlation between Categorical variables Suburb, Postcode, CouncilArea, Regionname, Type, Method Seller*

```
DF <-
data.frame(suburb=Melbourne_housing_FULL_clean$Suburb,postcode=Melbourne_housing_FULL_clean$Postcode,
            council=Melbourne_housing_FULL_clean$CouncilArea,
            region=Melbourne_housing_FULL_clean$Regionname,
            type=Melbourne_housing_FULL_clean$Type,
            method=Melbourne_housing_FULL_clean$Method,
            seller=Melbourne_housing_FULL_clean$SellerG)
```

```
DF[] <- lapply(DF,as.integer)
cor(DF)
```

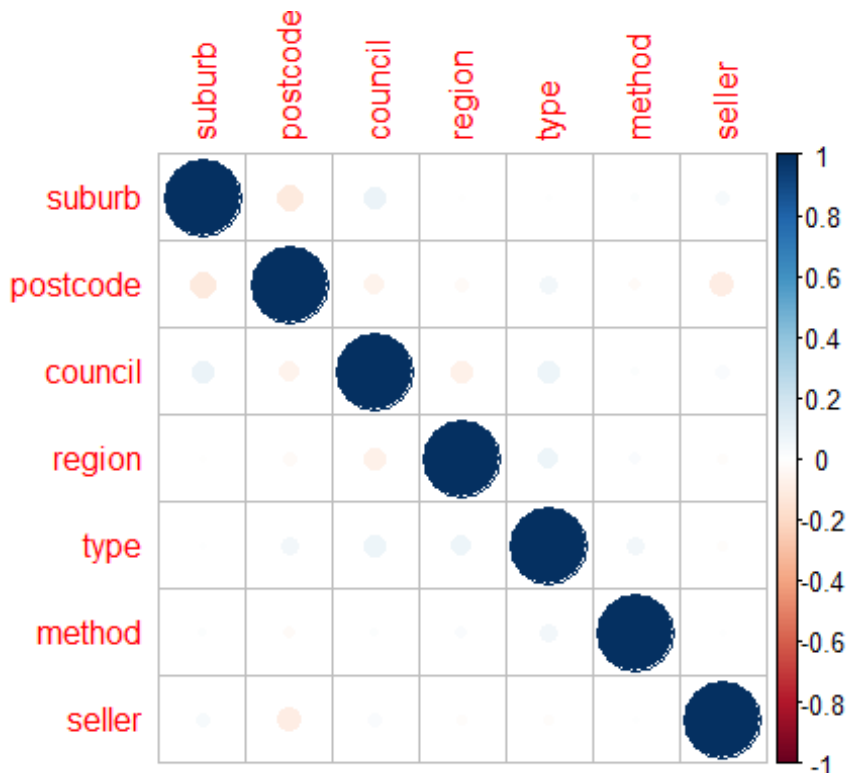
```
##          suburb      postcode      council      region      type
## suburb      1.000000000 -0.11206356  0.08229516 -0.006853643 0.008067723
## postcode -0.112063558  1.000000000 -0.06166329 -0.028964943 0.058621608
## council   0.082295160 -0.06166329  1.000000000 -0.075086020 0.074940189
## region    -0.006853643 -0.02896494 -0.07508602  1.000000000 0.072644839
```

```
## type      0.008067723  0.05862161  0.07494019  0.072644839  1.000000000
## method    0.010665212 -0.02668002  0.01204779  0.023324890  0.058311484
## seller    0.033037091 -0.09982909  0.02893285 -0.015273849 -0.018275104
##          method      seller
## suburb    0.010665212  0.033037091
## postcode  -0.026680022 -0.099829089
## council    0.012047791  0.028932845
## region     0.023324890 -0.015273849
## type       0.058311484 -0.018275104
## method     1.000000000  0.005164408
## seller     0.005164408  1.000000000
```

```
# visualize it
library(corrplot)
```

```
## corrplot 0.84 loaded
```

```
corrplot(cor(DF))
```



## Observations:

As we see that there is no significant correlation between the categorical variables, we can consider them for linear regression model.

```
#head(Melbourne_housing_FULL_clean)
datetxt <- as.Date(Melbourne_housing_FULL_clean$Date, "%d-%m-%Y")
#head(datetxt)
```

```

#Split Date into Day, Month, Year
df <- data.frame(Date = datetxt,
                 year = as.numeric(format(datetxt, format = "%Y")),
                 month = as.numeric(format(datetxt, format = "%m")),
                 day = as.numeric(format(datetxt, format = "%d")))

Melbourne_housing_FULL_clean$year <- as.factor(df$year)
Melbourne_housing_FULL_clean$month <- as.factor(df$month)
#Melbourne_clean$day <- df$day

#Remove Date
Melbourne_housing_FULL_clean$Date <- NULL

#head(Melbourne_housing_FULL_clean)

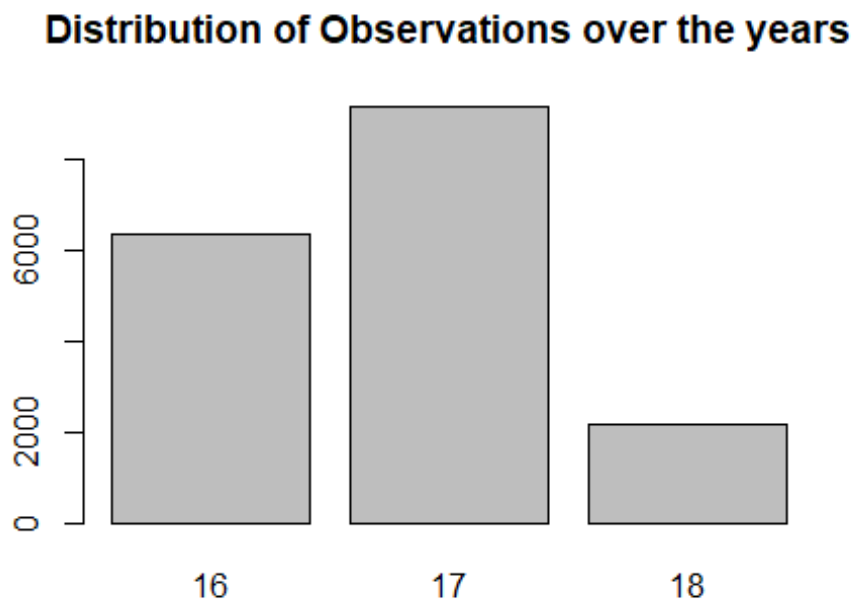
```

### Number of sales in each year/each month

```

barplot(table(Melbourne_housing_FULL_clean$year),main = "Distribution of
Observations over the years")

```

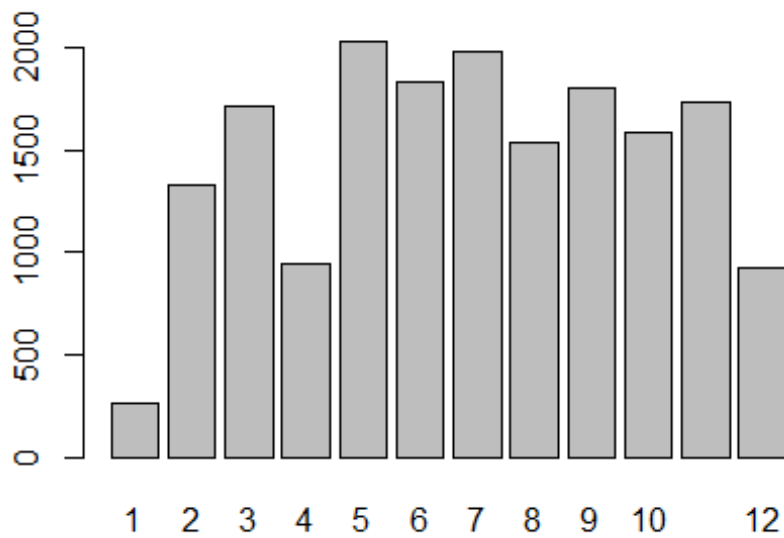


```

barplot(table(Melbourne_housing_FULL_clean$month),main = "Distribution of
Observations over the months")

```

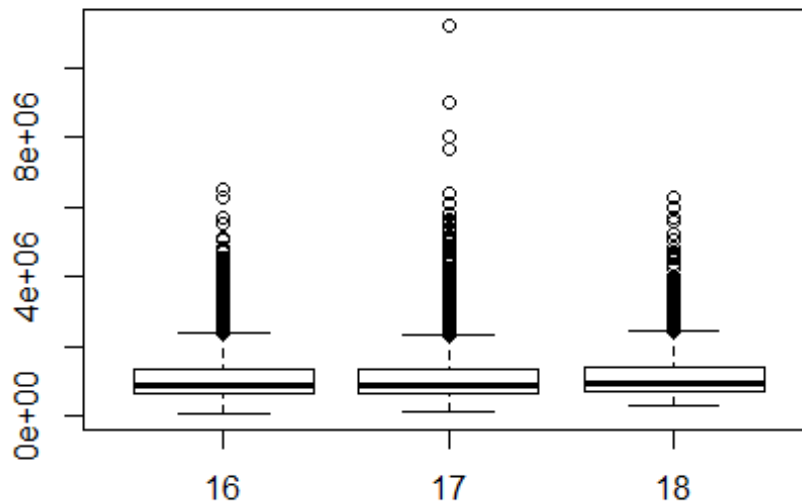
### Distribution of Observations over the months



#### Observations:

1. Maximum sales happened in the year 2017.
2. Maximum sales happened in the month of May followed by July, minimum in January

```
plot(Melbourne_housing_FULL_clean$year, Melbourne_housing_FULL_clean$Price)
```



### Observation:

From the above plot we can say that highest Price is in the year 2017, but all mean Price is approx. same in all years

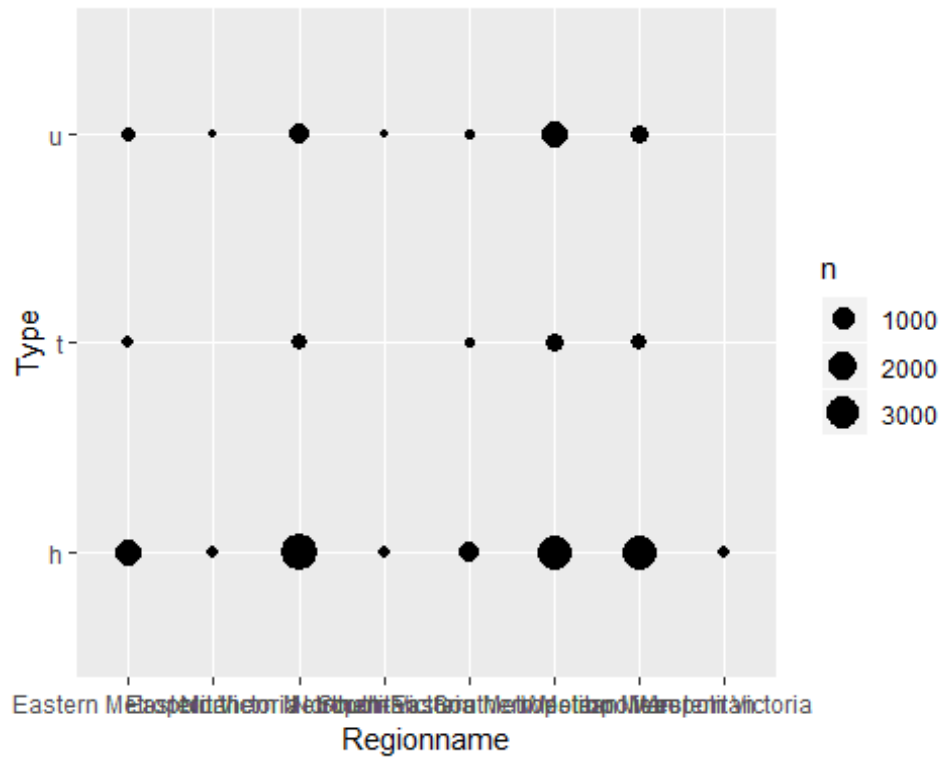
```
#plot(Melbourne_housing_FULL_clean$Suburb,
Melbourne_housing_FULL_clean$Price)

#plot(Melbourne_housing_FULL_clean$month, Melbourne_housing_FULL_clean$Price)

#boxplot(Melbourne_clean$Price ~ Melbourne_clean$SellerG)
#boxplot(Melbourne_clean$Price ~ Melbourne_clean$CouncilArea)
```

### Covariation between Region and Type of housing property:

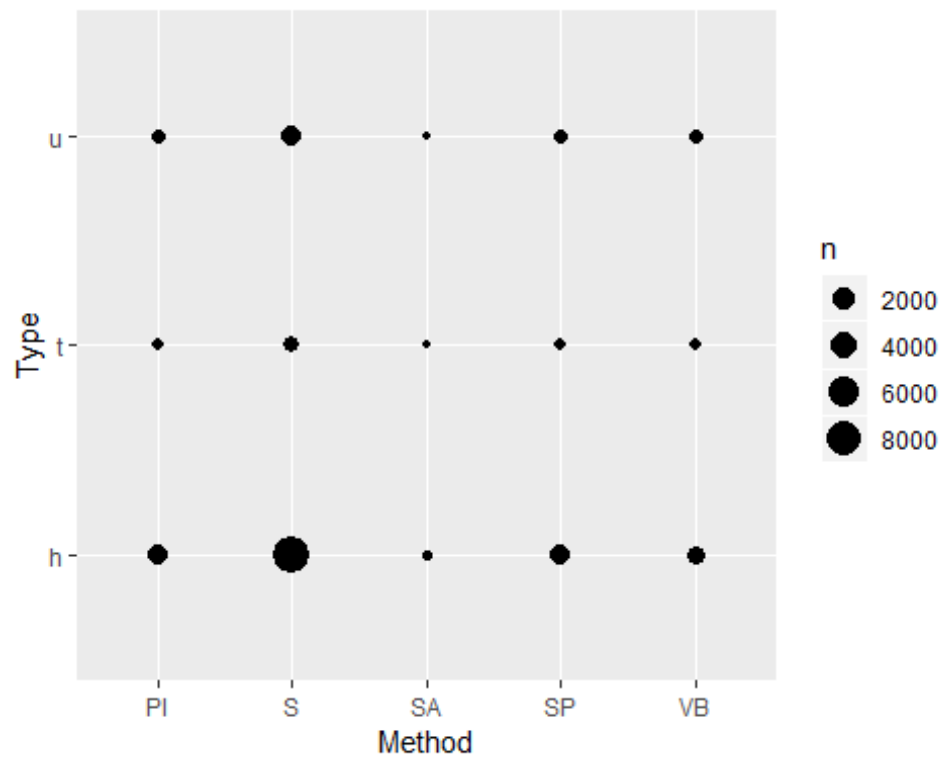
```
ggplot(data = Melbourne_housing_FULL_clean) +
  geom_count(mapping = aes(x = Regionname, y = Type))
```



###Covariation

between Type and Method

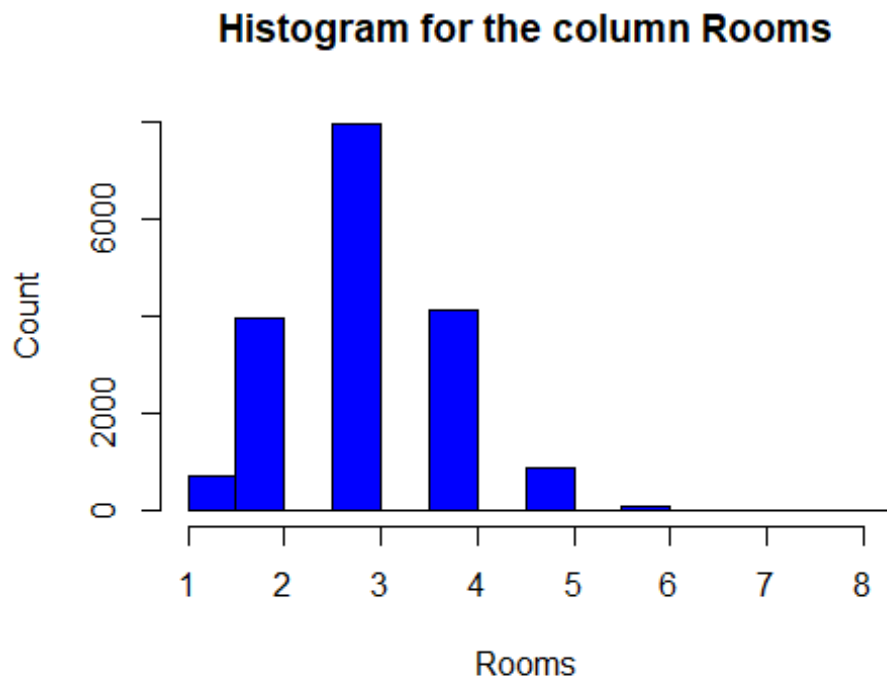
```
ggplot(data = Melbourne_housing_FULL_clean) +
  geom_count(mapping = aes(x = Method, y = Type))
```



## Basic Plots and visualizations

```
##Histogram for the column Rooms
```

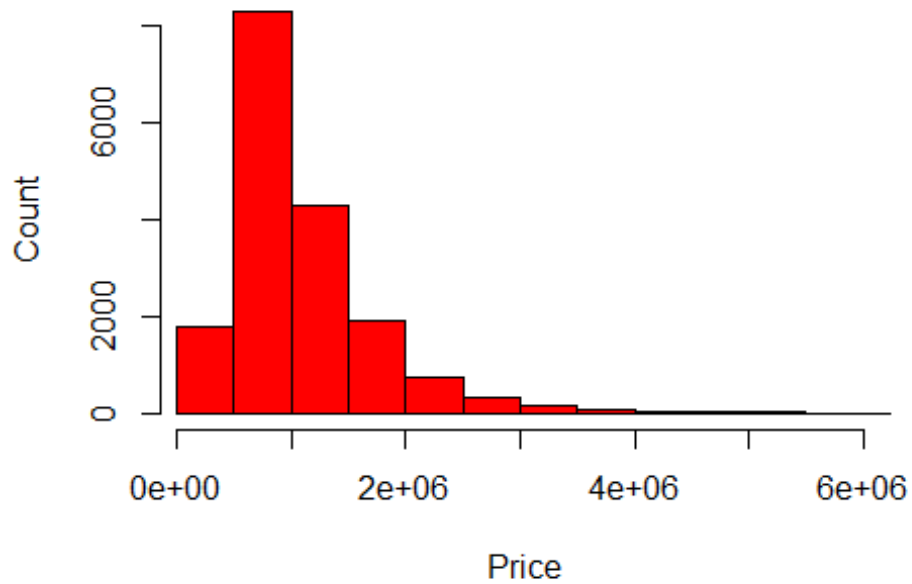
```
hist(Melbourne_housing_FULL_clean$Rooms, col = "blue", xlab = "Rooms", ylab =  
"Count", xlim = c(1,8), ylim = c(0,8000),main = "Histogram for the column  
Rooms")
```



```
##Histogram for the column Price
```

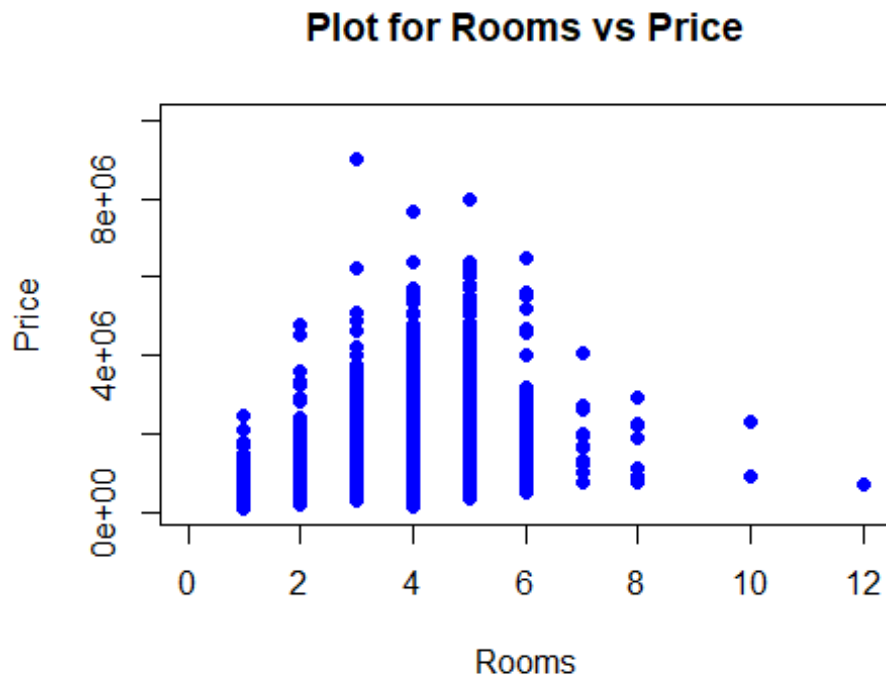
```
hist(Melbourne_housing_FULL_clean$Price, col = "red", xlab = "Price", ylab =  
"Count" , xlim = c(10^5,6*10^6), ylim = c(0,8000), main = "Histogram for the  
column Price")
```

**Histogram for the column Price**



```
##Plot for Rooms vs Prices
plot(Melbourne_housing_FULL_clean$Price ~ Melbourne_housing_FULL_clean$Rooms,
     pch = 19, col = "blue", xlim = c(0,12), ylim = c(10^5,10^7), xlab = "Rooms",
     ylab = "Price", main = "Plot for Rooms vs Price")
```

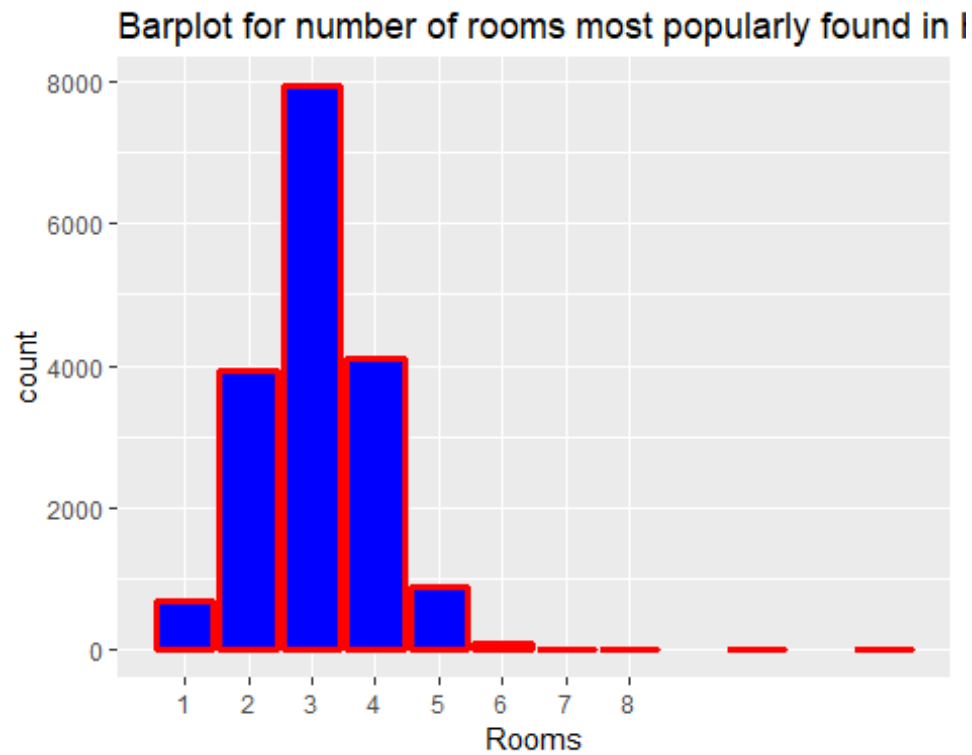




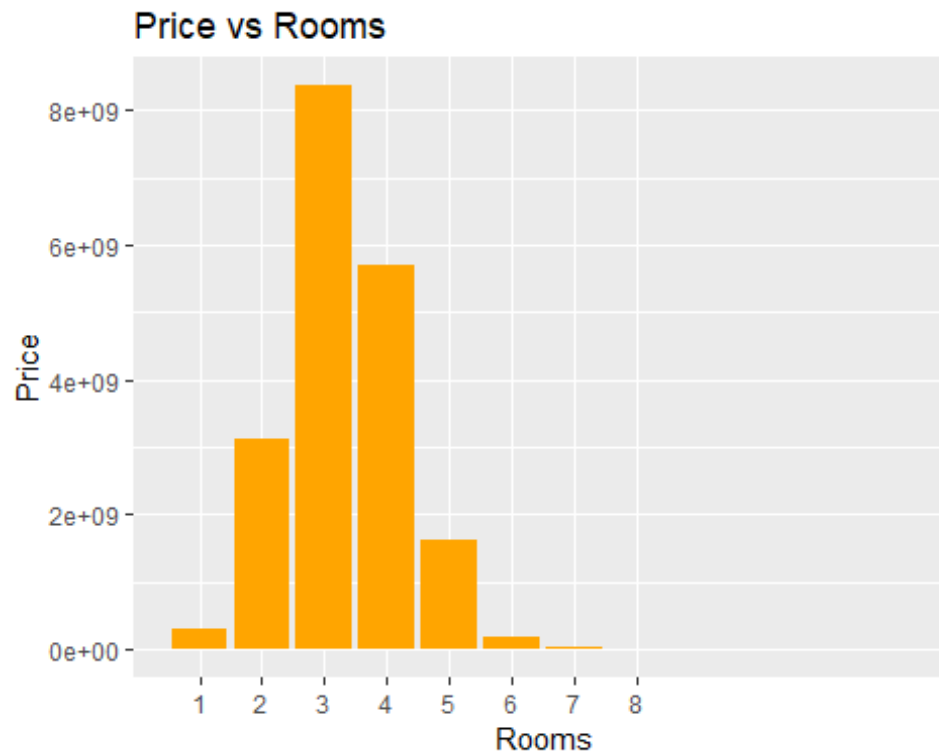
```
##Visualizations
require(ggplot2)
require(scales)

## Loading required package: scales

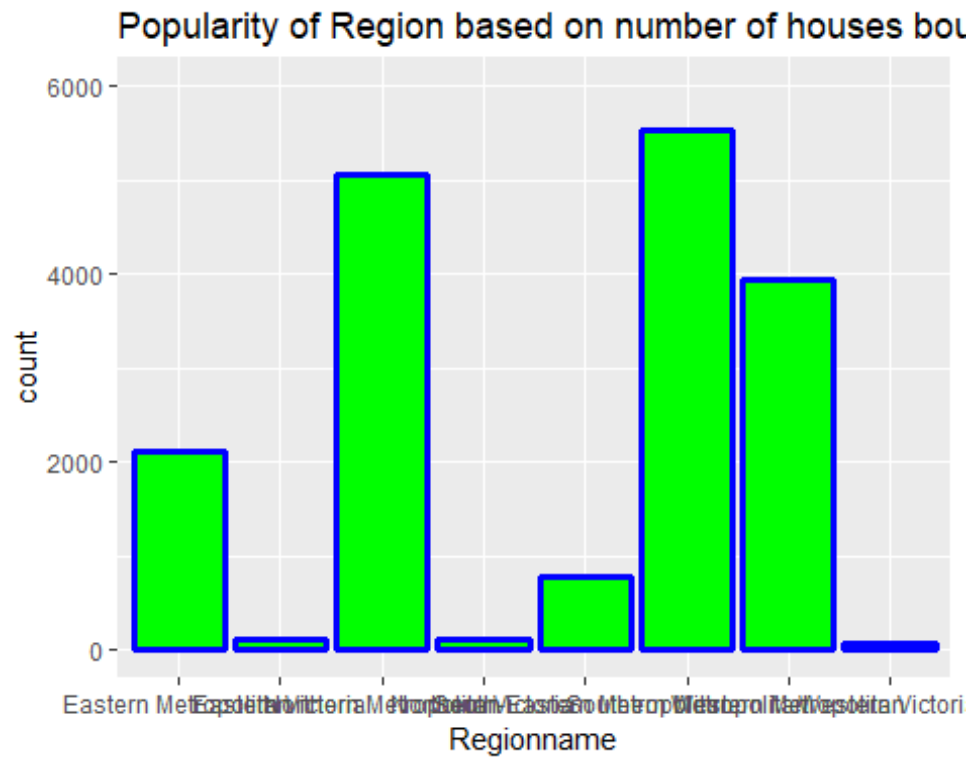
###Barplot for number of rooms most popularly found in homes
ggplot(Melbourne_housing_FULL_clean, aes(x = Rooms)) + geom_bar(fill =
"blue", color = "red", size = 1.25) + labs(title = "Barplot for number of
rooms most popularly found in homes", xlab = "Rooms", ylab = "Count") +
scale_x_discrete(limits = c("1","2","3","4","5","6","7","8"))
```



```
###Price vs Rooms
ggplot(Melbourne_housing_FULL_clean, aes(Rooms , Price)) + geom_bar(stat =
"identity", fill = "orange", size = 1.25) + labs(title = "Price vs Rooms",
xlab = "Rooms", ylab = "Price") + scale_x_discrete(limits =
c("1","2","3","4","5","6","7","8"))
```

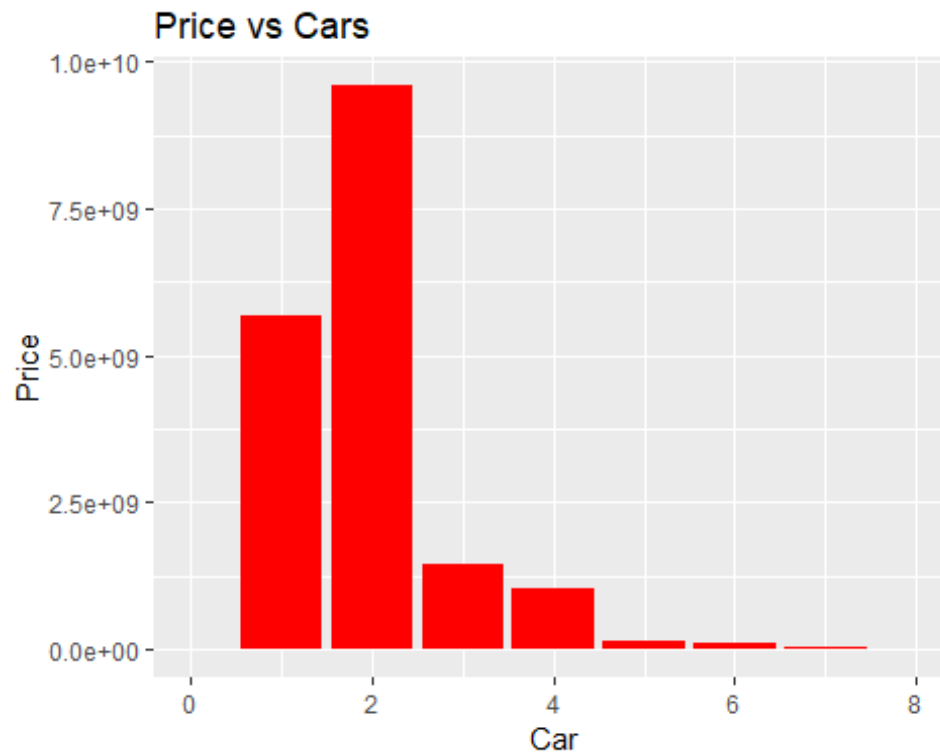


```
###Popularity of Region based on number of houses bought
ggplot(Melbourne_housing_FULL_clean, aes(x = Regionname)) + geom_bar(fill =
"green", color = "blue", size = 1.25) + labs(title = "Popularity of Region
based on number of houses bought", xlab = "Region Name", ylab = "Count") +
ylim(0,6000)
```



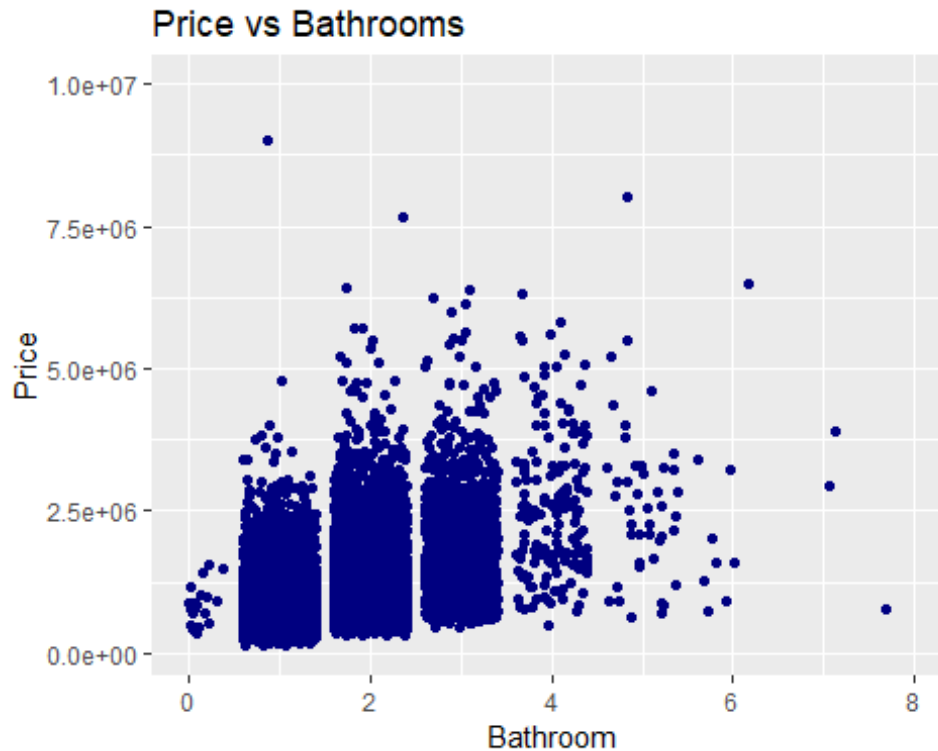
```
####Price vs Cars
ggplot(Melbourne_housing_FULL_clean, aes(Car, Price)) + geom_bar(stat =
"identity", fill = "red", size = 1.25) + labs(title = "Price vs Cars", xlab =
"Cars", ylab = "Price") + xlim(0,8)

## Warning: Removed 8 rows containing missing values (position_stack).
## Warning: Removed 1190 rows containing missing values (geom_bar).
```



```
####Price vs Bathrooms
ggplot(Melbourne_housing_FULL_clean, aes(Bathroom, Price)) +
  geom_jitter(color = "navy blue", size = 1.25, size = 3) + labs(title = "Price
vs Bathrooms", xlab = "Bathrooms", ylab = "Price") + xlim(0,8) +
  ylim(1e+05,10e+06)

## Warning: Duplicated aesthetics after name standardisation: size
## Warning: Removed 19 rows containing missing values (geom_point).
```



## Correlations

```
## Rooms vs Bathrooms
cor(Melbourne_housing_FULL_clean$Rooms,
Melbourne_housing_FULL_clean$Bathroom)

## [1] 0.6020657

##Price vs Rooms
cor(Melbourne_housing_FULL_clean$Rooms, Melbourne_housing_FULL_clean$Price)

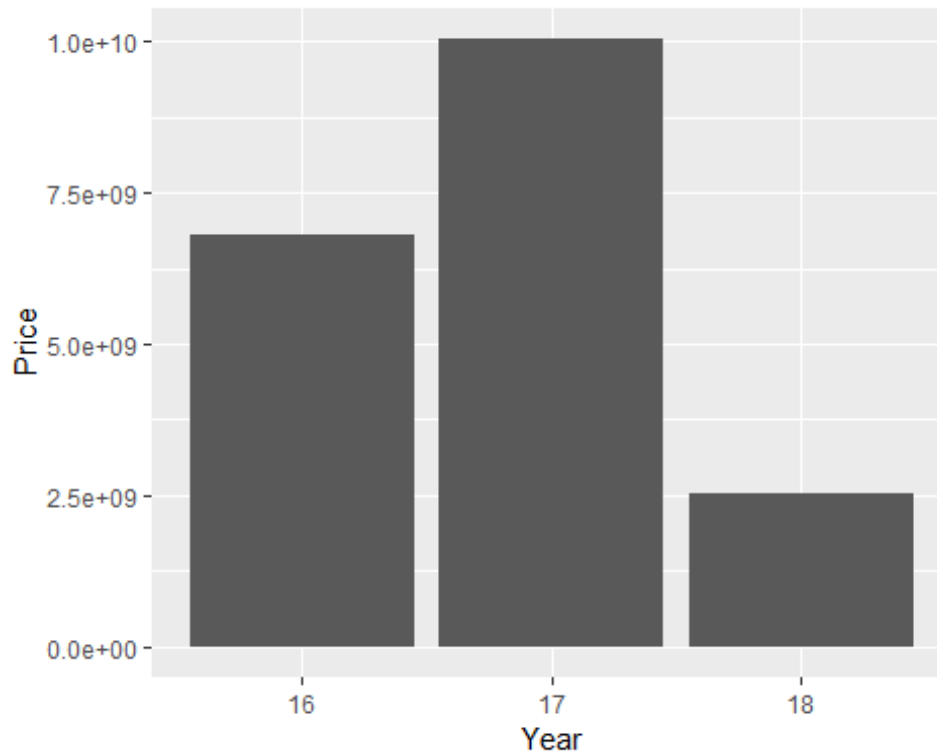
## [1] 0.4522987

##Price vs Car
cor(Melbourne_housing_FULL_clean$Car, Melbourne_housing_FULL_clean$Price)

## [1] 0.2018597
```

## Distribution of observations over the 3 years

```
ggplot(Melbourne_housing_FULL_clean, aes(Melbourne_housing_FULL_clean$year,
Melbourne_housing_FULL_clean$Price)) +
  geom_bar(stat = "identity") +
  labs(y = "Price", x = "Year")
```



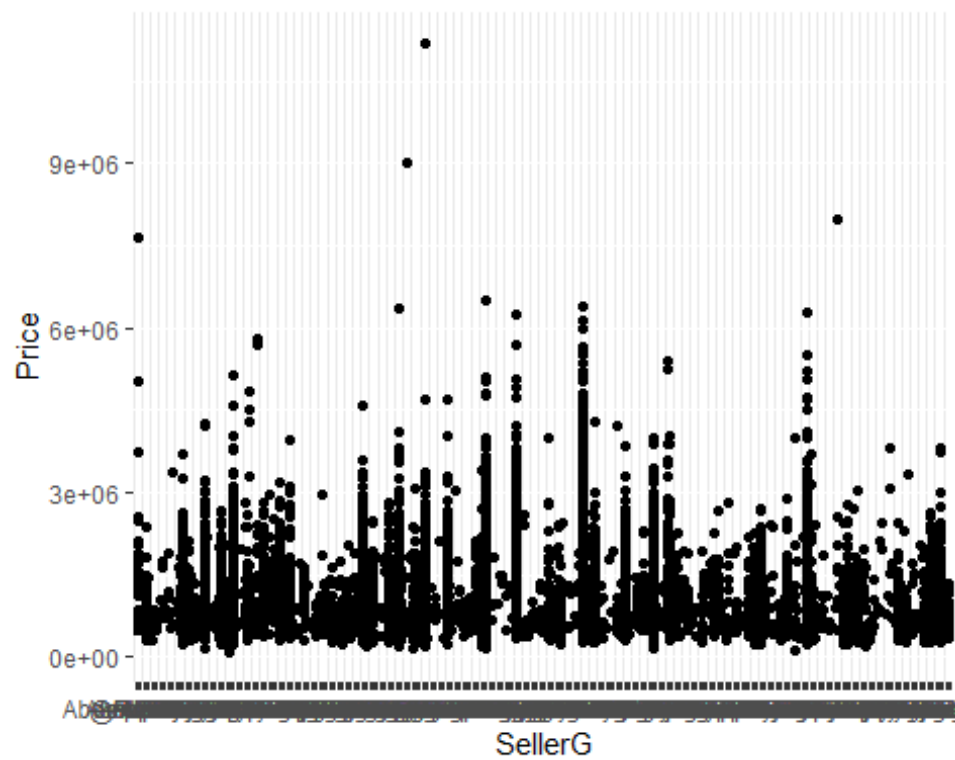
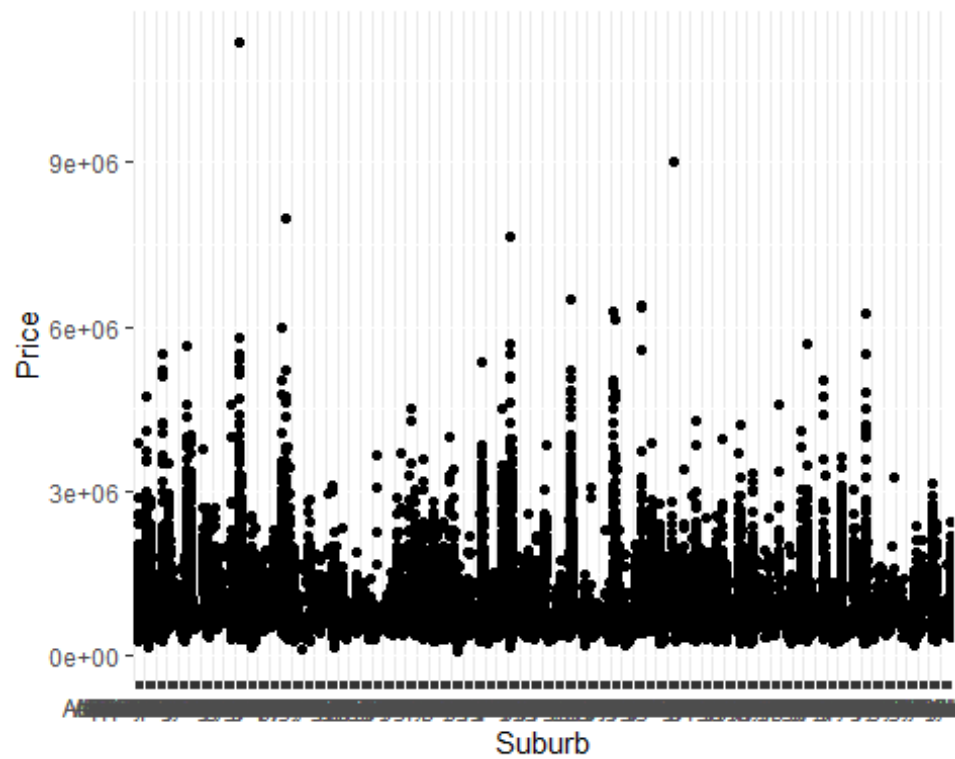
## Linear Regression

### Inspecting rooms vs bedroom2

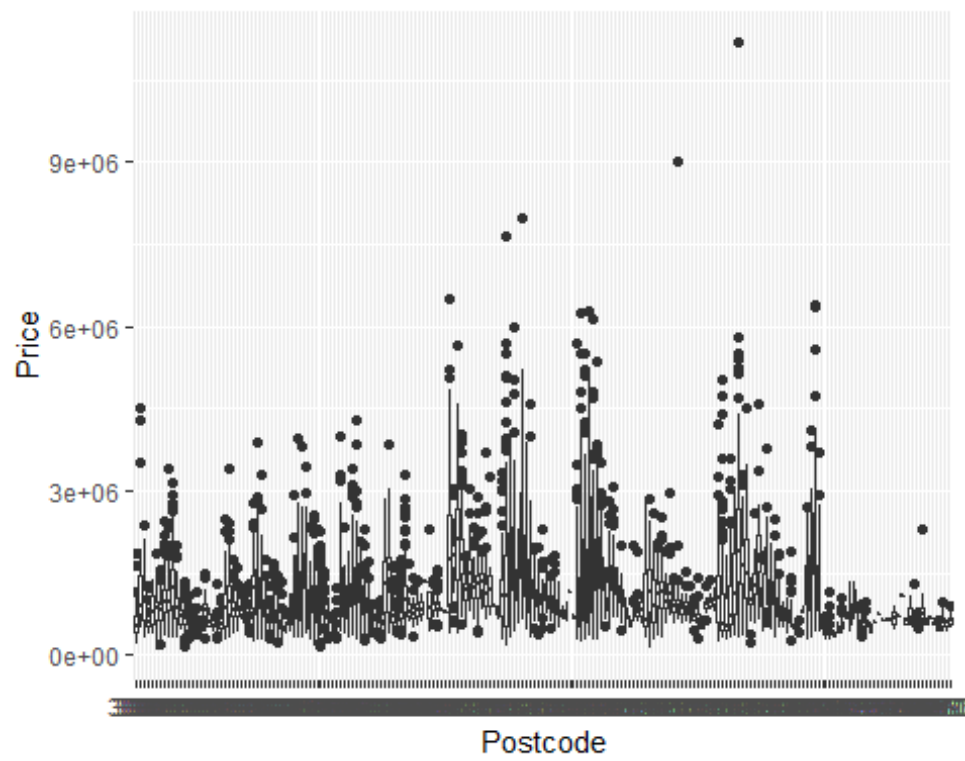
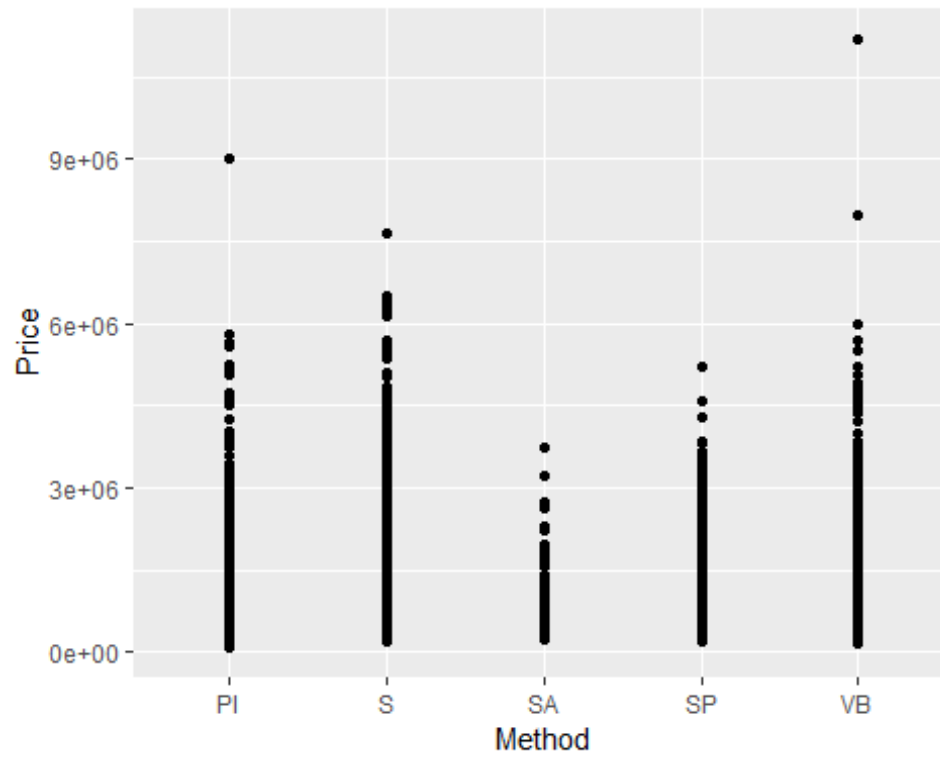
```
## checking the correlation
cor.test(Melbourne_housing_FULL_clean$Rooms,
Melbourne_housing_FULL_clean$Bedroom2)

##
## Pearson's product-moment correlation
##
## data: Melbourne_housing_FULL_clean$Rooms and
Melbourne_housing_FULL_clean$Bedroom2
## t = 415.5, df = 17677, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## 0.9510392 0.9537781
## sample estimates:
## cor
## 0.9524279
```

So we can drop Bedroom2







## Eliminate any home where it is claimed it has more bathrooms than rooms

```
## Eliminate rows having 0 bathrooms or more and 5
Melbourne_housing_FULL_clean <- Melbourne_housing_FULL_clean %>%
  filter(Bathroom > 0 & Bathroom <= 5)
#summary(Melbourne_housing_FULL_clean)

## Eliminate rows with 0 Landsize
Melbourne_housing_FULL_clean<- Melbourne_housing_FULL_clean %>%
  filter(Landsize > 0)
#summary(Melbourne_housing_FULL_clean)

## Analysing the lowest values of landsize
head(Melbourne_housing_FULL_clean) %>%
  select(Landsize, Type) %>%
  arrange(Landsize)

##   Landsize Type
## 1      94    h
## 2     120    h
## 3     134    h
## 4     156    h
## 5     181    h
## 6     202    h

lm.fit <-
lm(Price~Suburb+Rooms+Type+Method+SellerG+Bathroom+Car+Landsize+Latitude+Longitude+year+month, data=Melbourne_housing_FULL_clean)
summary(lm.fit)

##
## Call:
## lm(formula = Price ~ Suburb + Rooms + Type + Method + SellerG +
##     Bathroom + Car + Landsize + Latitude + Longitude + year +
##     month, data = Melbourne_housing_FULL_clean)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2238464 -173858  -15833   130765   8676146
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   1.370e+08  4.945e+07   2.771 0.005604
## SuburbAberfeldie  2.128e+04  8.445e+04   0.252 0.801083
## SuburbAirport West -4.701e+05  8.326e+04  -5.647 1.67e-08
## SuburbAlbanvale  -1.012e+06  1.674e+05  -6.046 1.52e-09
## SuburbAlbert Park  5.392e+05  7.485e+04   7.203 6.16e-13
## SuburbAlbion    -7.162e+05  9.726e+04  -7.363 1.89e-13
## SuburbAlphington  2.858e+05  8.283e+04   3.450 0.000562
```

## SuburbAltona	-7.379e+05	9.837e+04	-7.502	6.66e-14
## SuburbAltona Meadows	-1.327e+06	1.303e+05	-10.178	< 2e-16
## SuburbAltona North	-8.558e+05	8.822e+04	-9.701	< 2e-16
## SuburbArdeer	-9.785e+05	1.354e+05	-7.229	5.11e-13
## SuburbArmadale	5.742e+05	7.513e+04	7.643	2.25e-14
## SuburbAscot Vale	-1.740e+05	6.771e+04	-2.570	0.010184
## SuburbAshburton	2.396e+05	7.850e+04	3.052	0.002280
## SuburbAshwood	-5.624e+04	8.364e+04	-0.672	0.501350
## SuburbAspendale	-6.403e+05	1.543e+05	-4.149	3.35e-05
## SuburbAspendale Gardens	-8.579e+05	1.657e+05	-5.178	2.27e-07
## SuburbAttwood	-7.272e+05	1.561e+05	-4.659	3.20e-06
## SuburbAvondale Heights	-6.041e+05	8.443e+04	-7.155	8.76e-13
## SuburbBacchus Marsh	-1.686e+06	2.973e+05	-5.672	1.44e-08
## SuburbBalaclava	-1.077e+05	1.159e+05	-0.930	0.352452
## SuburbBalwyn	7.484e+05	6.896e+04	10.853	< 2e-16
## SuburbBalwyn North	4.843e+05	6.601e+04	7.336	2.31e-13
## SuburbBayswater	-3.477e+05	1.304e+05	-2.666	0.007687
## SuburbBayswater North	-2.630e+05	1.591e+05	-1.653	0.098394
## SuburbBeaconsfield	-5.083e+05	3.442e+05	-1.477	0.139781
## SuburbBeaconsfield Upper	-7.193e+05	4.058e+05	-1.773	0.076299
## SuburbBeaumaris	-1.666e+05	1.133e+05	-1.470	0.141527
## SuburbBellfield	-2.082e+05	1.048e+05	-1.987	0.046989
## SuburbBentleigh	-1.376e+05	8.182e+04	-1.681	0.092722
## SuburbBentleigh East	-2.687e+05	8.050e+04	-3.338	0.000847
## SuburbBerwick	-7.672e+05	1.771e+05	-4.332	1.49e-05
## SuburbBlack Rock	-5.045e+04	1.392e+05	-0.362	0.717010
## SuburbBlackburn	6.859e+04	9.617e+04	0.713	0.475765
## SuburbBlackburn North	-1.104e+05	1.050e+05	-1.052	0.292897
## SuburbBlackburn South	-9.917e+04	1.009e+05	-0.983	0.325792
## SuburbBonbeach	-6.903e+05	1.826e+05	-3.780	0.000157
## SuburbBoronia	-3.806e+05	1.313e+05	-2.899	0.003744
## SuburbBotanic Ridge	-9.579e+05	4.616e+05	-2.075	0.037974
## SuburbBox Hill	2.868e+05	8.370e+04	3.427	0.000613
## SuburbBraybrook	-7.457e+05	8.828e+04	-8.447	< 2e-16
## SuburbBriar Hill	-1.038e+05	1.390e+05	-0.747	0.455218
## SuburbBrighton	6.054e+05	7.697e+04	7.865	3.93e-15
## SuburbBrighton East	1.946e+04	7.945e+04	0.245	0.806522
## SuburbBroadmeadows	-5.631e+05	9.779e+04	-5.758	8.68e-09
## SuburbBrookfield	-1.657e+06	3.077e+05	-5.387	7.27e-08
## SuburbBrooklyn	-6.463e+05	1.297e+05	-4.985	6.27e-07
## SuburbBrunswick	-6.665e+04	6.160e+04	-1.082	0.279285
## SuburbBrunswick East	-1.793e+04	7.080e+04	-0.253	0.800063
## SuburbBrunswick West	-1.781e+05	6.893e+04	-2.584	0.009776
## SuburbBulleen	-6.897e+04	7.501e+04	-0.920	0.357812
## SuburbBullengarook	-7.841e+05	3.460e+05	-2.266	0.023455
## SuburbBundoora	-3.708e+05	8.899e+04	-4.167	3.10e-05
## SuburbBurnley	9.505e+04	1.485e+05	0.640	0.522068
## SuburbBurnside	-1.166e+06	1.926e+05	-6.053	1.45e-09
## SuburbBurnside Heights	-1.147e+06	1.800e+05	-6.371	1.93e-10
## SuburbBurwood	1.427e+04	7.734e+04	0.184	0.853646

## SuburbBurwood East	-1.600e+05	1.014e+05	-1.579	0.114428
## SuburbCairnlea	-1.067e+06	1.426e+05	-7.480	7.85e-14
## SuburbCamberwell	4.679e+05	6.751e+04	6.931	4.36e-12
## SuburbCampbellfield	-6.860e+05	1.410e+05	-4.865	1.15e-06
## SuburbCanterbury	9.339e+05	7.719e+04	12.099	< 2e-16
## SuburbCarlton	1.871e+05	8.650e+04	2.163	0.030569
## SuburbCarlton North	4.490e+05	7.714e+04	5.821	5.97e-09
## SuburbCarnegie	-4.554e+04	7.780e+04	-0.585	0.558342
## SuburbCaroline Springs	-1.097e+06	1.475e+05	-7.437	1.09e-13
## SuburbCarrum	-8.566e+05	1.793e+05	-4.778	1.79e-06
## SuburbCarrum Downs	-1.238e+06	1.783e+05	-6.942	4.04e-12
## SuburbCaulfield	-2.395e+05	1.478e+05	-1.621	0.105043
## SuburbCaulfield East	-5.928e+04	1.470e+05	-0.403	0.686848
## SuburbCaulfield North	1.856e+04	1.011e+05	0.184	0.854354
## SuburbCaulfield South	-2.903e+04	8.499e+04	-0.342	0.732706
## SuburbChadstone	-2.698e+05	9.067e+04	-2.976	0.002928
## SuburbChelsea	-6.078e+05	1.720e+05	-3.533	0.000412
## SuburbChelsea Heights	-9.734e+05	1.730e+05	-5.626	1.88e-08
## SuburbCheltenham	-5.631e+05	1.012e+05	-5.563	2.70e-08
## SuburbChirnside Park	-1.827e+05	2.249e+05	-0.812	0.416532
## SuburbClarinda	-7.198e+05	1.382e+05	-5.207	1.94e-07
## SuburbClayton	-3.479e+05	1.206e+05	-2.885	0.003922
## SuburbClayton South	-5.306e+05	1.183e+05	-4.487	7.29e-06
## SuburbClifton Hill	1.230e+05	7.206e+04	1.707	0.087902
## SuburbCoburg	-2.198e+05	6.496e+04	-3.384	0.000717
## SuburbCoburg North	-3.595e+05	7.716e+04	-4.660	3.19e-06
## SuburbColdstream	-3.602e+05	3.940e+05	-0.914	0.360686
## SuburbCollingwood	2.150e+04	7.876e+04	0.273	0.784861
## SuburbCoolaroo	-6.851e+05	1.508e+05	-4.544	5.56e-06
## SuburbCraigieburn	-6.527e+05	1.180e+05	-5.531	3.23e-08
## SuburbCranbourne	-1.149e+06	2.260e+05	-5.084	3.74e-07
## SuburbCranbourne North	-1.088e+06	2.678e+05	-4.061	4.90e-05
## SuburbCranbourne West	-1.379e+06	4.020e+05	-3.430	0.000606
## SuburbCremorne	-3.739e+04	9.607e+04	-0.389	0.697149
## SuburbCroydon	-1.616e+05	1.194e+05	-1.354	0.175893
## SuburbCroydon Hills	-2.713e+05	1.834e+05	-1.480	0.138951
## SuburbCroydon North	-1.894e+05	1.540e+05	-1.229	0.218925
## SuburbCroydon South	-1.919e+05	1.748e+05	-1.098	0.272260
## SuburbDallas	-7.727e+05	1.157e+05	-6.677	2.52e-11
## SuburbDandenong	-7.008e+05	1.477e+05	-4.746	2.09e-06
## SuburbDandenong North	-8.620e+05	1.329e+05	-6.483	9.25e-11
## SuburbDeepdene	7.656e+05	1.738e+05	4.404	1.07e-05
## SuburbDeer Park	-1.050e+06	1.201e+05	-8.736	< 2e-16
## SuburbDelahey	-1.138e+06	1.547e+05	-7.360	1.93e-13
## SuburbDerrimut	-1.228e+06	1.611e+05	-7.622	2.65e-14
## SuburbDiamond Creek	-2.831e+05	1.460e+05	-1.940	0.052427
## SuburbDiggers Rest	-1.089e+06	1.926e+05	-5.652	1.61e-08
## SuburbDingley Village	-7.581e+05	1.200e+05	-6.319	2.70e-10
## SuburbDoncaster	8.936e+04	7.558e+04	1.182	0.237133
## SuburbDoncaster East	5.873e+04	8.783e+04	0.669	0.503714

## SuburbDonvale	8.302e+04	1.067e+05	0.778	0.436617
## SuburbDoreen	-3.629e+05	1.395e+05	-2.601	0.009314
## SuburbDoveton	-1.103e+06	1.807e+05	-6.104	1.06e-09
## SuburbEaglemont	5.960e+05	9.694e+04	6.148	8.04e-10
## SuburbEast Melbourne	8.157e+05	1.449e+05	5.628	1.85e-08
## SuburbEdithvale	-6.791e+05	1.553e+05	-4.372	1.24e-05
## SuburbElsternwick	1.885e+05	8.091e+04	2.330	0.019819
## SuburbEltham	-2.003e+05	1.040e+05	-1.926	0.054175
## SuburbEltham North	-3.506e+05	1.312e+05	-2.673	0.007520
## SuburbElwood	9.741e+04	8.008e+04	1.216	0.223834
## SuburbEmerald	-1.017e+05	4.037e+05	-0.252	0.801029
## SuburbEndeavour Hills	-9.132e+05	1.652e+05	-5.527	3.31e-08
## SuburbEpping	-4.734e+05	1.009e+05	-4.693	2.72e-06
## SuburbEssendon	-2.979e+04	6.970e+04	-0.427	0.669117
## SuburbEssendon North	-1.448e+05	1.020e+05	-1.420	0.155600
## SuburbEssendon West	-2.677e+05	9.523e+04	-2.811	0.004943
## SuburbEumemmerring	-1.003e+06	3.900e+05	-2.571	0.010142
## SuburbFairfield	1.308e+05	8.117e+04	1.612	0.107001
## SuburbFawkner	-4.462e+05	7.647e+04	-5.835	5.48e-09
## SuburbFerntree Gully	-4.020e+05	1.243e+05	-3.235	0.001221
## SuburbFitzroy	2.865e+05	7.688e+04	3.727	0.000194
## SuburbFitzroy North	2.611e+05	6.613e+04	3.949	7.88e-05
## SuburbFlemington	-1.276e+05	7.719e+04	-1.653	0.098345
## SuburbFootscray	-4.532e+05	7.377e+04	-6.143	8.30e-10
## SuburbForest Hill	-2.122e+05	9.782e+04	-2.170	0.030043
## SuburbFrankston	-1.257e+06	1.780e+05	-7.065	1.68e-12
## SuburbFrankston North	-1.222e+06	1.966e+05	-6.217	5.20e-10
## SuburbFrankston South	-1.075e+06	1.906e+05	-5.638	1.75e-08
## SuburbGardenvale	-2.881e+05	1.776e+05	-1.623	0.104715
## SuburbGisborne	-8.701e+05	2.142e+05	-4.063	4.88e-05
## SuburbGisborne South	-8.463e+05	3.149e+05	-2.687	0.007215
## SuburbGladstone Park	-7.698e+05	9.783e+04	-7.868	3.85e-15
## SuburbGlen Huntly	-3.059e+04	1.303e+05	-0.235	0.814322
## SuburbGlen Iris	3.516e+05	6.748e+04	5.211	1.90e-07
## SuburbGlen Waverley	-2.603e+04	9.201e+04	-0.283	0.777280
## SuburbGlenroy	-4.588e+05	7.810e+04	-5.875	4.32e-09
## SuburbGowanbrae	-6.484e+05	1.002e+05	-6.473	9.89e-11
## SuburbGreensborough	-3.437e+05	9.495e+04	-3.620	0.000296
## SuburbGreenvale	-7.474e+05	1.123e+05	-6.658	2.87e-11
## SuburbHadfield	-4.662e+05	8.293e+04	-5.622	1.92e-08
## SuburbHallam	-7.118e+05	2.240e+05	-3.177	0.001489
## SuburbHampton	1.882e+05	8.710e+04	2.161	0.030723
## SuburbHampton East	-3.575e+05	1.051e+05	-3.400	0.000676
## SuburbHampton Park	-9.793e+05	2.555e+05	-3.832	0.000127
## SuburbHawthorn	5.188e+05	6.283e+04	8.257	< 2e-16
## SuburbHawthorn East	4.716e+05	6.712e+04	7.026	2.22e-12
## SuburbHealesville	1.306e+05	4.183e+05	0.312	0.754922
## SuburbHeatherton	-7.037e+05	2.341e+05	-3.005	0.002656
## SuburbHeathmont	-2.488e+05	1.200e+05	-2.073	0.038193
## SuburbHeidelberg	-1.600e+04	8.359e+04	-0.191	0.848195

## SuburbHeidelberg Heights	-2.459e+05	7.584e+04	-3.243	0.001187
## SuburbHeidelberg West	-3.190e+05	7.748e+04	-4.118	3.85e-05
## SuburbHighett	-2.864e+05	1.014e+05	-2.825	0.004730
## SuburbHillside	-1.136e+06	1.231e+05	-9.227	< 2e-16
## SuburbHoppers Crossing	-1.501e+06	1.268e+05	-11.831	< 2e-16
## SuburbHughesdale	-1.128e+05	9.704e+04	-1.162	0.245282
## SuburbHuntingdale	-4.065e+05	1.515e+05	-2.683	0.007301
## SuburbHurstbridge	-3.680e+05	4.075e+05	-0.903	0.366457
## SuburbIvanhoe	2.228e+05	7.104e+04	3.136	0.001714
## SuburbIvanhoe East	5.918e+05	9.528e+04	6.211	5.40e-10
## SuburbJacana	-6.259e+05	1.007e+05	-6.213	5.32e-10
## SuburbKalkallo	-2.671e+05	3.902e+05	-0.685	0.493576
## SuburbKealba	-9.917e+05	1.106e+05	-8.969	< 2e-16
## SuburbKeilor	-8.138e+05	1.436e+05	-5.667	1.48e-08
## SuburbKeilor Downs	-9.628e+05	1.169e+05	-8.235	< 2e-16
## SuburbKeilor East	-6.034e+05	7.841e+04	-7.696	1.49e-14
## SuburbKeilor Lodge	-8.948e+05	2.319e+05	-3.858	0.000115
## SuburbKeilor Park	-6.729e+05	1.079e+05	-6.237	4.58e-10
## SuburbKensington	-1.308e+05	7.095e+04	-1.844	0.065243
## SuburbKew	5.982e+05	6.184e+04	9.673	< 2e-16
## SuburbKew East	3.641e+05	7.284e+04	4.998	5.85e-07
## SuburbKeysborough	-8.115e+05	1.369e+05	-5.927	3.16e-09
## SuburbKilsyth	-2.282e+05	1.659e+05	-1.376	0.168987
## SuburbKings Park	-1.085e+06	1.499e+05	-7.235	4.88e-13
## SuburbKingsbury	-3.270e+05	1.073e+05	-3.047	0.002317
## SuburbKingsville	-4.842e+05	9.178e+04	-5.276	1.34e-07
## SuburbKnoxfield	-4.271e+05	1.665e+05	-2.565	0.010332
## SuburbKooyong	9.099e+05	2.656e+05	3.426	0.000614
## SuburbKurunjang	-1.362e+06	2.095e+05	-6.501	8.23e-11
## SuburbLalor	-4.201e+05	9.420e+04	-4.460	8.27e-06
## SuburbLangwarrin	-1.258e+06	2.153e+05	-5.841	5.28e-09
## SuburbLaverton	-1.403e+06	2.773e+05	-5.059	4.27e-07
## SuburbLilydale	-2.704e+05	2.906e+05	-0.931	0.352050
## SuburbLower Plenty	-1.640e+05	1.413e+05	-1.160	0.245875
## SuburbLysterfield	-3.597e+05	3.840e+05	-0.937	0.348828
## SuburbMaidstone	-5.762e+05	7.644e+04	-7.538	5.04e-14
## SuburbMalvern	8.900e+05	7.692e+04	11.571	< 2e-16
## SuburbMalvern East	2.533e+05	7.261e+04	3.489	0.000486
## SuburbMaribyrnong	-4.206e+05	7.384e+04	-5.697	1.24e-08
## SuburbMcKinnon	1.402e+04	1.171e+05	0.120	0.904723
## SuburbMeadow Heights	-7.105e+05	1.119e+05	-6.350	2.22e-10
## SuburbMelbourne	3.275e+04	1.515e+05	0.216	0.828863
## SuburbMelton	-1.539e+06	1.828e+05	-8.424	< 2e-16
## SuburbMelton South	-1.401e+06	1.656e+05	-8.460	< 2e-16
## SuburbMelton West	-1.496e+06	1.836e+05	-8.147	4.02e-16
## SuburbMentone	-5.092e+05	1.131e+05	-4.501	6.80e-06
## SuburbMernda	-4.453e+05	1.251e+05	-3.560	0.000373
## SuburbMickleham	-7.262e+05	2.547e+05	-2.851	0.004362
## SuburbMiddle Park	9.098e+05	8.475e+04	10.735	< 2e-16
## SuburbMill Park	-4.618e+05	9.388e+04	-4.919	8.80e-07

## SuburbMitcham	-5.058e+04	9.998e+04	-0.506	0.612962
## SuburbMonbulk	-4.643e+05	3.951e+05	-1.175	0.239929
## SuburbMont Albert	4.794e+05	9.065e+04	5.288	1.25e-07
## SuburbMontmorency	-2.386e+05	1.074e+05	-2.222	0.026283
## SuburbMontrose	-4.487e+05	3.884e+05	-1.155	0.248067
## SuburbMoonee Ponds	-7.067e+04	6.755e+04	-1.046	0.295454
## SuburbMoorabbin	-4.555e+05	9.259e+04	-4.920	8.76e-07
## SuburbMooroolbark	-2.293e+05	1.398e+05	-1.640	0.101123
## SuburbMordialloc	-5.160e+05	1.323e+05	-3.901	9.61e-05
## SuburbMount Evelyn	-2.635e+05	2.575e+05	-1.023	0.306184
## SuburbMount Waverley	-4.292e+04	8.431e+04	-0.509	0.610733
## SuburbMulgrave	-3.801e+05	1.088e+05	-3.495	0.000476
## SuburbMurrumbeena	-5.061e+04	8.280e+04	-0.611	0.541055
## SuburbNarre Warren	-7.682e+05	2.004e+05	-3.834	0.000127
## SuburbNew Gisborne	-7.543e+05	3.320e+05	-2.272	0.023113
## SuburbNewport	-5.343e+05	7.694e+04	-6.944	3.96e-12
## SuburbNiddrie	-2.613e+05	7.980e+04	-3.275	0.001059
## SuburbNoble Park	-7.506e+05	1.402e+05	-5.355	8.67e-08
## SuburbNorth Melbourne	1.628e+04	8.062e+04	0.202	0.839928
## SuburbNorth Warrandyte	9.611e+04	2.849e+05	0.337	0.735813
## SuburbNorthcote	2.095e+05	6.047e+04	3.464	0.000533
## SuburbNotting Hill	-3.034e+05	1.878e+05	-1.615	0.106274
## SuburbNunawading	-4.334e+04	1.014e+05	-0.427	0.669217
## SuburbOak Park	-3.552e+05	8.361e+04	-4.249	2.16e-05
## SuburbOakleigh	-2.156e+05	9.033e+04	-2.387	0.017021
## SuburbOakleigh East	-2.568e+05	1.202e+05	-2.136	0.032721
## SuburbOakleigh South	-4.693e+05	9.274e+04	-5.061	4.22e-07
## SuburbOfficer	-9.375e+05	2.821e+05	-3.324	0.000891
## SuburbOrmond	-2.282e+04	8.398e+04	-0.272	0.785874
## SuburbPakenham	-9.585e+05	2.400e+05	-3.994	6.54e-05
## SuburbParkdale	-3.964e+05	1.192e+05	-3.325	0.000886
## SuburbParkville	4.242e+05	9.420e+04	4.503	6.74e-06
## SuburbPascoe Vale	-3.004e+05	7.153e+04	-4.199	2.70e-05
## SuburbPatterson Lakes	-9.746e+05	2.931e+05	-3.326	0.000885
## SuburbPlenty	9.315e+04	3.770e+05	0.247	0.804875
## SuburbPlumpton	-1.184e+06	3.834e+05	-3.089	0.002011
## SuburbPoint Cook	-1.494e+06	1.278e+05	-11.692	< 2e-16
## SuburbPort Melbourne	6.341e+03	6.920e+04	0.092	0.926997
## SuburbPrahran	1.293e+05	6.928e+04	1.866	0.062045
## SuburbPreston	-1.732e+05	6.450e+04	-2.685	0.007256
## SuburbPrinces Hill	2.630e+05	1.347e+05	1.952	0.050998
## SuburbResearch	-3.287e+05	3.782e+05	-0.869	0.384751
## SuburbReservoir	-2.599e+05	6.994e+04	-3.716	0.000203
## SuburbRichmond	7.868e+04	5.799e+04	1.357	0.174888
## SuburbRiddells Creek	-6.500e+05	3.288e+05	-1.977	0.048067
## SuburbRingwood	-1.287e+05	1.156e+05	-1.113	0.265817
## SuburbRingwood East	-1.435e+05	1.282e+05	-1.120	0.262796
## SuburbRingwood North	-2.858e+05	1.296e+05	-2.206	0.027423
## SuburbRipponlea	-1.450e+05	1.378e+05	-1.053	0.292514
## SuburbRockbank	-1.154e+06	2.871e+05	-4.019	5.86e-05

## SuburbRosanna	-5.205e+04	8.091e+04	-0.643	0.520037
## SuburbRowville	-6.234e+05	1.387e+05	-4.495	7.00e-06
## SuburbRoxburgh Park	-7.705e+05	1.136e+05	-6.782	1.23e-11
## SuburbSandhurst	-1.220e+06	3.000e+05	-4.066	4.80e-05
## SuburbSandringham	6.764e+04	1.048e+05	0.646	0.518612
## SuburbScoresby	-3.864e+05	1.518e+05	-2.545	0.010931
## SuburbSeabrook	-1.391e+06	2.014e+05	-6.907	5.15e-12
## SuburbSeaford	-1.085e+06	1.723e+05	-6.296	3.14e-10
## SuburbSeaholme	-7.689e+05	1.605e+05	-4.792	1.67e-06
## SuburbSeddon	-3.905e+05	7.968e+04	-4.901	9.62e-07
## SuburbSilvan	-5.579e+03	3.067e+05	-0.018	0.985486
## SuburbSkye	-1.195e+06	2.494e+05	-4.791	1.67e-06
## SuburbSouth Kingsville	-6.185e+05	1.044e+05	-5.924	3.20e-09
## SuburbSouth Melbourne	1.187e+05	7.469e+04	1.589	0.112179
## SuburbSouth Morang	-5.035e+05	1.134e+05	-4.441	9.02e-06
## SuburbSouth Yarra	3.181e+05	6.703e+04	4.746	2.10e-06
## SuburbSouthbank	-6.633e+04	1.194e+05	-0.555	0.578583
## SuburbSpotswood	-5.794e+05	9.290e+04	-6.237	4.59e-10
## SuburbSpringvale	-6.146e+05	1.367e+05	-4.494	7.03e-06
## SuburbSpringvale South	-7.546e+05	2.009e+05	-3.757	0.000173
## SuburbSt Albans	-9.105e+05	1.016e+05	-8.962	< 2e-16
## SuburbSt Helena	-3.266e+05	1.625e+05	-2.010	0.044481
## SuburbSt Kilda	8.716e+04	7.331e+04	1.189	0.234463
## SuburbStrathmore	-1.540e+05	8.065e+04	-1.910	0.056167
## SuburbStrathmore Heights	-4.870e+05	1.501e+05	-3.244	0.001183
## SuburbSunbury	-9.225e+05	1.503e+05	-6.137	8.61e-10
## SuburbSunshine	-7.220e+05	8.361e+04	-8.636	< 2e-16
## SuburbSunshine North	-7.950e+05	9.016e+04	-8.817	< 2e-16
## SuburbSunshine West	-9.829e+05	9.026e+04	-10.890	< 2e-16
## SuburbSurrey Hills	3.903e+05	7.036e+04	5.548	2.95e-08
## SuburbSydenham	-1.041e+06	1.597e+05	-6.520	7.27e-11
## SuburbTarneit	-1.593e+06	1.504e+05	-10.596	< 2e-16
## SuburbTaylors Hill	-1.135e+06	1.320e+05	-8.598	< 2e-16
## SuburbTaylors Lakes	-9.626e+05	1.159e+05	-8.303	< 2e-16
## SuburbTemplestowe	1.603e+05	9.364e+04	1.711	0.087022
## SuburbTemplestowe Lower	-5.414e+04	7.619e+04	-0.711	0.477359
## SuburbThe Basin	-3.862e+05	2.256e+05	-1.712	0.086989
## SuburbThomastown	-4.424e+05	9.361e+04	-4.726	2.31e-06
## SuburbThornbury	1.788e+04	6.496e+04	0.275	0.783063
## SuburbToorak	8.525e+05	7.637e+04	11.162	< 2e-16
## SuburbTravancore	-5.929e+04	1.292e+05	-0.459	0.646233
## SuburbTruganina	-1.285e+06	1.620e+05	-7.930	2.35e-15
## SuburbTullamarine	-7.210e+05	1.235e+05	-5.836	5.47e-09
## SuburbUpwey	-3.931e+05	2.887e+05	-1.361	0.173382
## SuburbVermont	-2.027e+05	1.181e+05	-1.716	0.086258
## SuburbVermont South	-2.542e+05	1.149e+05	-2.213	0.026924
## SuburbViewbank	-2.637e+05	8.833e+04	-2.985	0.002836
## SuburbWallan	-3.390e+05	2.277e+05	-1.489	0.136576
## SuburbWandin North	-3.429e+04	4.162e+05	-0.082	0.934347
## SuburbWantirna	-3.809e+05	1.187e+05	-3.209	0.001333



## SuburbWantirna South	-3.328e+05	1.145e+05	-2.905	0.003673
## SuburbWarrandyte	1.851e+05	1.631e+05	1.135	0.256388
## SuburbWarranwood	-1.794e+05	3.805e+05	-0.472	0.637216
## SuburbWaterways	-5.611e+05	2.834e+05	-1.980	0.047713
## SuburbWatsonia	-2.119e+05	9.052e+04	-2.341	0.019251
## SuburbWatsonia North	-3.732e+05	1.143e+05	-3.265	0.001095
## SuburbWattle Glen	-2.101e+05	4.049e+05	-0.519	0.603806
## SuburbWerribee	-1.586e+06	1.395e+05	-11.369	< 2e-16
## SuburbWerribee South	-1.558e+06	4.668e+05	-3.339	0.000843
## SuburbWest Footscray	-5.870e+05	7.672e+04	-7.651	2.11e-14
## SuburbWest Melbourne	6.495e+04	9.943e+04	0.653	0.513641
## SuburbWestmeadows	-7.998e+05	1.104e+05	-7.243	4.61e-13
## SuburbWheelers Hill	-3.911e+05	1.063e+05	-3.679	0.000235
## SuburbWhittlesea	-4.236e+04	3.966e+05	-0.107	0.914933
## SuburbWildwood	-9.381e+05	4.165e+05	-2.252	0.024317
## SuburbWilliams Landing	-1.406e+06	1.882e+05	-7.471	8.40e-14
## SuburbWilliamstown	-2.206e+05	7.923e+04	-2.784	0.005378
## SuburbWilliamstown North	-5.861e+05	1.160e+05	-5.050	4.46e-07
## SuburbWindsor	1.354e+04	8.412e+04	0.161	0.872111
## SuburbWollert	-5.024e+05	1.218e+05	-4.126	3.72e-05
## SuburbWyndham Vale	-1.707e+06	1.665e+05	-10.252	< 2e-16
## SuburbYallambie	-3.619e+05	1.015e+05	-3.565	0.000365
## SuburbYarra Glen	3.175e+04	4.008e+05	0.079	0.936864
## SuburbYarraville	-4.558e+05	7.372e+04	-6.183	6.46e-10
## Rooms	1.619e+05	4.833e+03	33.487	< 2e-16
## Typet	-3.228e+05	1.204e+04	-26.819	< 2e-16
## Typeu	-4.781e+05	1.193e+04	-40.080	< 2e-16
## MethodS	8.120e+04	9.637e+03	8.426	< 2e-16
## MethodSA	4.783e+04	3.615e+04	1.323	0.185781
## MethodSP	4.125e+04	1.255e+04	3.285	0.001021
## MethodVB	-1.624e+02	1.351e+04	-0.012	0.990409
## SellerGAbercromby's	5.287e+05	1.752e+05	3.018	0.002552
## SellerGAce	1.745e+05	2.684e+05	0.650	0.515584
## SellerGAlex	4.674e+05	4.039e+05	1.157	0.247201
## SellerGAlexkarbon	2.680e+04	1.655e+05	0.162	0.871359
## SellerGAllens	-1.641e+05	3.017e+05	-0.544	0.586380
## SellerGAnderson	2.502e+05	3.011e+05	0.831	0.405951
## SellerGAppleby	-1.135e+05	2.638e+05	-0.430	0.667203
## SellerGAquire	-1.148e+03	2.435e+05	-0.005	0.996237
## SellerGArea	1.715e+05	2.295e+05	0.747	0.455065
## SellerGAscend	-2.041e+05	3.023e+05	-0.675	0.499482
## SellerGAsh	3.850e+04	2.655e+05	0.145	0.884712
## SellerGASL	1.960e+05	2.390e+05	0.820	0.412288
## SellerGAsset	9.468e+04	3.062e+05	0.309	0.757139
## SellerGAssisi	5.670e+05	3.007e+05	1.886	0.059354
## SellerGAustralian	8.236e+03	3.016e+05	0.027	0.978214
## SellerGAvion	1.739e+05	3.972e+05	0.438	0.661428
## SellerGBarlow	1.589e+05	1.681e+05	0.946	0.344316
## SellerGBarry	4.282e+04	1.519e+05	0.282	0.778035
## SellerGBayside	-7.628e+03	2.262e+05	-0.034	0.973098

## SellerGBekdon	-7.597e+04	1.831e+05	-0.415	0.678179
## SellerGBeller	-1.305e+05	1.890e+05	-0.690	0.490076
## SellerGBells	4.852e+04	1.606e+05	0.302	0.762503
## SellerGBenlor	-9.931e+04	3.066e+05	-0.324	0.746047
## SellerGBetter	-6.745e+04	3.979e+05	-0.169	0.865413
## SellerGBiggin	3.796e+04	1.536e+05	0.247	0.804759
## SellerGBlue	7.827e+05	3.970e+05	1.971	0.048719
## SellerGBoran	-5.798e+05	3.972e+05	-1.460	0.144400
## SellerGBoutique	-2.725e+04	2.722e+05	-0.100	0.920272
## SellerGBowman	-2.328e+05	2.655e+05	-0.877	0.380732
## SellerGBrace	2.830e+04	2.611e+05	0.108	0.913702
## SellerGBrad	4.825e+04	1.531e+05	0.315	0.752708
## SellerGBuckingham	7.185e+04	1.605e+05	0.448	0.654406
## SellerGBullen	-1.548e+05	2.610e+05	-0.593	0.553109
## SellerGBurnham	1.332e+05	1.638e+05	0.813	0.416088
## SellerGBurns	-1.063e+05	3.983e+05	-0.267	0.789490
## SellerGBuxton	6.798e+04	1.527e+05	0.445	0.656084
## SellerGBuxton/Find	3.919e+05	3.984e+05	0.984	0.325251
## SellerGBuxton/Marshall	-2.099e+05	3.020e+05	-0.695	0.487095
## SellerGbuyMyplace	1.437e+05	1.995e+05	0.720	0.471264
## SellerGC21	4.203e+04	1.588e+05	0.265	0.791193
## SellerGCaine	6.670e+05	1.993e+05	3.347	0.000819
## SellerGCalder	1.501e+05	3.067e+05	0.489	0.624620
## SellerGCarter	1.826e+05	1.868e+05	0.977	0.328507
## SellerGCastran	5.732e+05	1.843e+05	3.111	0.001867
## SellerGCayzer	-2.030e+04	1.642e+05	-0.124	0.901590
## SellerGCentury	-2.430e+05	3.012e+05	-0.807	0.419847
## SellerGChambers	1.160e+05	1.886e+05	0.615	0.538498
## SellerGChanging	-2.910e+05	3.022e+05	-0.963	0.335707
## SellerGCharlton	4.647e+04	1.791e+05	0.260	0.795243
## SellerGCharter	-3.234e+05	3.009e+05	-1.075	0.282459
## SellerGChisholm	1.133e+05	1.616e+05	0.701	0.483231
## SellerGChristopher	-2.570e+05	2.137e+05	-1.203	0.229087
## SellerGClairmont	3.110e+05	3.980e+05	0.781	0.434683
## SellerGCollings	1.846e+05	2.392e+05	0.772	0.440315
## SellerGCollins	2.346e+05	1.608e+05	1.459	0.144596
## SellerGCommercial	1.083e+05	3.981e+05	0.272	0.785580
## SellerGCommunity	7.767e+04	3.996e+05	0.194	0.845878
## SellerGCompton	-1.538e+05	2.615e+05	-0.588	0.556609
## SellerGConquest	2.289e+05	3.991e+05	0.574	0.566301
## SellerGConsidine	-1.067e+05	1.690e+05	-0.631	0.527786
## SellerGCoventry	-1.391e+05	3.982e+05	-0.349	0.726786
## SellerGCraig	-2.275e+05	4.000e+05	-0.569	0.569563
## SellerGCrane	-3.645e+04	3.047e+05	-0.120	0.904788
## SellerGCreate	4.713e+04	4.104e+05	0.115	0.908587
## SellerGD'Aprano	2.273e+04	2.005e+05	0.113	0.909748
## SellerGDaniel	1.991e+04	2.645e+05	0.075	0.940005
## SellerGDarras	1.364e+06	3.123e+05	4.368	1.26e-05
## SellerGDarren	1.620e+05	1.635e+05	0.991	0.321938
## SellerGDavid	-5.338e+05	3.998e+05	-1.335	0.181793

## SellerGDel	1.048e+05	1.945e+05	0.539	0.590077
## SellerGDingle	-6.546e+04	1.894e+05	-0.346	0.729721
## SellerGDixon	-5.337e+04	4.004e+05	-0.133	0.893980
## SellerGDomain	-2.976e+05	2.239e+05	-1.329	0.183758
## SellerGDouglas	3.634e+04	1.575e+05	0.231	0.817451
## SellerGEdward	2.275e+04	1.760e+05	0.129	0.897177
## SellerGElite	5.476e+05	3.969e+05	1.380	0.167721
## SellerGEric	3.357e+02	4.212e+05	0.001	0.999364
## SellerGEview	4.603e+04	1.592e+05	0.289	0.772475
## SellerGFirst	1.093e+05	2.385e+05	0.458	0.646658
## SellerGFlannagan	5.224e+04	2.429e+05	0.215	0.829741
## SellerGFletchers	5.720e+04	1.531e+05	0.374	0.708738
## SellerGFletchers/One	-5.787e+04	3.971e+05	-0.146	0.884148
## SellerGFN	7.899e+04	1.653e+05	0.478	0.632809
## SellerGFollett	-1.382e+05	3.974e+05	-0.348	0.727938
## SellerGFrank	1.031e+05	1.642e+05	0.628	0.529944
## SellerGFree	1.726e+05	3.997e+05	0.432	0.665844
## SellerGG&H	-1.735e+05	3.973e+05	-0.437	0.662351
## SellerGGardiner	-2.388e+05	2.887e+05	-0.827	0.408066
## SellerGGarvey	-2.362e+05	2.612e+05	-0.904	0.365814
## SellerGGary	2.686e+04	1.559e+05	0.172	0.863261
## SellerGGL	1.023e+05	1.725e+05	0.593	0.553250
## SellerGGrantham	-1.051e+04	3.970e+05	-0.026	0.978871
## SellerGGreg	1.896e+05	1.543e+05	1.228	0.219300
## SellerGGunn&Co	7.194e+04	1.861e+05	0.387	0.699082
## SellerGH	4.465e+05	3.975e+05	1.123	0.261305
## SellerGHall	1.183e+06	2.112e+05	5.601	2.17e-08
## SellerGHam	-1.767e+05	3.008e+05	-0.587	0.556912
## SellerGHAR	1.023e+04	1.550e+05	0.066	0.947403
## SellerGHarcourts	5.544e+04	1.541e+05	0.360	0.719019
## SellerGHarrington	-9.533e+04	1.731e+05	-0.551	0.581914
## SellerGHaughton	-2.049e+04	1.692e+05	-0.121	0.903639
## SellerGHayeswinckle	-7.093e+04	3.013e+05	-0.235	0.813881
## SellerGhockingstuart	1.536e+04	1.522e+05	0.101	0.919573
## SellerGhockingstuart/Barry	1.786e+05	3.968e+05	0.450	0.652587
## SellerGhockingstuart/Biggin	-1.167e+05	3.976e+05	-0.294	0.769078
## SellerGhockingstuart/hockingstuart	-5.045e+04	2.443e+05	-0.207	0.836379
## SellerGhockingstuart/Marshall	5.233e+05	3.970e+05	1.318	0.187502
## SellerGhockingstuart/Sweeney	9.495e+04	3.980e+05	0.239	0.811437
## SellerGHodges	-1.058e+04	1.549e+05	-0.068	0.945521
## SellerGHolland	-1.648e+05	2.241e+05	-0.736	0.461978
## SellerGHomes	-7.391e+04	3.011e+05	-0.245	0.806120
## SellerGHooper	4.520e+05	3.009e+05	1.502	0.133018
## SellerGHoskins	1.403e+05	2.031e+05	0.691	0.489764
## SellerGHunter	7.845e+04	1.973e+05	0.398	0.690856
## SellerGIconek	4.892e+04	1.812e+05	0.270	0.787150
## SellerGiProperty	1.788e+05	4.045e+05	0.442	0.658448
## SellerGiSell	1.693e+05	1.895e+05	0.893	0.371613
## SellerGiTRAK	1.196e+04	1.740e+05	0.069	0.945191
## SellerGJ	-8.971e+04	1.795e+05	-0.500	0.617296

## SellerGJanice	-2.475e+04	3.972e+05	-0.062	0.950318
## SellerGJas	9.684e+04	1.547e+05	0.626	0.531379
## SellerGJason	9.777e+04	1.764e+05	0.554	0.579450
## SellerGJellis	1.029e+05	1.521e+05	0.677	0.498701
## SellerGJim	1.088e+05	4.354e+05	0.250	0.802677
## SellerGJMRE	-1.591e+05	2.425e+05	-0.656	0.511755
## SellerGJoe	7.990e+04	3.972e+05	0.201	0.840578
## SellerGJohnston	-6.163e+05	3.976e+05	-1.550	0.121188
## SellerGJoseph	3.041e+05	4.048e+05	0.751	0.452464
## SellerGJRW	-2.982e+04	2.607e+05	-0.114	0.908943
## SellerGJust	3.361e+05	3.120e+05	1.077	0.281433
## SellerGJustin	-1.563e+05	4.010e+05	-0.390	0.696651
## SellerGJY	-6.640e+03	3.980e+05	-0.017	0.986689
## SellerGK.R.Peters	2.552e+04	4.003e+05	0.064	0.949167
## SellerGKay	5.020e+05	1.566e+05	3.206	0.001348
## SellerGKaye	1.313e+05	5.413e+05	0.243	0.808390
## SellerGKeatings	-5.464e+04	4.801e+05	-0.114	0.909383
## SellerGKelly	8.231e+05	3.015e+05	2.730	0.006349
## SellerGKen	1.196e+03	3.043e+05	0.004	0.996863
## SellerGL	1.088e+05	2.420e+05	0.450	0.653074
## SellerGLangwell	-2.334e+05	3.015e+05	-0.774	0.438857
## SellerGLE	6.524e+04	2.208e+05	0.296	0.767611
## SellerGLeading	-9.313e+04	2.132e+05	-0.437	0.662198
## SellerGLEased	2.318e+05	3.974e+05	0.583	0.559757
## SellerGLEeburn	6.886e+04	2.045e+05	0.337	0.736303
## SellerGLEyton	1.032e+05	3.132e+05	0.329	0.741842
## SellerGLindellas	3.198e+05	1.722e+05	1.857	0.063307
## SellerGLITTLE	-1.906e+05	1.694e+05	-1.125	0.260647
## SellerGLJ	5.220e+04	1.615e+05	0.323	0.746469
## SellerGLJH	-1.425e+05	2.655e+05	-0.537	0.591470
## SellerGLLC	6.402e+05	2.005e+05	3.193	0.001409
## SellerGLove	6.300e+04	1.552e+05	0.406	0.684746
## SellerGLucas	6.251e+05	3.980e+05	1.571	0.116293
## SellerGLuxton	7.367e+04	3.009e+05	0.245	0.806560
## SellerGM.J	2.697e+04	3.053e+05	0.088	0.929613
## SellerGMaddison	-1.163e+05	2.611e+05	-0.446	0.655848
## SellerGMaitland	-3.028e+04	4.003e+05	-0.076	0.939706
## SellerGMandy	-5.536e+04	2.393e+05	-0.231	0.817053
## SellerGMarshall	3.431e+05	1.527e+05	2.247	0.024636
## SellerGMason	-1.581e+04	2.044e+05	-0.077	0.938350
## SellerGMatthew	4.618e+04	2.242e+05	0.206	0.836855
## SellerGMax	2.143e+05	1.974e+05	1.086	0.277706
## SellerGMcDonald	1.246e+05	1.617e+05	0.771	0.440870
## SellerGMcGrath	8.673e+04	1.537e+05	0.564	0.572449
## SellerGMcGrath/First	-2.950e+05	3.974e+05	-0.742	0.457849
## SellerGMcGrath/Langwell	-2.246e+05	3.989e+05	-0.563	0.573410
## SellerGMcLennan	1.203e+05	2.266e+05	0.531	0.595479
## SellerGMcNaughton	2.158e+05	3.977e+05	0.543	0.587353
## SellerGMeadows	-3.157e+05	3.972e+05	-0.795	0.426694
## SellerGMeallin	-9.127e+04	3.979e+05	-0.229	0.818588

## SellerGMega	2.027e+05	3.982e+05	0.509	0.610687
## SellerGMelbourne	1.048e+05	1.952e+05	0.537	0.591310
## SellerGMetro	-1.865e+04	4.094e+05	-0.046	0.963670
## SellerGMICM	-7.093e+04	1.968e+05	-0.360	0.718584
## SellerGMiles	1.170e+05	1.555e+05	0.752	0.451865
## SellerGMillership	5.545e+04	1.761e+05	0.315	0.752857
## SellerGMindacom	6.974e+05	4.158e+05	1.677	0.093498
## SellerGMitchell	2.979e+05	3.084e+05	0.966	0.334036
## SellerGMJ	-8.027e+04	4.024e+05	-0.199	0.841892
## SellerGMoonee	1.636e+04	1.647e+05	0.099	0.920900
## SellerGMorleys	-4.079e+05	3.978e+05	-1.026	0.305124
## SellerGMorrison	1.166e+05	1.621e+05	0.719	0.472198
## SellerGMunn	-8.488e+03	3.205e+05	-0.026	0.978870
## SellerGNaison	1.617e+05	3.980e+05	0.406	0.684463
## SellerGNardella	-2.655e+05	3.011e+05	-0.882	0.378015
## SellerGNelson	2.672e+04	1.522e+05	0.176	0.860627
## SellerGNew	1.729e+04	2.387e+05	0.072	0.942257
## SellerGNguyen	1.007e+05	3.981e+05	0.253	0.800249
## SellerGNicholls	-4.565e+04	4.108e+05	-0.111	0.911532
## SellerGNicholson	-6.406e+04	2.068e+05	-0.310	0.756681
## SellerGNick	2.859e+05	1.628e+05	1.757	0.078990
## SellerGNoel	7.550e+03	1.538e+05	0.049	0.960856
## SellerGNorth	3.699e+04	3.977e+05	0.093	0.925888
## SellerGO'Brien	4.000e+04	1.569e+05	0.255	0.798750
## SellerGO'Donoghues	-1.830e+05	1.955e+05	-0.936	0.349234
## SellerGOak	3.522e+05	4.040e+05	0.872	0.383283
## SellerGObrien	5.239e+04	1.932e+05	0.271	0.786229
## SellerGOBrien	9.832e+04	2.271e+05	0.433	0.665059
## SellerGOne	9.200e+03	1.788e+05	0.051	0.958961
## SellerGOnly	1.709e+04	3.312e+05	0.052	0.958853
## SellerGOriental	-6.083e+04	3.980e+05	-0.153	0.878526
## SellerGOWen	-3.544e+05	3.994e+05	-0.887	0.375013
## SellerGP	-4.141e+04	3.989e+05	-0.104	0.917310
## SellerGPagan	2.639e+03	1.918e+05	0.014	0.989026
## SellerGParkes	9.597e+04	2.002e+05	0.479	0.631763
## SellerGParkinson	5.145e+04	3.993e+05	0.129	0.897487
## SellerGPaul	2.072e+05	1.917e+05	1.081	0.279646
## SellerGPeake	-7.313e+03	3.396e+05	-0.022	0.982817
## SellerGPeter	7.130e+03	1.665e+05	0.043	0.965845
## SellerGPhilip	4.268e+04	1.582e+05	0.270	0.787316
## SellerGPoint	9.225e+04	1.971e+05	0.468	0.639672
## SellerGPRD	-8.532e+04	3.992e+05	-0.214	0.830756
## SellerGPRDNationwide	-6.172e+04	1.912e+05	-0.323	0.746806
## SellerGPride	1.739e+04	1.972e+05	0.088	0.929722
## SellerGPrime	-5.708e+04	3.980e+05	-0.143	0.885944
## SellerGPrivate/Tiernan's	2.969e+05	3.978e+05	0.747	0.455358
## SellerGProf.	4.726e+04	1.702e+05	0.278	0.781187
## SellerGProperty	5.194e+04	2.427e+05	0.214	0.830558
## SellerGPropertyau	-3.491e+05	3.979e+05	-0.877	0.380432
## SellerGPSP	2.410e+05	3.981e+05	0.606	0.544816

## SellerGPurplebricks	-6.906e+04	1.588e+05	-0.435	0.663631
## SellerGR&H	1.627e+05	3.008e+05	0.541	0.588677
## SellerGRaine	1.470e+04	1.549e+05	0.095	0.924382
## SellerGRaine&Horne	-1.004e+05	2.616e+05	-0.384	0.701080
## SellerGRay	1.065e+04	1.520e+05	0.070	0.944160
## SellerGRe	-3.731e+04	2.058e+05	-0.181	0.856125
## SellerGRE	1.137e+05	2.076e+05	0.548	0.583713
## SellerGReal	2.369e+05	2.658e+05	0.891	0.372735
## SellerGRed	1.753e+05	2.395e+05	0.732	0.464190
## SellerGRedina	4.143e+04	3.013e+05	0.137	0.890639
## SellerGReed	4.628e+04	3.982e+05	0.116	0.907492
## SellerGReliance	7.439e+04	1.707e+05	0.436	0.662942
## SellerGREMAX	8.619e+04	2.396e+05	0.360	0.719069
## SellerGrendina	5.563e+04	1.598e+05	0.348	0.727754
## SellerGRexhepi	5.969e+04	4.496e+05	0.133	0.894380
## SellerGRistic	5.282e+04	2.630e+05	0.201	0.840850
## SellerGRodney	-1.778e+05	2.173e+05	-0.818	0.413363
## SellerGRoger	3.885e+05	3.018e+05	1.287	0.198002
## SellerGRounds	-8.512e+04	2.391e+05	-0.356	0.721864
## SellerGRT	2.029e+05	1.545e+05	1.313	0.189195
## SellerGRW	3.323e+03	1.552e+05	0.021	0.982923
## SellerGRyder	1.969e+05	1.952e+05	1.009	0.313070
## SellerGS&L	1.389e+05	1.784e+05	0.779	0.436103
## SellerGSanctuary	2.147e+05	4.007e+05	0.536	0.592089
## SellerGSchroeder	5.671e+04	2.047e+05	0.277	0.781735
## SellerGScott	-2.277e+05	3.017e+05	-0.755	0.450374
## SellerGSell	7.288e+03	3.053e+05	0.024	0.980957
## SellerGSkad	3.211e+04	2.403e+05	0.134	0.893709
## SellerGSN	-5.722e+05	3.996e+05	-1.432	0.152202
## SellerGSotheby's	8.502e+05	2.145e+05	3.965	7.38e-05
## SellerGSteveway	-6.473e+04	3.969e+05	-0.163	0.870443
## SellerGStockdale	1.647e+04	1.535e+05	0.107	0.914580
## SellerGSurreal	-2.643e+05	4.128e+05	-0.640	0.522096
## SellerGSweeney	5.641e+04	1.543e+05	0.366	0.714697
## SellerGSweeney/Advantage	4.927e+04	3.014e+05	0.163	0.870156
## SellerGThe	-6.345e+03	2.004e+05	-0.032	0.974742
## SellerGThomas	-1.427e+05	2.642e+05	-0.540	0.589018
## SellerGThomson	-1.349e+04	1.681e+05	-0.080	0.936039
## SellerGTiernan's	-6.916e+05	3.972e+05	-1.741	0.081680
## SellerGTim	-1.320e+05	1.867e+05	-0.707	0.479648
## SellerGTrimson	5.659e+04	1.916e+05	0.295	0.767783
## SellerGTriwest	1.666e+05	2.075e+05	0.803	0.421962
## SellerGTRUE	-1.713e+05	3.234e+05	-0.530	0.596466
## SellerGU	-8.370e+04	2.424e+05	-0.345	0.729918
## SellerGUnity	-9.168e+04	3.978e+05	-0.230	0.817746
## SellerGUpper	2.109e+05	3.982e+05	0.530	0.596318
## SellerGUpside	2.371e+05	2.615e+05	0.906	0.364742
## SellerGVeitch	-6.951e+04	4.043e+05	-0.172	0.863501
## SellerGVic	-4.504e+04	3.974e+05	-0.113	0.909768
## SellerGVICProp	1.066e+06	2.612e+05	4.083	4.47e-05

## SellerGVICPROP	-3.281e+05	2.614e+05	-1.255	0.209439
## SellerGVictory	-2.463e+05	3.982e+05	-0.619	0.536208
## SellerGVillage	1.205e+05	1.568e+05	0.768	0.442267
## SellerGW.B.	1.366e+04	2.290e+05	0.060	0.952418
## SellerGWalsh	5.088e+05	3.973e+05	1.281	0.200366
## SellerGWalshe	-1.952e+04	1.753e+05	-0.111	0.911326
## SellerGWeast	9.966e+05	3.974e+05	2.508	0.012155
## SellerGWeda	4.533e+04	2.613e+05	0.173	0.862305
## SellerGWeston	-1.668e+05	2.613e+05	-0.638	0.523252
## SellerGWestside	-1.358e+05	2.416e+05	-0.562	0.574102
## SellerGWhite	1.988e+05	3.990e+05	0.498	0.618343
## SellerGWHITEFOX	8.481e+04	3.039e+05	0.279	0.780221
## SellerGWhiting	-1.651e+04	1.841e+05	-0.090	0.928562
## SellerGWilliam	5.135e+04	1.879e+05	0.273	0.784671
## SellerGWilliams	7.536e+04	1.577e+05	0.478	0.632840
## SellerGWilson	5.951e+04	1.876e+05	0.317	0.751125
## SellerGWin	-5.189e+04	1.836e+05	-0.283	0.777461
## SellerGWoodards	4.179e+04	1.534e+05	0.272	0.785296
## SellerGWyndham	-9.339e+04	2.408e+05	-0.388	0.698160
## SellerGXynergy	-4.346e+05	3.973e+05	-1.094	0.274083
## SellerGYPA	4.099e+04	1.531e+05	0.268	0.788874
## SellerGZahn	5.761e+04	3.975e+05	0.145	0.884773
## Bathroom	1.473e+05	5.721e+03	25.750	< 2e-16
## Car	5.004e+04	3.322e+03	15.066	< 2e-16
## Landsize	1.717e+00	8.066e-01	2.129	0.033298
## Lattitude	-1.919e+06	4.565e+05	-4.204	2.63e-05
## Longitude	-1.443e+06	3.300e+05	-4.373	1.23e-05
## year17	1.280e+05	7.722e+03	16.580	< 2e-16
## year18	2.114e+05	1.794e+04	11.787	< 2e-16
## month2	-1.257e+04	2.591e+04	-0.485	0.627647
## month3	2.084e+04	2.555e+04	0.815	0.414892
## month4	1.209e+04	3.062e+04	0.395	0.692888
## month5	4.349e+04	2.909e+04	1.495	0.134972
## month6	5.143e+04	2.923e+04	1.759	0.078528
## month7	5.320e+04	2.916e+04	1.825	0.068091
## month8	7.441e+04	2.957e+04	2.516	0.011874
## month9	7.252e+04	2.932e+04	2.473	0.013399
## month10	1.023e+05	2.941e+04	3.478	0.000506
## month11	1.060e+05	2.956e+04	3.585	0.000338
## month12	1.163e+05	3.089e+04	3.766	0.000167
##				
## (Intercept)	**			
## SuburbAberfeldie				
## SuburbAirport West	***			
## SuburbAlbanvale	***			
## SuburbAlbert Park	***			
## SuburbAlbion	***			
## SuburbAlphington	***			
## SuburbAltona	***			
## SuburbAltona Meadows	***			

## SuburbAltona North	***
## SuburbArdeer	***
## SuburbArmadale	***
## SuburbAscot Vale	*
## SuburbAshburton	**
## SuburbAshwood	
## SuburbAspendale	***
## SuburbAspendale Gardens	***
## SuburbAttwood	***
## SuburbAvondale Heights	***
## SuburbBacchus Marsh	***
## SuburbBalaclava	
## SuburbBalwyn	***
## SuburbBalwyn North	***
## SuburbBayswater	**
## SuburbBayswater North	.
## SuburbBeaconsfield	
## SuburbBeaconsfield Upper	.
## SuburbBeaumaris	
## SuburbBellfield	*
## SuburbBentleigh	.
## SuburbBentleigh East	***
## SuburbBerwick	***
## SuburbBlack Rock	
## SuburbBlackburn	
## SuburbBlackburn North	
## SuburbBlackburn South	
## SuburbBonbeach	***
## SuburbBoronia	**
## SuburbBotanic Ridge	*
## SuburbBox Hill	***
## SuburbBraybrook	***
## SuburbBriar Hill	
## SuburbBrighton	***
## SuburbBrighton East	
## SuburbBroadmeadows	***
## SuburbBrookfield	***
## SuburbBrooklyn	***
## SuburbBrunswick	
## SuburbBrunswick East	
## SuburbBrunswick West	**
## SuburbBulleen	
## SuburbBullengarook	*
## SuburbBundoora	***
## SuburbBurnley	
## SuburbBurnside	***
## SuburbBurnside Heights	***
## SuburbBurwood	
## SuburbBurwood East	
## SuburbCairnlea	***



## SuburbCamberwell	***
## SuburbCampbellfield	***
## SuburbCanterbury	***
## SuburbCarlton	*
## SuburbCarlton North	***
## SuburbCarnegie	
## SuburbCaroline Springs	***
## SuburbCarrum	***
## SuburbCarrum Downs	***
## SuburbCaulfield	
## SuburbCaulfield East	
## SuburbCaulfield North	
## SuburbCaulfield South	
## SuburbChadstone	**
## SuburbChelsea	***
## SuburbChelsea Heights	***
## SuburbCheltenham	***
## SuburbChirnside Park	
## SuburbClarinda	***
## SuburbClayton	**
## SuburbClayton South	***
## SuburbClifton Hill	.
## SuburbCoburg	***
## SuburbCoburg North	***
## SuburbColdstream	
## SuburbCollingwood	
## SuburbCoolaroo	***
## SuburbCraigieburn	***
## SuburbCranbourne	***
## SuburbCranbourne North	***
## SuburbCranbourne West	***
## SuburbCremorne	
## SuburbCroydon	
## SuburbCroydon Hills	
## SuburbCroydon North	
## SuburbCroydon South	
## SuburbDallas	***
## SuburbDandenong	***
## SuburbDandenong North	***
## SuburbDeepdene	***
## SuburbDeer Park	***
## SuburbDelahey	***
## SuburbDerrimut	***
## SuburbDiamond Creek	.
## SuburbDiggers Rest	***
## SuburbDingley Village	***
## SuburbDoncaster	
## SuburbDoncaster East	
## SuburbDonvale	
## SuburbDoreen	**

## SuburbDoveton	***
## SuburbEaglemont	***
## SuburbEast Melbourne	***
## SuburbEdithvale	***
## SuburbElsternwick	*
## SuburbEltham	.
## SuburbEltham North	**
## SuburbElwood	
## SuburbEmerald	
## SuburbEndeavour Hills	***
## SuburbEpping	***
## SuburbEssendon	
## SuburbEssendon North	
## SuburbEssendon West	**
## SuburbEumemmerring	*
## SuburbFairfield	
## SuburbFawkner	***
## SuburbFerntree Gully	**
## SuburbFitzroy	***
## SuburbFitzroy North	***
## SuburbFlemington	.
## SuburbFootscray	***
## SuburbForest Hill	*
## SuburbFrankston	***
## SuburbFrankston North	***
## SuburbFrankston South	***
## SuburbGardenvale	
## SuburbGisborne	***
## SuburbGisborne South	**
## SuburbGladstone Park	***
## SuburbGlen Huntly	
## SuburbGlen Iris	***
## SuburbGlen Waverley	
## SuburbGlenroy	***
## SuburbGowanbrae	***
## SuburbGreensborough	***
## SuburbGreenvale	***
## SuburbHadfield	***
## SuburbHallam	**
## SuburbHampton	*
## SuburbHampton East	***
## SuburbHampton Park	***
## SuburbHawthorn	***
## SuburbHawthorn East	***
## SuburbHealesville	
## SuburbHeatherton	**
## SuburbHeathmont	*
## SuburbHeidelberg	
## SuburbHeidelberg Heights	**
## SuburbHeidelberg West	***

## SuburbHighett	**
## SuburbHillside	***
## SuburbHoppers Crossing	***
## SuburbHughesdale	
## SuburbHuntingdale	**
## SuburbHurstbridge	
## SuburbIvanhoe	**
## SuburbIvanhoe East	***
## SuburbJacana	***
## SuburbKalkallo	
## SuburbKealba	***
## SuburbKeilor	***
## SuburbKeilor Downs	***
## SuburbKeilor East	***
## SuburbKeilor Lodge	***
## SuburbKeilor Park	***
## SuburbKensington	.
## SuburbKew	***
## SuburbKew East	***
## SuburbKeysborough	***
## SuburbKilsyth	
## SuburbKings Park	***
## SuburbKingsbury	**
## SuburbKingsville	***
## SuburbKnoxfield	*
## SuburbKooyong	***
## SuburbKurunjang	***
## SuburbLalor	***
## SuburbLangwarrin	***
## SuburbLaverton	***
## SuburbLilydale	
## SuburbLower Plenty	
## SuburbLysterfield	
## SuburbMaidstone	***
## SuburbMalvern	***
## SuburbMalvern East	***
## SuburbMaribyrnong	***
## SuburbMcKinnon	
## SuburbMeadow Heights	***
## SuburbMelbourne	
## SuburbMelton	***
## SuburbMelton South	***
## SuburbMelton West	***
## SuburbMentone	***
## SuburbMernda	***
## SuburbMickleham	**
## SuburbMiddle Park	***
## SuburbMill Park	***
## SuburbMitcham	
## SuburbMonbulk	

## SuburbMont Albert	***
## SuburbMontmorency	*
## SuburbMontrose	
## SuburbMoonee Ponds	
## SuburbMoorabbin	***
## SuburbMooroolbark	
## SuburbMordialloc	***
## SuburbMount Evelyn	
## SuburbMount Waverley	
## SuburbMulgrave	***
## SuburbMurrumbeena	
## SuburbNarre Warren	***
## SuburbNew Gisborne	*
## SuburbNewport	***
## SuburbNiddrie	**
## SuburbNoble Park	***
## SuburbNorth Melbourne	
## SuburbNorth Warrandyte	
## SuburbNorthcote	***
## SuburbNotting Hill	
## SuburbNunawading	
## SuburbOak Park	***
## SuburbOakleigh	*
## SuburbOakleigh East	*
## SuburbOakleigh South	***
## SuburbOfficer	***
## SuburbOrmond	
## SuburbPakenham	***
## SuburbParkdale	***
## SuburbParkville	***
## SuburbPascoe Vale	***
## SuburbPatterson Lakes	***
## SuburbPlenty	
## SuburbPlumpton	**
## SuburbPoint Cook	***
## SuburbPort Melbourne	
## SuburbPrahran	.
## SuburbPreston	**
## SuburbPrinces Hill	.
## SuburbResearch	
## SuburbReservoir	***
## SuburbRichmond	
## SuburbRiddells Creek	*
## SuburbRingwood	
## SuburbRingwood East	
## SuburbRingwood North	*
## SuburbRipponlea	
## SuburbRockbank	***
## SuburbRosanna	
## SuburbRowville	***

## SuburbRoxburgh Park	***
## SuburbSandhurst	***
## SuburbSandringham	
## SuburbScoresby	*
## SuburbSeabrook	***
## SuburbSeaford	***
## SuburbSeaholme	***
## SuburbSeddon	***
## SuburbSilvan	
## SuburbSkye	***
## SuburbSouth Kingsville	***
## SuburbSouth Melbourne	
## SuburbSouth Morang	***
## SuburbSouth Yarra	***
## SuburbSouthbank	
## SuburbSpotswood	***
## SuburbSpringvale	***
## SuburbSpringvale South	***
## SuburbSt Albans	***
## SuburbSt Helena	*
## SuburbSt Kilda	
## SuburbStrathmore	.
## SuburbStrathmore Heights	**
## SuburbSunbury	***
## SuburbSunshine	***
## SuburbSunshine North	***
## SuburbSunshine West	***
## SuburbSurrey Hills	***
## SuburbSydenham	***
## SuburbTarneit	***
## SuburbTaylors Hill	***
## SuburbTaylors Lakes	***
## SuburbTemplestowe	.
## SuburbTemplestowe Lower	
## SuburbThe Basin	.
## SuburbThomastown	***
## SuburbThornbury	
## SuburbToorak	***
## SuburbTravancore	
## SuburbTruganina	***
## SuburbTullamarine	***
## SuburbUpwey	
## SuburbVermont	.
## SuburbVermont South	*
## SuburbViewbank	**
## SuburbWallan	
## SuburbWandin North	
## SuburbWantirna	**
## SuburbWantirna South	**
## SuburbWarrandyte	

## SuburbWarranwood	
## SuburbWaterways	*
## SuburbWatsonia	*
## SuburbWatsonia North	**
## SuburbWattle Glen	
## SuburbWerribee	***
## SuburbWerribee South	***
## SuburbWest Footscray	***
## SuburbWest Melbourne	
## SuburbWestmeadows	***
## SuburbWheelers Hill	***
## SuburbWhittlesea	
## SuburbWildwood	*
## SuburbWilliams Landing	***
## SuburbWilliamstown	**
## SuburbWilliamstown North	***
## SuburbWindsor	
## SuburbWollert	***
## SuburbWyndham Vale	***
## SuburbYallambie	***
## SuburbYarra Glen	
## SuburbYarraville	***
## Rooms	***
## Typet	***
## Typeu	***
## MethodS	***
## MethodSA	
## MethodSP	**
## MethodVB	
## SellerGAbercromby's	**
## SellerGAce	
## SellerGAlex	
## SellerGAlexkarbon	
## SellerGAllens	
## SellerGAnderson	
## SellerGAppleby	
## SellerGAquire	
## SellerGArea	
## SellerGAscend	
## SellerGAsh	
## SellerGASL	
## SellerGAsset	
## SellerGAssisi	.
## SellerGAustralian	
## SellerGAvion	
## SellerGBarlow	
## SellerGBarry	
## SellerGBayside	
## SellerGBekdon	
## SellerGBeller	

```
## SellerGBells
## SellerGBenlor
## SellerGBetter
## SellerGBiggin
## SellerGBLue
## SellerGBoran
## SellerGBoutique
## SellerGBowman
## SellerGBrace
## SellerGBrad
## SellerGBuckingham
## SellerGBullen
## SellerGBurnham
## SellerGBurns
## SellerGBuxton
## SellerGBuxton/Find
## SellerGBuxton/Marshall
## SellerGbuyMyplace
## SellerGC21
## SellerGCaine
## SellerGCalder
## SellerGCarter
## SellerGCastran
## SellerGCayzer
## SellerGCentury
## SellerGChambers
## SellerGChanging
## SellerGCharlton
## SellerGCharter
## SellerGChisholm
## SellerGChristopher
## SellerGClairmont
## SellerGCollings
## SellerGCollins
## SellerGCommercial
## SellerGCommunity
## SellerGCompton
## SellerGConquest
## SellerGConsidine
## SellerGCoventry
## SellerGCraig
## SellerGCrane
## SellerGCreate
## SellerGD'Aprano
## SellerGDaniel
## SellerGDarras
## SellerGDarren
## SellerGDavid
## SellerGDel
## SellerGDingle
```

```
## SellerGDixon
## SellerGDomain
## SellerGDouglas
## SellerGEdward
## SellerGElite
## SellerGEric
## SellerGView
## SellerGFirst
## SellerGFlannagan
## SellerGFletchers
## SellerGFletchers/One
## SellerGFN
## SellerGFollett
## SellerGFrank
## SellerGFree
## SellerGG&H
## SellerGGardiner
## SellerGGarvey
## SellerGGary
## SellerGGL
## SellerGGrantham
## SellerGGreg
## SellerGGunn&Co
## SellerGH
## SellerGHall          ***
## SellerGHam
## SellerGHAR
## SellerGHarcourts
## SellerGHarrington
## SellerGHaughton
## SellerGHayeswinckle
## SellerGhockingstuart
## SellerGhockingstuart/Barry
## SellerGhockingstuart/Biggin
## SellerGhockingstuart/hockingstuart
## SellerGhockingstuart/Marshall
## SellerGhockingstuart/Sweeney
## SellerGHodges
## SellerGHolland
## SellerGHomes
## SellerGHooper
## SellerGHoskins
## SellerGHunter
## SellerGIconek
## SellerGiProperty
## SellerGiSell
## SellerGiTRAK
## SellerGJ
## SellerGJanice
## SellerGJas
```



```
## SellerGJason
## SellerGJellis
## SellerGJim
## SellerGJMRE
## SellerGJoe
## SellerGJohnston
## SellerGJoseph
## SellerGJRW
## SellerGJust
## SellerGJustin
## SellerGJY
## SellerGK.R.Peters
## SellerGKay          **
## SellerGKaye
## SellerGKeatings
## SellerGKelly        **
## SellerGKen
## SellerGL
## SellerGLangwell
## SellerGLE
## SellerGLeading
## SellerGLEased
## SellerGLEeburn
## SellerGLEyton
## SellerGLindellas    .
## SellerGLITTLE
## SellerGLJ
## SellerGLJH
## SellerGLLC          **
## SellerGLove
## SellerGLucas
## SellerGLuxton
## SellerGM.J
## SellerGMaddison
## SellerGMaitland
## SellerGMandy
## SellerGMarshall     *
## SellerGMason
## SellerGMatthew
## SellerGMax
## SellerGMcDonald
## SellerGMcGrath
## SellerGMcGrath/First
## SellerGMcGrath/Langwell
## SellerGMcLennan
## SellerGMcNaughton
## SellerGMeadows
## SellerGMeallin
## SellerGMega
## SellerGMelbourne
```

```
## SellerGMetro
## SellerGMICM
## SellerGMiles
## SellerGMillership
## SellerGMindacom
## SellerGMitchell
## SellerGMJ
## SellerGMoonee
## SellerGMorleys
## SellerGMorrison
## SellerGMunn
## SellerGNaison
## SellerGNardella
## SellerGNelson
## SellerGNew
## SellerGNguyen
## SellerGNicholls
## SellerGNicholson
## SellerGNick
## SellerGNoel
## SellerGNorth
## SellerGO'Brien
## SellerGO'Donoghues
## SellerGOak
## SellerGObrien
## SellerGOBrien
## SellerGOne
## SellerGOnly
## SellerGOriental
## SellerGOwen
## SellerGP
## SellerGPagan
## SellerGParkes
## SellerGParkinson
## SellerGPaul
## SellerGPeake
## SellerGPeter
## SellerGPhilip
## SellerGPoint
## SellerGPRD
## SellerGPRDNationwide
## SellerGPride
## SellerGPrime
## SellerGPrivate/Tiernan's
## SellerGProf.
## SellerGProperty
## SellerGPropertyau
## SellerGPSP
## SellerGPurplebricks
## SellerGR&H
```

```
## SellerGRaine
## SellerGRaine&Horne
## SellerGRay
## SellerGRe
## SellerGRE
## SellerGReal
## SellerGRed
## SellerGRedina
## SellerGReed
## SellerGReliance
## SellerGREMAX
## SellerGrendina
## SellerGRexhepi
## SellerGRistic
## SellerGRodney
## SellerGRoger
## SellerGRounds
## SellerGRT
## SellerGRW
## SellerGRyder
## SellerGS&L
## SellerGSanctuary
## SellerGSchroeder
## SellerGScott
## SellerGSell
## SellerGSkad
## SellerGSN
## SellerGSotheby's      ***
## SellerGSteveway
## SellerGStockdale
## SellerGSurreal
## SellerGSweeney
## SellerGSweeney/Advantage
## SellerGThe
## SellerGThomas
## SellerGThomson
## SellerGTiernan's      .
## SellerGTim
## SellerGTrimson
## SellerGTriwest
## SellerGTRUE
## SellerGU
## SellerGUnity
## SellerGUpper
## SellerGUpside
## SellerGVeitch
## SellerGVic
## SellerGVICProp        ***
## SellerGVICPROP
## SellerGVictory
```

```

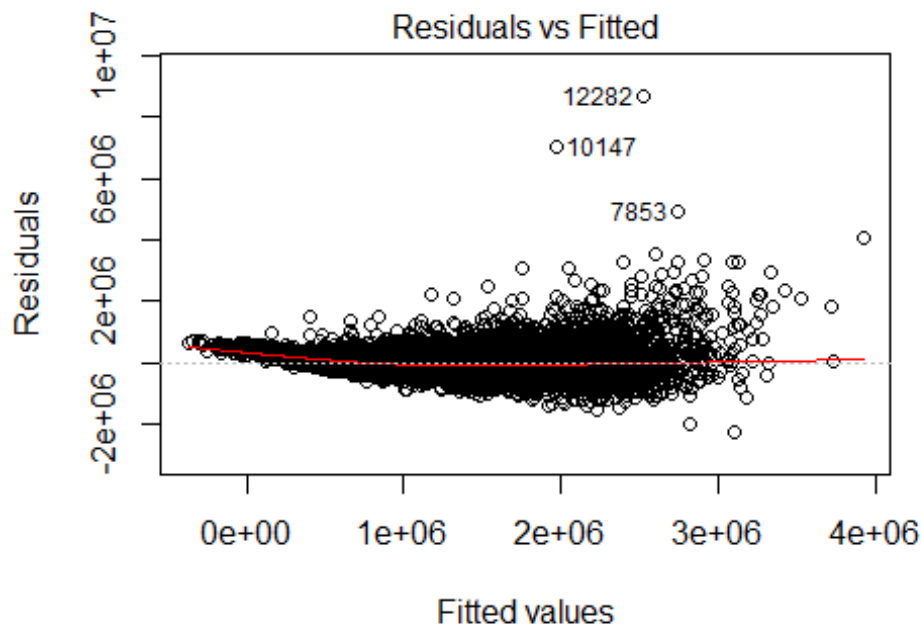
## SellerGVillage
## SellerGW.B.
## SellerGWalsh
## SellerGWalshe
## SellerGWeast *
## SellerGWeda
## SellerGWeston
## SellerGWestside
## SellerGWhite
## SellerGWHITEFOX
## SellerGWhiting
## SellerGWilliam
## SellerGWilliams
## SellerGWilson
## SellerGWin
## SellerGWoodards
## SellerGWyndham
## SellerGXynergy
## SellerGYPA
## SellerGZahn
## Bathroom ***
## Car ***
## Landsize *
## Lattitude ***
## Longitude ***
## year17 ***
## year18 ***
## month2
## month3
## month4
## month5
## month6 .
## month7 .
## month8 *
## month9 *
## month10 ***
## month11 ***
## month12 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 365600 on 15064 degrees of freedom
## Multiple R-squared:  0.7069, Adjusted R-squared:  0.6944
## F-statistic: 56.25 on 646 and 15064 DF,  p-value: < 2.2e-16

plot(lm.fit)

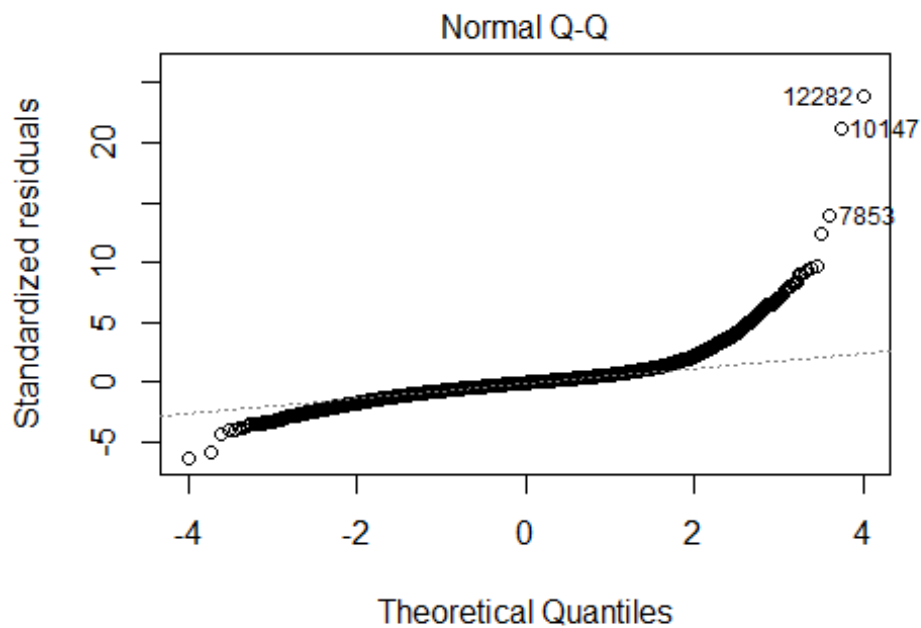
## Warning: not plotting observations with leverage one:
## 43, 1423, 1881, 3113, 3215, 3243, 3426, 3990, 4426, 4571, 5010, 5136,
5557, 5944, 7122, 7183, 7495, 7656, 7863, 8345, 8666, 8709, 8716, 8829, 8901,

```

8945, 9436, 10052, 10056, 10448, 10880, 11253, 11323, 11428, 12029, 12156, 12202, 12273, 12654, 12870, 12892, 12908, 13094, 13421, 13451, 13574, 13597, 13790, 13853, 13929, 13966, 14151, 14195, 14325, 14339, 14705, 14731, 15038, 15590, 15602, 15684, 15693

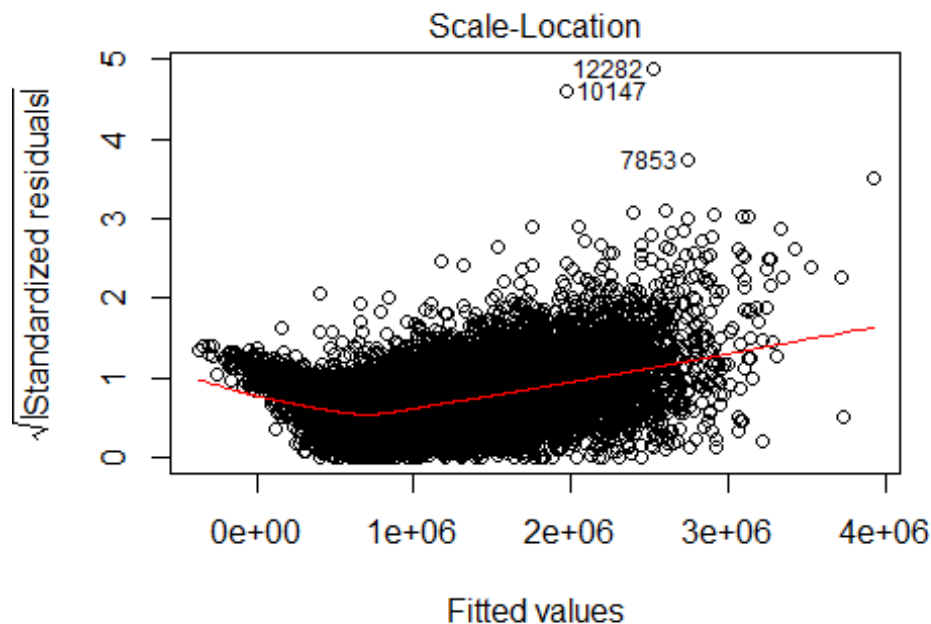


price ~ Suburb + Rooms + Type + Method + SellerG + Bathroom + Car



price ~ Suburb + Rooms + Type + Method + SellerG + Bathroom + Car

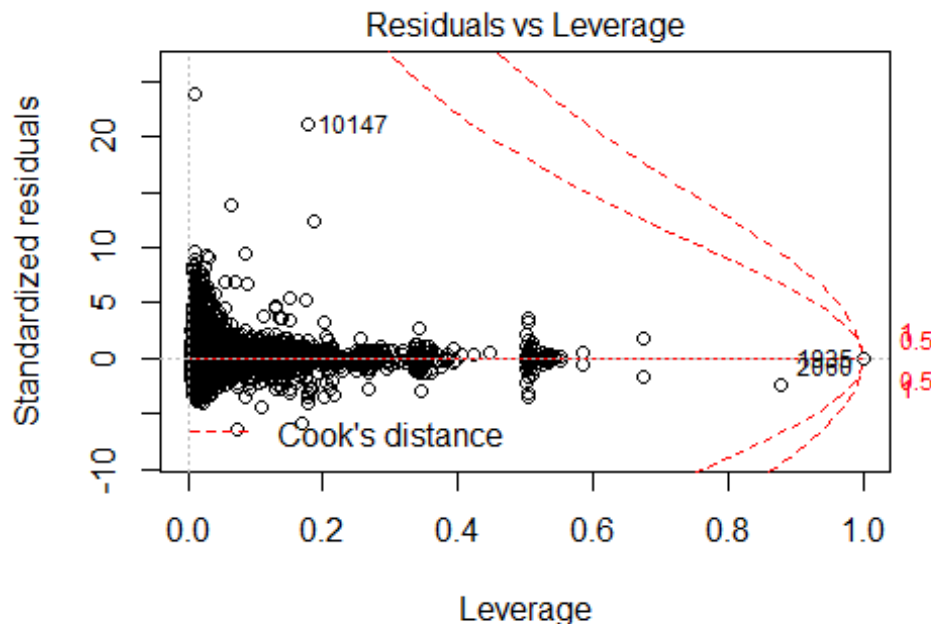
```
## Warning: not plotting observations with leverage one:
## 43, 1423, 1881, 3113, 3215, 3243, 3426, 3990, 4426, 4571, 5010, 5136,
5557, 5944, 7122, 7183, 7495, 7656, 7863, 8345, 8666, 8709, 8716, 8829, 8901,
8945, 9436, 10052, 10056, 10448, 10880, 11253, 11323, 11428, 12029, 12156,
12202, 12273, 12654, 12870, 12892, 12908, 13094, 13421, 13451, 13574, 13597,
13790, 13853, 13929, 13966, 14151, 14195, 14325, 14339, 14705, 14731, 15038,
15590, 15602, 15684, 15693
```



```
'rice ~ Suburb + Rooms + Type + Method + SellerG + Bathroom + Car
```

```
## Warning in sqrt(crit * p * (1 - hh)/hh): NaNs produced
```

```
## Warning in sqrt(crit * p * (1 - hh)/hh): NaNs produced
```



price ~ Suburb + Rooms + Type + Method + SellerG + Bathroom + Car

### Model Interpretations:

We can consider a model statistically significant if the model's p value is less than the pre defined statistical significance level of 0.05

Here in this case the null hypothesis is that the beta coefficients associated with variables is equal to zero.

The alternative Hypothesis is that the coefficients are not equal to 0. That means there exists a relationship between the independent variables and the target variable Price

1. The p value for this model is  $< 2.2e-16$ . So we can safely reject the null hypothesis that  $\beta=0$ . Hence there is a significant relationship between the variable in the linear regression model of Melbourne Dataset and we can conclude that the model is statistically significant.
2. The R square value for the model is .70. It tells us that the proportion of variation of Price variable in Melbourne dataset has been explained by this model.
3. The F statistic for this model is 61.63 and the corresponding p value is  $2.2e-16$ . It shows that model performs around 60 times better than the model with random variables.