

❖ Introduction:-

Play Store is Google's official pre-installed app **store** on Android-certified devices. It provides access to content on the **Google Play Store**, including apps, books, magazines, music, movies, and television programs.

Google Play is a digital distribution service operated and developed by Google LLC. It serves as the official app store for the Android operating system, allowing users to browse and download applications developed with the Android software development kit (SDK) and published through Google. Google Play also serves as a digital media store, offering music, books, movies, and television programs. It previously offered Google hardware devices for purchase until the introduction of a separate online hardware retailer, Google Store, on March 11, 2015, and it also offered news publications and magazines before the revamp of Google News in May 15, 2018.

Applications are available through Google Play either free of charge or at a cost. They can be downloaded directly on an Android device through the Play Store mobile app or by deploying the application to a device from the Google Play website. Applications exploiting hardware capabilities of a device can be targeted to users of devices with specific hardware components, such as a motion sensor (for motion-dependent games) or a front-facing camera . The Google Play store had over 82 billion app downloads in 2016 and has reached over 3.5 million apps published in 2017. It has been the subject of multiple issues concerning security, in which malicious software has been approved and uploaded to the store and downloaded by users, with varying degrees of severity.

❖ Features available:

App:- Application name

Category :-Category the app belongs to

Rating:-Overall user rating of the app

Reviews:-Number of user reviews for the app

Size:-Size of the app

Installs:-Number of user downloads/installs for the app

Type:-Paid or Free

Price:-Price of the app

Content Rating:-Age group the app is targeted at - Children / Mature 21+ / Adult

Genres:-An app can belong to multiple genres (apart from its main category). For eg, a musical family game will belong to Music, Game, Family genres.

Last Updated:-Date when the app was last updated on Play Store

Current Ver:-Current version of the app available on Play Store

Android Ver:-Min required Android version

❖ Problem Statement:-

1. Number of category available in store
2. Which category has maximum install
3. Which application has a higher review
4. Which application has a higher rating
5. Which application has higher size
6. Number of maximum download application
7. How many application are paid and free
8. How many application has a less rating
9. Number of genres available in store
10. Which genre has maximum install
11. Highest price of paid application
12. Lowest price of paid application
13. How many type of content rating available in store
14. Top 10 application of all category which download the most

❖ Data Visualisation Through Summary:-

1. How did I obtain the data set?

We got the dataset from kaggles website which include all types of dataset and data science related information.

2. How was the data originally collected?

3. How many rows and how many columns are in the dataset?

There are 13 columns and 10871 rows in the dataset .

4. What are the columns in the dataset?

```
> names(data)
[1] "App"           "Category"      "Rating"        "Reviews"       "Size"          "Installs"      "Type"
[8] "Price"        "Content.Rating" "Genres"        "Last.Updated"  "Current.Ver"   "Android.Ver"
```

❖ **Method/ Techniques:-**

Identification of techniques and tool used:-

R is a programming language and software environment for statistical analysis, graphics representation and reporting. R was created by Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand, and is currently developed by the R Development Core Team. R is freely available under the GNU General Public License, and pre-compiled binary versions are provided for various operating systems like Linux, Windows and Mac. This programming language was named R, based on the first letter of first name of the two R authors (Robert Gentleman and Ross Ihaka), and partly a play on the name of the Bell Labs Language S.

As stated earlier, R is a programming language and software environment for statistical analysis, graphics representation and reporting. The following are the important features of R

- R is a well-developed, simple and effective programming language which includes conditionals, loops, user defined recursive functions and input and output facilities.
- R has an effective data handling and storage facility,
- R provides a suite of operators for calculations on arrays, lists, vectors and matrices.
- R provides a large, coherent and integrated collection of tools for data analysis.
- R provides graphical facilities for data analysis and display either directly at the computer or printing at the papers.

As a conclusion, R is world's most widely used statistics programming language. It's the # 1 choice of data scientists and supported by a vibrant and talented community of contributors. R is taught in universities and deployed in mission critical business applications. This tutorial will teach you R programming along with suitable examples in simple and easy steps.

- **Application of techniques and tools used:-**

- R will provide numerical or graphical summaries of data
- R has extensive graphical abilities
- R will handle a variety of specific analyses: Correlation, Straight Line Regression

- **Assumption:-**

This play store dataset includes information about every application like size, type, last update, size. Therefore, due to the size and amount of data collected here, we can make the assumption that this dataset exhibits randomization without any bias.

- **Randomize :What is the Randomization Scheme?:-**

While our original assumption claimed that the entire play store dataset exhibits randomization, our analysis needed to ensure that we developed a completely randomized design. In meeting this objective, a new dataset is created (“datalist”) that randomly selects 500 observations from “play store”. In creating this new dataset, we’re ensuring that our analysis considers a large sample of an even larger population and randomizes the order that the runs of the data are placed in the dataset. After creating this new dataset, we can now assume that our randomization scheme represents a completely randomized design.

Results

i. Preliminary Analysis

- The number of rows and columns in the dataset:

```
> nrow(data)
[1] 10841
> ncol(data)
[1] 13
```

- The first six values in the dataset:

```
> head(data)
```

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content.Rating
1	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND_DESIGN	4.1	159	19M	10,000+	Free	0	Everyone
2	Coloring book moana	ART_AND_DESIGN	3.9	967	14M	500,000+	Free	0	Everyone
3	U Launcher Lite â€” FREE Live Cool Themes, Hide Apps	ART_AND_DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone
4	Sketch - Draw & Paint	ART_AND_DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen
5	Pixel Draw - Number Art Coloring Book	ART_AND_DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone
6	Paper flowers instructions	ART_AND_DESIGN	4.4	167	5.6M	50,000+	Free	0	Everyone

	Genres	Last.Updated	Current.Ver	Android.Ver
1	Art & Design	7-Jan-18	1.0.0	4.0.3 and up
2	Art & Design;Pretend Play	15-Jan-18	2.0.0	4.0.3 and up
3	Art & Design	1-Aug-18	1.2.4	4.0.3 and up
4	Art & Design	8-Jun-18	Varies with device	4.2 and up
5	Art & Design;Creativity	20-Jun-18	1.1	4.4 and up
6	Art & Design	26-Mar-17	1	2.3 and up

- The last six values in the dataset:

```
> tail(df)
```

	App	Category	Rating	Reviews	Size	Installs
10836	FR Forms	BUSINESS	NaN	0	9.6M	10+
10837	Sya9a Maroc - FR	FAMILY	4.5	38	53M	5,000+
10838	Fr. Mike Schmitz Audio Teachings	FAMILY	5.0	4	3.6M	100+
10839	Parkinson Exercises FR	MEDICAL	NaN	3	9.5M	1,000+
10840	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114	Varies with device	1,000+
10841	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307	19M	10,000,000+

	Type	Price	Content.Rating	Genres	Last.Updated	Current.Ver	Android.Ver
10836	Free	0	Everyone	Business	September 29, 2016	1.1.5	4.0 and up
10837	Free	0	Everyone	Education	July 25, 2017	1.48	4.1 and up
10838	Free	0	Everyone	Education	July 6, 2018	1.0	4.1 and up
10839	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10840	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10841	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

- Structure of the data sets:-

```
> str(df)
```

```
'data.frame': 10841 obs. of 13 variables:
 $ App      : Factor w/ 9660 levels "- Free Comics - Comic Apps",...: 7229 2563 8998 8113 7294 7125 8171 5589 4948 5826 ...
 $ Category : Factor w/ 34 levels "1.9","ART_AND_DESIGN",...: 2 2 2 2 2 2 2 2 2 ...
 $ Rating   : num 4.1 3.9 4.7 4.5 4.3 4.4 3.8 4.1 4.4 4.7 ...
 $ Reviews  : Factor w/ 6002 levels "0","1","10","100",...: 1183 5924 5681 1947 5924 1310 1464 3385 816 485 ...
 $ Size     : Factor w/ 462 levels "1,000+","1.0M",...: 55 30 368 102 64 222 55 118 146 120 ...
 $ Installs : Factor w/ 22 levels "0","0+","1,000,000,000+",...: 8 20 13 16 11 17 17 4 4 8 ...
 $ Type     : Factor w/ 4 levels "0","Free","NaN",...: 2 2 2 2 2 2 2 2 2 ...
 $ Price    : Factor w/ 93 levels "$0.99","$1.00",...: 92 92 92 92 92 92 92 92 92 ...
 $ Content.Rating: Factor w/ 7 levels "", "Adults only 18+",...: 3 3 3 6 3 3 3 3 3 ...
 $ Genres   : Factor w/ 120 levels "Action","Action;Action & Adventure",...: 10 13 10 10 12 10 10 10 12 ...
 $ Last.Updated : Factor w/ 1378 levels "1.0.19","April 1, 2016",...: 562 482 117 825 757 901 76 726 1317 670 ...
 $ Current.Ver  : Factor w/ 2834 levels "", "0.0.0.2", "0.0.1",...: 121 1020 466 2827 279 115 279 2393 1457 1431 ...
 $ Android.Ver  : Factor w/ 35 levels "", "1.0 and up",...: 17 17 17 20 22 10 17 20 12 17 ...
```

Google Play Store

- What was the mean, median and standard deviation for Rating?:-

```
> mean(rat)
[1] 4.29
> median(rat)
[1] 4.35
> sd(rat)
[1] 0.3107339
```

- What was the mean, median and standard deviation for Reviews?:-

```
> mean(rev)
[1] 2811.9
> median(rev)
[1] 1705.5
> sd(rev)
[1] 2231.156
```


❖ **Data Analysis:-**

➤ Which Category has maximum installs?:-

```
> dbFetch(fetch)
      max(Installs)      Category
1              0      FAMILY
2             0+ PERSONALIZATION
3             1+      DATING
4          1,000+      COMICS
5      1,000,000+ ART_AND_DESIGN
6 1,000,000,000+ BOOKS_AND_REFERENCE
7             10+      DATING
8          10,000+ ART_AND_DESIGN
9      10,000,000+ ART_AND_DESIGN
10            100+      DATING
11          100,000+ ART_AND_DESIGN
12 100,000,000+ BOOKS_AND_REFERENCE
13              5+      DATING
14          5,000+ ART_AND_DESIGN
15      5,000,000+ ART_AND_DESIGN
16             50+      DATING
17          50,000+ ART_AND_DESIGN
18      50,000,000+ ART_AND_DESIGN
19             500+      DATING
20          500,000+ ART_AND_DESIGN
21 500,000,000+ COMMUNICATION
```

- Which Genres has maximum installs?:-

```
> dbFetch(fetch)
      max(Installs)      Genres
1              0      Strategy
2             0+    Personalization
3             1+      Dating
4          1,000+      Comics
5       1,000,000+    Art & Design
6 1,000,000,000+ Books & Reference
7             10+      Dating
8          10,000+    Art & Design
9       10,000,000+    Art & Design
10            100+      Dating
11         100,000+ Art & Design;Creativity
12 100,000,000+ Books & Reference
13              5+      Dating
14          5,000+    Art & Design
15       5,000,000+    Art & Design
16              50+      Dating
17          50,000+    Art & Design
18       50,000,000+    Art & Design
19              500+      Dating
20         500,000+ Art & Design;Pretend Play
21       500,000,000+ Communication
```

- Top 10 application which download the most:-

```
> dbFetch(fetch)
      max(Installs)      App
1             Free  Life Made WI-Fi Touchscreen Photo Frame
2       500,000,000+      Viber Messenger
3         500,000+    Coloring book moana
4             500+    Cardi B Live Stream Video Chat - Prank
5       50,000,000+    Sketch - Draw & Paint
6         50,000+    Paper flowers instructions
7             50+    Truth or Dare Pro
8       5,000,000+ U Launcher Lite â€œ FREE Live Cool Themes, Hide Apps
9         5,000+    Learn To Draw Kawaii Characters
10            5+    Diamond Engagement Rings
```

Google Play Store

- Which Application has higher size:-

```
> dbFetch(fetch)
      max(Size)
1 Varies with device Floor Plan Creator
```

- Which Application has a higher reviews:-

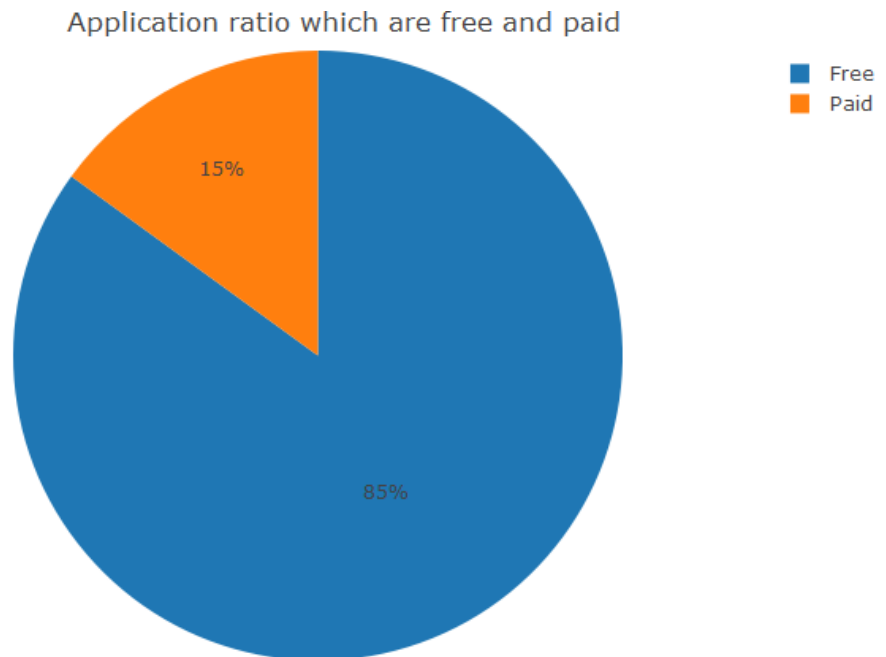
```
> rev=sqldf("select App,max(Reviews) from readdf order by Reviews")
> rev
      App max(Reviews)
1 WhatsApp Messenger 69119316
```

- Which Application has a higher rating?;-

```
> rat=sqldf("select App,max(Rating) from readdf order by Rating")
> rat
      App max(Rating)
1 ipsy: Makeup, Beauty, and Tips 4.9
```

Google Play Store

➤ Ratio of application which are free or paid:-

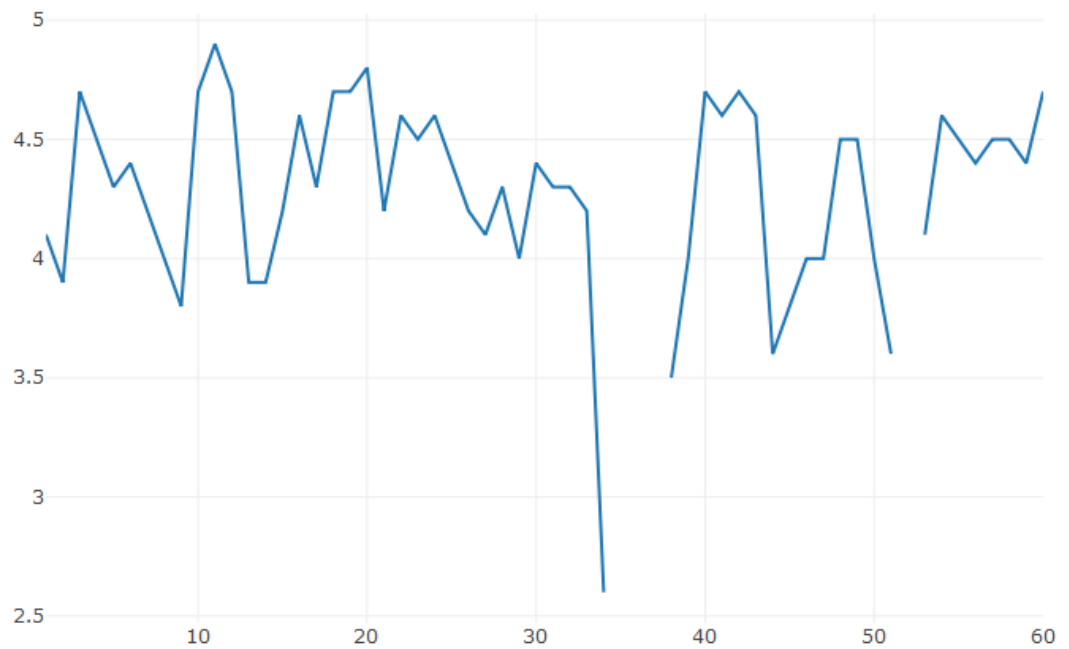


Code:-

```
type=df$Type
types=table(type)
dftype=data.frame(types)
plot_ly(dftype,labels =dftype$type, values =dftype$Freq, type = 'pie') %>%
  layout(title = 'Application ratio which are free and paid',
    xaxis = list(showgrid = FALSE, zeroline = FALSE, showticklabels =
FALSE),
    yaxis = list(showgrid = FALSE, zeroline = FALSE, showticklabels =
FALSE))
```

Google Play Store

➤ Representation of Rating in a line graph :-

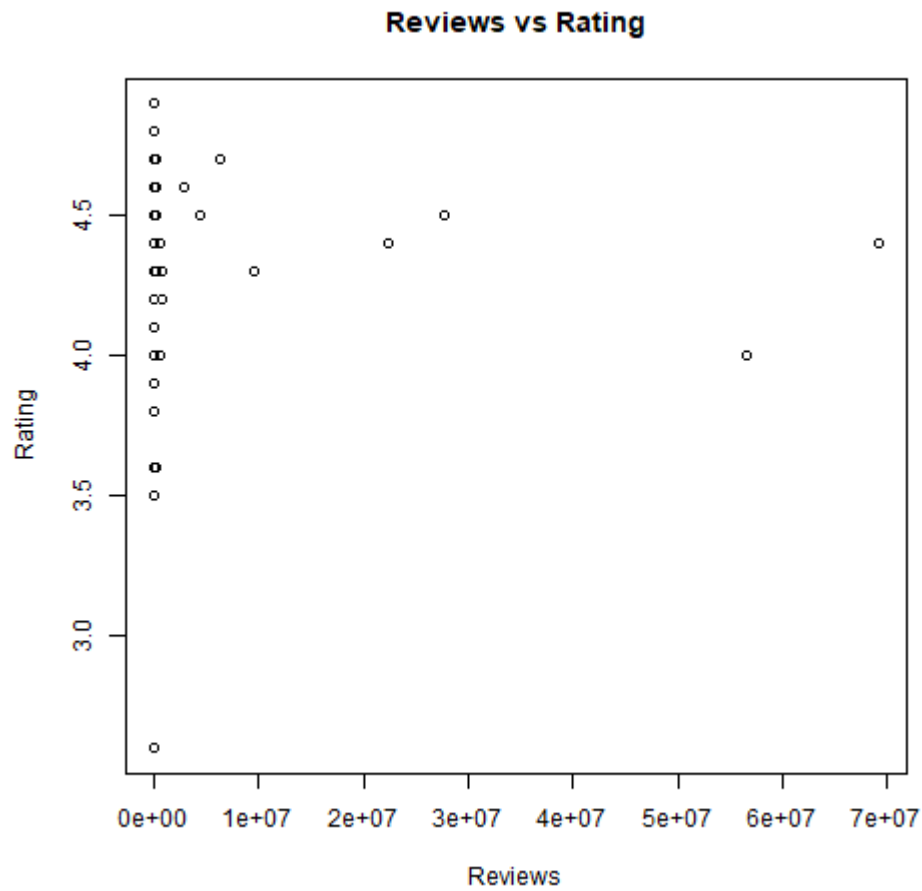


Code:-

```
plot_ly(df, x = c(1:60), y =df$Rating, type = 'scatter', mode = 'lines')
```

Google Play Store

➤ Representation of Rating and Review by a scatter plot:-

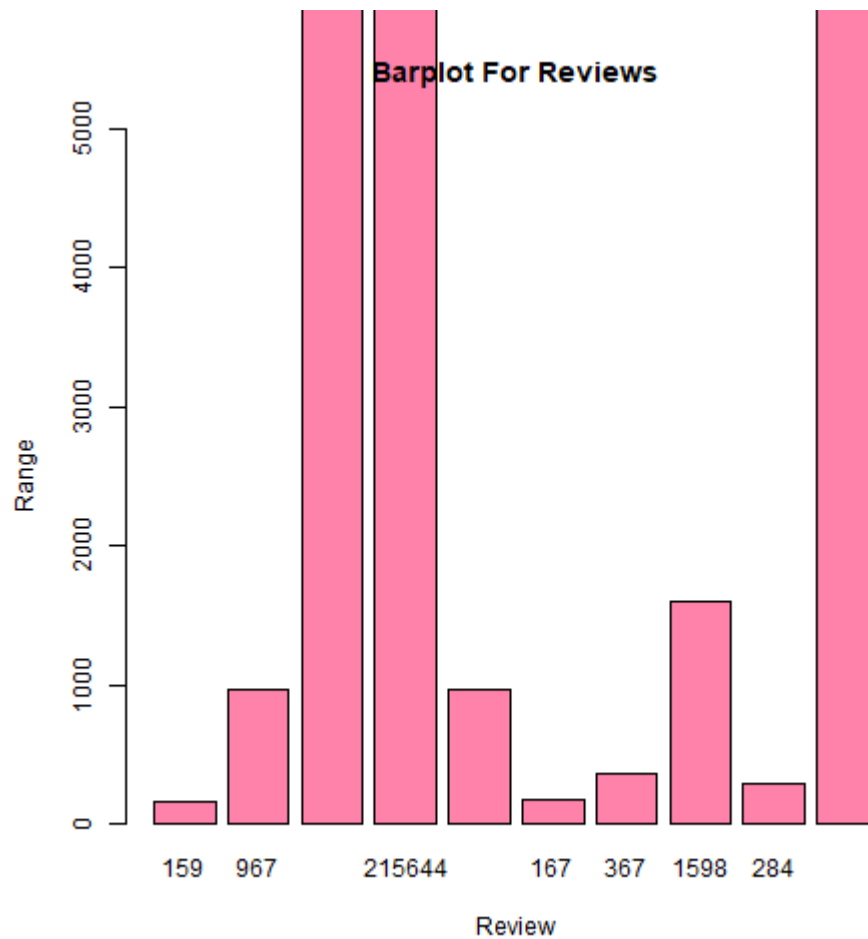


Code:-

```
input=df[,c('Reviews','Rating')]
plot(x = input$Reviews,y = input$Rating,xlab = "Reviews",ylab =
"Rating",main = "Reviews vs Rating")
```

Google Play Store

➤ Total Number of Reviews that are available in dataset:-

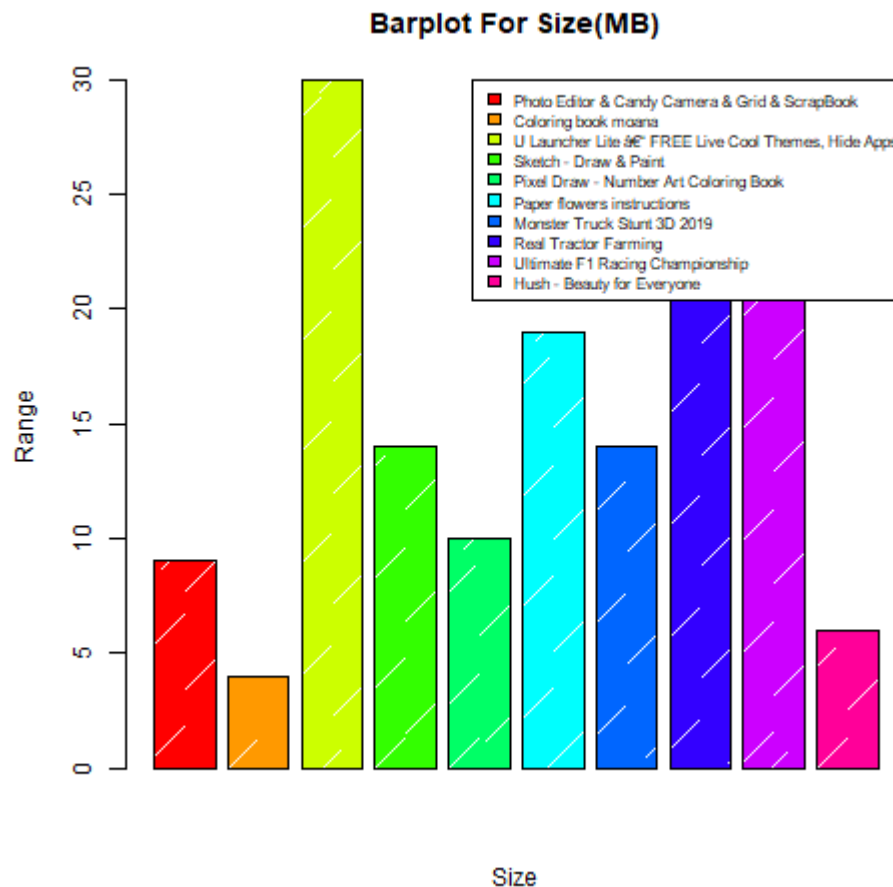


Code:-

```
revi=c(df[[4]])
revi=revi[1:10]
barplot(revi,xlab="Review",ylab="Range",main="Barplot For
Reviews",names.arg=revi,col="palevioletred1",ylim =c(0,5000))
```

Google Play Store

➤ Representation of application of maximum size:-

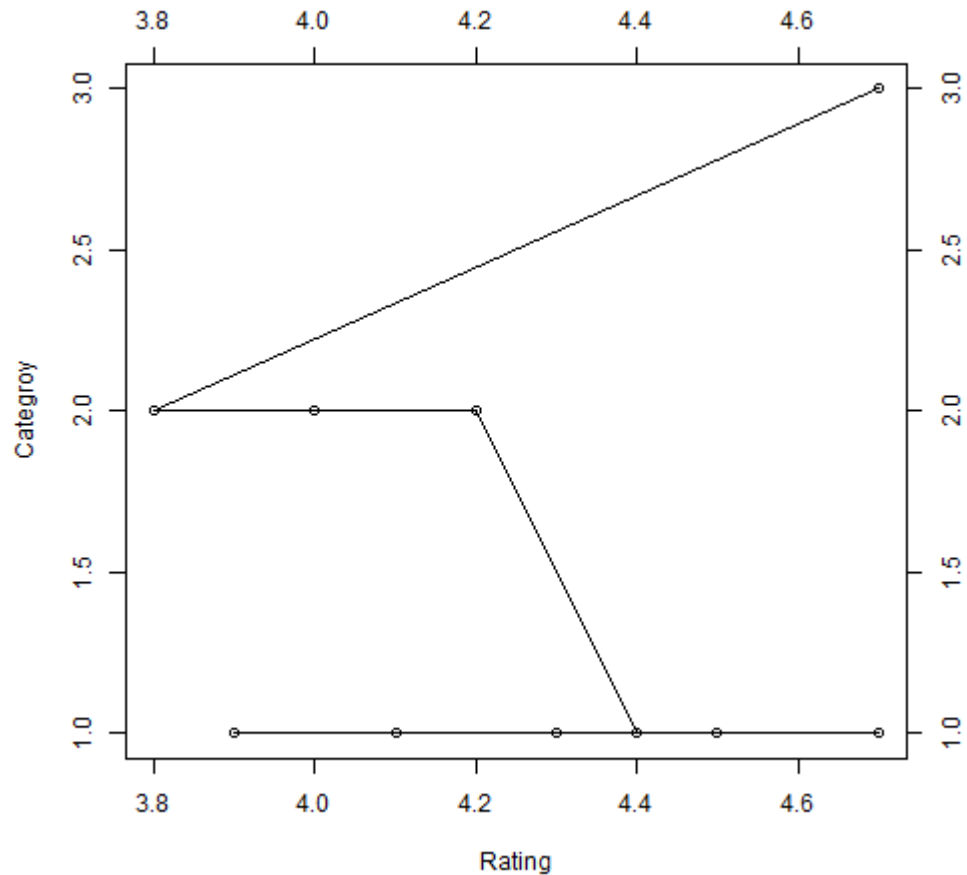


Code:-

```
sizes=dataf$Size
sizes=sizes[1:10]
size=c(dataf$Size)
size=size[1:10]
sizedf=data.frame(sizes)
barplot(size,xlab="Size",ylab="Range",main="Barplot For
Size(MB)",col=rainbow(length(size)),density = 100)
legend("topright",legend = (sizedf$sizes),fill=rainbow(10),cex=0.7)
```


Google Play Store

➤ Representation line chart of rating vs category:-

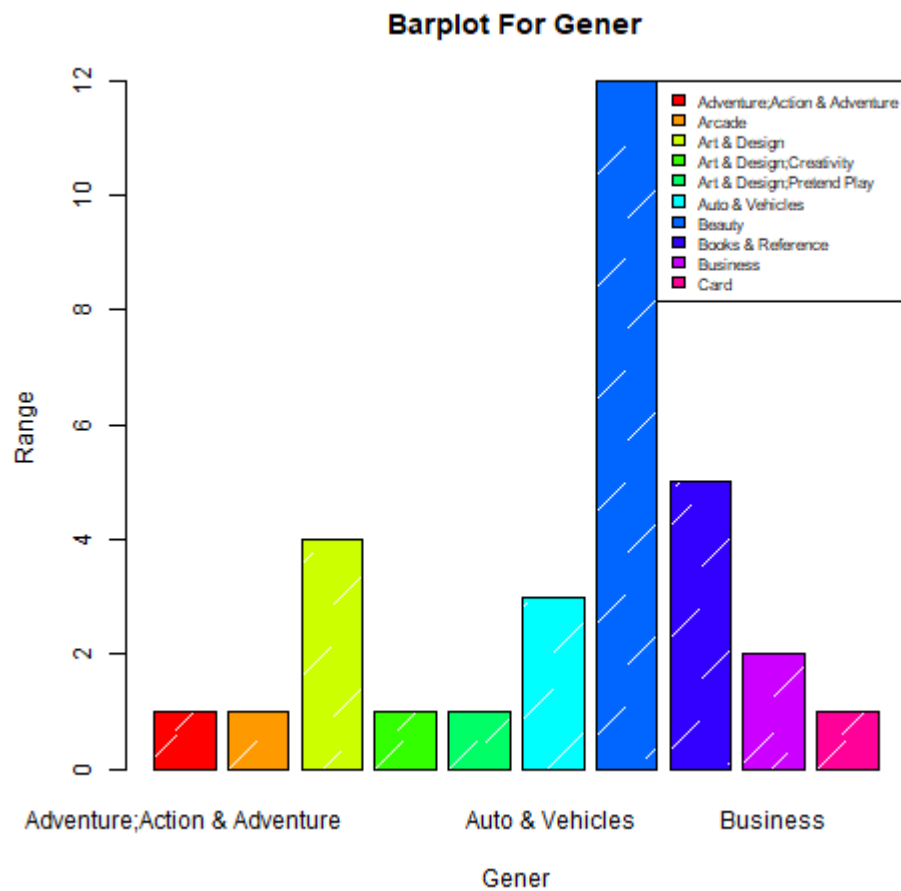


Code:-

```
rat=c(df[[3]])
cat=df$Category
rat=rat[1:10]
cat=cat[1:10]
plot(rat,cat,type="o", xlab="Rating",ylab="Categroy")
box()
axis(3)
axis(4)
axis(side=1,at=cat,labels = cat,tck=-0.5)
```

Google Play Store

- Total Number of Genres are available in data sets:-

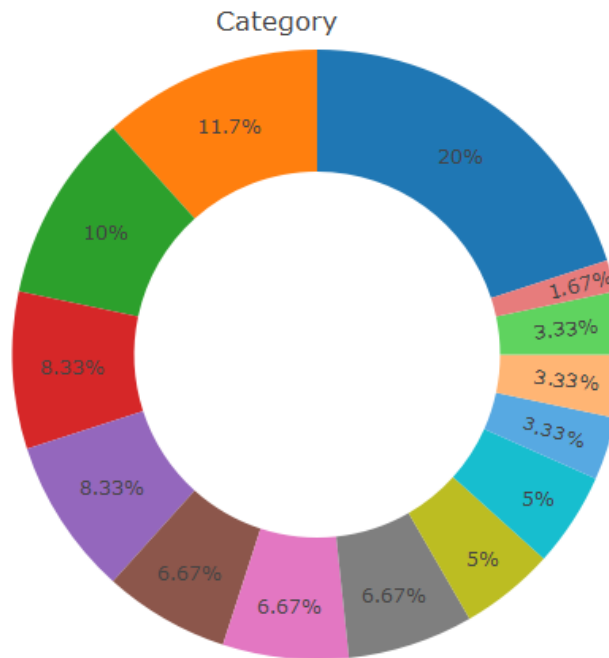


Code:-

```
df=as.data.frame(data_read)
gen=df$Genres
gen=table(gen)
gen=gen[1:10]
gendf=data.frame(gen)
barplot(gen,xlab="Gener",ylab="Range",main="Barplot For
Gener",col=rainbow(length(gen)),density = 100)
legend("topright",legend = (gendf$gen),fill=rainbow(10),cex=0.7)
```

Google Play Store

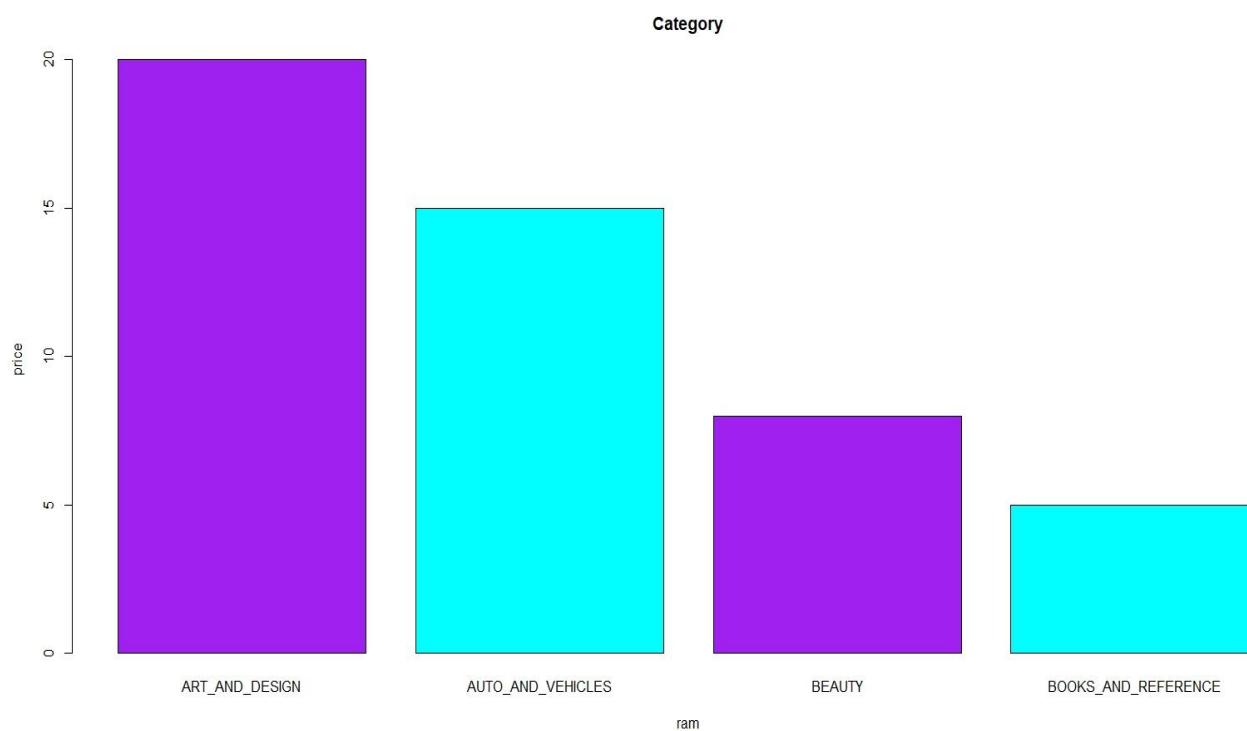
- Total Number of category has repeated in data sets:-



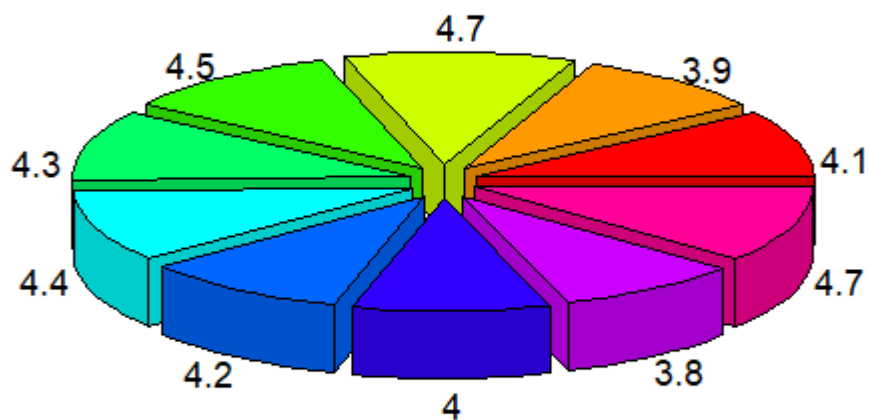
Code:-

```
cate=df$Category
cates=table(cate)
plot_ly(df, x = cate, y = cates, type = 'bar', name = 'Category') %>%
  layout(yaxis = list(title = 'Count'), barmode = 'group')
```

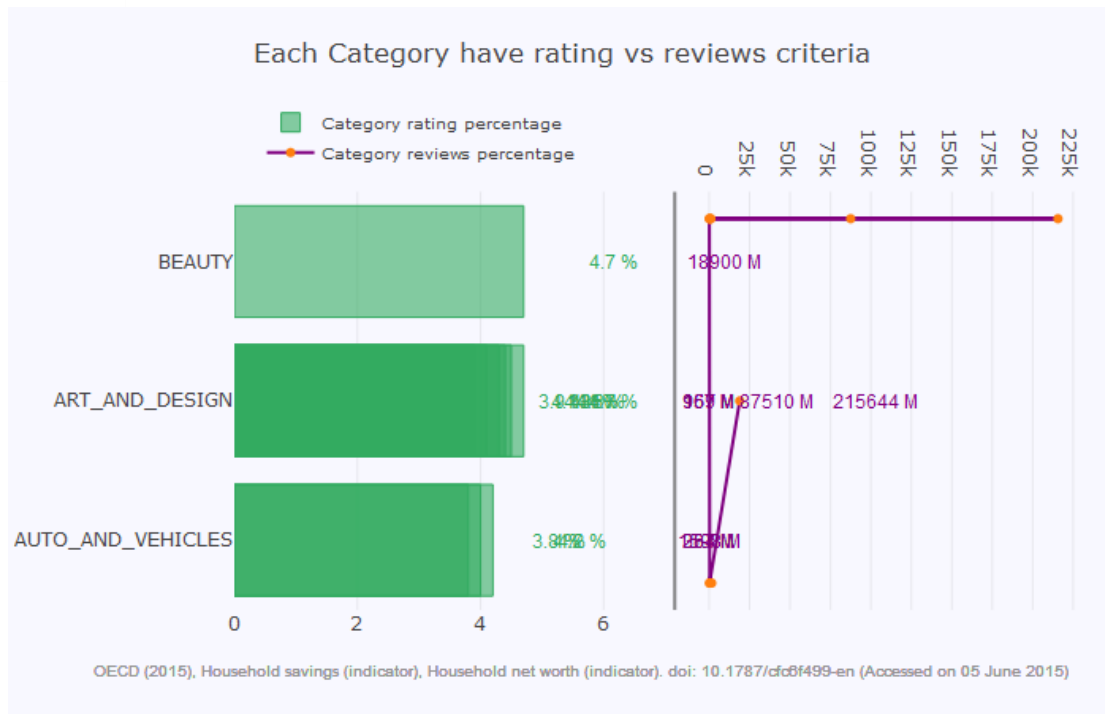
Google Play Store



Pie Chart of Countries



Google Play Store



Code:-

```
cat=readdf$Category
cat=cat[1:10]
rat=readdf$Rating
rat=rat[1:10]
rev=readdf$Reviews
rev=rev[1:10]
y <-cat
x_rating <- rat
x_reviews <- rev
data <- data.frame(y, x_rating, x_reviews)
png("Category.png")
p1 <- plot_ly(x = data$x_rating, y = ~reorder(y, data$x_rating), name = 'Category
rating percentage',
              type = 'bar', orientation = 'h',
              marker = list(color = 'rgba(50, 171, 96, 0.6)',
                            line = list(color = 'rgba(50, 171, 96, 1.0)', width = 1))) %>%
  layout(yaxis = list(showgrid = FALSE, showline = FALSE, showticklabels =
TRUE, domain= c(0, 0.85)),
```

Google Play Store

```
xaxis = list(zeroline = FALSE, showline = FALSE, showticklabels = TRUE,
showgrid = TRUE)) %>%
```

```
add_annotatons(xref = 'x1', yref = 'y',
               x = data$x_rating * 2.1 + 3, y = y,
               text = paste(round(data$x_rating, 2), '%'),
               font = list(family = 'Arial', size = 12, color = 'rgb(50, 171, 96)'),
               showarrow = FALSE)
```

```
p2 <- plot_ly(x = data$x_reviews, y = ~reorder(y,data$x_reviews), name =
'Category reviews percentage',
```

```
type = 'scatter', mode = 'lines+markers',
line = list(color = 'rgb(128, 0, 128)')) %>%
```

```
layout(yaxis = list(showgrid = FALSE, showline = TRUE, showticklabels =
FALSE,
```

```
linecolor = 'rgba(102, 102, 102, 0.8)', linewidth = 2,
domain = c(0, 0.85)),
```

```
xaxis = list(zeroline = FALSE, showline = FALSE, showticklabels = TRUE,
showgrid = TRUE,
```

```
side = 'top', dtick = 25000)) %>%
```

```
add_annotatons(xref = 'x2', yref = 'y',
               x = data$x_reviews, y = y,
               text = paste(data$x_reviews, 'M'),
               font = list(family = 'Arial', size = 12, color = 'rgb(128, 0, 128)'),
               showarrow = FALSE)
```

```
p <- subplot(p1, p2) %>%
```

```
layout(title = 'Each Category have rating vs reviews criteria',
```

```
legend = list(x = 0.029, y = 1.038,
font = list(size = 10)),
```

```
margin = list(l = 100, r = 20, t = 70, b = 70),
```

```
paper_bgcolor = 'rgb(248, 248, 255)',
```

```
plot_bgcolor = 'rgb(248, 248, 255)') %>%
```

Google Play Store

```
add_annotatons(xref = 'paper', yref = 'paper',  
               x = -0.14, y = -0.15,  
               text = paste('OECD (2015), Household savings (indicator), Household  
net worth (indicator). doi: 10.1787/cfc6f499-en (Accessed on 05 June 2015)'),  
               font = list(family = 'Arial', size = 10, color = 'rgb(150,150,150)'),  
               showarrow = FALSE)  
  
p  
dev.off()
```

Numerical Description of Data:-

➤ Summary of the data set:-

App	Category	Rating	Reviews	Size
: 9 FAMILY	:1972	Min. : 1.000	0 : 596	Varies with device:1695
ve: 8 GAME	:1144	1st Qu.: 4.000	1 : 272	11M : 198
: 7 TOOLS	: 843	Median : 4.300	2 : 214	12M : 196
: 7 MEDICAL	: 463	Mean : 4.193	3 : 175	14M : 194
: 7 BUSINESS	: 460	3rd Qu.: 4.500	4 : 137	13M : 191
: 7 PRODUCTIVITY	: 424	Max. :19.000	5 : 108	15M : 184
:10796 (Other)	:5535	NA's :1474	(Other):9339	(Other) :8183
Last.Updated	Current.Ver	Android.Ver		
ust 3, 2018: 326	Varies with device:1459	4.1 and up :2451		
ust 2, 2018: 304	1.0 : 809	4.0.3 and up :1501		
y 31, 2018 : 294	1.1 : 264	4.0 and up :1375		
ust 1, 2018: 285	1.2 : 178	Varies with device:1362		
y 30, 2018 : 211	2.0 : 151	4.4 and up : 980		
y 25, 2018 : 164	1.3 : 145	2.3 and up : 652		
her) :9257	(Other) :7835	(Other) :2520		

❖ **Statistics of data:-**➤ **Linear Regression:-**

```

> linear=lm(rat~rev)
> print(linear)

Call:
lm(formula = rat ~ rev)

Coefficients:
(Intercept)      rev 
 4.332e+00   -1.486e-05 

> print(summary(linear))

Call:
lm(formula = rat ~ rev)

Residuals:
    Min       1Q   Median       3Q      Max 
-0.51003 -0.20602  0.06829  0.16978  0.45262 

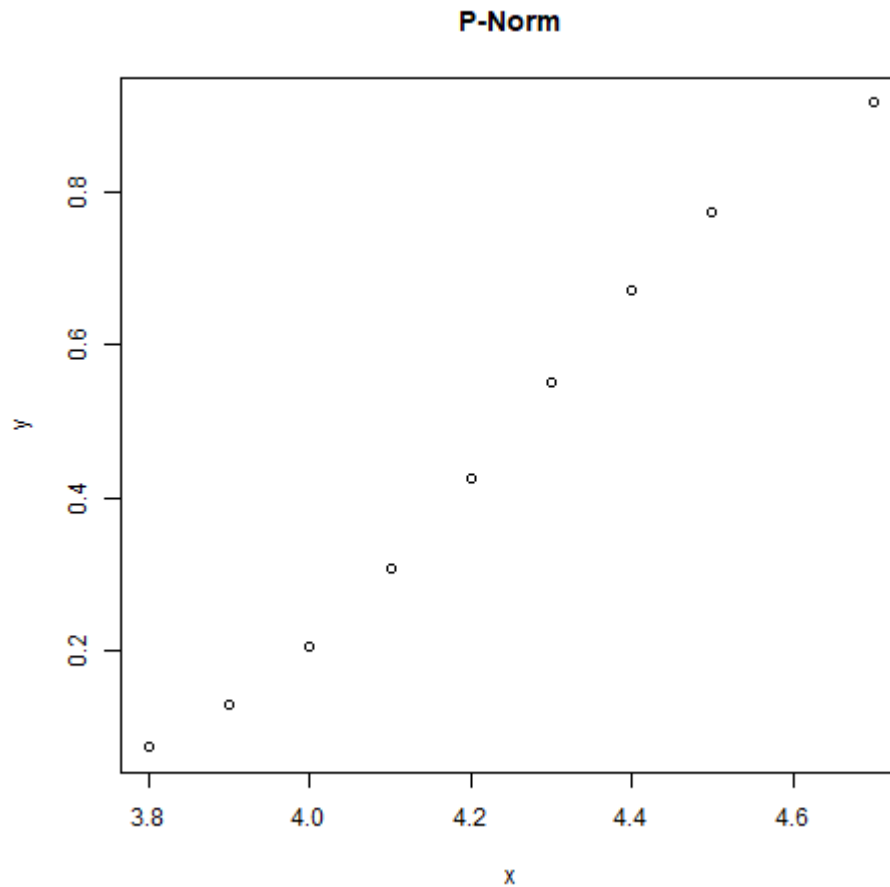
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.332e+00  1.723e-01  25.139 6.71e-09 ***
rev         -1.486e-05  4.896e-05  -0.303  0.769
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3277 on 8 degrees of freedom
Multiple R-squared:  0.01138, Adjusted R-squared:  -0.1122 
F-statistic: 0.09208 on 1 and 8 DF, p-value: 0.7693

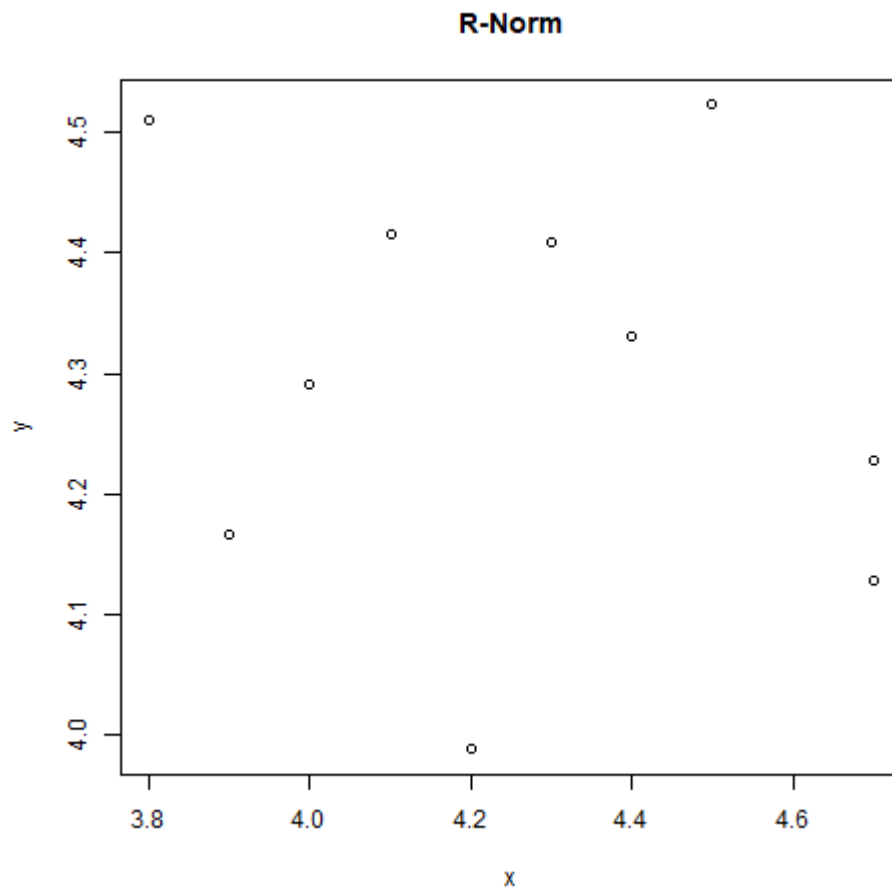
> result=predict(linear)
> result
      1      2      3      4      5      6      7      8      9     10 
4.314200 4.243765 4.247375 4.302849 4.243765 4.312313 4.310025 4.281486 4.319652 4.324570 
> |

```

➤ **Normal Distribution:-**



```
data_re=read.csv("Sample.csv")
dataf=as.data.frame(data_re)
rat=c(dataf[[3]])
rat=rat[1:10]
rat
me=mean(rat)
s=sd(rat)
x <- rat
y <- pnorm(x, mean= me, sd = s)
png(file = "pnorm.jpg")
plot(x,y,main="P-Norm")
dev.off()
```



```
rat=c(dataf[[3]])
rat=rat[1:10]
rat
me=mean(rat)
s=sd(rat)
x <- rat
y <- rnorm(x, mean= me, sd = s)
png(file = "rnorm.jpg")
plot(x,y,main="R-Norm")
dev.off()
```

❖ Menu Driven Analysis:-

```
getwd()
setwd("C:/Users/Anuj/Downloads/Project")
data_read=read.csv("googleplaystore1.csv")
readdf=as.data.frame(data_read)

print("1.Analysis by Category")
print("2.Analysis by Rating")
print("3.Analysis by Size")

choose=as.integer(readline(prompt = "Please Insert it's index Value
only.Like(1,2,3):-"))

choose

choose_switch=switch(choose,"Category","Rating")

if(choose_switch=="Category")
{
    print("1.To see how many category")
    print("2.To do specific category analysis")
    print("3.For Creating Graph")
    choose1=as.integer(readline(prompt = "Please Insert it's index Value
only.Like(1,2,3):-"))
    choose_switch1=switch (choose1,"See","Analysis","Graph")

    if(choose_switch1=="See")
    {

        sq_see=sqldf("select Category from readdf")
        print(sq_see)
```

```
}  
if(choose_switch1=="Analysis")  
{  
    cat=readline(prompt = "Enter Category for analysis:-")  
    print("1.To see it's rating")  
    print("2.To see it's review")  
    print("3.To see it's application name")  
  
    choose2=as.integer(readline(prompt = "Please Insert it's index Value  
only.Like(1,2,3):-"))  
  
    choose_switch2=switch(choose2,"Rat","Rev","App")  
  
    if(choose_switch2=="Rat")  
    {  
  
        sq1=sqldf(sprintf("select App,Rating from readdf where  
Category='%s'",cat))  
        print(sq1)  
    }  
    if(choose_switch2=="Rev")  
    {  
        sq2=sqldf(sprintf("select App,Reviews from readdf where  
Category='%s'",cat))  
        print(sq2)  
    }  
    if(choose_switch2=="App")  
    {
```

Google Play Store

```
sq3=sqldf(sprintf("select App from readdf where
Category='%s'",cat))
print(sq3)
}
}
if(choose_switch1=="Graph")
{
cat=readline(prompt = "Enter Category for analysis:-")
specific_cat=as.integer(readline(prompt = "Do You want to do specific
analysis?[1 for Yes and 2 for no]:-"))

vect=c()
vect_app=c()
select_cat=switch (specific_cat,"Yes","No")
select_cat
if(select_cat=="Yes")
{
number_cat=as.integer(readline(prompt = "Enter A Value for a
analysis:-"))
c_cat=0
for(x in 1:nrow(readdf))
{
if(c_cat==number_cat)
{
break;
}
else
{
```

```
cats=readdf[x,"Category"]
rat=readdf[x,"Rating"]

cats
rat

if(cat==cats)
{
  vect=c(vect,rat)
}
c_cat=c_cat+1
}
}
png("Category For Specific.png")
plot(vect)
dev.off()
vect
}
if(select_cat=="No")
{
  for(x in 1:nrow(readdf))
  {
    cats=readdf[x,"Category"]
    rat=readdf[x,"Rating"]
    if(cat==cats)
    {
      vect=c(vect,rat)
    }
  }
}
```

```

    }
    png("Category.png")
    plot(vect)
    dev.off()
}

}
}

if(choose_switch=="Rating")
{
    print("1.To see how many Rating")
    print("2.To do specific Rating analysis")
    print("3.For Creating Graph")
    choose3=as.integer(readline(prompt = "Please Insert it's index Value
only.Like(1,2,3):-"))
    choose_switch3=switch (choose3,"See","Analysis","Graph")

    if(choose_switch3=="See")
    {

        sq_see1=sqldf("select Rating from readdf")
        print(sq_see1)
    }
    if(choose_switch3=="Analysis")
    {
        rat=readline(prompt = "Enter Rating for analysis:-")
        print("1.To see it's category")
    }
}

```


Google Play Store

```
print("2.To see it's review")
```

```
print("3.To see it's application name")
```

```
choose4=as.integer(readline(prompt = "Please Insert it's index Value  
only.Like(1,2,3):-")))
```

```
choose_switch3=switch(choose4,"cat","Rev","App")
```

```
if(choose_switch3=="cat")
```

```
{
```

```
sq3=sqldf(sprintf("select App,Category from readdf where  
Rating='%s'",rat))
```

```
print(sq3)
```

```
}
```

```
if(choose_switch3=="Rev")
```

```
{
```

```
sq4=sqldf(sprintf("select App,Reviews from readdf where  
Rating='%s'",rat))
```

```
print(sq4)
```

```
}
```

```
if(choose_switch3=="App")
```

```
{
```

```
sq4=sqldf(sprintf("select App from readdf where Rating='%s'",rat))
```

```
print(sq4)
```

```
}
```

```
}
```

```
if(choose_switch3=="Graph")
```

```

{
    rating=readline(prompt = "Enter a Rating for analysis:-")
    specific_rat=as.integer(readline(prompt = "Do You want to do specific
analysis?[1 for Yes and 2 for no]:-"))
    rat_vect=c()
    app_vect=c()
    specific_rat

    select_rat=switch(specific_rat,"Yes","No")
    select_rat
    rat
    if(select_rat=="Yes")
    {
        number=as.integer(readline(prompt = "Enter A Value for a analysis:-
"))
        c=0
        for(x in 1:nrow(readdf))
        {
            if(c==number)
            {
                break;
            }
            else
            {
                app=readdf[x,"App"]

                rats=as.numeric(readdf[x,"Rating"])
            }
        }
    }
}

```

```
    if(rating==rats)
    {
        app=toString(app)
        rat_vect=c(rat_vect,rats)
        app_vect=c(app_vect,app)
    }
    c=c+1

}

}

png("Rating For Specific.png")
barplot(rat_vect,names.arg = app_vect)
dev.off()
}
if(select_rat=="No")
{
    for(x in 1:nrow(readdf))
    {
        app=readdf[x,"App"]
        rats=as.numeric(readdf[x,"Rating"])
        if(rating==rats)
        {
            app=toString(app)
            rat_vect=c(rat_vect,rats)
            app_vect=c(app_vect,app)
        }
    }
}
```

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```
}  
}  
png("Rating.png")  
barplot(rat_vect,names.arg = app_vect,col=rainbow(length(rat_vect)))  
dev.off()  
}  
  
}  
}
```

❖ Conclusion:-

This analysis id create for better understanding. Its working fine in all situation and ready to implement in real world problems.

As perfection has no limit in the same way there are many future scope where I am implement more functionality to this analysis such as dynamic data like coming online data and do analysis etc.

❖ **BIBLIOGRAPHY:-**

➤ **Online Reference :-**

1. <https://plot.ly/>
2. <https://stackoverflow.com/>