```
knitr::opts_chunk$set(echo = TRUE)
library(tidyverse)
```

```
## ── Attaching packages ─────────────────────────────────────── tidyverse 1.3.1 ──
```

```
## ✓ ggplot2 3.3.5     ✓ purrr   0.3.4
## ✓ tibble  3.1.3     ✓ dplyr   1.0.7
## ✓ tidyr   1.1.3     ✓ stringr 1.4.0
## ✓ readr   2.0.1     ✓ forcats 0.5.1
```

```
## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

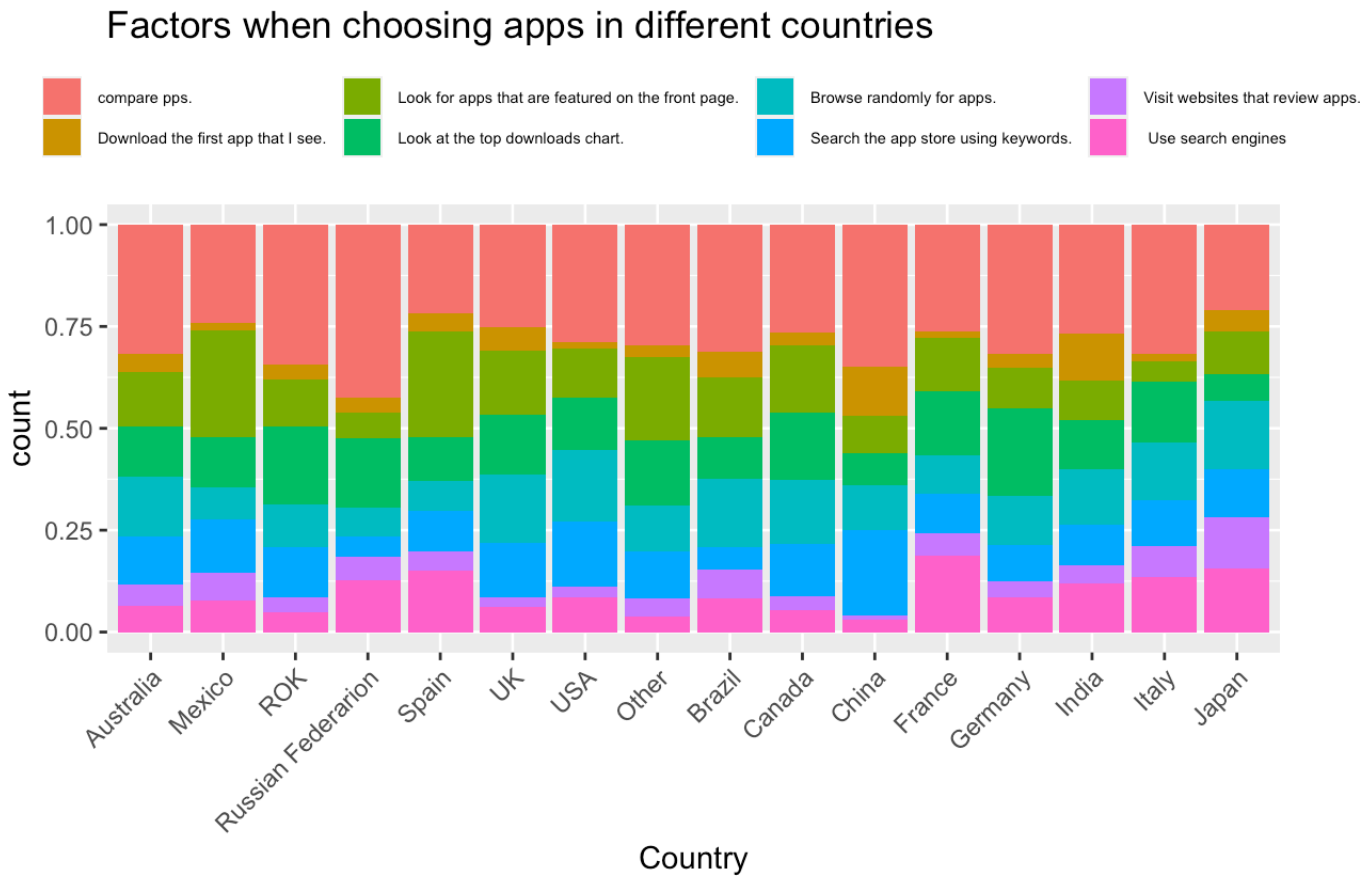
```
dataset<-read.csv("mobile_app_user_dataset_1 2.csv")
```

```
## Warning in scan(file = file, what = what, sep = sep, quote = quote, dec = dec, :
## EOF within quoted string
```

```
dataset_select1<-filter(dataset, Response.Status == 1)
dataset_selected<-as.data.frame(dataset_select1 %>% select(ID, Q4, Q8_1, Q8_2, Q8_3,
Q8_4, Q8_5, Q8_7, Q8_8, Q8_9, Q9_1, Q9_2, Q9_3, Q9_4, Q9_5, Q9_6, Q9_7, Q9_8, Q9_9, Q
9_10, Q9_11, Q9_12, Q10_1,  Q10_2, Q10_3, Q10_4, Q10_5, Q10_6, Q10_7, Q10_8, Q10_9, Q
10_10, Q10_11, Q10_12, Q10_13, Q10_14, Q11_1, Q11_2, Q11_3, Q11_4, Q11_5, Q11_6, Q11_
7, Q11_8, Q11_9, Q11_11, Q11_12, Q14_1, Q14_2, Q14_3, Q14_4, Q14_5, Q14_6, Q14_7, Q14
_8, Q14_9, Q14_10, Q14_11, Q14_12, Q14_13, Q14_15, Q20))
dataset_selected$Q8_Combined <- 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q8_1"] == 1) dataset_selected[i,"Q8_Combined"] = 1
  else if(dataset_selected[i,"Q8_2"] == 1) dataset_selected[i,"Q8_Combined"] = 2
  else if(dataset_selected[i,"Q8_3"] == 1) dataset_selected[i,"Q8_Combined"] = 3
  else if(dataset_selected[i,"Q8_4"] == 1) dataset_selected[i,"Q8_Combined"] = 4
  else if(dataset_selected[i,"Q8_5"] == 1) dataset_selected[i,"Q8_Combined"] = 5
  else if(dataset_selected[i,"Q8_7"] == 1) dataset_selected[i,"Q8_Combined"] = 7
  else if(dataset_selected[i,"Q8_8"] == 1) dataset_selected[i,"Q8_Combined"] = 8
  else if(dataset_selected[i,"Q8_9"] == 1) dataset_selected[i,"Q8_Combined"] = 9
}

dataset_selected_q8<-filter(dataset_selected, Q8_Combined != 0)
ggplot(data = dataset_selected_q8) +
  geom_bar(aes(x = Q20, fill = as.factor(Q8_Combined)), position = "fill") +
  labs(x = "Country", fill = "") +
  ggtitle("Factors when choosing apps in different countries") +
  theme(plot.margin = unit(c(1,1,1,1), "cm")) +
  theme(axis.text.x = element_text(angle = 45, vjust = 1, hjust = 1), legend.position
="top", legend.key.size = unit(5, 'mm'), legend.text = element_text(size=5.5)) +
  scale_x_discrete(labels = c('Australia','Mexico','ROK','Russian Federarion','Spain'
,'UK','USA','Other','Brazil','Canada','China','France','Germany','India','Italy','Jap
an')) +
  scale_fill_discrete(labels = c('compare pps.','Download the first app that I see.',
'Look for apps that are featured on the front page.','Look at the top downloads chart
.','Browse randomly for apps.','Search the app store using keywords.','Visit websites
that review apps.',' Use search engines'))
```

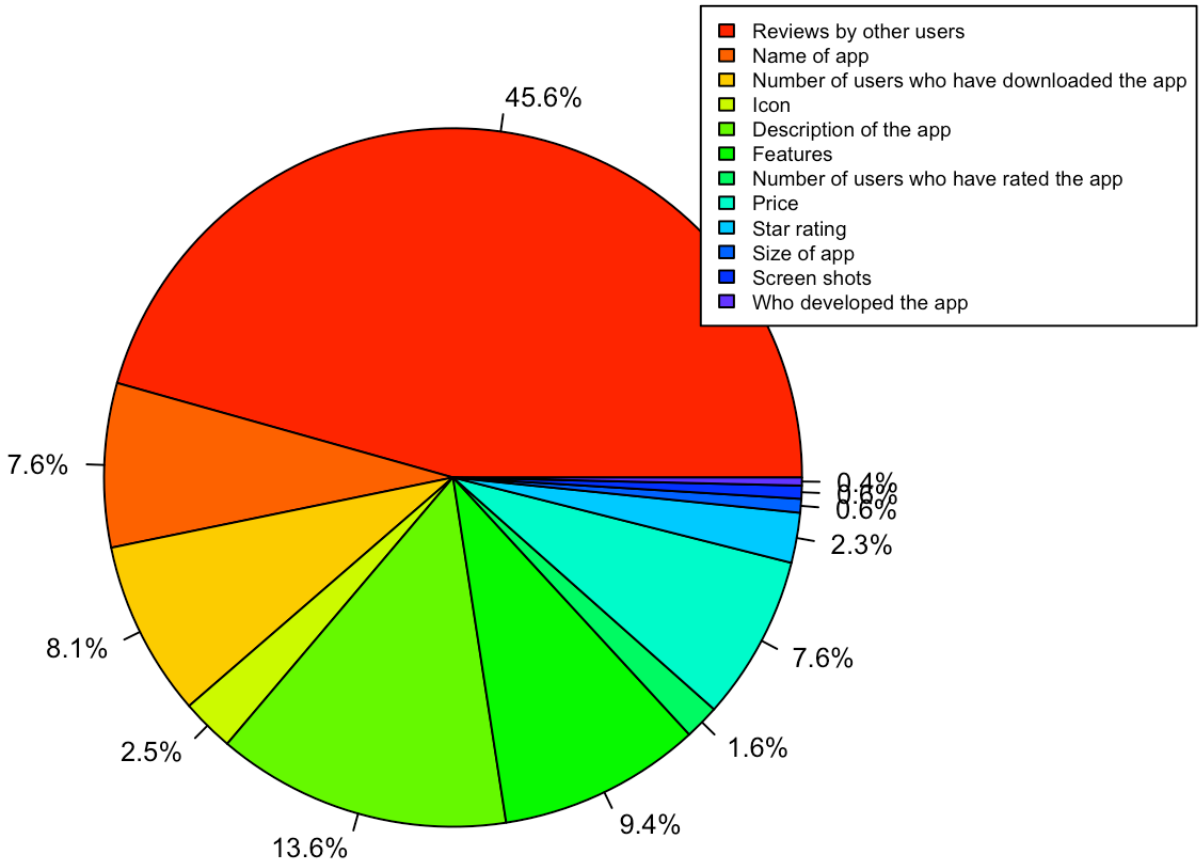

Factors when choosing apps in different countries
compare pps.
Download the first app that I see.
Look for apps that are featured on the front page.
Look at the top downloads chart.
Browse randomly for apps.
Search the app store using keywords.
Visit websites that review apps.
Use search engines
count
1.00
0.75
0.50
0.25
0.00
Australia
Mexico
ROK
Russian Federarion
Spain
UK
USA
Other
Brazil
Canada
China
France
Germany
India
Italy
Japan
Country

```
q9_1 = 0
q9_2 = 0
q9_3 = 0
q9_4 = 0
q9_5 = 0
q9_6 = 0
q9_7 = 0
q9_8 = 0
q9_9 = 0
q9_10 = 0
q9_11 = 0
q9_12 = 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q9_1"] == 1) q9_1 = q9_1 + 1
  else if(dataset_selected[i,"Q9_2"] == 1) q9_2 = q9_2 + 1
  else if(dataset_selected[i,"Q9_3"] == 1) q9_3 = q9_3 + 1
  else if(dataset_selected[i,"Q9_4"] == 1) q9_4 = q9_4 + 1
  else if(dataset_selected[i,"Q9_5"] == 1) q9_5 = q9_5 + 1
  else if(dataset_selected[i,"Q9_6"] == 1) q9_6 = q9_6 + 1
  else if(dataset_selected[i,"Q9_7"] == 1) q9_7 = q9_7 + 1
  else if(dataset_selected[i,"Q9_8"] == 1) q9_8 = q9_8 + 1
  else if(dataset_selected[i,"Q9_9"] == 1) q9_9 = q9_9 + 1
  else if(dataset_selected[i,"Q9_10"] == 1) q9_10 = q9_10 + 1
  else if(dataset_selected[i,"Q9_11"] == 1) q9_11 = q9_11 + 1
  else if(dataset_selected[i,"Q9_12"] == 1) q9_12 = q9_12 + 1
}

data_q9 = data.frame(group = c("Reviews by other users", "Name of app", "Number of us
ers who have downloaded the app", "Icon", "Description of the app", "Features", "Numb
er of users who have rated the app", "Price", "Star rating", "Size of app", "Screen s
hots", "Who developed the app"), value = c(q9_1, q9_2, q9_3, q9_4, q9_5, q9_6, q9_7,
q9_8, q9_9, q9_10, q9_11, q9_12))
percentlabels9<- round(100*data_q9$value/sum(data_q9$value), 1)
pielabels9<- paste(percentlabels9, "%", sep="")
par(mar=c(0,0,2,2))
palette9 <- rainbow(15)
pie(data_q9$value, main="What do you consider when choosing apps to download?", label
s=pielabels9, col=palette9, cex=0.8)
legend("topright", data_q9$group, fill = palette9, cex= 0.6, inset=c(-0.05,0), xpd =
TRUE)
```

What do you consider when choosing apps to download?

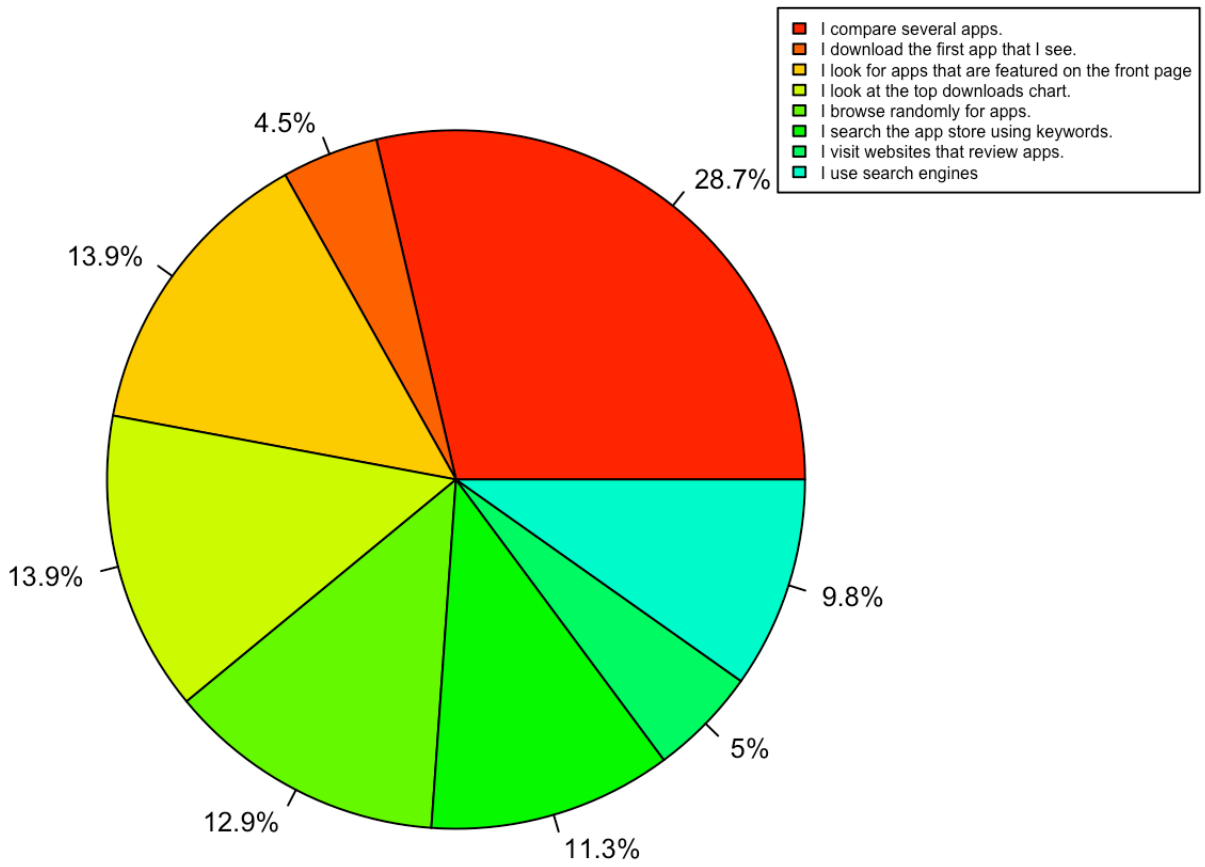


```
q8_1 = 0
q8_2 = 0
q8_3 = 0
q8_4 = 0
q8_5 = 0
q8_7 = 0
q8_8 = 0
q8_9 = 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q8_1"] == 1) q8_1 = q8_1 + 1
  else if(dataset_selected[i,"Q8_2"] == 1) q8_2 = q8_2 + 1
  else if(dataset_selected[i,"Q8_3"] == 1) q8_3 = q8_3 + 1
  else if(dataset_selected[i,"Q8_4"] == 1) q8_4 = q8_4 + 1
  else if(dataset_selected[i,"Q8_5"] == 1) q8_5 = q8_5 + 1
  else if(dataset_selected[i,"Q8_7"] == 1) q8_7 = q8_7 + 1
  else if(dataset_selected[i,"Q8_8"] == 1) q8_8 = q8_8 + 1
  else if(dataset_selected[i,"Q8_9"] == 1) q8_9 = q8_9 + 1
}

data_q8 = data.frame(group = c("I compare several apps.", "I download the first app t
hat I see.", "I look for apps that are featured on the front page", "I look at the to
p downloads chart.", "I browse randomly for apps.", "I search the app store using key
words.", "I visit websites that review apps.", "I use search engines"), value = c(q8_
1, q8_2, q8_3, q8_4, q8_5, q8_7, q8_8, q8_9))
percentlabels8<- round(100*data_q8$value/sum(data_q8$value), 1)
pielabels8<- paste(percentlabels8, "%", sep="")
par(mar=c(0,0,2,2))
palette8 <- rainbow(15)
pie(data_q8$value, main="How do you find apps?", labels=pielabels8, col=palette8, cex
=0.8)
legend("topright", data_q8$group, fill = palette8, cex=0.5, inset=c(-0.05,0), xpd = T
RUE)
```

How do you find apps?

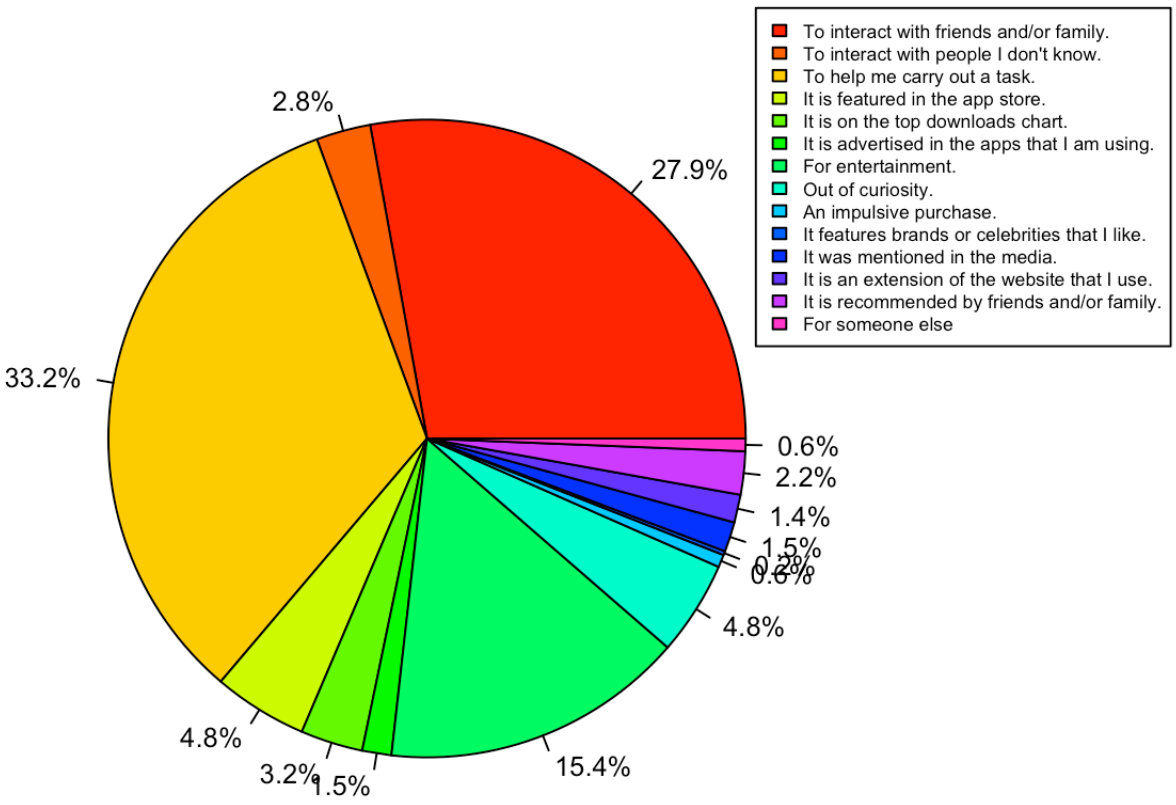


```
q10_1 = 0
q10_2 = 0
q10_3 = 0
q10_4 = 0
q10_5 = 0
q10_6 = 0
q10_7 = 0
q10_8 = 0
q10_9 = 0
q10_10 = 0
q10_11 = 0
q10_12 = 0
q10_13 = 0
q10_14 = 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q10_1"] == 1) q10_1 = q10_1 + 1
  else if(dataset_selected[i,"Q10_2"] == 1) q10_2 = q10_2 + 1
  else if(dataset_selected[i,"Q10_3"] == 1) q10_3 = q10_3 + 1
  else if(dataset_selected[i,"Q10_4"] == 1) q10_4 = q10_4 + 1
  else if(dataset_selected[i,"Q10_5"] == 1) q10_5 = q10_5 + 1
  else if(dataset_selected[i,"Q10_6"] == 1) q10_6 = q10_6 + 1
  else if(dataset_selected[i,"Q10_7"] == 1) q10_7 = q10_7 + 1
  else if(dataset_selected[i,"Q10_8"] == 1) q10_8 = q10_8 + 1
  else if(dataset_selected[i,"Q10_9"] == 1) q10_9 = q10_9 + 1
  else if(dataset_selected[i,"Q10_10"] == 1) q10_10 = q10_10 + 1
  else if(dataset_selected[i,"Q10_11"] == 1) q10_11 = q10_11 + 1
  else if(dataset_selected[i,"Q10_12"] == 1) q10_12 = q10_12 + 1
  else if(dataset_selected[i,"Q10_13"] == 1) q10_13 = q10_13 + 1
  else if(dataset_selected[i,"Q10_14"] == 1) q10_14 = q10_14 + 1
}

data_q10 = data.frame(group = c("To interact with friends and/or family.", "To intera
ct with people I don't know.", "To help me carry out a task.", "It is featured in the
app store.", "It is on the top downloads chart.", "It is advertised in the apps that
I am using.", "For entertainment.", "Out of curiosity.", "An impulsive purchase.", "I
t features brands or celebrities that I like.", "It was mentioned in the media.", "It
is an extension of the website that I use.", "It is recommended by friends and/or fam
ily.", "For someone else"), value = c(q10_1, q10_2, q10_3, q10_4, q10_5, q10_6, q10_7
, q10_8, q10_9, q10_10, q10_11, q10_12, q10_13, q10_14))
percentlabels10<- round(100*data_q10$value/sum(data_q10$value), 1)
pielabels10<- paste(percentlabels10, "%", sep="")
par(mar=c(2,0,2,2))
palette10 <- rainbow(15)
pie(data_q10$value, main="Why do you download an app?", labels=pielabels10, col=palet
te10, cex=0.8)
legend("topright", data_q10$group, fill = palette10, cex=0.55, inset=c(-0.05,0), xpd
= TRUE)
```

Why do you download an app?

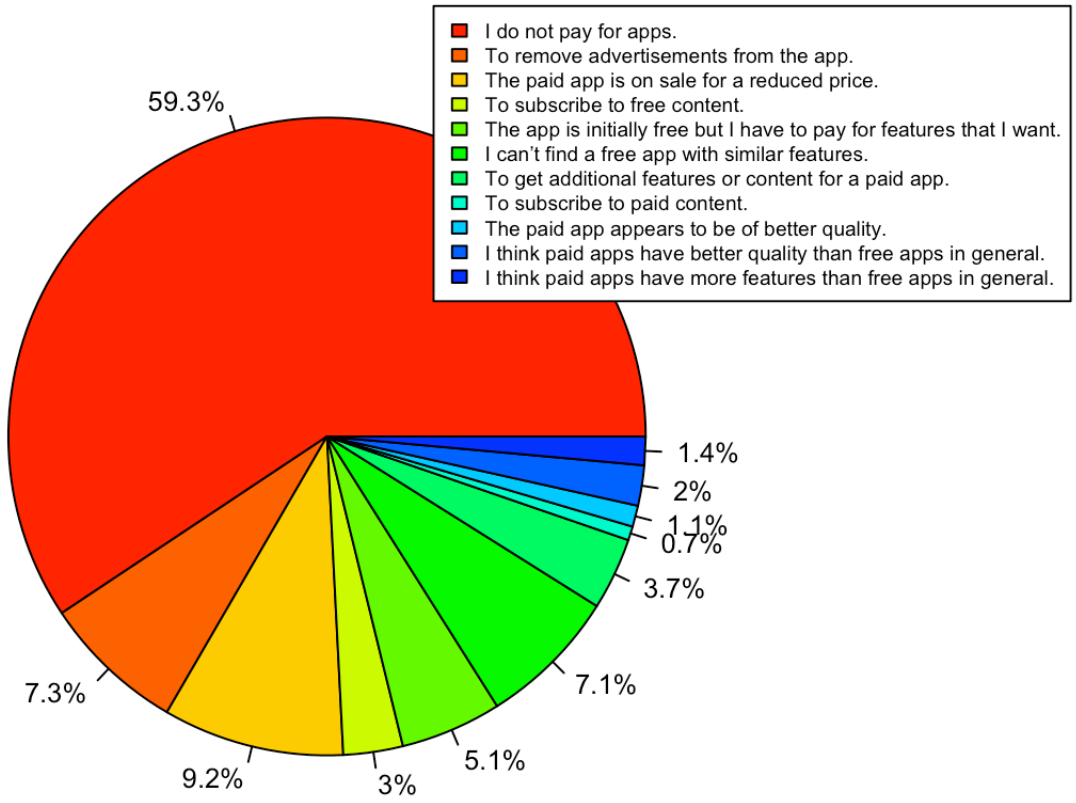


```
q11_1 = 0
q11_2 = 0
q11_3 = 0
q11_4 = 0
q11_5 = 0
q11_6 = 0
q11_11 = 0
q11_12 = 0
q11_7 = 0
q11_8 = 0
q11_9 = 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q11_1"] == 1) q11_1 = q11_1 + 1
  else if(dataset_selected[i,"Q11_2"] == 1) q11_2 = q11_2 + 1
  else if(dataset_selected[i,"Q11_3"] == 1) q11_3 = q11_3 + 1
  else if(dataset_selected[i,"Q11_4"] == 1) q11_4 = q11_4 + 1
  else if(dataset_selected[i,"Q11_5"] == 1) q11_5 = q11_5 + 1
  else if(dataset_selected[i,"Q11_6"] == 1) q11_6 = q11_6 + 1
  else if(dataset_selected[i,"Q11_7"] == 1) q11_7 = q11_7 + 1
  else if(dataset_selected[i,"Q11_8"] == 1) q11_8 = q11_8 + 1
  else if(dataset_selected[i,"Q11_9"] == 1) q11_9 = q11_9 + 1
  else if(dataset_selected[i,"Q11_11"] == 1) q11_11 = q11_11 + 1
  else if(dataset_selected[i,"Q11_12"] == 1) q11_12 = q11_12 + 1
}

data_q11 = data.frame(group = c("I do not pay for apps.", "To remove advertisements f
rom the app.", "The paid app is on sale for a reduced price.", "To subscribe to free
content.", "The app is initially free but I have to pay for features that I want.", "
I can’t find a free app with similar features.", "To get additional features or conte
nt for a paid app.", "To subscribe to paid content.", "The paid app appears to be of
better quality.", "I think paid apps have better quality than free apps in general.",
"I think paid apps have more features than free apps in general."), value = c(q11_1,
q11_2, q11_3, q11_4, q11_5, q11_6, q11_7, q11_8, q11_9, q11_11, q11_12))
percentlabels11<- round(100*data_q11$value/sum(data_q11$value), 1)
pielabels11<- paste(percentlabels11, "%", sep="")
par(mar=c(2,0,2,2))
palette11 <- rainbow(15)
pie(data_q11$value, main="Why do you spend money on an app?", labels=pielabels11, col
=palette11, cex=0.8)
legend("topright", data_q11$group, fill = palette11, cex=0.6, inset=c(-0.05,0), xpd =
TRUE)
```

Why do you spend money on an app?



```
q14_1 = 0
q14_2 = 0
q14_3 = 0
q14_4 = 0
q14_5 = 0
q14_6 = 0
q14_7 = 0
q14_8 = 0
q14_9 = 0
q14_10 = 0
q14_11 = 0
q14_12 = 0
q14_13 = 0
q14_15 = 0

for(i in 1:nrow(dataset_selected)){
  if(dataset_selected[i,"Q14_1"] == 1) q14_1 = q14_1 + 1
  else if(dataset_selected[i,"Q14_2"] == 1) q14_2 = q14_2 + 1
  else if(dataset_selected[i,"Q14_3"] == 1) q14_3 = q14_3 + 1
  else if(dataset_selected[i,"Q14_4"] == 1) q14_4 = q14_4 + 1
  else if(dataset_selected[i,"Q14_5"] == 1) q14_5 = q14_5 + 1
  else if(dataset_selected[i,"Q14_6"] == 1) q14_6 = q14_6 + 1
  else if(dataset_selected[i,"Q14_7"] == 1) q14_7 = q14_7 + 1
  else if(dataset_selected[i,"Q14_8"] == 1) q14_8 = q14_8 + 1
  else if(dataset_selected[i,"Q14_9"] == 1) q14_9 = q14_9 + 1
  else if(dataset_selected[i,"Q14_10"] == 1) q14_10 = q14_10 + 1
  else if(dataset_selected[i,"Q14_11"] == 1) q14_11 = q14_11 + 1
  else if(dataset_selected[i,"Q14_12"] == 1) q14_12 = q14_12 + 1
  else if(dataset_selected[i,"Q14_13"] == 1) q14_13 = q14_13 + 1
  else if(dataset_selected[i,"Q14_15"] == 1) q14_15 = q14_15 + 1
}

data_q14 = data.frame(group = c("It crashes.", "I found better alternatives.", "The a
dvertisements are annoying.", "It is difficult to use.", "It is no longer used by my
friends and/or family.", "I need to pay extra for the features I need.", "I forgot ab
out the app.", "I do not need the features it provides.", "It invades my privacy.", "
It is too slow.", "I got bored of it.", "It does not work.", "It does not have the fe
atures I hoped for.", "I don't need it anymore."), value = c(q14_1, q14_2, q14_3, q14
_4, q14_5, q14_6, q14_7, q14_8, q14_9, q14_10, q14_11, q14_12, q14_13, q14_15))
percentlabels14<- round(100*data_q14$value/sum(data_q14$value), 1)
pielabels14<- paste(percentlabels14, "%", sep="")
par(mar=c(2,0,2,2))
palette14 <- rainbow(15)
pie(data_q14$value, main="What makes you stop using an app?", labels=pielabels14, col
=palette14, cex=0.8)
legend("topright", data_q14$group, fill = palette14, cex=0.6, inset=c(-0.05,0), xpd =
TRUE)
```

What makes you stop using an app?