

# Survey Resopenses Codes

2024-04-30

## Mean, Standard Deviation and Factoring the Data

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All files from rmd files folder is merged into one file and here it is. Before running the codes please set this folder as working directory and install ggplot2, dplyr, tidyr, and gridExtra. Thank you!

```
# Import CSV file to R
filecsv <- read.csv("musicstreaming.csv")
```

```
# Performance Expectancy
# Find mean and standard deviation for PE1
PE1 <- filecsv$Do.you.find.using.Digital.Music.Streaming.Platform.useful.in.discovering.new.music..
PE1_Mean <- mean(PE1)
PE1_SD <- sd(PE1)
```

```
# Print mean and standard deviation for PE1
PE1_Mean
```

```
## [1] 4.492537
```

```
PE1_SD
```

```
## [1] 0.8415918
```

```
# Find mean and standard deviation for PE2
PE2 <- filecsv$Does.Digital.Music.Streaming.Platform.enable.you.to.easily.create.and.share.playlists..
PE2_Mean <- mean(PE2)
PE2_SD <- sd(PE2)
```

```
# Print mean and standard deviation for PE2
PE2_Mean
```

```
## [1] 4.283582
```

```
PE2_SD
```

```
## [1] 0.9970558
```

```
# Find mean and standard deviation for PE3
PE3 <- filecsv$Do.you.believe.that.using.Digital.Music.Streaming.Platform.will.enhance.your.overall.mus..
PE3_Mean <- mean(PE3)
PE3_SD <- sd(PE3)
```

```
# Print mean and standard deviation for PE3
PE3_Mean
```

```
## [1] 4.373134
```

```
PE3_SD
```

```
## [1] 0.95085
```

```
# Find mean and standard deviation for PE4
```

```
PE4 <- filecsv$Do.you.think.using.Digital.Music.Streaming.Platform.will.increase.your.engagement.with.m
```

```
PE4_Mean <- mean(PE4)
```

```
PE4_SD <- sd(PE4)
```

```
# Print mean and standard deviation for PE4
```

```
PE4_Mean
```

```
## [1] 4.358209
```

```
PE4_SD
```

```
## [1] 0.9801282
```

```
# Find mean and standard deviation for EE1
```

```
EE1 <- filecsv$Do.you.find.navigating.through.Digital.Music.Streaming.Platform.clear.and.understandable
```

```
EE1_Mean <- mean(EE1)
```

```
EE1_SD <- sd(EE1)
```

```
# Print mean and standard deviation for EE1
```

```
EE1_Mean
```

```
## [1] 4.089552
```

```
EE1_SD
```

```
## [1] 0.9330845
```

```
# Find mean and standard deviation for EE2
```

```
EE2 <- filecsv$Do.you.find.Digital.Music.Streaming.Platform.easy.to.use.in.terms.of.searching.for.and.p
```

```
EE2_Mean <- mean(EE2)
```

```
EE2_SD <- sd(EE2)
```

```
# Print mean and standard deviation for EE2
```

```
EE2_Mean
```

```
## [1] 4.298507
```

```
EE2_SD
```

```
## [1] 1.000226
```

```
# Find mean and standard deviation for EE3
```

```
EE3 <- filecsv$Do.you.believe.it.would.be.easy.for.you.to.become.skilled.in.using.Digital.Music.Streami
```

```
EE3_Mean <- mean(EE3)
```

```
EE3_SD <- sd(EE3)
```

```
# Print mean and standard deviation for EE3
```

```
EE3_Mean
```

```
## [1] 3.940299
```

```
EE3_SD
```

```
## [1] 1.042732
```

```
# Find mean and standard deviation for EE4
EE4 <- filecsv$Do.you.find.learning.to.use.Digital.Music.Streaming.Platform.easy.
EE4_Mean <- mean(EE4)
EE4_SD <- sd(EE4)
```

```
# Print mean and standard deviation for EE4
EE4_Mean
```

```
## [1] 4.164179
```

```
EE4_SD
```

```
## [1] 0.9144797
```

```
# Factor the responses
```

```
A1 <- factor(filecsv$Do.you.think.using.Digital.Music.Streaming.Platform.is.a.good.way.to.discover.and.
A2 <- factor(filecsv$Does.Digital.Music.Streaming.Platform.make.exploring.new.music.interesting.for.you
A3 <- factor(filecsv$Do.you.find.using.Digital.Music.Streaming.Platform.enjoyable., levels = c("Yes", "I
A4 <- factor(filecsv$Do.you.like.using.Digital.Music.Streaming.Platform.as.your.primary.music.streaming
```

```
SI1 <- factor(filecsv$Do.people.who.share.similar.music.interests.as.you.think.that.you.should.use.Digi
SI2 <- factor(filecsv$Do.people.whose.music.taste.you.respect.think.that.you.should.use.Digital.Music.S
SI3 <- factor(filecsv$Has.the.endorsement.of.musicians.or.influencers.influenced.your.decision.to.use.D
```

```
FC2 <- factor(filecsv$Do.you.have.a.stable.internet.connection.to.use.Digital.Music.Streaming.Platform.
FC3 <- factor(filecsv$Do.you.find.Digital.Music.Streaming.Platform.compatible.with.other.devices.or.pla
FC01 <- factor(filecsv$Is.there.a.dedicated.support.team.available.for.assistance.with.any.issues.you.en
```

```
SE1 <- factor(filecsv$Have.you.ever.discover.new.music.effectively.using.Digital.Music.Streaming.Platform
SE2 <- factor(filecsv$Have.you.ever.troubleshoot.and.resolve.any.technical.issues.you.encounter.on.Digi
SE3 <- factor(filecsv$Have.you.ever.effectively.curate.and.manage.your.music.library.on.Digital.Music.S
```

```
AX1 <- factor(filecsv$Do.you.feel.anxious.about.missing.out.on.new.music.releases.if.you.don.t.use.Digi
AX2 <- factor(filecsv$Does.the.thought.of.accidentally.deleting.your.playlists.or.favorite.tracks.on.Dig
AX3 <- factor(filecsv$Since.Digital.Music.Streaming.Platform.offers.features.like.playlist.backup..do.y
```

```
BI1 <- factor(filecsv$Do.you.intend.to.continue.using.Digital.Music.Streaming.Platform.as.your.primary.
BI2 <- factor(filecsv$Do.you.predict.you.would.explore.and.use.new.features.introduced.on.Digital.Music
BI3 <- factor(filecsv$Do.you.plan.to.recommend.Digital.Music.Streaming.Platform.to.friends.or.family.mer
```

```
# Merge responses to dataframe
```

```
mergeData <- data.frame(
  ID = c("PE1", "PE2", "PE3", "PE4", "EE1", "EE2", "EE3", "EE4"),
  Strongly_Disagree = c(sum(PE1 == 1), sum(PE2 == 1), sum(PE3 == 1), sum(PE4 == 1), sum(EE1 == 1), sum(
  Disagree = c(sum(PE1 == 2), sum(PE2 == 2), sum(PE3 == 2), sum(PE4 == 2), sum(EE1 == 2), sum(EE2 == 2)
  Neutral = c(sum(PE1 == 3), sum(PE2 == 3), sum(PE3 == 3), sum(PE4 == 3), sum(EE1 == 3), sum(EE2 == 3),
  Agree = c(sum(PE1 == 4), sum(PE2 == 4), sum(PE3 == 4), sum(PE4 == 4), sum(EE1 == 4), sum(EE2 == 4), s
  Strongly_Agree = c(sum(PE1 == 5), sum(PE2 == 5), sum(PE3 == 5), sum(PE4 == 5), sum(EE1 == 5), sum(EE2
  Mean = c(PE1_Mean, PE2_Mean, PE3_Mean, PE4_Mean, EE1_Mean, EE2_Mean, EE3_Mean, EE4_Mean),
  SD = c(PE1_SD, PE2_SD, PE3_SD, PE4_SD, EE1_SD, EE2_SD, EE3_SD, EE4_SD)
)
```

```
mergeData2 <- data.frame(
  ID = c("A1", "A2", "A3", "A4", "SI1", "SI2", "SI3", "FC2", "FC3", "FC01", "SE1", "SE2", "SE3", "AX1",
  Yes = c(sum(A1 == "Yes"), sum(A2 == "Yes"), sum(A3 == "Yes"), sum(A4 == "Yes"), sum(SI1 == "Yes"), sum
```

```

No = c(sum(A1 == "No"), sum(A2 == "No"), sum(A3 == "No"), sum(A4 == "No"), sum(SI1 == "No"), sum(SI2 == "No"))
Neutral = c(sum(A1 == "Neutral"), sum(A2 == "Neutral"), sum(A3 == "Neutral"), sum(A4 == "Neutral"), sum(SI1 == "Neutral"), sum(SI2 == "Neutral"))
)

# Write CSV file
write.csv(mergeData, file = "Survey Data (PE1-EE4).csv", row.names = FALSE)
write.csv(mergeData2, file = "Survey Data (A1-BI3).csv", row.names = FALSE)

```

## Plotting

Author: Andrey Sumadic

```

library(ggplot2)
library(dplyr)

##
## Attaching package: 'dplyr'

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

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

library(tidyr)
library(gridExtra)

##
## Attaching package: 'gridExtra'

## The following object is masked from 'package:dplyr':
##
##   combine

# Read the data
data <- read.csv("survey.csv")

# Remove rows with missing values
cleaned_data <- na.omit(data)

# Calculate the total counts per choice for the desired column
column_counts <- cleaned_data %>%
  separate_rows(Have.you.used.any.of.these.music.streaming.platform.for.the.past.week...Can.select.multiple.) %>%
  group_by(Have.you.used.any.of.these.music.streaming.platform.for.the.past.week...Can.select.multiple.) %>%
  summarise(count = n())

# Bar graph for the total counts per choice
bar_another_column <- ggplot(column_counts, aes(x = Have.you.used.any.of.these.music.streaming.platform.for.the.past.week...Can.select.multiple., y = count)) +
  geom_bar(stat = "identity") +
  labs(title = "Total Counts per Choice for Another Column") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# Calculate the total device used for the desired column
column_device <- cleaned_data %>%
  separate_rows(What.device.are.you.using.for.streaming.music.online...Can.select.multiple., sep = ", ")

```

```

group_by(What.device.are.you.using.for.streaming.music.online...Can.select.multiple.) %>%
summarise(count = n())

# Bar graph for the total device used
bar_another_device <- ggplot(column_device, aes(x = What.device.are.you.using.for.streaming.music.online...Can.select.multiple., y = count)) +
  geom_bar(stat = "identity") +
  labs(title = "Device Used") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# Pie chart for age
pie_chart_age <- ggplot(cleaned_data, aes(x = "", fill = factor(Age))) +
  geom_bar(width = 1, position = "fill") +
  coord_polar(theta = "y") +
  scale_fill_brewer(palette = "Set3") +
  labs(title = "Age",
       fill = "Age") +
  theme_void() +
  theme(
    plot.title = element_text(hjust = 0.5)
  )

# Pie chart for sex
pie_chart_sex <- ggplot(cleaned_data, aes(x = "", fill = factor(Sex))) +
  geom_bar(width = 1, position = "fill") +
  coord_polar(theta = "y") +
  scale_fill_brewer(palette = "Set3") +
  labs(title = "Sex",
       fill = "Sex") +
  theme_void() +
  theme(
    plot.title = element_text(hjust = 0.5)
  )

# Pie chart for education level
pie_chart_education <- ggplot(cleaned_data, aes(x = "", fill = factor(Education_level))) +
  geom_bar(width = 1, position = "fill") +
  coord_polar(theta = "y") +
  scale_fill_brewer(palette = "Set3") +
  labs(title = "Education Level",
       fill = "Education Level") +
  theme_void() +
  theme(
    plot.title = element_text(hjust = 0.5)
  )

# PE1
column_countsPE1 <- cleaned_data %>%
  separate_rows(Do.you.find.using.Digital.Music.Streaming.Platform.useful.in.discovering.new.music..., sep = ",") %>%
  group_by(Do.you.find.using.Digital.Music.Streaming.Platform.useful.in.discovering.new.music...) %>%
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnPE1 <- ggplot(column_countsPE1, aes(x = Do.you.find.using.Digital.Music.Streaming.Platform.useful.in.discovering.new.music..., y = count)) +
  geom_bar(stat = "identity") +

```

```

labs(title = "PE1") +
theme(axis.text.x = element_text(angle = 45, hjust = 1))

# PE2
column_countsPE2 <- cleaned_data %>%
  separate_rows(Does.Digital.Music.Streaming.Platform.enable.you.to.easily.create.and.share.playlists.,
  group_by(Does.Digital.Music.Streaming.Platform.enable.you.to.easily.create.and.share.playlists.) %>%
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnPE2 <- ggplot(column_countsPE2, aes(x = Does.Digital.Music.Streaming.Platform.enable.you.to.e
  geom_bar(stat = "identity") +
  labs(title = "PE2") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# PE3
column_countsPE3 <- cleaned_data %>%
  separate_rows(Do.you.believe.that.using.Digital.Music.Streaming.Platform.will.enhance.your.overall.music.l
  group_by(Do.you.believe.that.using.Digital.Music.Streaming.Platform.will.enhance.your.overall.music.l
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnPE3 <- ggplot(column_countsPE3, aes(x = Do.you.believe.that.using.Digital.Music.Streaming.Pla
  geom_bar(stat = "identity") +
  labs(title = "PE3") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# Now continuing with PE4 to EE4

# PE4
column_countsPE4 <- cleaned_data %>%
  separate_rows(Do.you.think.using.Digital.Music.Streaming.Platform.will.increase.your.engagement.with.m
  group_by(Do.you.think.using.Digital.Music.Streaming.Platform.will.increase.your.engagement.with.music
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnPE4 <- ggplot(column_countsPE4, aes(x = Do.you.think.using.Digital.Music.Streaming.Platform.w
  geom_bar(stat = "identity") +
  labs(title = "PE4") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# EE1
column_countsEE1 <- cleaned_data %>%
  separate_rows(Do.you.find.navigating.through.Digital.Music.Streaming.Platform.clear.and.understandabl
  group_by(Do.you.find.navigating.through.Digital.Music.Streaming.Platform.clear.and.understandable.) %>%
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnEE1 <- ggplot(column_countsEE1, aes(x = Do.you.find.navigating.through.Digital.Music.Streaming
  geom_bar(stat = "identity") +
  labs(title = "EE1") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

```

```

# EE2
column_countsEE2 <- cleaned_data %>%
  separate_rows(Do.you.find.Digital.Music.Streaming.Platform.easy.to.use.in.terms.of.searching.for.and.)
  group_by(Do.you.find.Digital.Music.Streaming.Platform.easy.to.use.in.terms.of.searching.for.and.playin
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnEE2 <- ggplot(column_countsEE2, aes(x = Do.you.find.Digital.Music.Streaming.Platform.easy.to.
  geom_bar(stat = "identity") +
  labs(title = "EE2") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# EE3
column_countsEE3 <- cleaned_data %>%
  separate_rows(Do.you.believe.it.would.be.easy.for.you.to.become.skilled.in.using.Digital.Music.Streaming.P
  group_by(Do.you.believe.it.would.be.easy.for.you.to.become.skilled.in.using.Digital.Music.Streaming.P
  summarise(count = n())

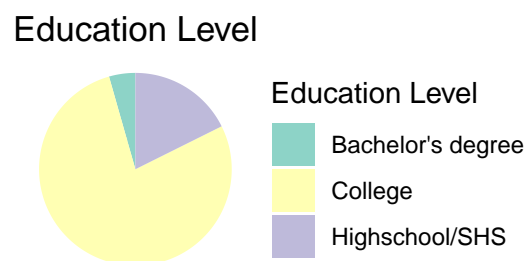
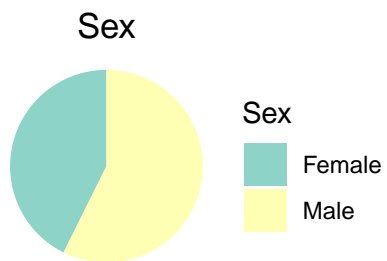
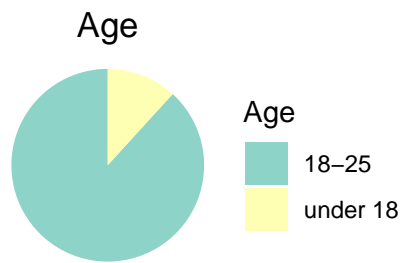
# Bar graph for the total counts per choice
bar_columnEE3 <- ggplot(column_countsEE3, aes(x = Do.you.believe.it.would.be.easy.for.you.to.become.ski
  geom_bar(stat = "identity") +
  labs(title = "EE3") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# EE4
column_countsEE4 <- cleaned_data %>%
  separate_rows(Do.you.find.learning.to.use.Digital.Music.Streaming.Platform.easy., sep = ", ") %>%
  group_by(Do.you.find.learning.to.use.Digital.Music.Streaming.Platform.easy.) %>%
  summarise(count = n())

# Bar graph for the total counts per choice
bar_columnEE4 <- ggplot(column_countsEE4, aes(x = Do.you.find.learning.to.use.Digital.Music.Streaming.P
  geom_bar(stat = "identity") +
  labs(title = "EE4") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

grid.arrange(pie_chart_age, pie_chart_sex, pie_chart_education)

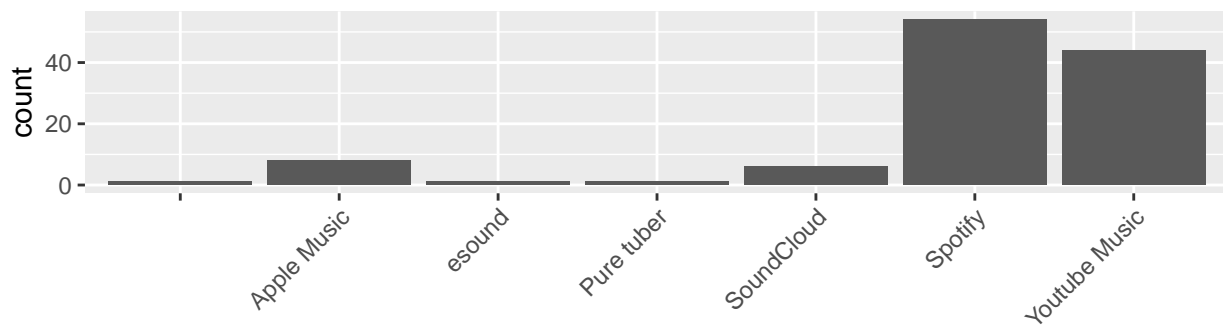
```



```
grid.arrange( bar_another_column, bar_another_device)
```

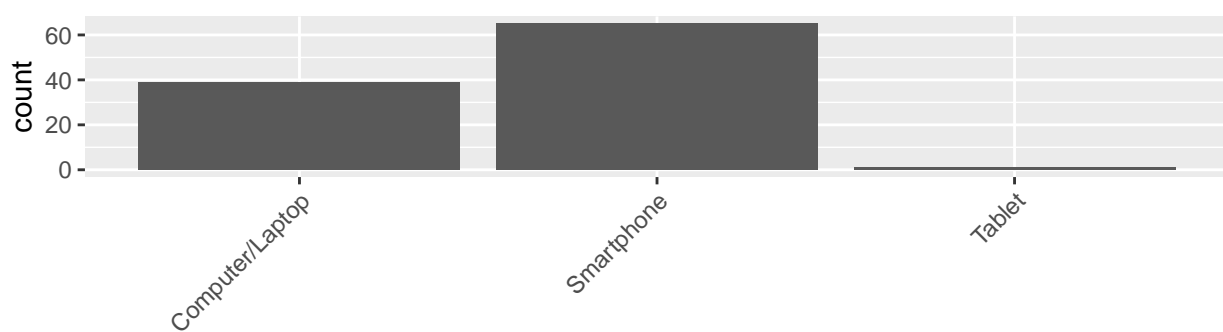


Total Counts per Choice for Another Column



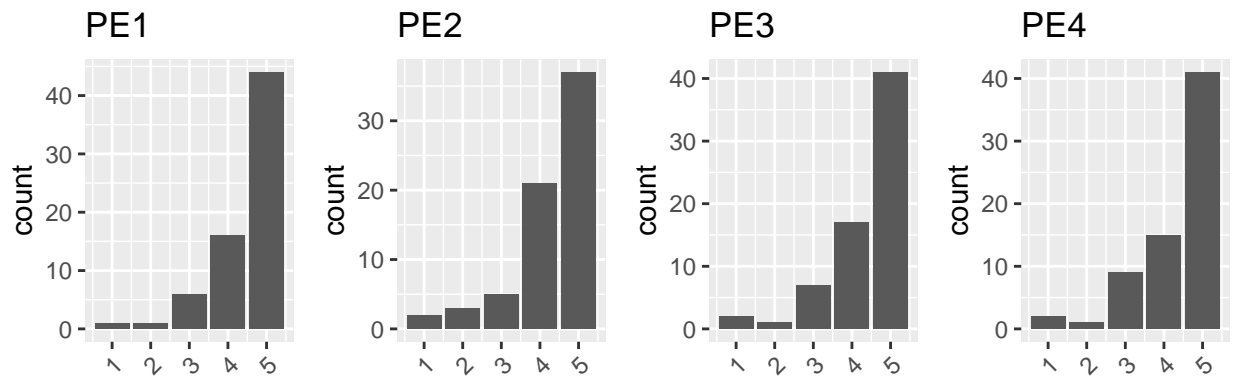
Have.you.used.any.of.these.music.streaming.platform.for.the.past.week...Can.select.multiple

Device Used

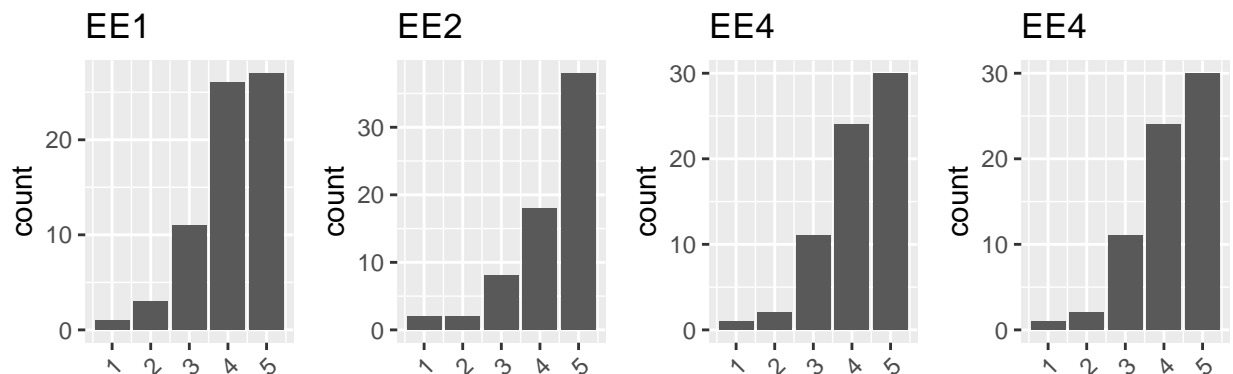


What.device.are.you.using.for.streaming.music.online...Can.select.multiple.

```
grid.arrange(bar_columnPE1, bar_columnPE2, bar_columnPE3, bar_columnPE4, bar_columnEE1, bar_columnEE2, bar_columnEE3, bar_columnEE4, bar_columnEE5, bar_columnEE6, bar_columnEE7, bar_columnEE8, bar_columnEE9, bar_columnEE10, bar_columnEE11, bar_columnEE12, bar_columnEE13, bar_columnEE14, bar_columnEE15, bar_columnEE16, bar_columnEE17, bar_columnEE18, bar_columnEE19, bar_columnEE20, bar_columnEE21, bar_columnEE22, bar_columnEE23, bar_columnEE24, bar_columnEE25, bar_columnEE26, bar_columnEE27, bar_columnEE28, bar_columnEE29, bar_columnEE30, bar_columnEE31, bar_columnEE32, bar_columnEE33, bar_columnEE34, bar_columnEE35, bar_columnEE36, bar_columnEE37, bar_columnEE38, bar_columnEE39, bar_columnEE40, bar_columnEE41, bar_columnEE42, bar_columnEE43, bar_columnEE44, bar_columnEE45, bar_columnEE46, bar_columnEE47, bar_columnEE48, bar_columnEE49, bar_columnEE50, bar_columnEE51, bar_columnEE52, bar_columnEE53, bar_columnEE54, bar_columnEE55, bar_columnEE56, bar_columnEE57, bar_columnEE58, bar_columnEE59, bar_columnEE60, bar_columnEE61, bar_columnEE62, bar_columnEE63, bar_columnEE64, bar_columnEE65, bar_columnEE66, bar_columnEE67, bar_columnEE68, bar_columnEE69, bar_columnEE70, bar_columnEE71, bar_columnEE72, bar_columnEE73, bar_columnEE74, bar_columnEE75, bar_columnEE76, bar_columnEE77, bar_columnEE78, bar_columnEE79, bar_columnEE80, bar_columnEE81, bar_columnEE82, bar_columnEE83, bar_columnEE84, bar_columnEE85, bar_columnEE86, bar_columnEE87, bar_columnEE88, bar_columnEE89, bar_columnEE90, bar_columnEE91, bar_columnEE92, bar_columnEE93, bar_columnEE94, bar_columnEE95, bar_columnEE96, bar_columnEE97, bar_columnEE98, bar_columnEE99, bar_columnEE100)
```



as Digital Music Streaming Platform will increase



Digital Music Streaming Platform will increase

## Creating Pie charts for A1-BI3

Author: Aeron Jesse Edombingo

```
# Create Pie Chart for A1-A4
A_data <- list(
  A1 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(A1 == "Yes"), sum(A1 == "No"), sum(A1 == "Neutral"))),

  A2 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(A2 == "Yes"), sum(A2 == "No"), sum(A2 == "Neutral"))),

  A3 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(A3 == "Yes"), sum(A3 == "No"), sum(A3 == "Neutral"))),

  A4 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(A4 == "Yes"), sum(A4 == "No"), sum(A4 == "Neutral")))
)

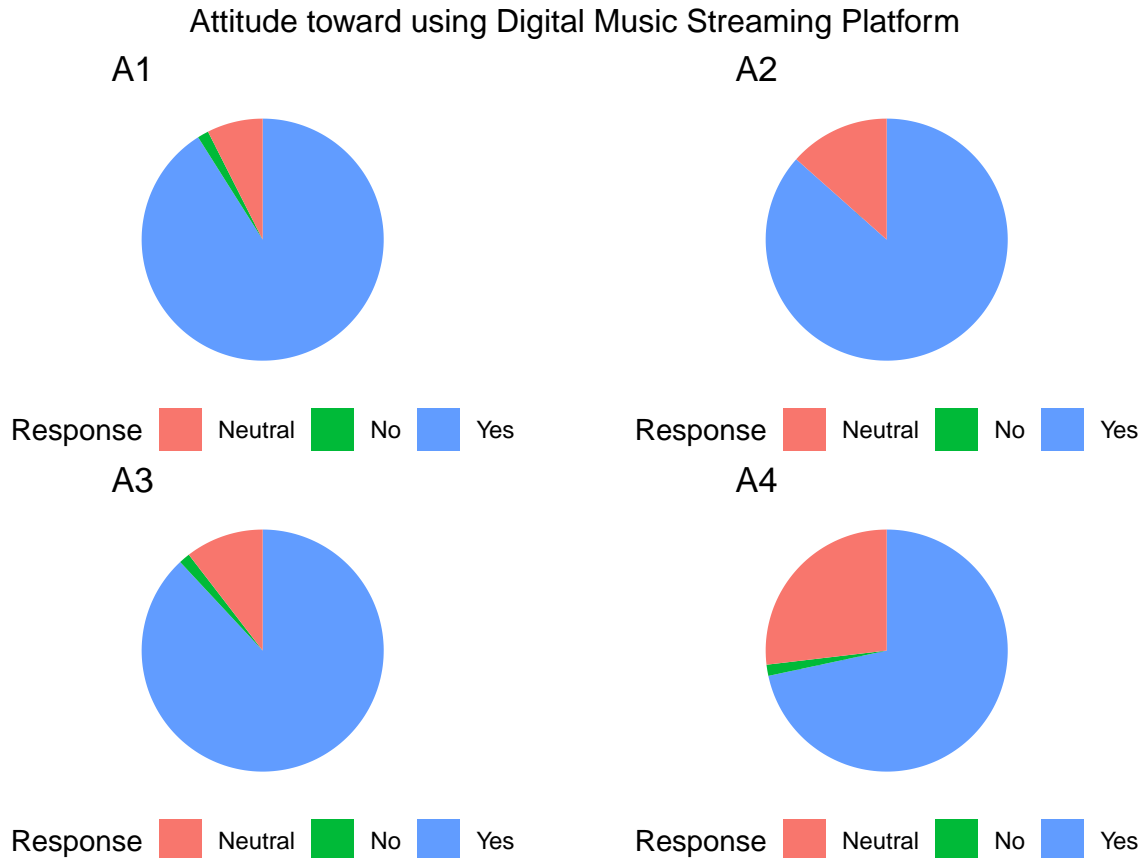
A_plots <- lapply(names(A_data), function(name) {
  data <- A_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
      fill = "Response") +
  })
```

```

theme_void() +
  theme(legend.position = "bottom")
})

grid.arrange(grobs = A_plots, ncol = 2, top = "Attitude toward using Digital Music Streaming Platform")

```



```

# Create Pie Chart for SI1-SI3
SI_data <- list(
  SI1 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(SI1 == "Yes"), sum(SI1 == "No"), sum(SI1 == "Neutral"))),
  SI2 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(SI2 == "Yes"), sum(SI2 == "No"), sum(SI2 == "Neutral"))),
  SI3 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(SI3 == "Yes"), sum(SI3 == "No"), sum(SI3 == "Neutral")))
)

SI_plots <- lapply(names(SI_data), function(name) {
  data <- SI_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
      fill = "Response") +
    theme_void() +

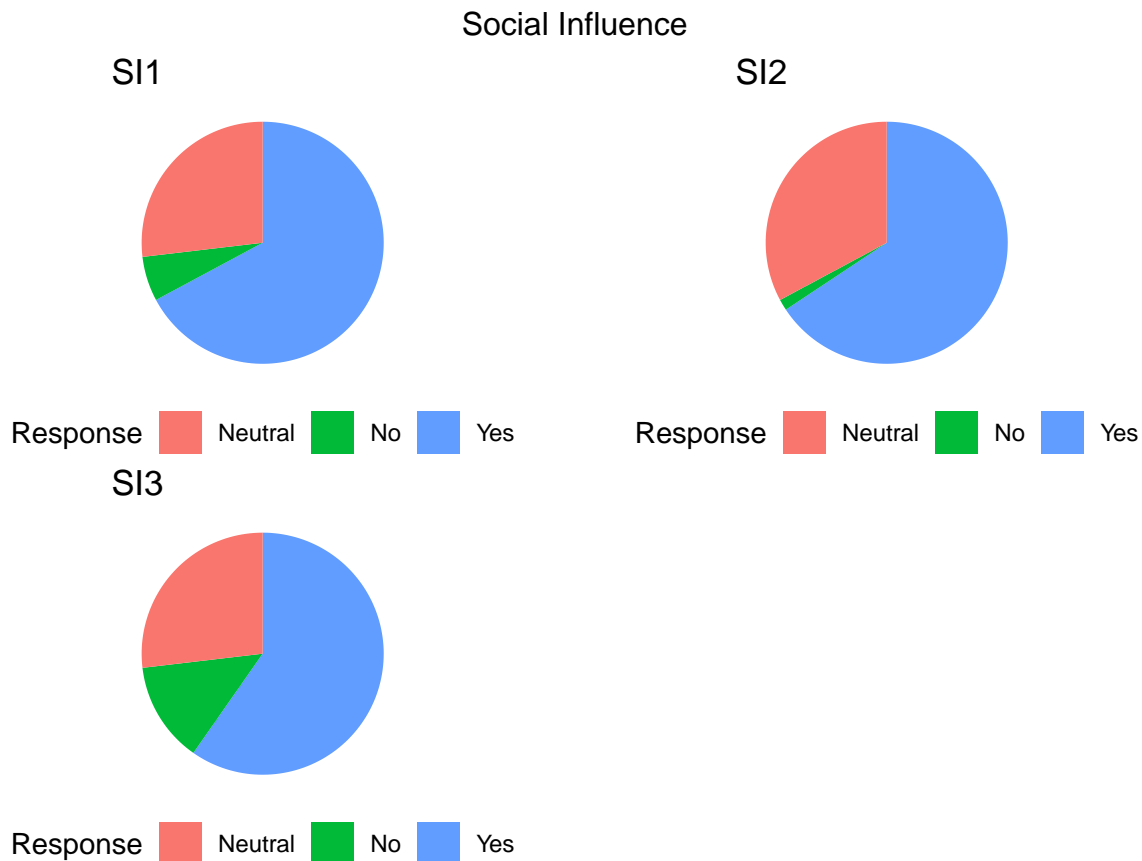
```

```

    theme(legend.position = "bottom")
  })

  grid.arrange(grobs = SI_plots, ncol = 2, top = "Social Influence")

```



```

# Create Pie Chart for FC2-FC01
FC_data <- list(
  FC2 = data.frame(Response = c("Yes", "No", "Neutral"),
                    Frequency = c(sum(FC2 == "Yes"), sum(FC2 == "No"), sum(FC2 == "Neutral"))),

  FC3 = data.frame(Response = c("Yes", "No", "Neutral"),
                    Frequency = c(sum(FC3 == "Yes"), sum(FC3 == "No"), sum(FC3 == "Neutral"))),

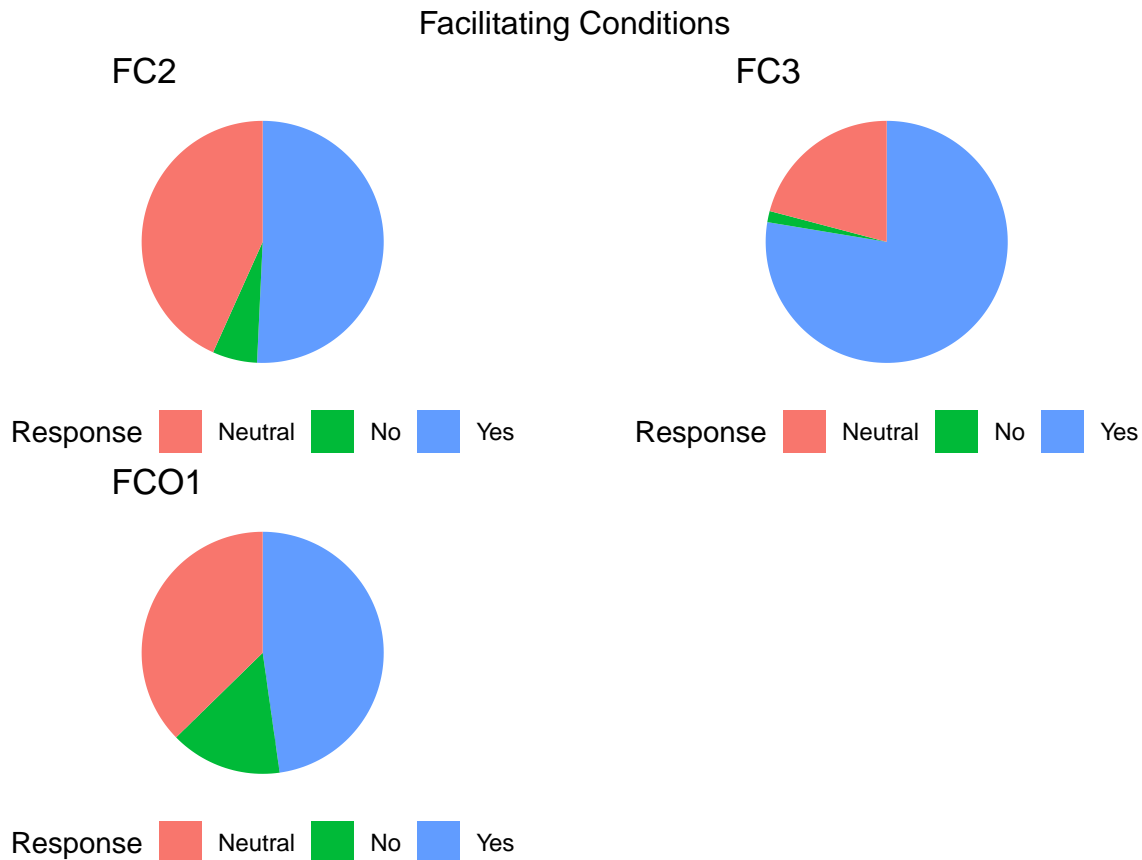
  FC01 = data.frame(Response = c("Yes", "No", "Neutral"),
                    Frequency = c(sum(FC01 == "Yes"), sum(FC01 == "No"), sum(FC01 == "Neutral")))
)

FC_plots <- lapply(names(FC_data), function(name) {
  data <- FC_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
         fill = "Response") +
    theme_void() +
    theme(legend.position = "bottom")
})

```

```
})
```

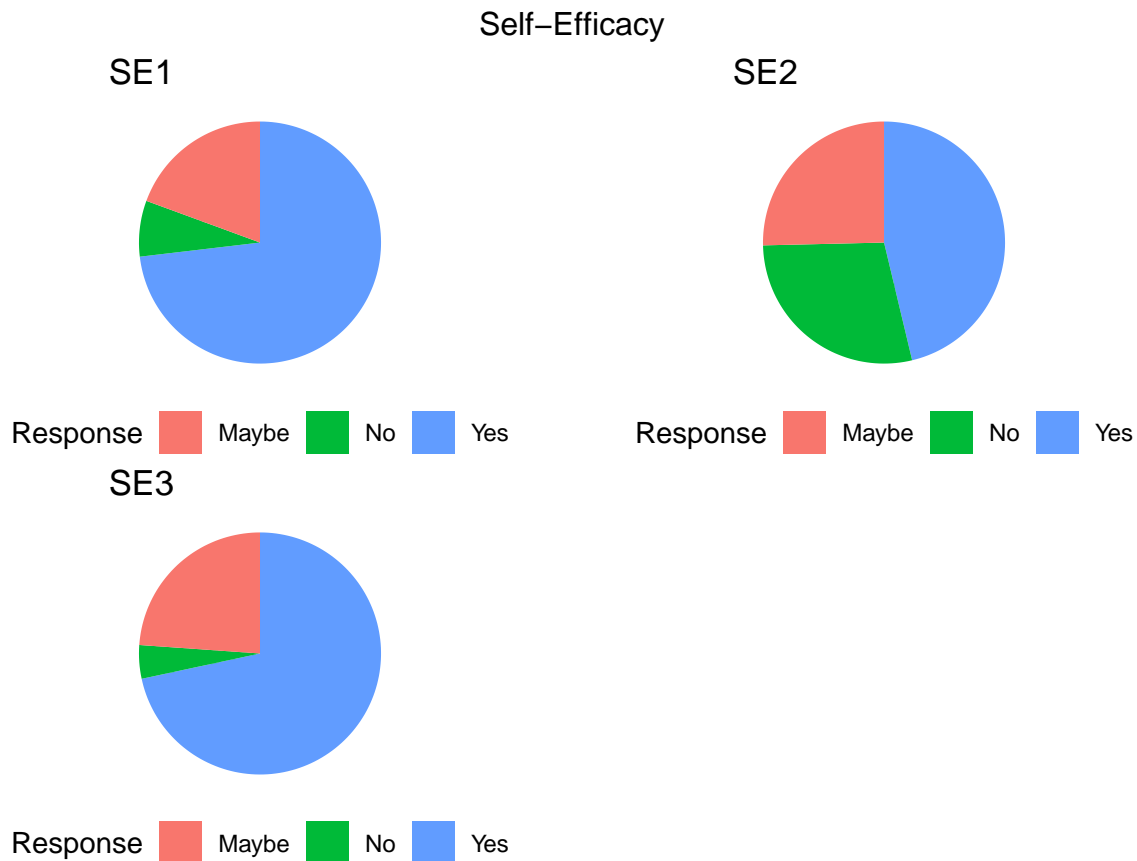
```
grid.arrange(grobs = FC_plots, ncol = 2, top = "Facilitating Conditions")
```



```
# Create Pie Chart for SE1-SE3
SE_data <- list(
  SE1 = data.frame(Response = c("Yes", "No", "Maybe"),
                    Frequency = c(sum(SE1 == "Yes"), sum(SE1 == "No"), sum(SE1 == "Maybe"))),
  SE2 = data.frame(Response = c("Yes", "No", "Maybe"),
                    Frequency = c(sum(SE2 == "Yes"), sum(SE2 == "No"), sum(SE2 == "Maybe"))),
  SE3 = data.frame(Response = c("Yes", "No", "Maybe"),
                    Frequency = c(sum(SE3 == "Yes"), sum(SE3 == "No"), sum(SE3 == "Maybe")))
)

SE_plots <- lapply(names(SE_data), function(name) {
  data <- SE_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
         fill = "Response") +
    theme_void() +
    theme(legend.position = "bottom")
})
```

```
grid.arrange(grobs = SE_plots, ncol = 2, top = "Self-Efficacy")
```



```
# Create Pie Chart for AX1-AX3
AX_data <- list(
  AX1 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(AX1 == "Yes"), sum(AX1 == "No"), sum(AX1 == "Neutral"))),

  AX2 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(AX2 == "Yes"), sum(AX2 == "No"), sum(AX2 == "Neutral"))),

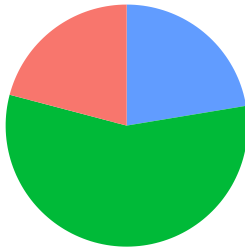
  AX3 = data.frame(Response = c("Yes", "No", "Neutral"),
    Frequency = c(sum(AX3 == "Yes"), sum(AX3 == "No"), sum(AX3 == "Neutral")))
)

AX_plots <- lapply(names(AX_data), function(name) {
  data <- AX_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
      fill = "Response") +
    theme_void() +
    theme(legend.position = "bottom")
})

grid.arrange(grobs = AX_plots, ncol = 2, top = "Anxiety")
```

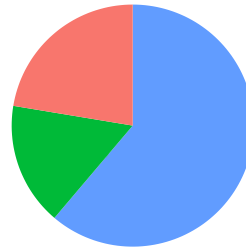
## Anxiety

AX1



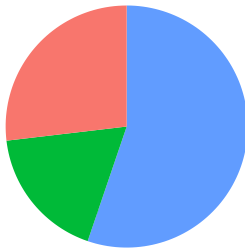
Response Neutral No Yes

AX2



Response Neutral No Yes

AX3



Response Neutral No Yes

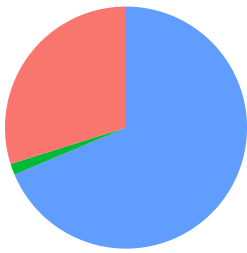
```
# Create Pie Chart for BI1-BI3
BI_data <- list(
  BI1 = data.frame(Response = c("Yes", "No", "Maybe"),
    Frequency = c(sum(BI1 == "Yes"), sum(BI1 == "No"), sum(BI1 == "Maybe"))),
  BI2 = data.frame(Response = c("Yes", "No", "Maybe"),
    Frequency = c(sum(BI2 == "Yes"), sum(BI2 == "No"), sum(BI2 == "Maybe"))),
  BI3 = data.frame(Response = c("Yes", "No", "Maybe"),
    Frequency = c(sum(BI3 == "Yes"), sum(BI3 == "No"), sum(BI3 == "Maybe")))
)




BI_plots <- lapply(names(BI_data), function(name) {
  data <- BI_data[[name]]
  ggplot(data, aes(x = "", y = Frequency, fill = Response)) +
    geom_bar(stat = "identity") +
    coord_polar("y", start = 0) +
    labs(title = name,
      fill = "Response") +
    theme_void() +
    theme(legend.position = "bottom")
})

grid.arrange(grobs = BI_plots, ncol = 2, top = "Behavioral Intention")
```

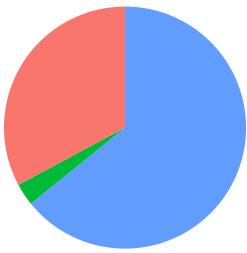
Behavioral Intention




BI1



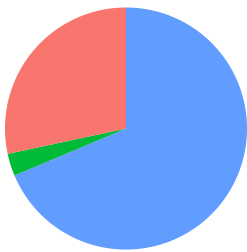
Response  Maybe  No  Yes




BI2



Response  Maybe  No  Yes

BI3



Response  Maybe  No  Yes