Project 2

CPSC 292 Section #02#

10/31/2025

Project 1: Best-Selling Video Games of All Time

Loading And Cleaning Data

```
game.data <- read.csv("game.data/best-selling video games of all time.csv")
```

```
game.data.clean <- game.data %>%
clean_names() %>%
remove_empty(which = c("rows","cols")) %>%
na.omit(game.data) %>%
mutate(sales = sales / 100000)

platforms <- sort(unique(game.data.clean$platform_s))
label_df <- data.frame(platform_s = platforms, median_sales = NA)
```

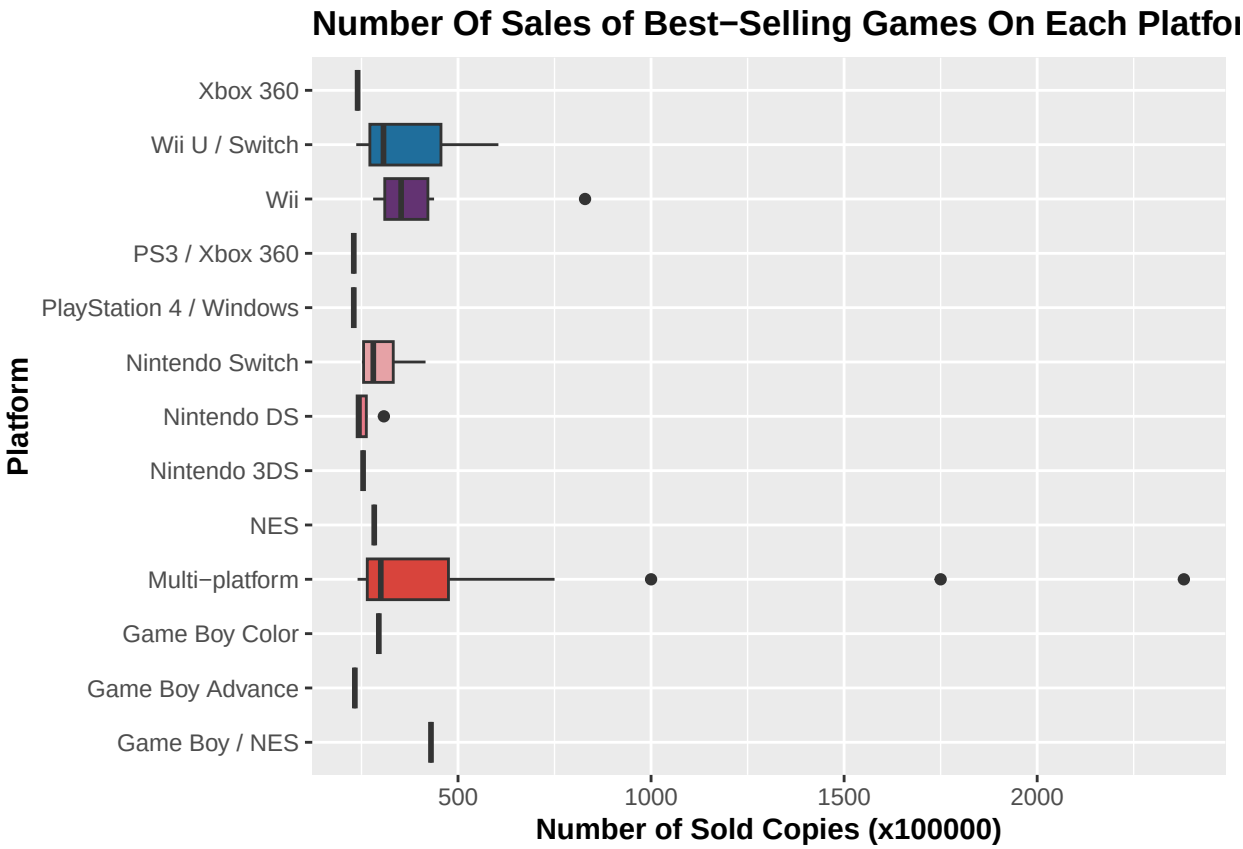
Cleaning Steps Description:

This cleans the data names, removes any empty columns or rows, and omits any NA data.

Visualizations

Original Plot 1:

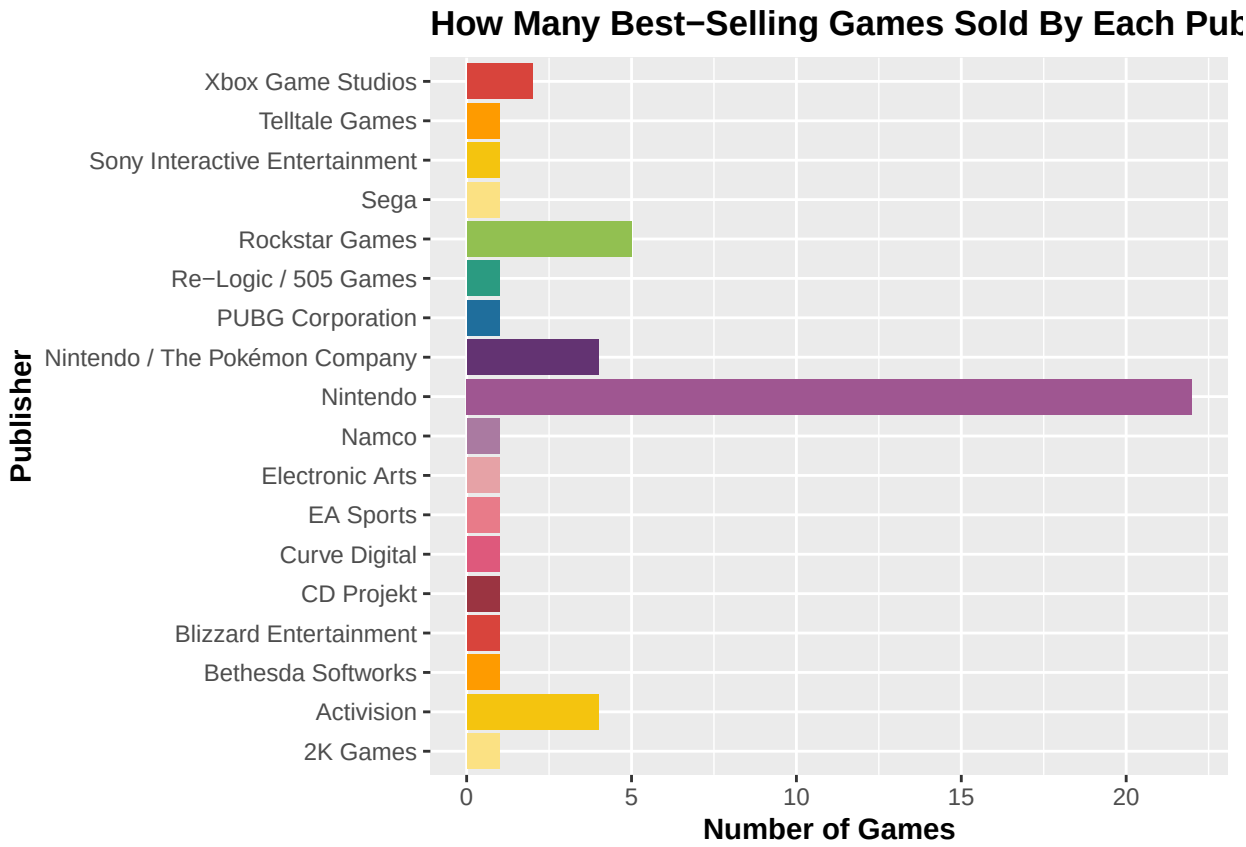
```
plot1 <- ggplot(game.data.clean) + geom_boxplot(aes(x = platform_s, y = sales, fill = platform_s)) + the
plot1
```



Description of Plot 1: This plots shows us different platforms that the most sold video games of all time uses.

Original Plot 2:

```
color.base <- paletteer::paletteer_d("MetBrewer::Signac")
color <- rep(color.base, length.out = 18)
plot2 <- ggplot(game.data.clean) + geom_bar(aes(x = publisher_s, fill = publisher_s)) + theme(legend.po
plot2
```



Description of Plot 2: These plots show us how many of the best selling video games of all time belong to each publisher.

Plot 1 with Function and Loop

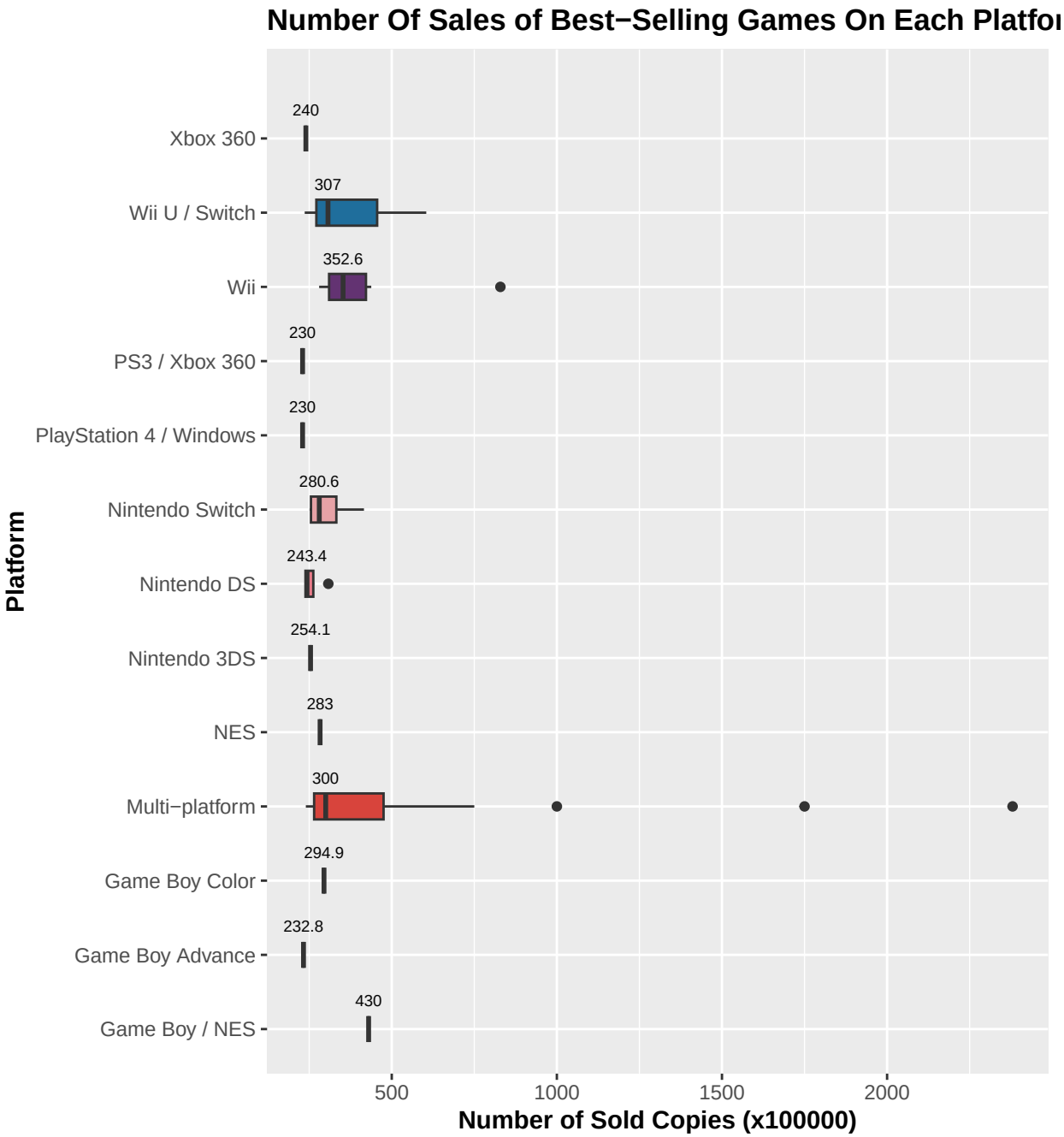
```
make_plot <- function(data, x_var, y_var, geom_layer) {
  ggplot(data, aes_string(x = x_var, y = y_var, fill = x_var)) +
    geom_layer(width = 0.35) +
    theme(
      legend.position = "none",
      axis.title.x = element_text(face = "bold"),
      axis.title.y = element_text(face = "bold"),
      plot.title = element_text(face = "bold")
    ) +
    coord_flip()
}

plot1 <- make_plot(game.data.clean, "platform_s", "sales", geom_boxplot)
```

```
## Warning: `aes_string()` was deprecated in ggplot2 3.0.0.
## i Please use tidy evaluation idioms with `aes()`.
## i See also `vignette("ggplot2-in-packages")` for more information.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```

```r
plot1 <- plot1 +
  labs(title = "Number Of Sales of Best-Selling Games On Each Platform",
      x = "Platform",
      y = "Number of Sold Copies (x100000)") +
  scale_fill_paletteer_d("MetBrewer::Signac") +
  scale_x_discrete(expand = expansion(mult = c(0.05, 0.1)))

for (i in seq_along(platforms)) {
  p <- platforms[i]
  label_df$median_sales[i] <- median(
    game.data.clean$sales[game.data.clean$platform_s == p],
    na.rm = TRUE
  )
}

label_df
```

```
##                 platform_s median_sales
## 1           Game Boy / NES       430.00
## 2         Game Boy Advance       232.80
## 3           Game Boy Color       294.90
## 4           Multi-platform       300.00
## 5                      NES       283.00
## 6             Nintendo 3DS       254.10
## 7              Nintendo DS       243.45
## 8          Nintendo Switch       280.60
## 9  PlayStation 4 / Windows       230.00
## 10          PS3 / Xbox 360       230.00
## 11                     Wii       352.60
## 12          Wii U / Switch       307.00
## 13                Xbox 360       240.00
```

```r
plot1_with_medians <- plot1 +
  geom_text(
    data = label_df,
    aes(x = platform_s,
        y = median_sales,
        label = round(median_sales, 1)),
    color = "black",
    size = 2.5,
    vjust = -2.0,
    hjust = 0.50
  )

plot1_with_medians
```

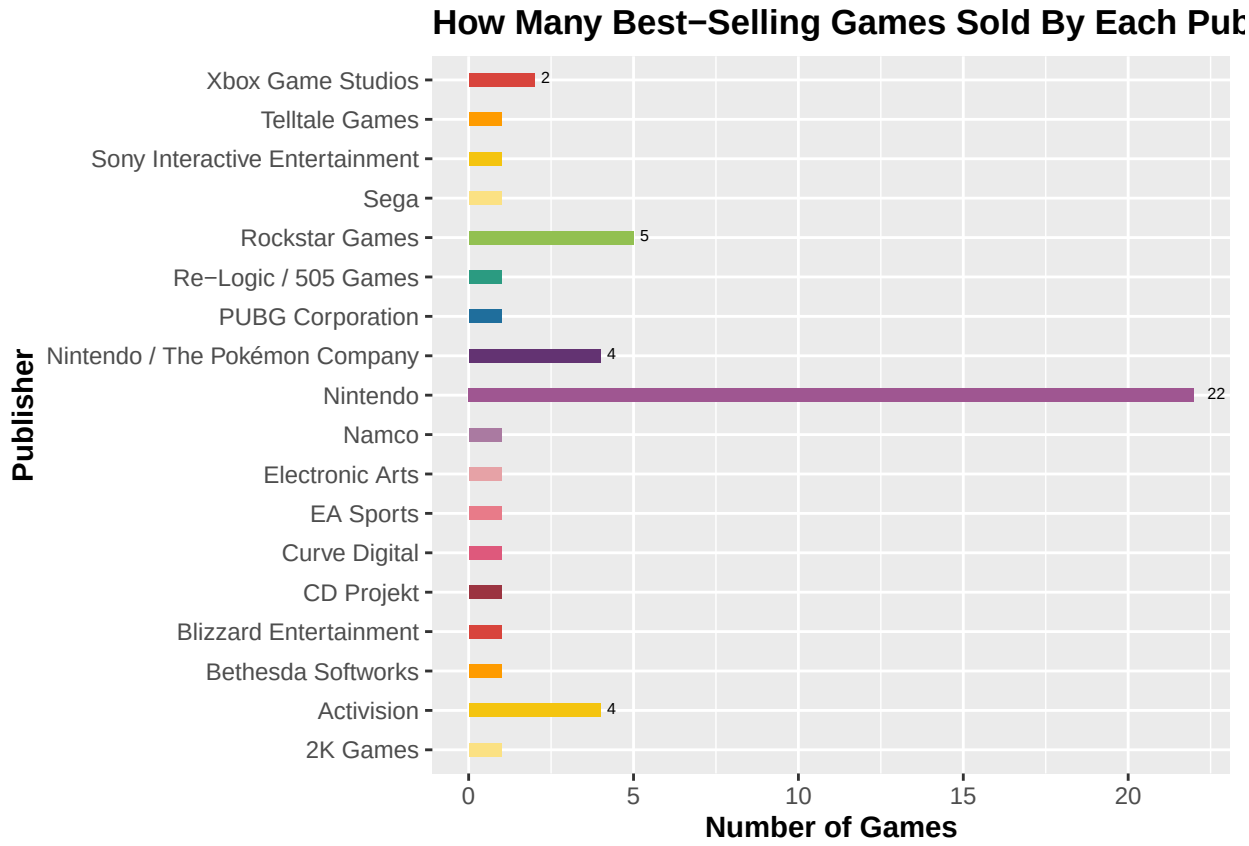


Description of Plot 1 with Function and Loop This plot produces the same visualization as the original code. A "make_plot" function was made to simplify the code and accept arguments including the data set, x variable, y variable, and geom layer style. A loop was used to create the median values of number of sold copies (x100000) for each platform, providing a better understanding of which kind of platforms get more sales based on their games.

Plot 2 with Function and Conditional

```
plot2 <- make_plot(game.data.clean, "publisher_s", geom_layer = geom_bar) +
  labs(
```

```
    title = "How Many Best-Selling Games Sold By Each Publisher",
    x = "Publisher",
    y = "Number of Games",
    fill = "Publisher"
  ) +
  scale_fill_manual(values = color) +
  geom_text(
    stat = "count",
    aes(label = ifelse(after_stat(count) > 1, after_stat(count), "")),
    vjust = 0.3,
    hjust = -0.75,
    size = 2
  )

plot2
```



Description of Plot 2 with Function and Conditional This plot produces the same visualization as the original code. The "make_plot" function was used to create the visualization. A conditional was added to the geom text layer to include labels for the number of games sold by each publisher if the value was greater than 1. This feature adds an additional visual element that makes interpreting the data easier.

References

https://dplyr.tidyverse.org/ https://ianadamsresearch.com/post/using-ggplot2-to-visualize-the-frequency-of-your-name/ https://github.com/thomasp85/patchwork#patchwork https://www.sthda.com/english/

wiki/bar-plots-r-base-graphs https://exts.ggplot2.tidyverse.org/gallery/ https://r-graph-gallery.com/ggplot2-color.html