YT_Data_Wrangling_and_Visualizations.R

ernestogonzales

2023-10-29

```
# Project and Contact Info -----

# YouTube Exploratory Data Analysis (EDA), Data Wrangling and Visualization Exercises
# A Portfolio Project By Ernesto Gonzales
# Website: ernestogonzales.com
# Email: hello@ernestogonzales.com


# Background ----

# I downloaded the all my YouTube Studio data from April 1st, 2007 to October 25th 2023
# 3 Comma Separated Values (CSV)files where downloaded from my website
# These files were sourced from my own YouTube channel metrics of all my videos


# Project Deliverables ----

# To showcase a step by step process on Data Wrangling using dplyr and lubridate libraries
# Showcase my steps on doing EDA by using Visualizations using ggplot2
# Provide a final report using R Markdown to create both PDF files and PowerPoint reports

# 01. - Data Preparation and Data Wrangling ----

# 01.01 - Libraries Used----

library(tidyverse)
```

```
## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──
## ✔ dplyr     1.1.3     ✔ readr     2.1.4
## ✔ forcats   1.0.0     ✔ stringr   1.5.0
## ✔ ggplot2   3.4.4     ✔ tibble    3.2.1
## ✔ lubridate 1.9.3     ✔ tidyr     1.3.0
## ✔ purrr     1.0.2
## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()   masks stats::lag()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(lubridate)

# 02. - Data Acquisition ----

# 02.2 - Initial Data Acquisition using read.csv command

table_data <- read.csv("~/Documents/00_Data_Projects/Content 2007-04-01_2023-10-26 Phantasiis/Table data.csv")

chart_data <- read_csv("~/Documents/00_Data_Projects/Content 2007-04-01_2023-10-26 Phantasiis/Chart data.csv")
```

```
## Rows: 30260 Columns: 5
## ── Column specification ────────────────────────────────────────────────────────
## Delimiter: ","
## chr  (3): Content, Video title, Video publish time
## dbl  (1): Views
## date (1): Date
##
## ℹ Use `spec()` to retrieve the full column specification for this data.
## ℹ Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
chart_data
```

```
## # A tibble: 30,260 × 5
##    Date       Content     `Video title`                `Video publish time` Views
##    <date>     <chr>       <chr>                        <chr>                <dbl>
##  1 2007-04-01 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  2 2007-04-02 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  3 2007-04-03 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  4 2007-04-04 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  5 2007-04-05 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  6 2007-04-06 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  7 2007-04-07 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  8 2007-04-08 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
##  9 2007-04-09 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
## 10 2007-04-10 6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… Apr 27, 2022             0
## # ℹ 30,250 more rows
```

```
totals_data <- read_csv("~/Documents/00_Data_Projects/Content 2007-04-01_2023-10-26 Phantasiis/Totals.csv")
```

```
## Rows: 6052 Columns: 2
## ── Column specification ────────────────────────────────────────────────────────
## Delimiter: ","
## dbl  (1): Views
## date (1): Date
##
## ℹ Use `spec()` to retrieve the full column specification for this data.
## ℹ Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
totals_data
```

```
## # A tibble: 6,052 × 2
##    Date       Views
##    <date>     <dbl>
##  1 2007-04-01     0
##  2 2007-04-02     0
##  3 2007-04-03     0
##  4 2007-04-04     0
##  5 2007-04-05     0
##  6 2007-04-06     0
##  7 2007-04-07     0
##  8 2007-04-08     0
##  9 2007-04-09     0
## 10 2007-04-10     0
## # ℹ 6,042 more rows
```

```
# Data Preview
table_data %>%
    glimpse() %>%
    view()
```

```
## Rows: 393
## Columns: 7
## $ Content                           <chr> "Total", "VoitAdwgnM", "D7PR8ezIUB…
## $ Video.title                       <chr> "", "\"Esencia\" - Phantasiis | Bas…
## $ Video.publish.time                <chr> "", "Oct 31, 2021", "Oct 29, 2021",…
## $ Views                             <int> 91288, 5238, 4029, 2826, 2158, 1878…
## $ Watch.time..hours.                <dbl> 2155.0593, 183.1138, 97.3285, 46.11…
## $ Impressions                       <int> 687645, 36660, 23803, 47673, 15151,…
## $ Impressions.click.through.rate.... <dbl> 6.39, 7.32, 9.58, 4.08, 6.06, 7.81,…
```

```
chart_data %>%
    glimpse() %>%
    view()
```

```
## Rows: 30,260
## Columns: 5
## $ Date                <date> 2007-04-01, 2007-04-02, 2007-04-03, 2007-04-04, …
## $ Content             <chr> "6Etkb2lY2jA", "6Etkb2lY2jA", "6Etkb2lY2jA", "6Et…
## $ `Video title`       <chr> "\"Saint\" Melodic Boom Bap Type Beat 2022 | Pist…
## $ `Video publish time` <chr> "Apr 27, 2022", "Apr 27, 2022", "Apr 27, 2022", "…
## $ Views               <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0…
```

```
# 03.00  - Initial Data Wrangling ----

# 03.01 - Table.csv -----

# Using pipes %>% with dyplyr commands to transform column names for legibility
# Used the mdy() command from lubridate in combination with mutate() function from dyplr
# To format the raw date in to MM-DD-YYYY time format for future analysis

table_data_wrangled_tbl <- table_data %>% mutate(video_published_time_clean = Video.publish.time %>% mdy()) %>%
    mutate("Video ID"        = Content,
           "Video Title"     = Video.title,
           "ICR"             = Impressions.click.through.rate....,
           "Watchtime Hours" = Watch.time..hours.,
           "Published Date"  = video_published_time_clean)

# After creating the new labels I used the select() command to isolate the new columns with proper names
# Created a new table that includes the new formatted date and new names
# It will be the basis for future analysis

table_wrangled_renamed <- table_data_wrangled_tbl %>% select(`Video ID`, `Video Title`, Impressions, ICR, Views,
`Watchtime Hours`, `Published Date`)

# 03.02 - Chart.csv ----

#chart_data %>% reframe(.by = Content, `Video title`, `Video publish time`,`Impressions click-through rate (%)`)

view(chart_data)

chart_data_wrangled <- chart_data %>% mutate(`Video publish time` %>% mdy()) %>%
    select(`Video publish time`, Content, `Video title`, `Video publish time`, Date, `Views`)

chart_data_wrangled %>%
    view()

# 03.03 - Totals.csv ----
totals_data %>%
    view()
# Data has the correct format
# A potential insight is to do a time series analysis based on the number of videos that got a CTR per 90 days

# 04. EDA using ggplot2 ----
#Initial Data Visualizations  -----

chart_data_wrangled
```

```
## # A tibble: 30,260 × 5
##    `Video publish time` Content     `Video title`                Date       Views
##    <chr>                <chr>       <chr>                        <date>     <dbl>
##  1 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-01     0
##  2 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-02     0
##  3 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-03     0
##  4 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-04     0
##  5 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-05     0
##  6 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-06     0
##  7 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-07     0
##  8 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-08     0
##  9 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-09     0
## 10 Apr 27, 2022         6Etkb2lY2jA "\"Saint\" Melodic Boom Ba… 2007-04-10     0
## # ℹ 30,250 more rows
```

```
glimpse(chart_data_wrangled)
```

```
## Rows: 30,260
## Columns: 5
## $ `Video publish time` <chr> "Apr 27, 2022", "Apr 27, 2022", "Apr 27, 2022", "…
## $ Content              <chr> "6Etkb2lY2jA", "6Etkb2lY2jA", "6Etkb2lY2jA", "6Et…
## $ `Video title`        <chr> "\"Saint\" Melodic Boom Bap Type Beat 2022 | Pist…
## $ Date                 <date> 2007-04-01, 2007-04-02, 2007-04-03, 2007-04-04, …
## $ Views                <dbl> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0…
```

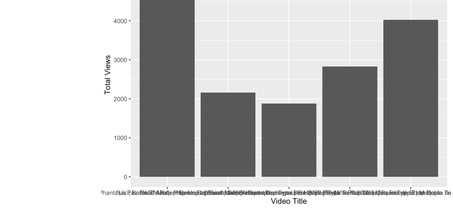
```
chart_data_clean <- chart_data_wrangled %>% mutate("Video Published Date" = `Video publish time` %>% mdy()) %>%
    select(Content, `Video title`, `Video Published Date`, Date, Views)

chart_views_by_video_title <- reframe(chart_data_clean,.by = `Video title`, Views) %>% group_by(`Video title`)

total_views_by_video_title <- reframe(chart_views_by_video_title, `Video title`, Views)

total_views_sum_by_title <- total_views_by_video_title %>%
    group_by(`Video title`) %>%
    summarise(sum(Views))

Video_titles <- as.factor(total_views_sum_by_title$`Video title`) %>% bind_cols(total_views_sum_by_title$`sum(Vie
ws)`)
```

```
## New names:
## • `` -> `...1`
## • `` -> `...2`
```

```
viz_total_views <- ggplot(data = Video_titles, aes(`...1`,`...2`))
viz_total_views_labeled <- viz_total_views + geom_col(mapping = aes(`...1`, `...2`)) +
    scale_fill_brewer("Spectral", type = "seq", palette = 1, direction = 1) +
    labs( x = "Video Title", y = "Total Views")

viz_total_views_labeled
```