```
R version 4.4.2 (2024-10-31 ucrt) -- "Pile of Leaves"
Copyright (C) 2024 The R Foundation for Statistical Computing
Platform: x86 64-w64-mingw32/x64
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.
  Natural language support but running in an English locale
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
[Previously saved workspace restored]
> install.packages("tidyverse") # For data manipulation
Installing package into 'C:/Users/Neha/AppData/Local/R/win-library/4.4'
(as 'lib' is unspecified)
--- Please select a CRAN mirror for use in this session ---
Error in contrib.url(repos, "source") :
 trying to use CRAN without setting a mirror
> install.packages("tidyverse") # For data manipulation
Installing package into 'C:/Users/Neha/AppData/Local/R/win-library/4.4'
(as 'lib' is unspecified)
--- Please select a CRAN mirror for use in this session ---
trying URL 'https://mirror.niser.ac.in/cran/bin/windows/contrib/4.4/tidyverse 2.0.0.zip'
Content type 'application/zip' length 431663 bytes (421 KB)
downloaded 421 KB
package 'tidyverse' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
        C:\Users\Neha\AppData\Local\Temp\RtmpKwCP7S\downloaded packages
> library(tidyverse)
 – Attaching core tidyverse packages –
                                                            --- tidyverse 2.0.0 ---
           1.1.4

✓ dplyr

                      🗸 readr
                                    2.1.5
                                    1.5.1
✓ forcats
           1.0.0

✓ stringr

✓ tibble
                                    3.2.1

✓ ggplot2
             3.5.1
✓ lubridate 1.9.4

✓ tidyr

                                    1.3.1
✓ purrr
             1.0.2
  Conflicts -
                                                        — tidyverse conflicts() —
★ dplyr::filter() masks stats::filter()
★ dplyr::lag()
                 masks stats::laq()
[] Use the conflicted package (<a href="http://conflicted.r-lib.org/">http://conflicted.r-lib.org/</a>) to force all conflicts to becom
e errors
> setwdsetwd("path_to_your_CSV folder")  # Replace with your folder path
Error in setwdsetwd("path_to_your_CSV_folder") :
   could not find function "setwdsetwd"
> setwd("C:\Users\Neha\Desktop\Cyclistic Data") #Replace with your folder path
Error: '\U' used without hex digits in character string (<input>:1:11)
> setwd("G:\Cyclistic Data")
Error: '\C' is an unrecognized escape in character string (<input>:1:11)
> file.choose(C:\Users\Neha\Desktop\Cyclistic Data)
Error: unexpected symbol in "file.choose(C:\Users"
> file.choose("C:\Users\Neha\Desktop\Cyclistic Data")
Error: '\U' used without hex digits in character string (<input>:1:17)
> setwd("C:/Users/YourUsername/Documents/Cyclistic Data")
Error in setwd("C:/Users/YourUsername/Documents/Cyclistic Data") :
 cannot change working directory
> getwd("G:\Cyclistic Data")
Error: '\C' is an unrecognized escape in character string (<input>:1:11)
> data_path <- dirname(file.choose())</pre>
> setwd(data_path)
> # Get list of all CSV files in the folder
> file list <- list.files(pattern = "*.csv")</pre>
> # Read and combine all files into one dataframe
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```
> combined data <- file list %>%
   map df(\sim read csv(.))
[[1mindexing][0m ][34m202101-divvy-tripdata.csv][0m [=-----] ][32m2.15GB/s]
====] [[32m99.33MB/s][0m, eta: <math>[[36m \ 0s]][0m]
                                                             Rows: 96834 Columns: 13
- Column specification -
Delimiter: ","
chr (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
dbl (4): start_lat, start_lng, end_lat, end_lng
dttm (2): started_at, ended_at
[] Use `spec()` to retrieve the full column specification for this data.
Specify the column types or set `show col types = FALSE` to quiet this message.
[1mindexing][0m [34m202102-divvy-tripdata.csvl[0m [==-----] [32m2.15GB/s]
====] [[32m102.38MB/s][0m, eta: ][36m 0s][0m]
                                                             Rows: 49622 Columns: 13
— Column specification —
Delimiter: ","
    (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
(4): start_lat, start_lng, end_lat, end_lng
dttm (2): started at, ende\overline{d} at
[] Use `spec()` to retrieve the full column specification for this data.
[] Specify the column types or set `show col types = FALSE` to quiet this message.
[[1mindexing][0m ][34m202103-divvy-tripdata.csv][0m [------] ] [[32m2.15GB/s]
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3-divvy-tripdata.csv[[0m [===========] [[32m100.42MB/s][0m, eta: [[36m 0s][0m][1mi
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======] [32m102.32MB/s][0m, eta: <math>[36m \ 0s][0m]
                                                                 Rows: 228496 Columns: 1
- Column specification -
Delimiter: ","
chr (7): ride id, rideable type, start station name, start station id, end ...
   (4): start lat, start lng, end lat, end lng
dttm (2): started at, ended at
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36m OsD[OmD[1mindexingD[0m D[34m202104-divvy-tripdata.csvD[0m [===============] D[32m1
11.18MB/s0[0m, eta: 0[36m 0s0[0m0][1mindexing0][0m 0[34m202104-divvy-tripdata.csv0][0m [=======
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02104-divvy-tripdata.csv[[0m [=============] [[32m109.33MB/s][0m, eta: [36m 0s][0m] [lmindexing][0m [34m202104-divvy-tripdata.csv][0m [==========] [32m110.79MB/s][0 =-] [[32m109.43MB/s][0m, eta: [[36m Os][0m][1mindexing][0m][34m202104-divvy-tripdata.csv][0m : $\mathbb{I}[36m \ Os\mathbb{I}[0m$ Rows: 337230 Columns: 13 – Column specification — Delimiter: "," (7): ride_id, rideable_type, start_station_name, start station id, end ... (4): start lat, start lng, end lat, end lng dttm (2): started at, ended at [] 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. [[1mindexing] [0m] [34m202105-divvy-tripdata.csv] [0m [-----]] [32m2.15GB/s] [Om, eta: [36m Os][0m][1mindexing][0m [34m202105-divvy-tripdata.csv][0m [======----------] [[32m111.83MB/s][0m, eta: [[36m 1s][0m][1mindexing][0m [[34m202105-divvy-tripdata.csv][Om [=====----] [32m109.75MB/s][0m, eta: [36m 1s][0m][1mindexing][0m][34m20210]ndexing[[0m [[34m202105-divvy-tripdata.csv][0m [========----] [[32m108.88MB/s][0m, e ta: [36m 1s][0m][1mindexing][0m [34m202105-divvy-tripdata.csv][0m [========-----] [32m107.88MB/s][0m, eta: [36m 1s][0m][1mindexing][0m][34m202105-divvy-tripdata.csv][0m [== $36m\ Osl[0ml[1mindexingl[0m\ l[34m202105-divvy-tripdata.csvl[0m\ [=========]]\ l[32m1]])$ 07.58MB/sl[0m, eta: [36m 0sl[0ml[1mindexingl[0m 1]34m202105-divvy-tripdata.csvl[0m [======= ====-----] [[32m107.44MB/sl[0m, eta: [36m 0sl[0ml[1mindexingl[0m [34m202105-divvy-trip [34m202105-divvy-tripdata.csv][0m [===========================][32m106.64MB/s][0m, eta: [36m 0s [[Om][1mindexing][0m [[34m202105-divvy-tripdata.csv][0m [================]][32m105.95M ==----] [[32m105.44MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m][34m202105-divvy-tripdata.c [lmindexing][0m][34m202105-divvy-tripdata.csv][0m [============]] [[32m105.53MB/s][0 --] [[32m105.50MB/s][0m, eta: [36m 0s][0m][1mindexing][0m][34m202105-divvy-tripdata.csv][0m Rows: 531633 Columns: 13 - Column specification -Delimiter: "," (7): ride_id, rideable_type, start_station_name, start_station_id, end_... dbl (4): start lat, start lng, end lat, end lng dttm (2): started_at, ended_at $\begin{tabular}{ll} \hline \end{tabular}$ Use `spec()` to retrieve the full column specification for this data. Specify the column types or set `show_col_types = FALSE` to quiet this message. I[1mindexingI[0m I[34m202106-divvy-tripdata.csvI[0m [------] I[32m2.15GB/sI [Om, eta: [36m Os][0m][1mindexing][0m [34m202106-divvy-tripdata.csv][0m [====----------] [[32m110.69MB/s][0m, eta: [[36m 1s][0m][1mindexing][0m [[34m202106-divvy-tripdata.csv][Om [====----] [[32m108.18MB/s][0m, eta: [36m 1s][0m][1mindexinq][0m [[34m20210 ta: [36m 1s][0m][1mindexing][0m][34m202106-divvy-tripdata.csv][0m [=======----] [32m109.88MB/s][0m, eta: [36m 1s][0m][1mindexing][0m [34m202106-divvy-tripdata.csv][0m [== y-tripdata.csv0[0m [========----] [[32m109.21MB/s0[0m, eta: 0]36m 1s0[0m0[1mindexin 36m 1sD[0mD[1mindexingD[0m D[34m202106-divvy-tripdata.csvD[0m [==========------] D[32m1 09.10MB/sl[0m, eta: [36m 1sl[0ml[1mindexing]]0m [34m202106-divvy-tripdata.csvl[0m [======= $\begin{tabular}{ll} \hline \end{tabular} \begin{tabular}{ll} \hline \end{tabular} & \begin{tabular}{ll} \hline \end{tabu$ [[0mb][1mindexingl[0mb][34m202106-divvy-tripdata.csvb][0mb [===============] [[32m109.57M =----] [[32m109.90MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m [[34m202106-divvy-tripdata.c

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                                                                                Rows: 729595 Columns: 13
— Column specification —
Delimiter: ","
      (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
      (4): start lat, start lng, end lat, end lng
dttm (2): started at, ended at
[] Use `spec()` to retrieve the full column specification for this data.
Specify the column types or set `show_col_types = FALSE` to quiet this message.
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                                                                                                               Rows: 822410
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    Column specification -

Delimiter: ","
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[] Specify the column types or set `show col types = FALSE` to quiet this message.
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divvy-tripdata.csv[[0m [===========] ][[32m111.49MB/s][0m, eta: [[36m 0s][0m][1mind
: [[36m Os][0m][1mindexing][0m [[34m202108-divvy-tripdata.csv][0m [=============] [[
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                                                            Rows: 804352 Columns: 13
- Column specification -
Delimiter: ","
    (7): ride id, rideable type, start station name, start station id, end ...
    (4): start_lat, start_lng, end_lat, end_lng
dttm (2): started at, ended at
[] Use `spec()` to retrieve the full column specification for this data.
Specify the column types or set `show_col_types = FALSE` to quiet this message. [[1mindexing][0m [[34m202109-divvy-tripdata.csv][0m [-----] [[32m2.15GB/s]]
[Om, eta: ][36m Os][0m][1mindexing][0m ][34m202109-divvy-tripdata.csv][0m [====------
----] [[32m114.06MB/sl[0m, eta: [[36m 1sl[0ml[1mindexing][0m 1]34m202109-divvy-tripdata.csv][
 \mbox{Om } [=====-----] \mbox{ $\mathbb{I}$ [32m112.75MB/s$ ] [0m, eta: $\mathbb{I}$ [36m 1s$ ] [0m] [1mindexing] [0m] [34m20210] ] $ \mbox{ $\mathbb{I}$ [36m 1s] [0m] [1mindexing] [0m] [34m20210] ] $ \mbox{ $\mathbb{I}$ [36m 1s] [36m] [1mindexing] [0m] [34m20210] ] $ \mbox{ $\mathbb{I}$ [36m] [3
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B/s[[0m, eta: [36m 0s][0m][1mindexing][0m [34m202109-divvy-tripdata.csv][0m [=========
=----] [[32m106.87MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m [[34m202109-divvy-tripdata.c
--] [[32m108.51MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m ][34m202109-divvy-tripdata.csv][0m
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— Column specification —
Delimiter: ","
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dttm (2): started at, ended at
Specify the column types or set `show col types = FALSE` to quiet this message.
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----] [[32m120.84MB/s][0m, eta: [[36m 1s][0m][1mindexing][0m [[34m202110-divvy-tripdata.csv][
Om [=====----] [[32m122.44MB/s][0m, eta: [36m 1s][0m][1mindexing][0m [34m20211
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ndexing[[0m ][34m202110-divvy-tripdata.csv][0m [=======----] ][32m122.47MB/s][0m, e
ta: [36m 1s][0m][1mindexing][0m [34m202110-divvy-tripdata.csv][0m [=======-----]
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gD[0m D[34m202110-divvy-tripdata.csvD[0m [=========----] D[32m118.42MB/sD[0m, eta: D[
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====-----] [[32m118.31MB/sl[0m, eta: [36m 0sl[0ml[1mindexing][0m [34m202110-divvy-trip
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{\tt data.csvl[0m\ [=============]\ [[36m\ 0sl[0ml[1mindexingl[0m]\ [============]\ ]]\ [and]\ [and]
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==----] [[32m118.19MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m ][34m202110-divvy-tripdata.c
[1mindexing][0m ][34m202110-divvy-tripdata.csv][0m [==============]] [[32m118.03MB/s][0
m, eta: [36m 0s][0m][1mindexing][0m [34m202110-divvy-tripdata.csv][0m [===========
--] \[ [32m118.79MB/s] [0m, eta: ] [36m 0s] [0m] [1mindexing] [0m] [34m202110-divvy-tripdata.csv] [0m] [32m118.79MB/s] [0m, eta: ] [36m 0s] [0m] [1mindexing] [0m] [34m202110-divvy-tripdata.csv] [34m20210-divvy-tripdata.csv] [34m20210-divvy-tripdata.csv] [34m20210-divvy-tripdata.csv] [34m
exingl[0m [[34m202110-divvy-tripdata.csvl[0m [==========]] [[32m117.58MB/sl[0m, eta
: [36m Os][0m][1mindexing][0m [34m202110-divvy-tripdata.csv][0m [============]][
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========--] [[32m117.93MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m ][34m202110-divvy-
tripdata.csv[[0m [========]] [[32m117.98MB/s][0m, eta: [[36m 0s][0m][1mindexing]]
[0m [[34m202110-divvy-tripdata.csv][0m [========]] [[32m116.17MB/s][0m, eta: [[36
.84MB/sl[0m, eta: 1[36m 0sl[0m
                                                                                                                                         Rows: 631226 Columns: 13
— Column specification —
Delimiter: ","
chr (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
dbl (4): start lat, start lng, end lat, end lng
dttm (2): started at, ended at
i Use `spec()` to retrieve the full column specification for this data.
Specify the column types or set `show col types = FALSE` to quiet this message.
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[Om, eta: ][36m Os][0m][1mindexing][0m ][34m202111-divvy-tripdata.csv][0m [=======-------
----] [[32m114.96MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m [[34m202111-divvy-tripdata.csv][
Om [========----] [[32m113.49MB/sl[Om, eta: [36m Osl[Oml[1mindexing][0m [34m20211
1-divvy-tripdata.csv[[0m [========---] [[32m112.69MB/s][0m, eta: [[36m 0s][0m][1mi
ndexing[[0m ][34m202111-divvy-tripdata.csv][0m [=========---] [[32m112.50MB/s][0m, e
ta: [36m 0s][0m][1mindexing][0m ][34m202111-divvy-tripdata.csv][0m [===========----]
=======-----] [32m112.46MB/s][0m, eta: [36m \ 0s][0m][1mindexing][0m \ [34m202111-divv][34m202111-divv][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1mindexing][1minde
y-tripdata.csvl[0m [==========----] [[32m112.24MB/sl[0m, eta: [36m 0sl[0ml[1mindexin
 {\tt gl[0m\ l[34m202111-divvy-tripdata.csvl[0m\ [=============----]\ l[32m111.80MB/sl[0m,\ eta:\ l[10m]]\ l[34m202111-divvy-tripdata.csvl[0m]\ l[34m202111-divvy-tripdata.csvl[0m]\ l[34m202111-divvy-tripdata.csvl[0m]\ l[34m202111-divvy-tripdata.csvl]\ l[34m202111-divvy-tripdata.csvl[0m]\ l[34m202111-divvy-tripdata.csvl]\ l[34m20211-divvy-tripdata.csvl]\ l[34m2
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======----] [[32m111.22MB/s][0m, eta: [36m 0s][0m][1mindexing][0m [[34m202111-divvy-trip
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B/s[[0m, eta: [36m 0s][0m][1mindexing][0m [34m202111-divvy-tripdata.csv][0m [=========
=====-] \ [[32m111.17MB/s][0m, eta: \ [[36m \ 0s][0m][1mindexing][0m \ ][34m202111-divvy-tripdata.c]] \\
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                                                                                                              Rows: 359978 Columns: 13
— Column specification ———
Delimiter: ","
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            (4): start lat, start lng, end lat, end lng
dttm (2): started at, ended at
Specify the column types or set `show_col_types = FALSE` to quiet this message.
[[1mindexing] [0m ] [34m202112-divvy-tripdata.csv] [0m [-----] [32m2.15GB/s]
---] [[32m112.30MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m [[34m202112-divvy-tripdata.csv][
Om [==========----] [[32m112.49MB/sl[Om, eta: [36m Osl[Oml[1mindexing][0m [34m20211
ta: [36m 0s][0m][1mindexing][0m [34m202112-divvy-tripdata.csv][0m [=============
=========----] [[32m110.51MB/s][0m, eta: [[36m 0s][0m][1mindexing][0m ][34m202112-divverse]
36m OsD[OmD[1mindexingD[0m D[34m202112-divvy-tripdata.csvD[0m [==========] D[32m1
07.91MB/s0[0m, eta: 0[36m 0s0[0m0[1mindexing0]0m 0[34m202112-divvy-tripdata.csv0]0m [=======
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=======-] [32m107.40MB/s][0m, eta: [36m 0s][0m][1mindexing][0m ][34m202112-divvy-trip]
{\tt data.csvl[0m\ [============]\ l[32m107.35MB/sl[0m,\ eta:\ l[36m\ 0sl[0ml[1mindexingl[0m]]\ leading leadin
B/s[0m, eta: [36m 0s][0m]
                                                                                                                                                Rows: 247540 Columns: 13
- Column specification -
Delimiter: ","
chr (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
dbl (4): start_lat, start_lng, end_lat, end_lng
dttm (2): started_at, ended_at
[] Use `spec()` to retrieve the full column specification for this data.
Specify the column types or set `show col types = FALSE` to quiet this message.
[[1mindexing][0m ][34m202201-divvy-tripdata.csv][0m [=-----] ][32m2.15GB/s]
====] [[32m119.79MB/s][0m, eta: [[36m 0s][0m
                                                                                                                                                                                                       Rows: 103770 Columns: 13
— Column specification —
Delimiter: ","
               (7): ride_id, rideable_type, start_station_name, start_station_id, end_...
(4): start_lat, start_lng, end_lat, end_lng
dttm (2): started at, ende\overline{d} at
[] Use `spec()` to retrieve the full column specification for this data.
[] Specify the column types or set `show col types = FALSE` to quiet this message.
[1mindexing][0m [34m202202-divvy-tripdata.csvl[0m [=-----] [32m2.15GB/s]
====] [[32m113.12MB/s][0m, eta: ][36m 0s][0m]
                                                                                                                                                                                                       Rows: 115609 Columns: 13
- Column specification -
Delimiter: ","
             (7): ride id, rideable type, start station name, start station id, end ...
               (4): start lat, start lng, end lat, end lng
dttm (2): started at, ende\overline{d} at
Specify the column types or set `show col types = FALSE` to quiet this message.
> # Remove rows with missing critical columns
> cleaned data <- combined data %>%
            drop na(ride id, started at, ended at, member casual)
> # Convert time columns to date-time format
> cleaned_data <- cleaned_data %>%
            mutate(
                  started_at = as.POSIXct(started at, format = "%Y-%m-%d %H:%M:%S"),
                  ended at = as.POSIXct(ended at, format = "%Y-%m-%d %H:%M:%S")
> # Calculate ride length in minutes
> cleaned data <- cleaned data %>%
            mutate(ride length = as.numeric(difftime(ended at, started at, units = "mins")))
> # Remove negative and outlier ride lengths
    cleaned data <- cleaned data %>%
            filter(ride length > \overline{0}, ride length <= 1440) # Max 24 hours
> # Add a column for the day of the week (1 = Sunday, 7 = Saturday)
> cleaned_data <- cleaned_data %>%
            mutate(day of week = wday(started at))
> write_csv(cleaned_data, "Cleaned_Cyclistic_Data.csv")
[[1mwrotel[0m l[32m12.24MBl[0m in l[36m 0sl[0m, l[32m816.14MB/sl[0ml[1mwrotel[0m l[32m48.62M
BD[Om in D[36m OsD[Om, D[32m231.33MB/sD[OmD[1mwroteD[Om D[32m60.72MBD[Om in D[36m OsD[Om, D[3
2m216.47 MB/s [[0m][1mwrote][0m][32m73.02 MB][0m] in [[36m]0s [[0m], [[32m210.05 MB/s][0m]][1mwrote]] for the content of the
[][0m [][32m84.20MB][0m in [][36m 0s][0m, [][32m200.22MB/s][0m][1mwrote][0m [][32m95.56MB][0m in []
[36m Osl[0m, I[32m193.43MB/sl[0ml[1mwrotel[0m I[32m107.89MB][0m in I[36m 1sl[0m, I[32m193.55M
2m132.45MB\[0m] in 0.36m 1s\[0m] 0.32m185.99MB/s\[0m] 0.32m185.99MB/s\[0m] 0.32m185.99MB/s\[0m]
s][0m, [[32m186.34MB/s][0m][1mwrote][0m [[32m156.95MB][0m in [[36m 1s][0m, [[32m186.39MB/s][0
 \label{eq:mildef} $$ mil[1mwrote][0m ][32m169.22MB][0m in ][36m 1s][0m, ][32m182.17MB/s][0m][1mwrote][0m ][32m181. $$ mildef [32m181. $$][0m][1mwrote][0m][32m181. $$ mildef [32m181. $$][0m][1mwrote][0m][32m181. $$][0m][1mwrote][0m][32m181. $$][0m][1mwrote][0m][32m181. $$][0m][1mwrote][0m][32m181. $$][0m][1mwrote][0m][32m181. $$][0m][32m181. $$][
56MBU[Om in 0[36m 1s0[Om, 0[32m179.37MB/s0[0m0[1mwrote0[Om 0[32m193.89MB0[Om in 0[36m 1s0[Om,
  wrotel[0m [[32m218.01MB][0m in [[36m 1s][0m, [[32m172.19MB/s][0m][1mwrotel][0m [[32m230.19MB][
Om in [36m 1s][0m, [32m169.38MB/s][0m][1mwrote][0m ][32m242.51MB][0m in ][36m 1s][0m, ][32m242.51MB][0m, ][32m242.51MB][0m
```

R Console Page 8

167.41MB/s0[0m0[1mwrote0]0m 0[32m253.80MB0[0m in 0[36m 2s0[0m, 0[32m168.80MB/s0[0m0]1mwrote0] [36m 2s][0m, [32m166.99MB/s][0m][1mwrote][0m [32m288.63MB][0m in [36m 2s][0m, [32m165.00 MB/sl[0ml[1mwrotel]0m l[32m300.90MBl[0m in l[36m 2sl[0m, l[32m159.49MB/sl[0ml[1mwrotel]0m l[2sl[0m, [32m157.19MB/sl[0m][1mwrote][0m [32m336.89MB][0m in [36m 2sl[0m, [32m158.49MB/s][Oml[1mwrotel[0m][32m347.97MB][0m in][36m 2s][0m,][32m155.66MB/s][0m][1mwrotel[0m][32m360 .21MBU[0m in [36m 2s][0m, 1][32m155.93MB/s][0m][1mwrote][0m 1][32m372.45MBU[0m in 1][36m 2s][0m][1mwrote][0, [32m155.31MB/s][0m][1mwrote][0m][32m384.77MB][0m in][36m 2s][0m,][32m156.20MB/s][0m][1mwrote][0m][1mwrotmwrotel[0m [32m397.02MB][0m in [36m 3s][0m, [32m156.35MB/s][0m][1mwrotel][0m [32m407.55MB] [0m in][36m 3s][0m,][32m155.86MB/s][0m][1mwrote][0m][32m419.82MB][0m in][36m 3s][0m,][32m419.82MB][0m in][36m 3s][0m,][32m419.82MB][0m in][36m 3s][0m,][38m 3m][0m,][38m 3m][m156.28MB/s0[0m0][1mwrote0][0m0][32m432.23MB0][0m0 in 0][36m0 3s0][0m0, 0][32m156.09MB/s0[0m0][1mwrote $\begin{tabular}{ll} $\tt I[36m 3sl[0m, l[32m156.23MB/sl[0ml[1mwrotel](0m l[32m468.99MBl[0m in l[36m 3sl[0m, l[32m156.6.8](0m, l[32m156.23MB/sl[0m](1mwrotel](0m l[32m468.99MBl[0m in l[36m 3sl[0m, l[32m156.23MB/sl[0m](1mwrotel](0m l[32m468.99MBl](0m in l[36m 3sl[0m, l[32m156.23MB/sl[0m](1mwrotel](0m l[32m468.99MBl](0m in l[32m468.99MBl](0m in l[36m 3sl[0m, l[36m 3sl](0m in l[36m 3s$ 3MB/sl[0ml[1mwrotel]0ml[32m481.34MBl[0minl[36m3sl]0m,l[32m156.37MB/sl[0ml[1mwrotel]0ml]][32m493.70MB][0m in][36m 3s][0m,][32m155.66MB/s][0m][1mwrote][0m][32m506.02MB][0m in][36m $0.22 \\ MBI[0m in I[36m 3sI[0m, I[32m157.15 \\ MB/sI[0mI]1 \\ mwroteI[0m I[32m552.46 \\ MBI[0m in I[36m 4sI[0m 1]2 \\ MBI[0m 1]2 \\ MBI[0m 1]2 \\ MBI[0m 1]3 \\ MBI[0m$ m, [[32m157.44MB/s][0m][1mwrote][0m [[32m564.65MB][0m in [[36m 4s][0m, [[32m158.12MB/s][0m][[0m in 0]36m 4s0[0m, 0]32m157.64MB/s0[0m0]1mwrote0[0m 0]32m597.56MB0[0m in 0]36m 4s0[0m, 0]3 2m158.23MB/s [[0m][1mwrote][0m][32m609.25MB][0m in [[36m 4s][0m, [[32m158.18MB/s][0m][1mwrote]]])el[0m [[32m621.55MB][0m in [[36m 4s][0m, [[32m157.80MB/s][0m][1mwrotel[0m [[32m633.83MB][0m i n [36m 5s][0m, [32m132.30MB/s][0m][1mwrote][0m [32m646.15MB][0m in [36m 5s][0m, [32m121. 46MB/sl[0ml[1mwrotel]0m l[32m658.44MBl[0m in l[36m 5sl[0m, l[32m120.97MB/sl[0ml[1mwrotel]0m $\texttt{m 6s} \\ \texttt{[0m, [[32m117.04MB/s][0m][1mwrote][0m [[32m695.66MB][0m in [[36m 6s][0m, [[32m116.70MB/s]]]]))))} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m117.04MB/s][0m][1mwrote][0m][1mwrote]])} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m117.04MB/s][0m][1mwrote]])} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m116.04MB/s][0m][1mwrote]])} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m116.04MB/s][0m][1mwrote]]} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m116.04MB/s][0m][1mwrote]]} \\ \texttt{m 6s} \\ \texttt{[0m, [[32m116.04MM][1mwrote]]} \\ \texttt{m 6s} \\ \texttt{[0$ [[0m][1mwrote][0m][32m706.54MB][0m in][36m 6s][0m,][32m117.25MB/s][0m][1mwrote][0m][32m7 17.16MBU[Om in 0[36m 6s0[0m, 0[32m117.60MB/s0[0m0]1mwrote0]0m 0[32m729.55MB0[0m in 0[36m 6s0] Om, I[32m118.54MB/sI][0mI[1mwroteI][0mI[32m741.74MBI][0m inI[36m 6sI][0m, I[32m119.26MB/sI][0m]]][1mwrotel][0m][32m753.85MB][0m in][36m 6s][0m,][32m119.47MB/s][0m][1mwrotel][0m][32m766.22M BU[Om in [36m 6s0]0m, [32m120.07MB/s0]0m0[1mwrote0]0m [32m778.35MB0]0m in [36m 6s0]0m, [6] 32m120.50MB/s0[0m0][1mwrote0][0m0][32m790.73MB0][0m0 in 0][36m0 7s0[0m, 0][32m121.20MB/s0[0m0][1mwro in [36m 7s][0m, [32m121.67MB/s][0m][1mwrote][0m [32m827.84MB][0m in [36m 7s][0m, [32m122 .36MB/s0[0m0[1mwrote0]0m 0[32m840.23MB0]0m in 0[36m 7s0[0m, 0[32m122.93MB/s0]0m0]1mwrote0]0m $\begin{tabular}{ll} $ [32m852.39MB] [0m in] [36m 7s] [0m,] [32m122.99MB/s] [0m] [1mwrote] [0m] [32m864.92MB] [0m in] [32m864.92MB] [0m] [1mwrote] [0m] [32m864.92MB] [0m] [1mwrote] [1$ 6m 7sl[0m, [[32m123.63MB/sl[0ml[1mwrotel]0m [[32m877.24MBl[0m in][36m 7sl[0m,][32m124.19MB/ $\label{eq:sigma} \\ \text{signal24.41MB/signal$ [Om, [[32m124.54MB/s][0m][1mwrote][0m [[32m920.06MB][0m in [[36m 8s][0m, [[32m122.35MB/s][0m [[1mwrote][0m][32m932.39MB][0m in][36m 8s][0m,][32m120.50MB/s][0m][1mwrote][0m][32m944.78 MBU[0m in I[36m 8sU[0m, I[32m119.26MB/sU[0mU]1mwroteU[0m I[32m957.16MBU[0m in I[36m 8sU[0m, I]]1mwroteU]1mwroteU])))))[32m117.14MB/s] [0m] [1mwrote] [0m] [32m969.55MB] [0m in] [36m 8s] [0m,] [32m117.74MB/s] [0m] [1mwrote] [0m] [1mwrote] [0m] [1mwrote] [1mwrote]ote][0m [[32m981.99MB][0m in [[36m 8s][0m, [[32m118.51MB/s][0m][1mwrote][0m [[32m994.03MB][0m in [[36m 8s][0m, [[32m118.98MB/s][0m]]]

I[1mwrotel[0m l[32m1.00GBl[0m in l[36m 8sl[0m, l[32m118.88MB/sl[0ml[1m wrotel[0m l[32m1.01GBl[0m in l[36m 9sl[0m, l[32m119.15MB/sl[0ml[1mwrotel[0m l[32m1.03GBl[0m in n l[36m 9sl]0m, l[32m119.57MB/sl[0ml[1mwrotel]0m l]32m1.04GBl[0m in l[36m 9sl]0m, l[32m119.79 MB/sl[0ml[1mwrotel]0m l[32m1.05GBl[0m in l[36m 9sl]0m, l[32m120.25MB/sl[0ml[1mwrotel]0m l]32 m1.06GBl[0m in l[36m 9sl]0m, l[32m120.70MB/sl[0ml[1mwrotel]0m l[32m1.08GBl]0m in l[36m 9sl]0m, l[32m120.96MB/sl]0ml[1mwrotel]0m l]32m1.09GBl[0m in l[36m 9sl]0m, l[32m121.45MB/sl]0ml[1mwrotel]0m l[32m1.10GBl]0m in l[36m 9sl]0m, l[32m121.37MB/sl]0ml[1mwrotel]0m l[32m1.11GBl]0m in l[36m 9sl]0m, l[32m121.59MB/sl]0ml[1mwrotel]0m l[32m1.12GBl]0m in l[36m 9sl]0m, l[32m121.99M B/sl]0ml[1mwrotel]0m l[32m1.13GBl]0m in l[36m 9sl]0m, l[32m122.17MB/sl]0ml[1mwrotel]0m l[32m 1.14GBl]0m in l[36m 9sl]0m, l[32m122.22MB/sl]0ml[1mwrotel]0m l[32m1.15GBl]0m in l[36m 9sl]0m, l[32m123.12MB/sl]0ml]1mwrotel]0m l[32m1.19GBl]0m in l[36m 9sl]0m, l[32m123.12MB/sl]0ml]1mwrotel]0m l[32m1.19GBl]0m in l[36m10sl]0m, l[32m123.20MB/sl]0ml]1mwrotel]0m l[32m1.19GBl]0m in l[36m10sl]0m, l[32m123.20MB/sl]0ml]1mwrotel]0m l[32m1.19GBl]0m in l[36m10sl]0m, l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m1.19GBl]0m in l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]1mwrotel]0m l[32m123.87MB/sl]0ml]

[[1mwrote][0m][32m2.15GB][0m in][36m10s][0m,][32m2.15GB/s][0m

```
Neha\\Desktop\\Cyclistic_Data\\.RData")
>
Neha\\Desktop\\Cyclistic_Data\\.RData")
>
# Remove rows with missing critical columns
> cleaned_data <- combined_data %>%
Error: unexpected '>' in ">"
> + drop_na(ride_id, started_at, ended_at, member_casual)
Error: object 'ride_id' not found
> >
Error: unexpected '>' in ">"
> # Convert time columns to date-time format
Error: unexpected '>' in ">"
```

```
> > cleaned data <- cleaned data %>%
Error: unexpected '>' in ">"
    mutate(
      started at = as.POSIXct(started at, format = "%Y-%m-%d %H:%M:%S"),
Error: unexpected '=' in:
"+ mutate(
     started at ="
> +
      ended at = as.POSIXct(ended at, format = "%Y-%m-%d %H:%M:%S")
Error: object 'ended at' not found
> + )
Error: unexpected ')' in "+
Error: unexpected '>' in ">"
> > # Calculate ride length in minutes
Error: unexpected '>' in ">"
> > cleaned data <- cleaned data %>%
Error: unexpected '>' in ">"
> + mutate(ride length = as.numeric(difftime(ended at, started at, units = "mins")))
Error: object 'ended at' not found
Error: unexpected '>' in ">"
> > # Remove negative and outlier ride lengths
Error: unexpected '>' in ">"
> > cleaned data <- cleaned data %>%
Error: unexpected '>' in ">"
> + filter(ride length > 0, ride length <= 1440) # Max 24 hours
Error: object 'ride length' not found
Error: unexpected '>' in ">"
> > # Add a column for the day of the week (1 = Sunday, 7 = Saturday)
Error: unexpected '>' in ">"
> > cleaned data <- cleaned data %>%
Error: unexpected '>' in ">"
     mutate(day of week = wday(started at))
Error: object 'started at' not found
> > write_csv(cleaned_data, "Cleaned_Cyclistic_Data.csv")
Error: unexpected '>' in ">"
> # Average ride length for members and casual riders
> cleaned data %>%
   group by (member casual) %>%
    summarise(
      average ride length = mean(ride length),
+
      max ride length = max(ride length),
+
      total_rides = n()
\# A tibble: 2 × 4
 member_casual average_ride_length max_ride_length total_rides
                               <dbl>
  <chr>
                                               <dbl>
                                                            <int>
                                26.7
                                                           2564937
1 casual
                                                1440.
2 member
                                13.3
                                                1440.
                                                          3244650
> cleaned data %>%
    group_by(member_casual, day_of_week) %>%
    summarise(average_ride_length = mean(ride_length)) %>%
   arrange(member_casual, day_of_week)
summarise()` has \overline{	ext{g}}rouped output \overline{	ext{b}}y 'member_casual'. You can override using the
 .groups` argument.
\# A tibble: 14 \times 3
# Groups: member casual [2]
  member casual day of week average ride length
                        \overline{<}dbl>
  <chr>
 1 casual
                            1
                                              31.0
                            2
                                              27.1
 2 casual
 3 casual
                            3
                                              24.4
                                              23.2
 4 casual
                            4
 5 casual
                            5
                                              23.1
 6 casual
                            6
                                              24.8
 7 casual
                            7
                                              29.1
8 member
                            1
                                              15.1
9 member
                            2
                                              12.9
10 member
                            3
                                              12.5
11 member
                            4
                                              12.6
12 member
                            5
                                              12.5
13 member
                            6
                                              13.0
14 member
                                              14.8
```

```
cleaned data %>%
    filter(member casual == "casual") %>%
    count(day of week) %>%
    arrange (desc(n))
 A tibble: 7 \times 2
  day of week
         _
<dbl>
                <int>
             7 563721
2
             1 486948
3
             6 368678
               292745
5
               290073
             5
               283574
6
             4
             3 279198
```

write csv(cleaned data, "Cleaned Data Summary.csv") [[1mwrote][0m][32m12.24MB][0m in][36m 0s][0m,][32m2.15GB/s][0m][1mwrote][0m][32m60.72MB] [Om in][36m Os][0m,][32m278.00MB/s][0m][1mwrote][0m][32m73.02MB][0m in][36m Os][0m,][32m 268.49MB/s[[0ml[1mwrote][0m [32m84.20MB][0m in [36m 0s][0m, [32m263.65MB/s][0m][1mwrote][Om I[32m95.56MBI] Om in $I[36m \ OsI]$ Om, I[32m252.34MB/sI] Om I[1mwroteI] Om I[32m107.89MBI] Om in I[32m107.89MBI]36m Osl[Om,][32m244.73MB/s][0m][1mwrote][0m][32m120.12MB][0m in][36m 1s][0m,][32m240.17MB /s0[0m0[1mwrote0[0m 0[32m132.45MB0[0m in 0[36m 1s0[0m, 0[32m236.20MB/s0[0m0[1mwrote0]0m 0[32 m144.81 MB I [0m in I[36m 1sI[0m, I[32m233.11 MB/sI[0m][1mwroteI[0m I[32m156.95 MB I[0m in I[36m 1sI[0m]]]]]]) and the second of the second second[[1mwrote][0m][32m181.56MB][0m in][36m 1s][0m,][32m227.27MB/s][0m][1mwrote][0m][32m193.8 9MB[]Om in []36m 1s[]Om, []32m226.20MB/s[]0m][1mwrote][0m []32m205.63MB[]0m in []36m 1s[]0m, [32m224.24MB/s][0m][1mwrote][0m][32m218.01MB][0m in][36m 1s][0m,][32m222.94MB/s][0m][1mw rotel[0m [32m230.19MB][0m in [36m 1s][0m, [32m222.35MB/s][0m][1mwrotel[0m [32m242.51MB][0 m in [[36m 1s][0m, [[32m221.62MB/s][0m][1mwrote][0m [[32m253.80MB][0m in [[36m 1s][0m, [[32m2 22.13MB/s0[0m0[1mwrote0]0m 0[32m263.96MB0[0m in 0[36m 1s0[0m, 0[32m219.92MB/s0[0m0]1mwrote0] Om I[32m276.29MBI] Om in I[36m 1sI] Om, I[32m219.71MB/sI] OmI[1mwroteI] Om I[32m288.63MBI] Om in I[32m288.63MBI] Om in I[32m288.63MBI][36m 1sl[0m, [32m219.77MB/sl[0m][1mwrotel[0m [32m300.90MBl[0m in [36m 1sl[0m, [32m219.45M B/s[0m][1mwrote][0m][32m313.14MB][0m] in [36m][36m][3m][0m][1mwrote][0m][3mwrot2m325.50MB[[0m in [36m 2s][0m, [32m215.61MB/s][0m][1mwrote][0m [32m336.89MB][0m in [36m 2 sl[0m, [[32m216.19MB/sl[0ml[1mwrote][0m [[32m347.97MB][0m in [[36m 2s][0m, [[32m215.45MB/s][0 $\label{eq:minimum} \\ \text{ml}[1mwrote][0m][32m360.21MB][0m in][36m 2s][0m,][32m215.37MB/s][0m][1mwrote][0m][32m372. \\ \\ \text{ml}[1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][1mwrote][0m][32m360.21MB][0m][32m$ 45MBU[Om in 0]36m 2s0[Om, 0]32m214.83MB/s0[Om0[1mwrote0]0m 0]32m384.77MB0[0m in 0]36m 2s0[0m, [32m214.41MB/s][0m][1mwrote][0m [32m397.02MB][0m in [36m 2s][0m, [32m214.16MB/s][0m][1m wrotel[0m | [32m407.55MBl]0m in | [36m 2sl]0m, | [32m213.29MB/sl]0ml[1mwrotel]0m | [32m419.82MBl] Om in [[36m 2s][0m, [[32m204.71MB/s][0m][1mwrote][0m [[32m432.23MB][0m in [[36m 2s][0m, [[32m 205.16MB/s0[0m0[1mwrote0]0m 0[32m444.40MB0[0m in 0[36m 2s0[0m, 0[32m205.44MB/s0[0m0]1mwrote0] [0m [32m456.70MB][0m in][36m 2s][0m,][32m205.19MB/s][0m][1mwrote][0m][32m468.99MB][0m in][32m468.99MB][0m in[36m 2s][0m, [32m205.50MB/s][0m][1mwrote][0m [32m481.34MB][0m in [36m 2s][0m, [32m205.27 MB/sl[0ml[1mwrotel]0m l[32m493.70MBl[0m in l[36m 2sl[0m, l[32m204.88MB/sl[0ml[1mwrotel]0m l[32m506.02MBI[0m in I[36m 2sI[0m, I[32m204.80MB/sI[0mI[1mwroteI[0m I[32m518.33MBI[0m in I[36m 2sI[0m]1]]]])]3sl[0m, l[32m205.40MB/sl[0ml[1mwrotel[0m l[32m529.33MBl[0m in l[36m 3sl[0m, l[32m205.81MB/sl[Oml[1mwrote][0m][32m540.22MB][0m in][36m 3s][0m,][32m205.28MB/s][0m][1mwrote][0m][32m552 $.46 \\ MB \\ \cite{MB} \\ \cite$ [32m204.98MB/s][0m][1mwrote][0m][32m574.86MB][0m in][36m 3s][0m,][32m204.74MB/s][0m][1 mwrotel[0m [32m585.45MB][0m in [36m 3s][0m, [32m204.14MB/s][0m][1mwrotel[0m [32m597.56MB] [Om in [36m 3s][Om, [32m204.65MB/s][Om][1mwrote][Om [32m609.25MB][Om in [36m 3s][Om, [32 m204.42MB/s0[0m0][1mwrote0][0m0][32m621.55MB0][0m0 in 0][36m0 3s0][0m, 0][32m203.96MB/s0][0m0][1mwrote [36m 3s][0m, [32m203.84MB/s][0m][1mwrote][0m [32m658.44MB][0m in [36m 3s][0m, [32m203.84MB]]]]6MB/sU[OmU[1mwroteU[Om U[32m670.97MBU[Om in U[36m 3sU[Om, U[32m203.88MB/sU[0mU[1mwroteU[0m U [32m683.27MB] [0m in] [36m 3s] [0m,] [32m203.84MB/s] [0m] [1mwrote] [0m] [32m695.66MB] [0m in] [36m 3s] [0m,] [32m203.84MB/s] [0m] [1mwrote] [0m] [32m695.66MB] [0m] [1mwrote] [0m] [32m695.66MB] [0m] [1mwrote] [0m] [1mwrote]4sl[0m, l[32m197.92MB/sl[0ml[1mwrotel[0m l[32m706.54MBl[0m in l[36m 4sl[0m, l[32m187.12MB/sl [Oml[1mwrotel[0m][32m717.16MB][0m in][36m 4sl[0m,][32m176.09MB/sl[0m][1mwrotel[0m][32m72 9.55MB][Om in [[36m 5s][Om, [[32m161.87MB/s][Om][1mwrote][Om [[32m741.74MB][Om in [[36m 5s][0 m, [[32m154.38MB/s][0m][1mwrote][0m [[32m753.85MB][0m in [[36m 5s][0m, [[32m154.48MB/s][0m][[0m in 0]36m 5s0[0m, 0]32m155.84MB/s0[0m0]1mwrote0[0m 0]32m790.73MB0[0m in 0]36m 5s0[0m, 0]3 2m156.47MB/s0[0m0[1mwrote0]0m0[32m803.10MB0]0m in 0[36m 5s0[0m, 0[32m154.32MB/s0]0m0]1mwrot el[0m [[32m815.47MBl[0m in [[36m 5s][0m, [[32m150.04MB/s][0m][1mwrotel[0m [[32m827.84MBl]0m i $\texttt{n I} [36m \ 6s] [0m, \ [32m148.32MB/s] [0m] [1mwrote] [0m \ [32m840.23MB] [0m \ in \ [36m \ 6s] [0m, \ [32m148.32MB/s] [0m] [1mwrote] [0m] [1mwrote] [0m] [1mwrote] [0m] [1mwrote] [1$ 61MB/s0[0m0]1mwrote0[0m0]32m852.39MB0[0m0in0]36m0s0[0m,0]32m148.65MB/s0[0m0]1mwrote0]0m [32m864.92MB][0m in [36m 6s][0m, [32m148.41MB/s][0m][1mwrote][0m [32m877.24MB][0m in [36m 6s][0m][36m 6s][0m][1mwrote][0m][32m877.24MB][0m in [36m 6s][0m][36m 6s] m 6sl[0m, [[32m148.88MB/sl[0m][1mwrotel[0m [[32m887.55MB][0m in [[36m 6sl[0m, [[32m148.40MB/s $07.66 \\ MB \\ \cite{MB} \\ \ci$ Om, I[32m143.92MB/s][0m][1mwrote][0m][32m932.39MB][0m in][36m 7s][0m, <math>I[32m141.15MB/s][0m][1mwrotel][0m][32m944.78MB][0m in][36m 7s][0m,][32m138.47MB/s][0m][1mwrotel][0m][32m957.16M BU[0m in I[36m 7sU[0m, I[32m137.79MB/sU[0mU[1mwroteU[0m I[32m969.55MBU[0m in I[36m 7sU[0m, I[10m]0m]]]]]]]32m136.49MB/s0[0m0][1mwrote0][0m 0][32m981.99MB0][0m in 0][36m 7s0][0m, 0][32m137.54MB/s0[0m0][1mwro tel[0m [32m994.03MB][0m in][36m 7s][0m,][32m137.82MB/s][0m]

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[[1mwrote][0m][32m1.00GB][0m in][36m 7s][0m,][32m138.08MB/s][0m][1mwrote][0m][32m1.01GB][0m in][36m 7s][0m,][32m138.63MB/s][0m][1mwrote][0m][32m1.03GB][0m in][36m 7s][0m,][32m139.10MB/s][0m][1mwrote][0m][32m1.04GB][0m in][36m 7s][0m,][32m139.37MB/s][0m][1mwrote][0m][32m1.05GB][0m in][36m 7s][0m,][32m140.20MB/s][0m][1mwrote][0m][32m1.06GB][0m in][36m 8s][0m,][32m140.46MB/s][0m][1mwrote][0m][32m1.06GB][0m in][36m 8s][0m,][32m140.46MB/s][0m][1mwrote][0m][32m1.09GB][0m in][36m 8s][0m,][32m140.90MB/s][0m][1mwrote][0m][32m1.10GB][0m in][36m 8s][0m,][32m140.84MB/s][0m][1mwrote][0m][32m1.11GB][0m in][36m 8s][0m,][32m141.63MB/s][0m][1mwrote][0m][32m1.12GB][0m in][36m 8s][0m,][32m141.56MB/s][0m][1mwrote][0m][32m1.13GB][0m in][36m 8s][0m,][32m142.00MB/s][0m][1mwrote][0m][32m1.14GB][0m in][36m 8s][0m,][32m142.40MB/s][0m][1mwrote][0m][32m1.15GB][0m in][36m 8s][0m,][32m143.02MB/s][0m][1mwrote][0m][32m1.18GB][0m in][36m 8s][0m,][32m143.32MB/s][0m][1mwrote][0m][32m1.19GB][0m in][36m 8s][0m,][32m144.15MB/s][0m][1mwrote][0m][32m1.19GB][0m in][32m1.19GB][0m in][32m1.19GB][0m in][32m1.19GB][0m in][32m144.15MB/s][0m][1mwrote][0m][32m144.

```
[1mwrote][0m][32m2.15GB][0m] in <math>[36m][36m][32m]
m2.15GB/sI[0m]
save.image("C:\\Users\\Neha\\Desktop\\Cyclistic Data\\data")
> install.packages("ggplot2")
Warning: package 'ggplot2' is in use and will not be installed
> library(ggplot2)
 ggplot(cleaned data, aes(x = member casual, y = ride length, fill = member casual)) +
    geom boxplot() +
    labs(title = "Ride Length Comparison: Members vs Casual Riders",
         x = "User Type",
         y = "Ride Length (minutes)") +
    theme minimal()
> ggplot(cleaned data, aes(x = factor(day of week, labels = c("Sun", "Mon", "Tue", "Wed", "Thu
   "Fri", "Sat")),
                            fill = member casual)) +
    geom bar(position = "dodge") +
+
    labs(title = "Rides by Day of the Week",
         x = "Day of the Week",
         y = "Number of Rides") +
    theme minimal()
> save.image("C:\\Users\\Neha\\Desktop\\Cyclistic Data\\graph cyc")
> ggsave("Ride_Comparison_Boxplot.png")
Saving 5.76 \times \overline{5.75} in image
```