Class Activity 16

Your name here

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Group Activity 1

a. Scrape the first table in `List_of_NASA_missions` wiki page. Additionally, use `janitor::clean_names()` to clean the column names and store the resulting table as `NASA_missions.csv` in your working folder.

```r
wiki_NASA <- "https://en.wikipedia.org/wiki/List_of_NASA_missions"

# Scrape the data and write the first table to a CSV file
bow(wiki_NASA) %>%
  scrape() %>%
  html_nodes("table") %>%
  .[[1]] %>%
  html_table(fill = TRUE) %>%
  janitor::clean_names() %>%
  write_csv("NASA_missions.csv")
```

b. Now, write a code snippet to scrape all the URLs from the anchor tags () on a given Wikipedia page, convert the relative URLs to absolute URLs, and store the results in a tibble and save it as `NASA_missions_urls.csv` in your working folder.

```r
# Scrape the data and write the URLs to a CSV file
bow(wiki_NASA) %>%
  scrape() %>%
  html_nodes("a") %>%
  html_attr("href") %>%
  url_absolute("https://en.wikipedia.org/") %>%
  data.frame(url = .) %>%
  write_csv("NASA_missions_urls.csv")
```

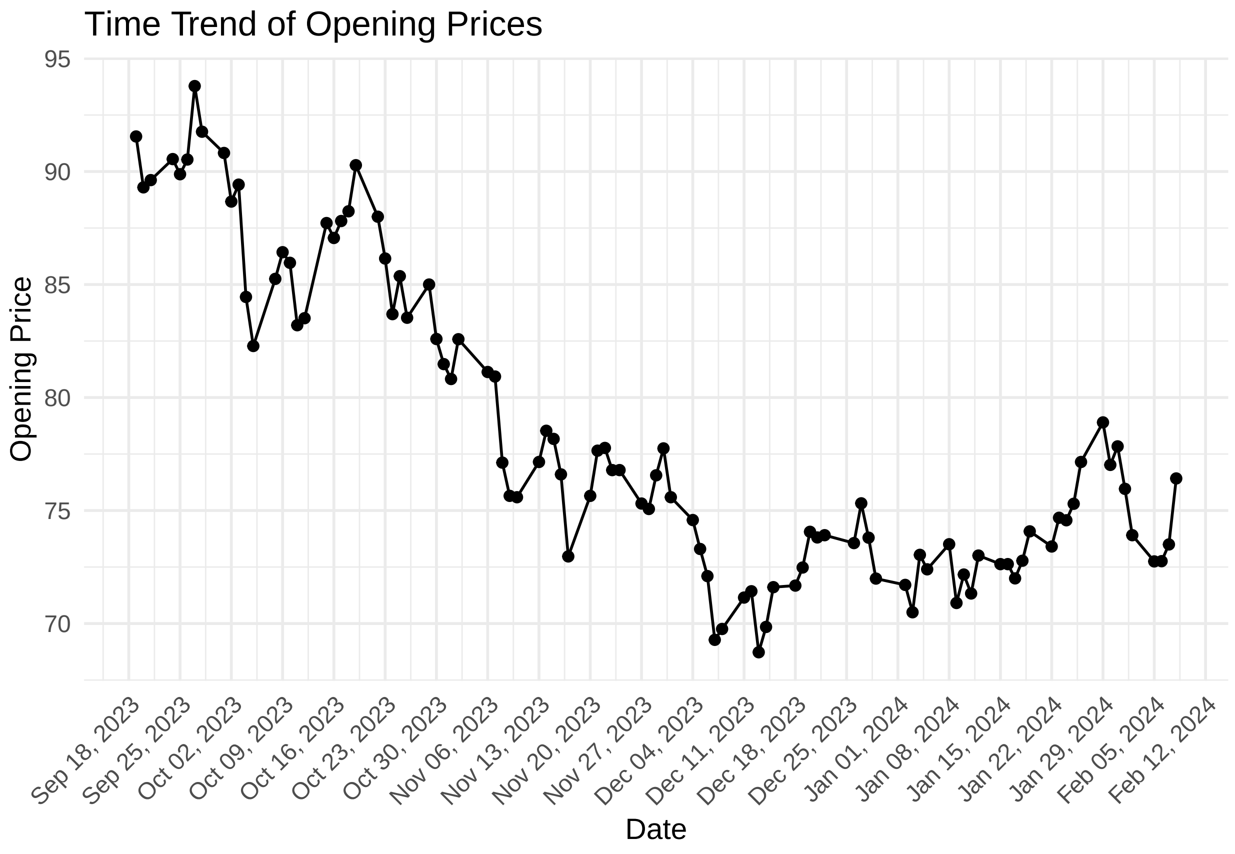
Group Activity 2

a. How do you scrape a table from a web page using `rvest`, clean the column names with `janitor`, and prepare the data for analysis in R?

```r
yf <- "https://finance.yahoo.com/quote/CL%3DF/history?p=CL%3DF"
  bow(yf) %>% scrape() %>%
    html_nodes("table") %>% .[[1]] %>%
    html_table() %>% janitor::clean_names() %>%
    slice(-n()) %>%
    mutate(date = lubridate::mdy(date)) %>%
    mutate_at(vars(open:adj_close), as.numeric) -> ticker
```

b. Write the R code to create a time trend plot of opening prices from the scraped data using `ggplot2`.

```r
ggplot(ticker, aes(x = date, y = open)) +
  geom_line() + # Plot lines
  geom_point() + # Add points
  scale_x_date(date_labels = "%b %d, %Y", date_breaks = "1 week") +
  labs(title = "Time Trend of Opening Prices", x = "Date", y = "Opening Price") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

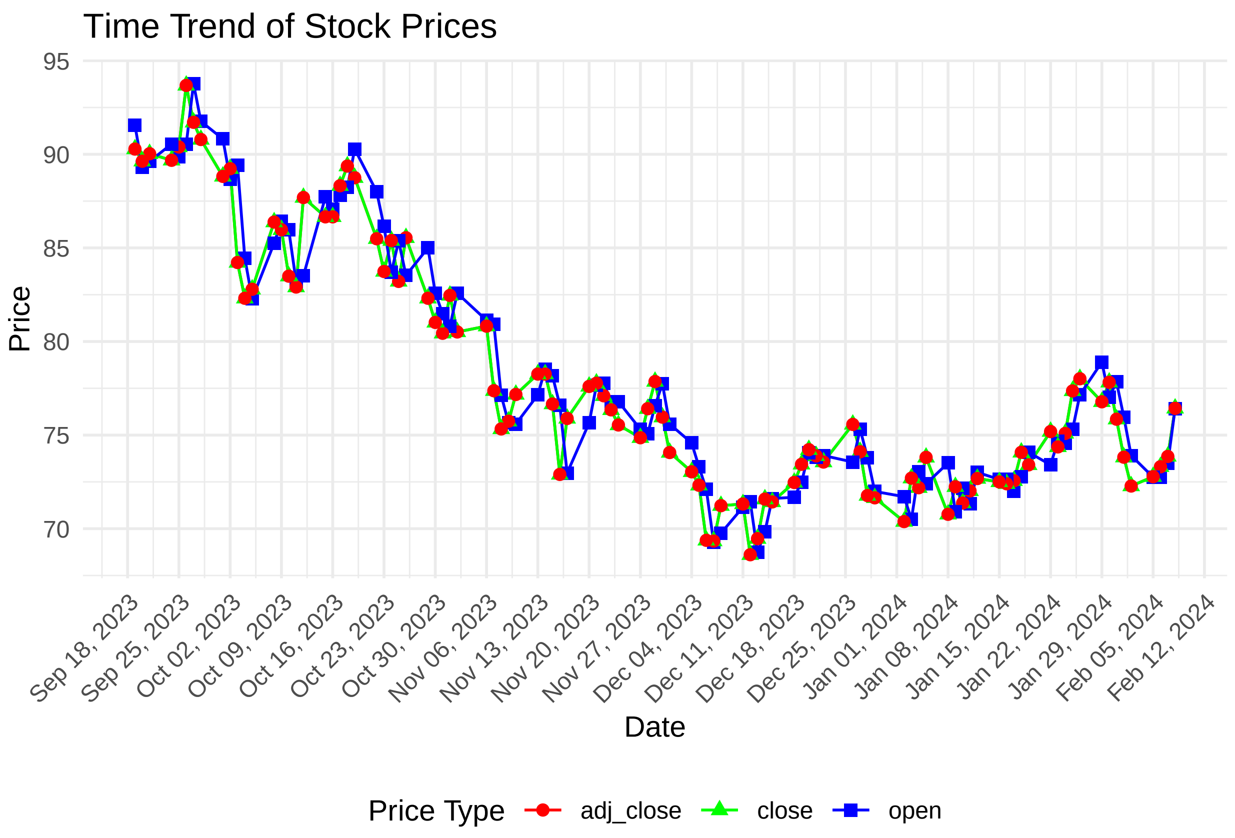


c. How can you transform the data into a long format suitable for plotting multiple price types with ggplot2?

```r
ticker_long <- ticker %>%
  pivot_longer(cols = c(open, close, adj_close), names_to = "PriceType", values_to = "Price")
```

d. Show how to create a ggplot2 visualization that includes lines and points, with different colors and shapes for each price type, and make the x-axis dates legible.

```r
ggplot(ticker_long, aes(x = date, y = Price, color = PriceType)) +
  geom_line() +
  geom_point(aes(shape = PriceType), size = 2) + # Different shapes for each price type
  scale_color_manual(values = c("open" = "blue", "close" = "green", "adj_close" = "red")) +
  scale_x_date(date_labels = "%b %d, %Y", date_breaks = "1 week") +
  labs(title = "Time Trend of Stock Prices", x = "Date", y = "Price") +
  theme_minimal() +
  theme(
    axis.text.x = element_text(angle = 45, hjust = 1),
    legend.position = "bottom"
  ) +
  guides(shape = guide_legend(title = "Price Type"), color = guide_legend(title = "Price Type"))
```



Group Activity 3

In this activity, you'll scrape web data using `rvest` and tidy up the results into a well-formatted table. Start by extracting job titles from a given URL, then gather the associated company names, and trim any leading or trailing whitespace from the location data. Next, retrieve the posting dates and the URLs for the full job descriptions. Finally, combine all these elements into a single dataframe, ensuring that each piece of information aligns correctly. Your task is to produce a clean and informative table that could be useful for job seekers. o facilitate the selection of the correct CSS selectors, you may find the `SelectorGadget` Chrome extension particularly useful.

```
url <- "https://realpython.github.io/fake-jobs/"

title <- bow(url) %>% scrape() %>% html_elements(css = ".is-5") %>% html_text()   # part 1
company <- bow(url) %>% scrape() %>% html_elements(css = ".company") %>% html_text() # part 2
location <- bow(url) %>% scrape() %>% html_elements(css = ".location") %>% html_text() %>% str_trim() #
time <- bow(url) %>% scrape() %>% html_elements(css = "time") %>% html_text() # part 4
html <- bow(url) %>% scrape() %>%  html_element(css = ".card-footer-item+ .card-footer-item") %>% html_

# Create a dataframe
tibble(title = title, company = company, location = location, time = time, html = html) # port 6
# A tibble: 100 x 5
   title                        company                    location     time  html
   <chr>                        <chr>                      <chr>        <chr> <chr>
 1 Senior Python Developer      Payne, Roberts and Davis   Stewartbury~ 2021~ http~
 2 Energy engineer              Vasquez-Davidson           Christopher~ 2021~ http~
 3 Legal executive              Jackson, Chambers and Levy Port Ericab~ 2021~ http~
 4 Fitness centre manager       Savage-Bradley             East Seanvi~ 2021~ http~
 5 Product manager              Ramirez Inc                North Jamie~ 2021~ http~
 6 Medical technical officer    Rogers-Yates               Davidville,~ 2021~ http~
 7 Physiological scientist      Kramer-Klein               South Chris~ 2021~ http~
 8 Textile designer             Meyers-Johnson             Port Jonath~ 2021~ http~
 9 Television floor manager     Hughes-Williams            Osbornetown~ 2021~ http~
10 Waste management officer     Jones, Williams and Villa  Scotttown, ~ 2021~ http~
# i 90 more rows
```