Dataframes in R: Takeaways

Syntax

- Import a dataset:

```
library(readr)
data <- read_csv("name_of_file_with_data.csv")
```

- Learn about a tibbles columns, types and dimensions:

```
> glimpse(recent_grads)
Observations: 173
Variables: 18
$ Rank  1, 2...
$ Major_code  2419, 2416...
$ Major  "PETROLEUM ENGINEERING", "MINING AND MINERAL ENGINEERING"...
```

- Return the number or rows or columns from a tibble:

```
nrow(data) # returns the number of rows in `data`
ncol(data) # returns the number of rows in `data`
```

- Pick columns to keep or remove from your data:

```
# Keeping data
filtered_data <- select(recent_grads, Rank, Major)
# Removing data
filtered_data <- select(recent_grads, -College_jobs)
```

- Filter rows based on conditions:

```
top_100_majors <- filter(recent_grads, Rank < 100)
```

- Chain together tidyverse functions into a pipeline:

```
library(dplyr)
low_total_ranked_majors <- recent_grads %>%
```

```
  select(., Rank, Major, Total) %>%
  filter(., ranked_majors, Total < 2000)
```

- Create new columns:

```
new_recent_grads <- recent_grads %>%
  mutate(
    prop_male = Men / Total
  )
```

- Sort data by a particular or multiple columns:

```
new_recent_grads <- recent_grads %>%
  mutate(
    prop_male = Men / Total
  ) %>%
  arrange(-prop_male)
```

- Use `head()` to return just the first few rows of a tibble

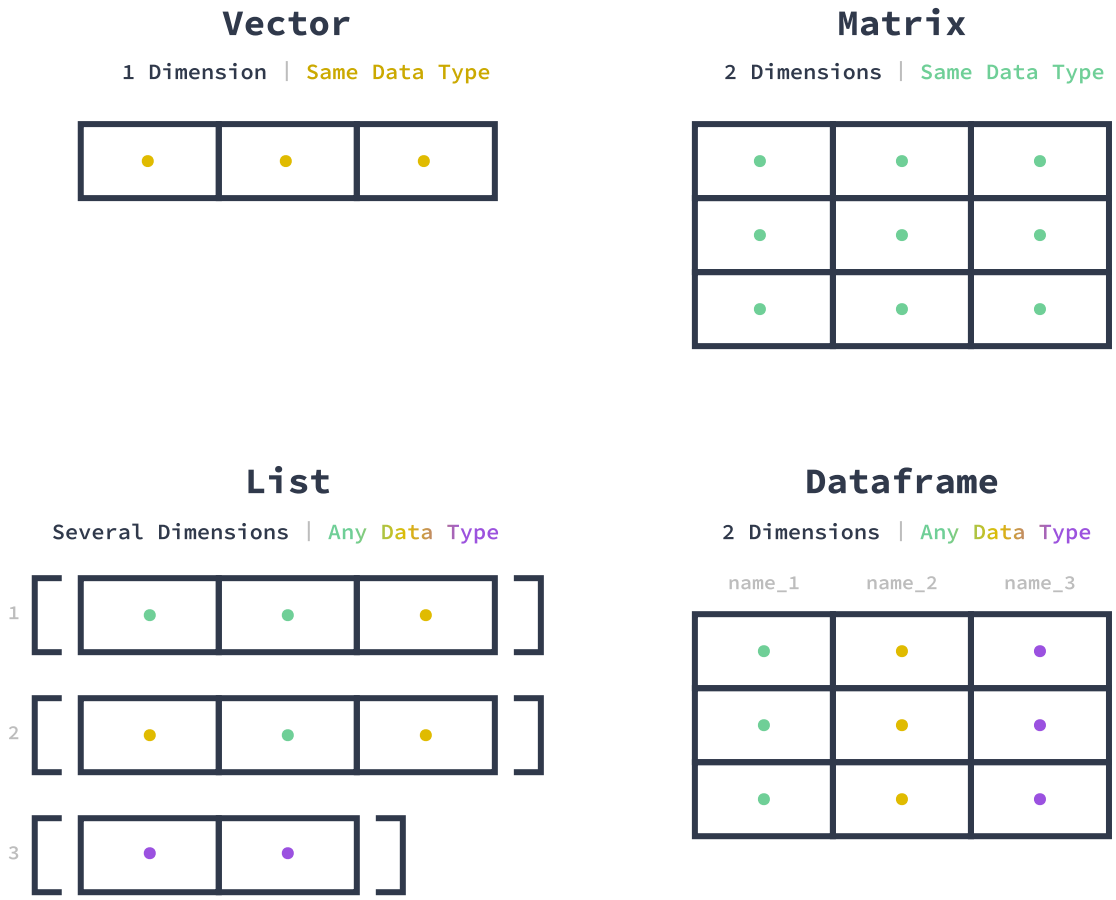
```
 > head(new_recent_grads)
# A tibble: 6 x 3
  Total   Men prop_male
          
1   124   124     1    
2  4790  4419     0.923
3 18498 16820     0.909
4   756   679     0.898
5  1258  1123     0.893
6 91227 80320     0.880
```

- Use `summarize()` to calculate some summary values based on entire columns:

```
summary_table <- recent_grads %>%
  summarize(
    avg_unemp = mean(Unemployment_rate),
    min_unemp = min(Unemployment_rate),
    max_unemp = max(Unemployment_rate)
  )
```

Concepts

- The four data structures covered in this course are:
  - Vector: one-dimensional structure for storing values of SAME TYPE.
  - Matrix: two-dimensional structure for storing values of SAME TYPE.
  - Lists: multi-dimensional stucture for storing values of ANY DATA TYPE/OBJECT.
  - **Dataframe: two-dimensional structure for storing values of ANY DATA TYPE/ OBJECT.**



- Tabular data is organized into rows, where one row represents a single entity and columns represent different characteristics of this row.
- Microsoft Excel, Google Sheets, and CSV files are common ways that we see tabular data.
- Tibbles are a data structure that implements tabular data in R and the `tidyverse`.
- Piping enables us to create pipelines with all of the functions we learned, allowing us to convert raw data in tibbles to more refined datasets.