**🔧 Core dplyr Functions (Data Wrangling)**

| **Function** | **What it does** | **Example** |
| --- | --- | --- |
| filter() | Select rows by condition | filter(mass > 75) |
| select() | Pick specific columns | select(name, height) |
| mutate() | Add or modify columns | mutate(BMI = mass / (height/100)^2) |
| arrange() | Sort rows | arrange(desc(height)) |
| group\_by() | Group rows for summaries | group\_by(gender) |
| summarise() | Collapse data into summary stats | summarise(avg = mean(height)) |
| rename() | Rename columns | rename(height\_cm = height) |
| distinct() | Remove duplicate rows | distinct(species) |
| slice() | Pull specific rows by position | slice(1:5) |

**🧹 tidyr Functions (Data Cleaning & Reshaping)**

| **Function** | **Use case** | **Example** |
| --- | --- | --- |
| drop\_na() | Remove rows with NA values | drop\_na(height) |
| replace\_na() | Replace NA values | replace\_na(list(mass = 0)) |
| pivot\_longer() | Turn wide data into long format | pivot\_longer(cols = starts\_with("score")) |
| pivot\_wider() | Turn long data into wide format | pivot\_wider(names\_from = subject) |
| separate() | Split column into multiple columns | separate(date, into = c("year","month")) |
| unite() | Merge multiple columns into one | unite(full\_name, first, last) |

**📊 ggplot2 Basics (Data Visualization)**

| **Layer** | **Use it for...** | **Example** |
| --- | --- | --- |
| ggplot() | Start a plot | ggplot(data, aes(x, y)) |
| geom\_point() | Scatter plot | + geom\_point() |
| geom\_bar() | Bar plot | + geom\_bar(stat = "identity") |
| geom\_histogram() | Histogram | + geom\_histogram(bins = 10) |
| geom\_line() | Line chart | + geom\_line() |
| labs() | Add labels | + labs(title = "Plot Title") |
| theme\_\*() | Style the plot | + theme\_minimal() |

**📈 Other useful functions (base + tidyverse)**

* str() – structure of a data frame
* summary() – quick stats
* glimpse() – compact str() from dplyr
* head(), tail() – preview start/end
* sample\_n() – random rows
* pull() – extract a single column as a vector

**🚀 Ready for more?**

You could try:

* Making plots with ggplot2
* Building a regression model with lm()
* Creating shiny apps (shiny package)
* Doing time series (ts, forecast, lubridate)
* Text analysis (tidytext)
* Web scraping (rvest)