

WK7_chapter6_HW

Lidan Gao

Homework

Due: 3/7/24 before class at 3:00 pm.

1. What purpose to Makefile serve?

A Makefile serves as an organizational tool for the data gathering process by automating and managing the workflow required to prepare the dataset. It ensures that data is collected, cleaned, and merged systematically, only re-running tasks when their dependent files have changed. This not only streamlines the workflow but also makes it repeatable, reducing errors and saving time.

2. What is the function to download a URL?

The function is **download.file()**.

3. What is a .zip file?

A .zip file is a compressed file that may include one or more files.

4. What is the process to download and decompress a .zip file? Give an example in a R code chunk.

Download, decompress, and create a data frame object in R

Step 1: create a temporary file with tempfile()

Step 2: download the file with download.file()

Step 3: decompress the file with commands in R

Step 4: read the file with read.csv() or import()

5. What are APIs?

APIs, or Application Programming Interfaces, are sets of rules and protocols for building and interacting with software applications. They allow different software systems to communicate with each other.

6. Use WDI package to download a new dataset other than AG.CON.FERT.ZS

```

      indicator
1070    AG.CON.FERT.MT
1071    AG.CON.FERT.PT.ZS
1072    AG.CON.FERT.ZS

                                     name
1070                                Fertilizer consumption (metric tons)
1071                                Fertilizer consumption (% of fertilizer production)
1072 Fertilizer consumption (kilograms per hectare of arable land)

country iso2c iso3c year AG.CON.FERT.PT.ZS
1 Africa Eastern and Southern    ZH    AFE 2015      659.1860
2 Africa Eastern and Southern    ZH    AFE 2014      503.2294
3 Africa Eastern and Southern    ZH    AFE 2013      587.2844
4 Africa Eastern and Southern    ZH    AFE 2012      221.6652
5 Africa Eastern and Southern    ZH    AFE 2011      291.1100
6 Africa Eastern and Southern    ZH    AFE 2010      211.6226

```

7. Indicate 3 new things you learned from this week.

I learned the concept of makefile and API. I learned how to download compressed file online and extract data from the website.

8. Create a repository on your GitHub account and upload all files for Week_6_HW. Include the Quarto document, clean PDF with answers, separate text files for data used. Paste the link to the GitHub repository.

https://github.com/ldgao11/Chapter_6_HW.git

Submit A clean PDF with your homework responses.