

Lecture 1.2 – How Computers Work

Specific Learning Objectives:

1.1.8 – Understand the concept of working directories.

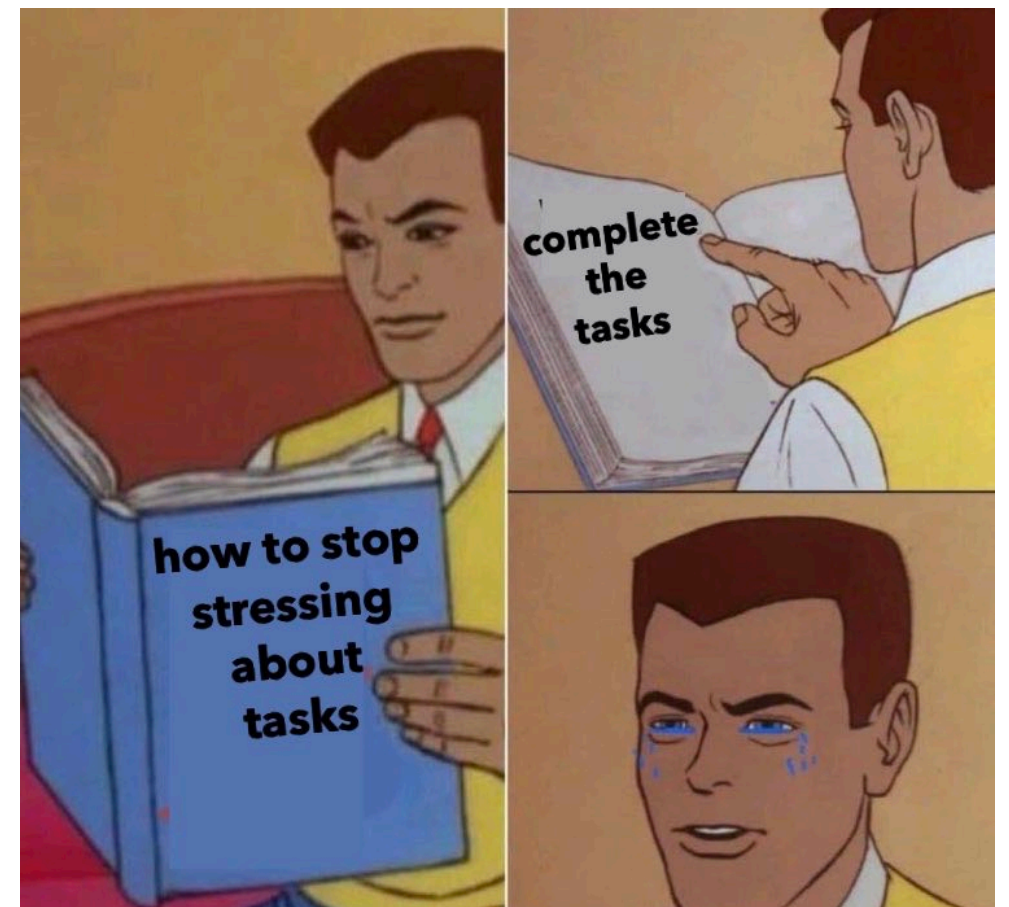
2.1.1 – Understand how file systems are structured and organized.

2.1.2 – Understand how to navigate file systems using a GUI interface.

2.1.3 – Use directories to organize course work.

Tips for Excelling in this Course

- **Give yourself time to work (and put it down).** One of the most important tips is to schedule time to work on course content. Like, specific times in your calendar to work on coding assignments. **Don't get behind, and if you do, contact me for help!**
- **Work together!** There is nothing wrong with completing assignments together, just put your companions' names down on your assignment. Mix working together with working individually so that you can gain independence.
- **Coding is not as scary as you think.** Everyone in here can do this. But it's sometimes hard to fight the feeling. Be sure you're practicing recognizing and managing your own feelings about the course content. Why do you feel nervous? What could help you feel more comfortable? Actively seek these things out! **Do not respond by avoidance and procrastination, this will make the problem worse!**



Tips for Excelling in this Course

- **Use the internet.** Seriously, just google it first. Just about every question ever asked is only Stack Overflow or some similar website. If you pull a bit of code from somewhere, just include the URL in a comment on the assignment!

When you can't find an example of R code to steal from  **stackoverflow**



- **Just try stuff.** It's not 100% necessary that you understand exactly why something works for now. Just try stuff, and see if you can't narrow it down.

Using Generative AI in this Course

Some OK uses of Gen AI:

- Use it to help you figure out the source of an error and how to correct it or a bit of code you don't understand.
- Use it to help you search for a function or package that can perform specific tasks.
- Use it to correct grammar on your writing.

Some BANNED uses of Gen AI:

- Use it to answer a question from any part of the class.
- Use it to generate code or blocks of code to use on any part of the class.
- Use it to generate written answers for any part of the class.

AI is not that intelligent...

- Remember that this technology can only predict the next words or code in a phrase, it doesn't "understand" R or how to code it.
- It often produces code that is nonsense, full of bugs, or doesn't work at all.

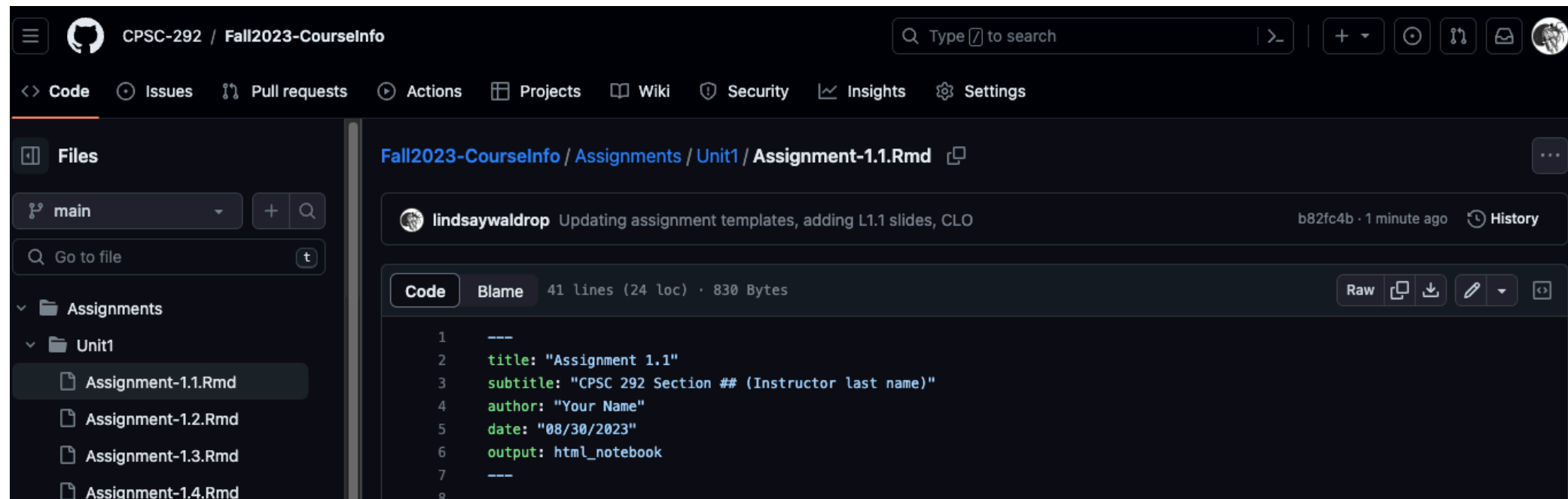


Instagram: @werner_ai_art

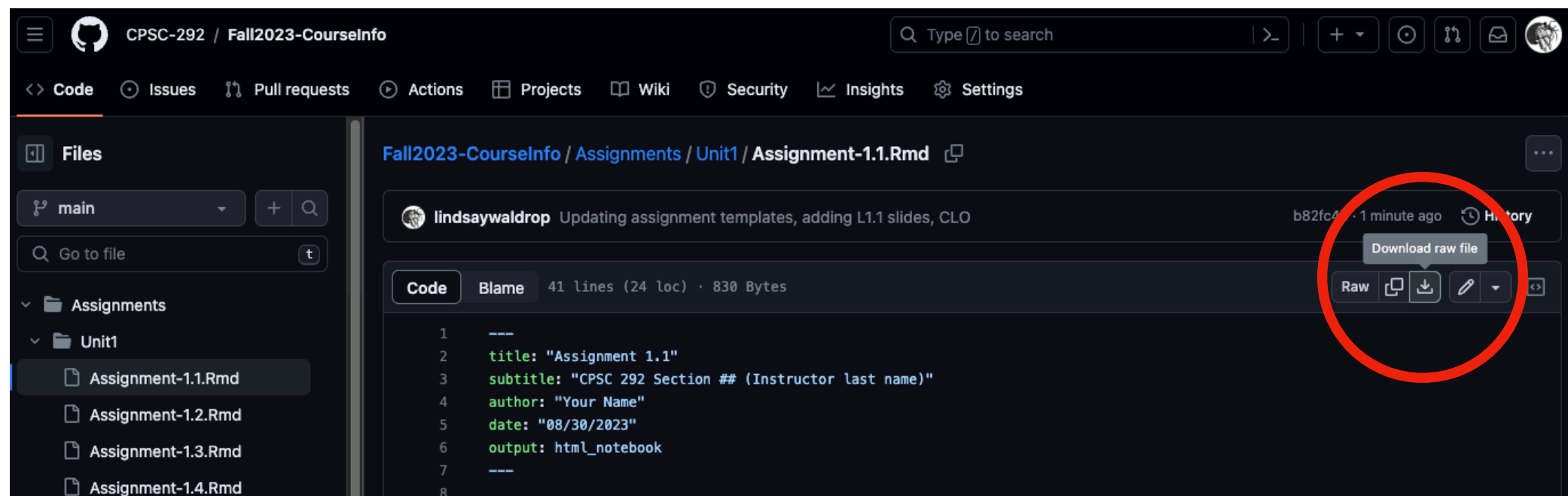
How to Download Assignment Templates

Method 1: Download raw file from Github.

1. Go to the course repository and navigate to the assignment.



2. Click on “download raw file”.

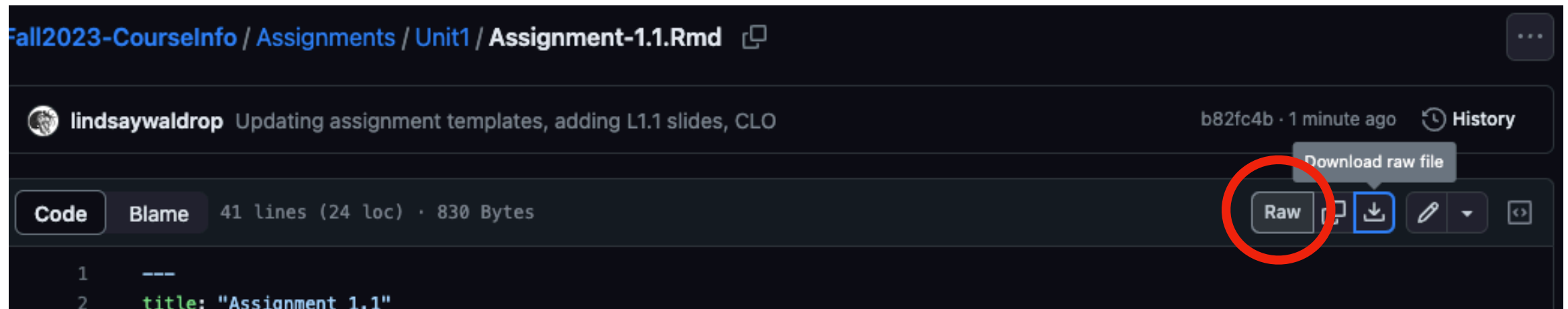


3. Move file OUT OF YOUR DOWNLOADS before working on it!

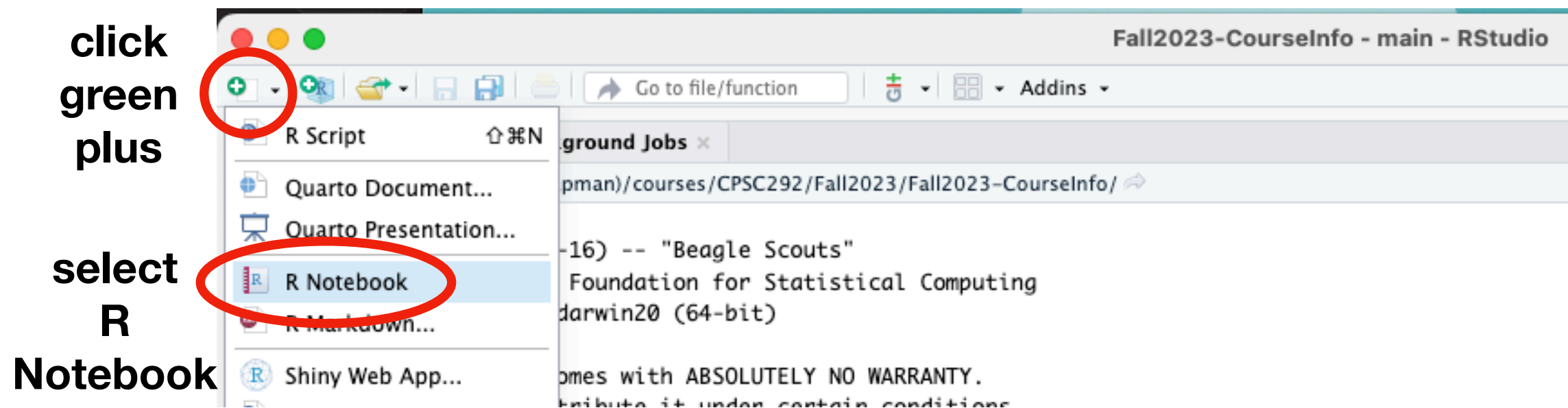
How to Download Assignment Templates

Method 2: Copy raw file from Github into R Notebook file.

1. Go to the course repository and navigate to the assignment.
2. Click on “raw” button. Highlight and copy ALL of the code on the page.



3. Open a new R notebook in RStudio.



4. REPLACE all the default text with the raw code from Github.
4. Save the file as the assignment name with extension .rmd

R Markdown Notebook Features

- R Markdown documents consist of **Markdown text** and **R code chunks**.

The image shows a screenshot of an R Markdown notebook editor window titled 'Untitled1'. The editor displays a sequence of alternating Markdown text and R code chunks. On the left side, three large vertical brackets are used to group these sections: a black bracket for the first Markdown text block (lines 1-8), a red bracket for the first R code chunk (lines 10-12), and another black bracket for the second Markdown text block (lines 14-18). The notebook content includes a title 'R Notebook', a description of R Markdown, an R code chunk containing `plot(cars)`, and instructions on how to use the editor's features like 'Run', 'Preview', and 'Insert Chunk'. The interface includes a toolbar with icons for navigation, saving, and running code.

Markdown text

```
1 ---
2 title: "R Notebook"
3 output: html_notebook
4 ---
5
6 This is an [R Markdown](http://rmarkdown.rstudio.com) Notebook. When you execute code within the
7 notebook, the results appear beneath the code.
8 Try executing this chunk by clicking the *Run* button within the chunk or by placing your cursor
9 inside it and pressing *Cmd+Shift+Enter*.
```

R code "chunk"

```
10 ```{r}
11 plot(cars)
12 ```
```

Markdown text

```
13
14 Add a new chunk by clicking the *Insert Chunk* button on the toolbar or by pressing
15 *Cmd+Option+I*.
16 When you save the notebook, an HTML file containing the code and output will be saved alongside it
17 (click the *Preview* button or press *Cmd+Shift+K* to preview the HTML file).
18 The preview shows you a rendered HTML copy of the contents of the editor. Consequently, unlike
19 *Knit*, *Preview* does not run any R code chunks. Instead, the output of the chunk when it was
20 last run in the editor is displayed.
```

- Right now, we'll only use Markdown text. We'll start R code next week!

Today's Activity: Start Assignments 1.1, 1.2, & 1.3

- **We'll have “stations” for each assignment and rotate.** This is so everyone can start each assignment, get help, clarification, etc. I'll time you, and tell you when to “rotate.”
- **Work with different people at each “station.”** Try to switch up the people you work with so that you get a chance to meet new people.
- **Start by downloading the RMD file.** Open it up in RStudio and just try to get it to knit or preview.

Friday's Activity: Computer Games!

- Review Assignment 1.4 which has instruction for Computer Games. We'll play during class!**

Action Items

1. Complete assignments 1.1, 1.2, and 1.3 (due a week from today).
2. Review Computer Games for the next class! (No video lecture.)



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