CSC 151 Spring 2020
Topic: Introduction to Sorting

April 24, 2020

Day 35

Project Deadlines

~~**Part 1: Project Ideas** *Due on Tuesday April 21*~~
~~Give 3 potential project ideas.~~

Part 2: Project Proposal *Due on Friday April 24*
Decide on a data set and describe what you plan to do with it.
Write about expected work, fall back idea(s), and a reach goal.
Due tonight! Read the grading rubric!

Part 3: Project *Due on Tuesday May 5*
This includes: 1) Implementation of your project, and 2) A project report.
Be sure to read the grading rubric!!

Part 4: Project Presentation *Due Friday May 8*
Describe the project and show the results.

Why Sorting?

Think about responses to the two prompts below.

1. Why is it useful to sort lists of values?
2. List a few example uses of sorting.

Why Sorting?

Discuss responses to the two prompts below.

1. **Why is it useful to sort lists of values?**

To organize things in order.
A sorted list might show patterns, or make it easier to find things.

2. **List a few example uses of sorting.**

Find the max or min by looking at the first or last elements of the sorted list.
Find a median by looking in the middle of a sorted list.
If we know where each letter begins in a dictionary, we can jump to it.
Sorted data makes binary search possible.

(sort lst comparator)

Recall that we have used the sort procedure in Scheme.

Suppose we didn't have a built-in sorting procedure…

Design a Sorting Algorithm

Think about how you could sort a list of values. Write out an algorithm and be prepared to guide me through its execution.

Be general
Your algorithm should work for any values we can compare, and it should work no matter what order those values arrive in.

Use basic operations
I can't find the "smallest value" in one step; tell me how, step by step.

Think abstractly, not in Scheme code
Lots of interesting sorting procedures can be unnatural or difficult to write in Scheme. You can write your directions in English, but avoid ambiguity.

Design a Sorting Algorithm

Check out my video on sorting. The video is a replication of how I would ask you to conduct the previous exercise if we were in class. Also special guest appearance by Ezra!

If you have trouble accessing this link

- go to Grinnell Share
- on the upper left click the waffle/square icon
- Click “all apps”, then “Videos”
- Find our course channel: CSC-151-02 Spring 2020

Video Channel

Upcoming Work

There are only 2 more labs left!

Most of the upcoming time is meant for you to work on your project. Make sure you are in communication with your group members. If there are any issues, please reach out!