

## **Class Notes & Ideas:**

Ideas to study from other people in my life:

3 different algorithms (2 that bring order, and 1 that uses the card sorting algorithm)

Need to produce order—

- 1) Scripture study every morning
- 2) Taking out the trash
- 3) Making the same breakfast every morning
- 4) Praying everyday
- 5) Process of getting ready for work (not forgetting nametag)
- 6) Getting glasses each day
- 7) Laying out clothes or items for the next day so that they are not forgotten
- 8) Putting the dishes by the sink, readying them for washing, disinfecting them, and then drying them by hand (the system or order of operations)
  - a) Nicole
- 9) Folding towels (3 fold way) in order to produce more organization and storage space
  - a) Nicole
- 10) Folding clothes in a specific manner
- 11) Need to do one of the card sortings to get the algorithms!
- 12) Using Google Calendar to record important events so that they are all recorded
- 13) Writing in a journal before bed
- 14) Studying scriptures together before bed
- 15) Brushing teeth every morning and night
- 16)

(Will have Nicole do the sorting algorithm with the cards)

This was from class with the lego sorting:

- 1) The lego man goes from column to column assessing which ones are smaller or larger in comparison to the previous, if the previous one that he was on is smaller, he moves it to the left, and the opposite is true for the larger ones.
  - a) Ascend from the left hand side, starting with the first column
  - b) Go over each column while ascending, evaluating the previous column with the next column; if it is smaller than the last, move it to the left, and if it is not, then move it the right.
  - c) In the end, we want there to be a lateral upward movement, from left to right, with the smallest column(s) being on the left, and the largest on the right.

- d) Repeat these steps until the process has been completed, this sequence will be done once the aforementioned left to right column assembly has been completed.

### **The Report Section:**

- A. I spoke with and interviewed my wife while we identified together some of her algorithms and specifically how she went about sorting cards, as she is a master of sorts when it comes to card bridging and the like, so it was interesting assessing this from that perspective.
- B. The discrete steps for the two algorithms:

### **Folding Towels:**

1. To start, make sure to wrinkle out the towel, and then hold one end with both hands, preparing to have it “hotdog” style.
  - a. Hotdog style in this case simply means just having the towel so that it is in its longest appearance, end to end, rather than folded over the other way.
2. Starting with the left hand side, you are going to fold in that side half down the middle, meaning that you are now going to start the folding process of the towel, but just with the left side starting fold to the middle of the towel.
3. Repeat the same step with the right side, except this time, you will fold over that middle fold ensuring that it has been encapsulated within the fold.
4. You will then fold the two ends of the hotdog style fold until they have from the top and bottom sides, now having been conjoined together.
5. At this point, you will have the desired tri-fold, or as my wife puts it the ‘best way’ to fold towels as it ensures that they are neatly folded, easily stackable, and will keep you all set and organized.

### **The “Correct” Way to Do Dishes:**

1. To start, it is desirable to have two sinks, as they will both serve you well in this procedural process of washing the dishes.
  - a. Ensure that the sinks are washed out, meaning spotless without any food residue, dishes, or at the very least having been sanitized and washed out.
    - i. This becomes important later on... in fact soon!
2. Put all of the dishes on the counter, near the sink(s), this is now the prepping zone.
3. With the two sinks now completely washed out, and clean, they are ready for the assembly area.
  - a. Fill the left hand side of the sink with hot water (ideally at the 90% threshold of the water(s) max temperature capacity) and ensure that the plug has been applied before attempting to do this.

- b. Add a disinfectant or dish soap solution *not brand specific\** to the now very warm water, this creates our cleaning solution.
  - c. Once this has been completed, obtain a clean rag, soak it in the warm solution. Boom.
4. Once this has been done, you are ready for your first dish (this is ideally hand wash items that are non-dishwashable like specialized pots, pans, and cutlery).
  - a. Place the dish in the soapy solution, using the rag, wipe the inside of the pan or dish out thoroughly, inspecting it to confirm that any food, debris, or contaminants have been removed.
    - i. Wash out, or scrub the contents of the dish, especially the corners now, again repeating the same manner of thorough inspection.
  - b. Once this has been done, re-immerses the dish or pan again into the water, covering it completely so as to ensure that the outside gets a proper soak, and again repeating that level of thorough inspection.
5. Once this has been done, it is ready for the adjacent sink where you will rinse off the pan or dish, using the water from the faucet, rinse remaining soap until it has all been removed.
6. Then with a premade drying solution (failed to mention at the beginning, but this is the ideal) you will place the pans, pots, or dishes there so that they can be properly dried out.
  - a. Ideally it is best to have a series of towels, that can collect any substantial water, or other moisture left over from this process.
7. Repeat the above steps until all of the dishes have met the threshold standard, which at the very end of the day is very worthwhile as it will certainly help you on your journey to getting the perfected formula of "happy wife = happy life".
8. Enjoy it with some music, an audiobook, or even better a hearty conversation with your loved one!

### What does N refer to?

N refers to two things, 1) the data involved with the algorithm (or the scale of it) and then 2) it is a way to measure the overall performance of the algorithm as the scale increases or decreases. This is probably the most simple form of N that I've come to understand so far.

### What does the Big O refer to?

The Big O refers to the relationship between N (which as previously explained is either the scale of the problem, or the runtime as measured in efficiency in this case) along with the overall runtime or resource usage case. This means that the Big O really just isolates that last variable, either our resources, or time allotted to the algorithm.

There are three different variants of this notation that we've so far:

$O(N)$ ,  $O(N^2)$ ,  $O(\log N)$  and these are each

**Insights from this exercise, what could be done to improve the efficiency?**

I think counting them out with the intention of getting to 13 from the get-go, in addition to that, would have helped to have known what the overall objective is.

For frame of reference, the cards were face down. My wife also used our 'ultra' sized card collection, which is massive, and would definitely hinder this process.

**The number of comparisons within the Card Sorting Activity & Assessment:**

52 Cards, my wife sorted them at random into 4 piles of 13, this required 11 sorts, along with ensuring after the fact by counting (in range) that each pile had 13. There was one mistake which required an additional two sorts and merges, contributing to a grand total of 13 number of comparisons.