Coding Fundamentals ASPIRE

(8/11 - 12/12)

Helix Charter High School
Isabelle Viraldo

Week 13

Welcome!

- Mondays: Discussion + Activity
- Fridays: Review + Programming Exercise

What do you want to learn?

What do you care about?

What do you want to accomplish?

feedback!

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Topics I hope to cover:

- GitHub (How to use and let's set one up!)
- AI (Machine Learning vs Generative AI vs Image Detection, let's break it down (and make one of our own))
- How to code! (Some practical skills, and also best practices)
- Binary (What is it? Why is it important? Who cares?)
- Robotics (What do you need to get a robot working?)
- How does your computer work? (What do computers do when you're not looking?
- What do you want to learn?

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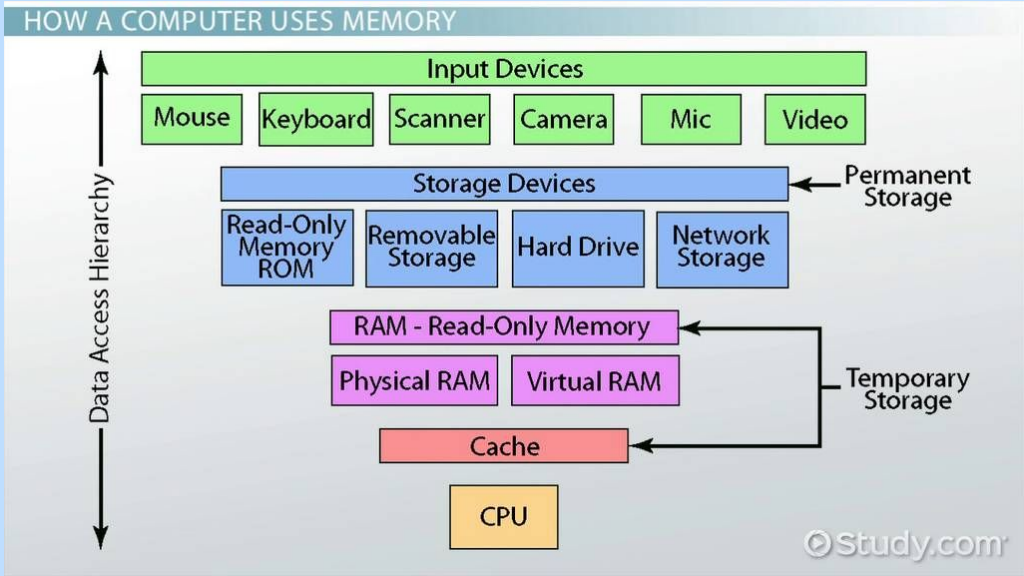
How does a computer work?

4 main parts:

- CPU (Central Processing Unit)
- Memory (cache or RAM)
- Storage (Disks or SSD)
- I/O (Input/Output)



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Long term memory
- Holds onto all the data in your computer

HDD (Hard Disk Drive)
- magnetic spinning disks, data is read as it spins

SSD (Solid State Drive)
- Grids of cells holding electrical charges

Flash Drive (USBs)
- Same as ssd, but cheaper controller

Optical (CD/DVD/Blu-ray)
- Lasers etch into their surface, which is then read from

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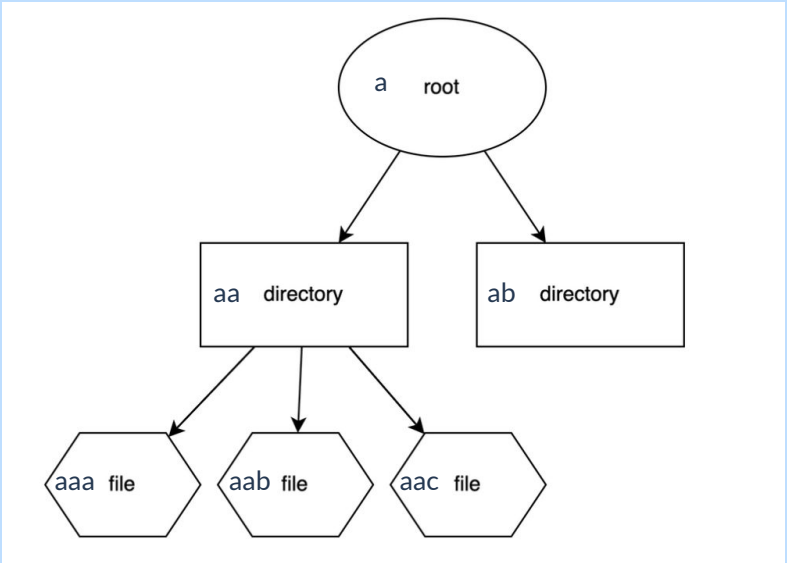
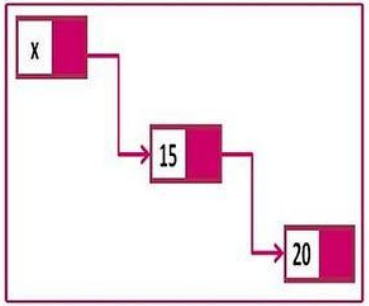
Great, the data is saved somewhere … where is it?

Tree data structure

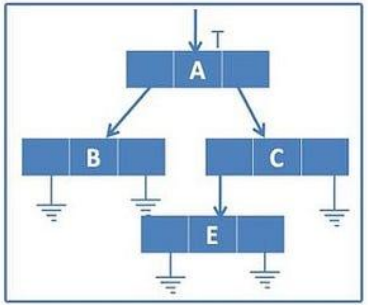
- Files
- Parent Nodes
- Children Nodes
- Creating
- Searching
- Deleting



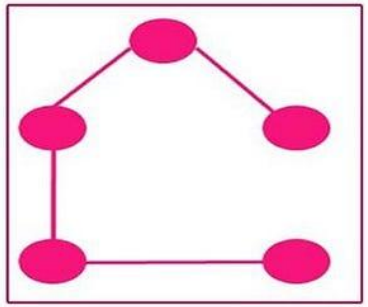
Sorting



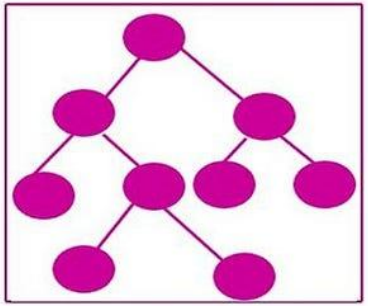
Link list



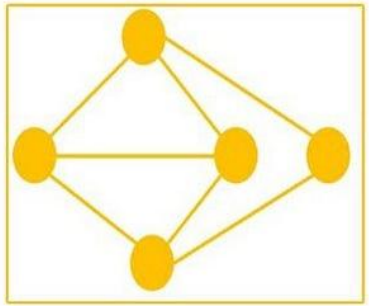
list



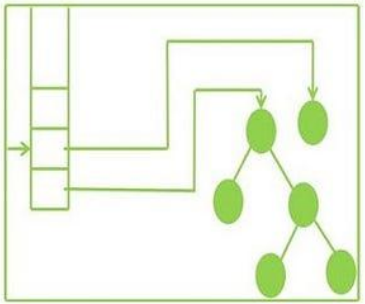
spanning tree



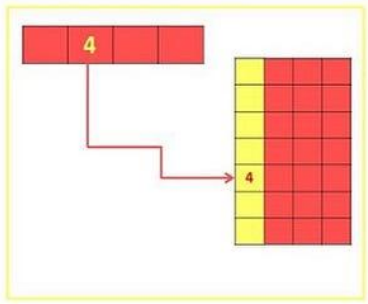
Tree



Graph

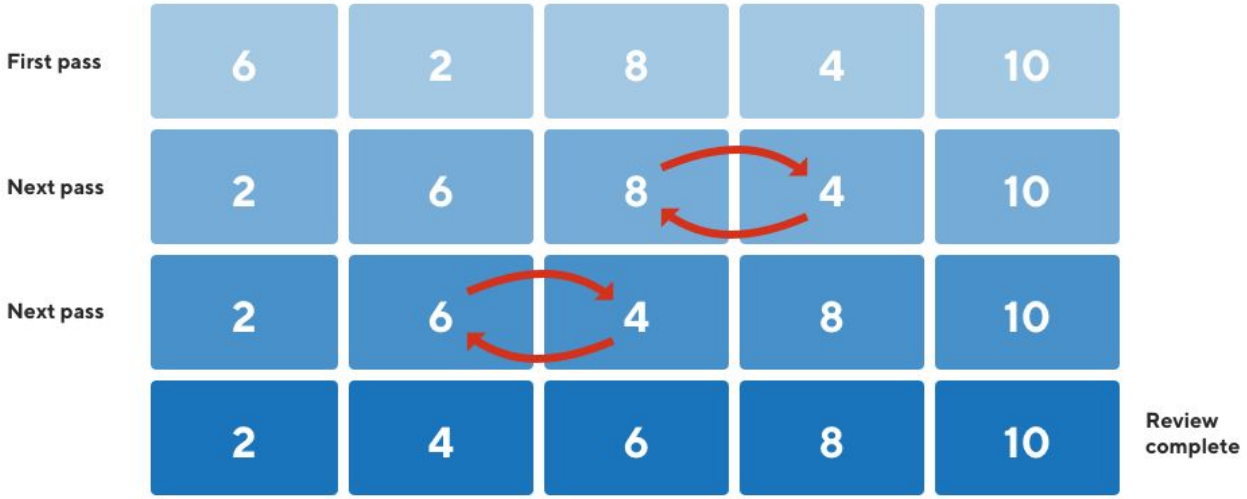


Stack



Hashing

Bubble Sort


First pass
6 2 8 4 10
Next pass
2 6 8 4 10
Next pass
2 6 4 8 10
2 4 6 8 10
Review complete

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Coding activity! Get out your Chromebooks!

Everyone look up:

python online compiler

Or

Go to: https://tinyurl.com/yc4w9mdh

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