

- Define and understand the differences between the following types of concurrency: **circuit-level concurrency**, **multitasking**, **multiprocessing**, and **distributed computing**
- Create **concurrency trees** to increase the efficiency of complex operations by executing sub-operations at the same time
- Recognize certain problems that arise while multiprocessing, such as **difficulty of design** and **deadlock**
- Create **pipelines** to increase the efficiency of repeated operations by executing sub-steps at the same time
- Use the **MapReduce pattern** to design and code parallelized algorithms for distributed computing
- Recognize core terms related to the internet, including: **browsers**, **routers**, **ISPs**, **IP addresses**, **DNS servers**, **protocols**, **packets**, and **cloud**
- Understand at a high level the **internet communication process** that happens when you click on a link to a website in your browser.
- Understand at a high level that the internet is **fault tolerant** due to being **distributed**
- Define the following terms: **data privacy**, **data security**, **authentication**, and **encryption**
- Recognize the traits of the internet that make it more prone to **security attacks** and recognize common security attacks (**DDOS** and **man-in-the-middle**).
- Trace common **encryption** algorithms, such as the **Caesar Cipher** and **RSA**, and recognize whether they are **symmetric** or **asymmetric**
- Evaluate the efficiency of **performing** encryption algorithms and **breaking** encryption algorithms.