# Lecture 2

## | Computing Concepts

**Software:**

* Operating System:
  + UNIX and beyond
* Applications:
  + Kernel vs Shell
* Programming Language:
  + C and beyond
* Spreadsheets
* Databases:
  + Can ‘query’ these + SQL

**Network:**

* Communication channel
* IPv4 vs IPv6

**Internet Speeds:**

* Kbps 🡪 Mbps 🡪 Gbps
* 2G
* 3G
* 4G (-1Gps)
* 5G (-1000Gps)

**Data:**

Computers are 2-state devices, where a bit can be either 0 or 1. A byte is the smallest piece of memory that we can reverse. This means that the data is stored in a binary (base-2) format in computers.

684 in decimal = 10^2\*600+10^1\*8+10^0\*4

110 in binary = 2^2\*1+2^1\*1+2^0\*0=6

## | Excel Basics

Refer to examples.