**Review for Exam over Chapter 1**

Hardware

Know that the type of data is not in the hardware

It’s in the programmer’s interpretation of that data

Know that, from a programmer’s viewpoint, storage is the same, no matter where it is

It’s a sequence of bytes

This first byte is 0, the next is 1, etc.

Memory (RAM) Know these facts

On an Intel-based PC

Memory is measured in bytes

A byte is 8 bits

A word is two bytes

A doubleword is 4 bytes (two words)

A quadword is 8 bytes (four words)

Endian-ness

Know what little-endian and big-endian mean

If given an address, and told what endian-ness a machine has, be able to interpret the data

Number of bits to store a number

Know the range of numbers that can be stored in n bits if the data is signed or unsigned

The CPU

Know the things inside the CPU chip: what they are and/or what they are used for

There are registers, cache, the ALU, the CU

Know what an interrupt is

Know why we use interrupts

The operating system

Know that the operating system is software

It controls everything that happens while the computer is running

It controls resources

It manages memory, allocating and returning it

It manages where programs are in memory and which resources they get

It monitors the mouse and the keyboard

It manages files in secondary storage (a flash drive, a hard drive)

It knows how a device is formatted

It knows about and controls how files are stored

It can create, update, rename, and erase files

If several programs are running, it manages them

If connected to the internet, it manages communication with the internet

Lab activities

Be able to convert numbers between bases

Decimal ↔ Hexadecimal ↔ Binary ↔ Decimal

Be able to convert a number to 2’s complement

Be able to do math with positive and negative numbers

Of course, the basic math to know is binary addition