**Week 2 Module Work.**

**Tutorial Questions.**

**Q1:** Write “Oh!” in bot ASCII and Unicode then compare.

ASCII – 4F 68 21

Unicode – 004F 0068 0021

Both methods are similar, and have comparable values, but the Unicode, being hexadecimal instead of octal, has bit space for many more values that ASCII.

**Q2:** What is the difference in use between registers and memory?

Registers perform lower-level processes and are contained internally in the CPU whereas memory is given instructions by registers to perform more complex, concurrent actions.

**Q3:** What is the difference between integers and floats?

Integers are whole numbers that do not involve fractions. Floating-point numbers are fractional and involve a “decimal point” as part of their total value.

**Q4:** Find examples of hot, cold, and warm swappers.

**Hot swappable keyboards:** Allow users to change they key switches while keyboard is powered on and connected to a computer.

**Warm swappable expansion drives like floppy disks and CD-ROM:** Components can be plugged and unplugged while data is not being transferred to or from the drive or the system is not in a fully operable state e.g., hibernate or sleep.

**Cold swapping power supplies or hard drives:** Components that require the system to be fully shut down before removal.

**Q5:** Explain the difference between bus topology and point-to-point.

Bus topology refers to the connection of many devices, through many nodes, to one network. Point-to-point refers to the connection of only two nodes, from one system to another.

**Q6:**

1. Explain the difference between the concepts of a serial number connection and a parallel connection.
   1. Serial refers to a connection with only one data line. Useful for long distances and maintaining signal integrity. Transmits only one bit at a time in a single stream
   2. Parallel refers to a cable or connection with many data lines. Useful for transferring a lot of data quickly. Transmits many bits at a time over multiple streams. Tends to suffer from “noise” between channels.
2. Find modern examples of each.
   1. SATA connections for serial and HTTP for parallel.

**Practical questions.**

**Q1:** Why did Chinese students learning Pascal need to use ASCII tables?

Because there are so many different symbols that can be used in the Mandarin language, computers did not operate with a high enough bit size to store all of them. Table

Description automatically generated

**Q2:** Why does the north bridge have a fan and the south bridge does not?

Because the northbridge contains the CPU and the components most reliant on fast communication to the CPU. These components, the CPU in particular, draw the highest power and therefore heat up more than components utilizing the south bridge.