Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

Apple A15 Bionic

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

ARM64 (64-bit ARM architecture)

How much RAM is in it?

6 GB RAM

How much storage does your phone have?

128 GB

What operating system is running on your phone?

iOS 15

Approximately how many applications do you have installed?

100 Applications

Which application do you use the most?

Spotify,Chrome,Youtube,Bank app

Can your phone be charged with what type of plug?

Lightning cable to USB-C or USB-A adapter (supports fast charging with USB-C PD)
Also supports MagSafe wireless charging.

Which I/O ports can you visually see on your phone?

Single Lightning port at the bottom

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel Core i7-10750H

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

x86-64 (Intel 64 / AMD64)

How much RAM is in it?

16 GB RAM

How much storage does your laptop have?

224 GB SSD + 932 GB HDD = 1.15 TB total storage

Which operating system is running on your laptop?

Windows 10 (64-bit)

Approximately how many applications do you have installed?

163 applications

Which application do you use the most?

Steam,Chrome,Word,Spotify,Task Manager

Can your laptop be charged with what type of plug?

Barrel-type DC charging plug (19.5 V, 230–240 W adapter)

Which I/O ports can you visually see on your laptop?

USB-A ports, USB-C port (data only), HDMI, Ethernet (RJ-45), 3.5 mm audio jack, power input jack, and SD card reader depending on version.

Assignment 3.3: Power to the laptop

What is the input voltage?

AC 100–240 volts

What is the output voltage?

19.5 volts DC

How many watts can your power adapter deliver?

About 230–240 watts

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

AC (Alternating Current): The current changes direction many times per second. This is what comes from the wall outlet.

DC (Direct Current): The current flows in one direction. Laptops and batteries use DC.

If you reverse the polarity of the output voltage, is that bad for your laptop?

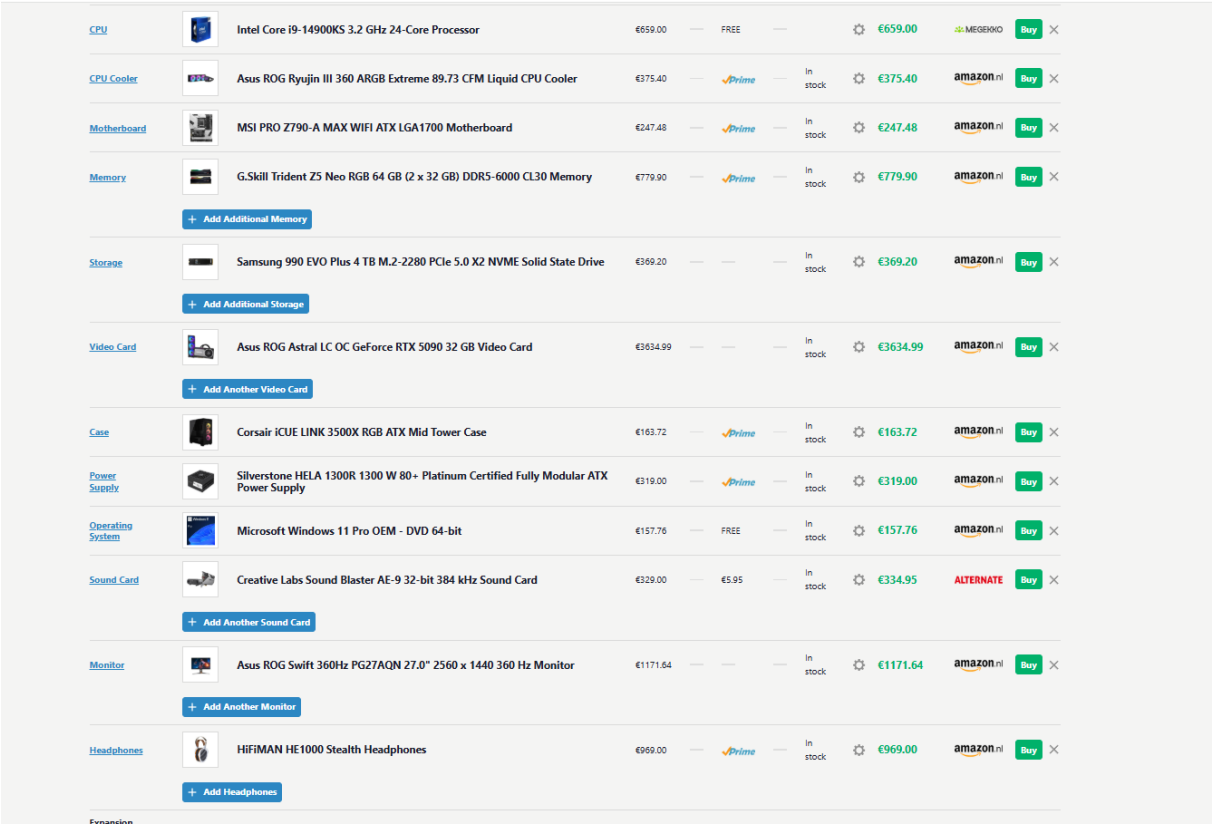
Yes, it is bad.
Reversing polarity (swapping + and –) can damage the charging circuit or motherboard.

You forgot your power adapter, your laptop normally needs 15 watts. You will be loaned a power adapter that can deliver 50 watts. Voltage, polarity, etc. are all the same compared to the original power adapter. You can connect the borrowed power adapter to your laptop. What will happen? Also explain why you think that.

My laptop will work normally and nothing bad will happen, because the voltage and polarity match and the laptop will only draw the 15 watts it needs.
The 50-watt rating is only the *maximum* the adapter can provide; it does not force extra power into the laptop. Normally my pc needs more than 50W but for this story I think it is okay.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

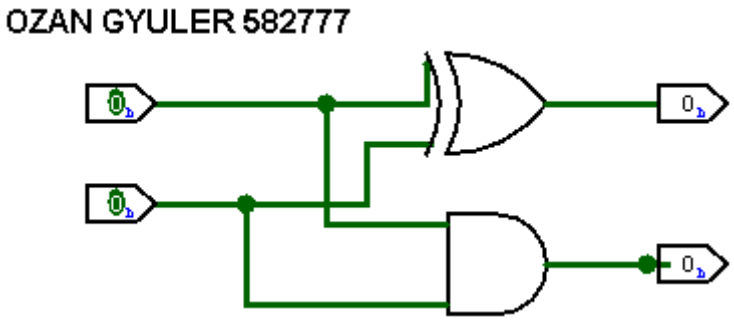


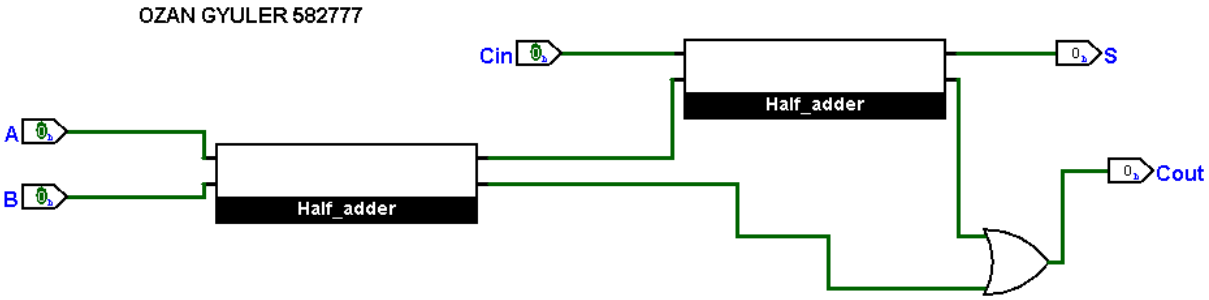
I have never had the chance to own a truly top-of-the-line PC. My current PC is not bad, but I have always dreamed of having a machine that can run every game in full settings.This build isn't just about specs; it's about experiencing games the way they were meant to be played, with smooth frame rates, stunning visuals, and instant responsiveness. Every time I look at this configuration, I can see the possibilities: playing new releases on ultra settings, diving into immersive worlds without lag, and knowing that this PC will remain powerful for years. It's more than a computer; it's a tool that will help me fully enjoy my favorite games and make every gaming session unforgettable.

Assignment 3.5: Adders

Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.





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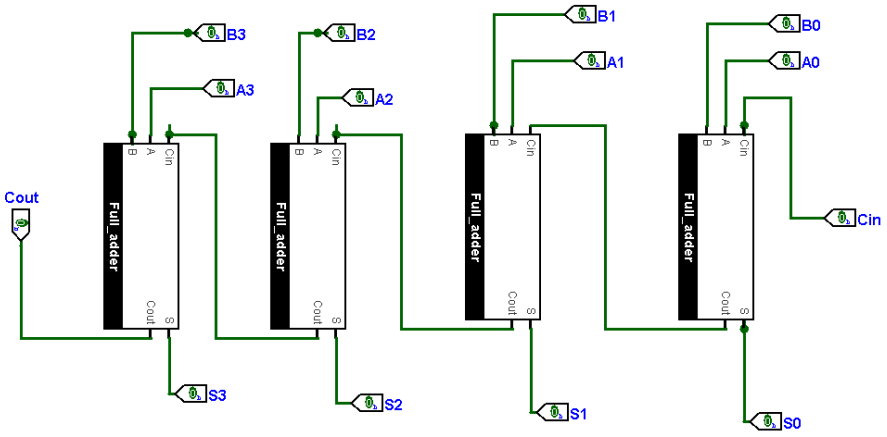

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