

Unit 12 & 13, Assignment 3

Solving Faults and Keeping Records

George Hotten

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Fault Record Template

Fault Type & Description Here goes a full description of the described problems.

Diagnostic Steps for diagnosing the cause the fault go here.

Solution How was the fault fixed?

Result How does the solution fix the fault? Is the system working?

Diagnosing and Repairing a PC

I was given a faulty PC and tasked to repair it, keeping a log of the faults and how I prepared them.

Fault #1: The system does not POST

Fault Type & Description The system does not POST. The fans booted up, but the display did not turn on and a POST beep was not heard. This is a hardware fault.

Diagnostic After opening the chassis, I saw on the "EZ Debug" LEDs that there was an issue with the system's DRAM.

Solution I noticed that the RAM was not properly seated. After consulting the motherboard's manual to see which slot the RAM should be in, I resealed the RAM into the slot "DIMMA1".

Result With the RAM re-seated, the system POSTed.

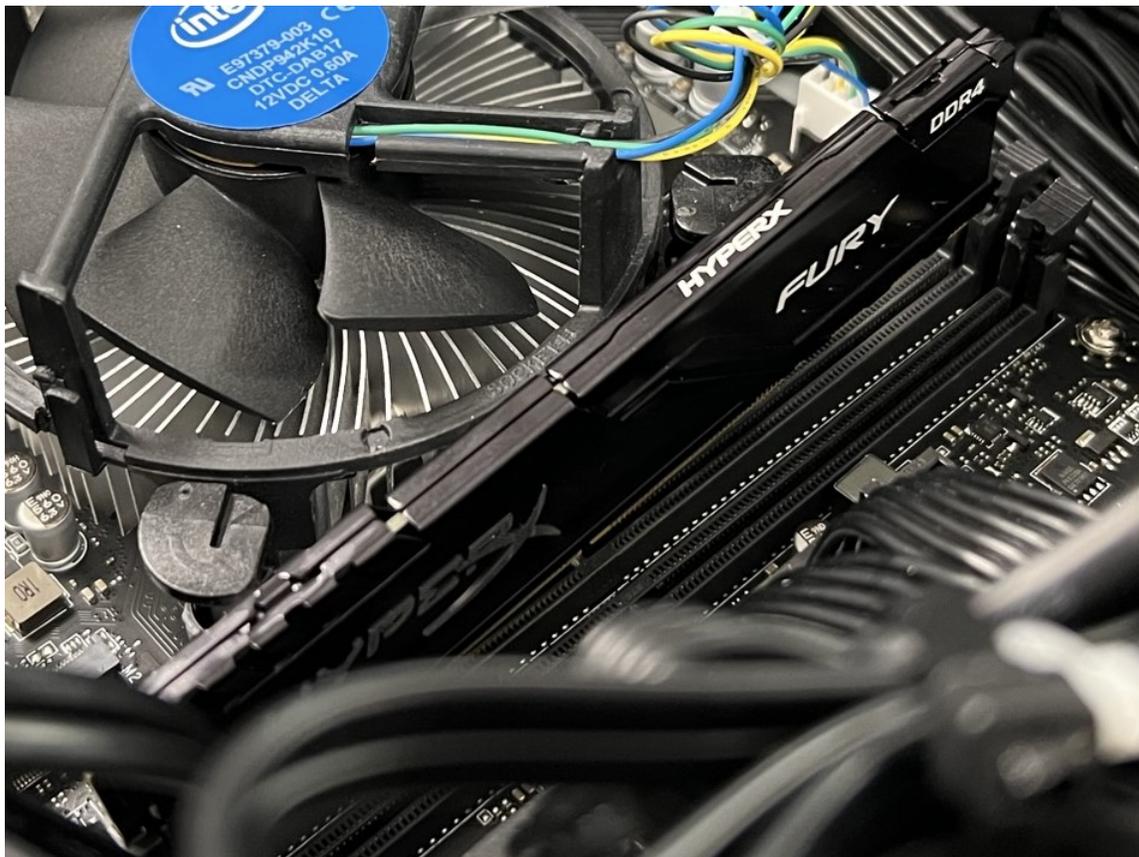


Figure 1: The RAM is not properly inserted.

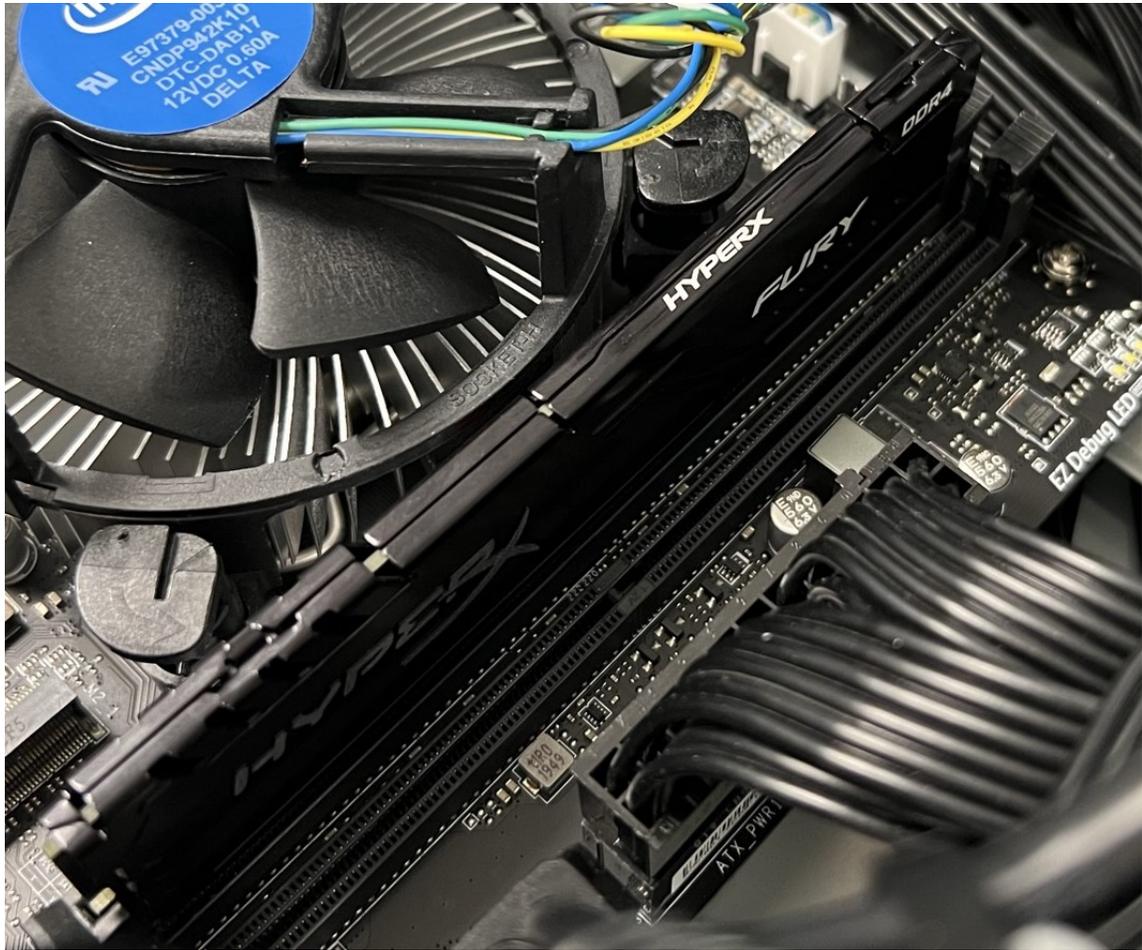


Figure 2: The RAM after being re-seated.

Fault #2: Keyboard was not connected

Fault Type & Description To ensure everything within the system was correctly registered, I attempted to boot into the BIOS. However, I was unable to. This was a hardware fault.

Diagnostic Whilst debugging this issue, I noticed no lights on the keyboard were illuminating, meaning the keyboard was not being registered.

Solution I first ensured that the cable was properly plugged into the motherboard. After checking, I saw that the cable was plugged into the RJ45 port.

Result After plugging the keyboard into the correct port, its lights were illuminating, and I was able to boot into the BIOS.



Figure 3: The USB is plugged into an RJ45 port.



Figure 4: The USB plugged into the correct port.

Fault #3: No boot media

Fault Type & Description After the system POSTed, the system failed to boot further quoting a lack of media to boot from. This is a hardware fault.

Diagnostic I started by checking the BIOS to see if both drives within the system were detected. The boot drive was not detected, so I knew it was a hardware issue and looked inside the chassis.

Solution After checking the cables connected to the drives, I saw that the boot drive did not have its SATA cable attached.

Result After plugging in the SATA cable, the system booted into Windows.

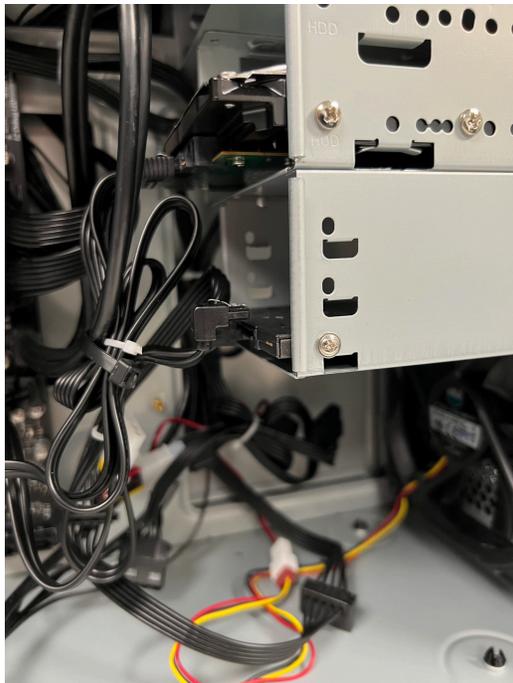


Figure 5: The SATA port was not plugged in.

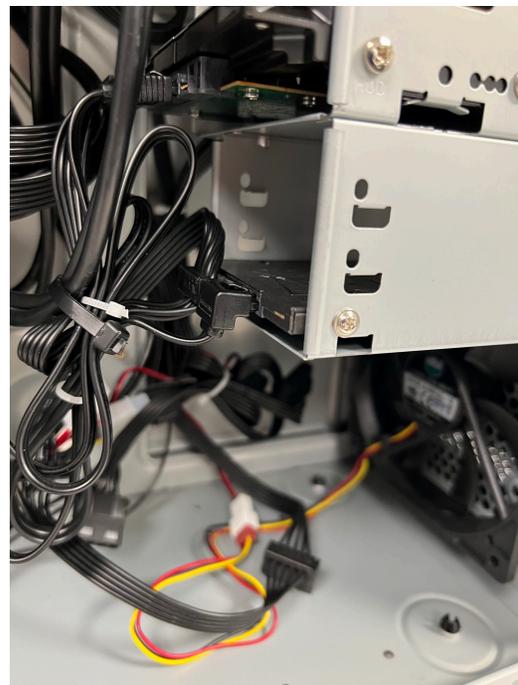


Figure 6: The SATA port plugged into the SSD.

Fault #4: Incorrect screen resolution

Fault Type & Description Once I had booted into Windows, I noticed that the screen resolution was incorrect for the monitor. This is a software fault.

Diagnostic To ensure this was a software fault, I went into the Windows settings app to check what resolution was set. During so, I saw that the resolution was wrongly set to 800x600.

Solution To change the resolution, I opened the drop-down menu and switched the resolution to 1920x1080.

Result This remedied the fault and allowed Windows to use the full width of the monitor.

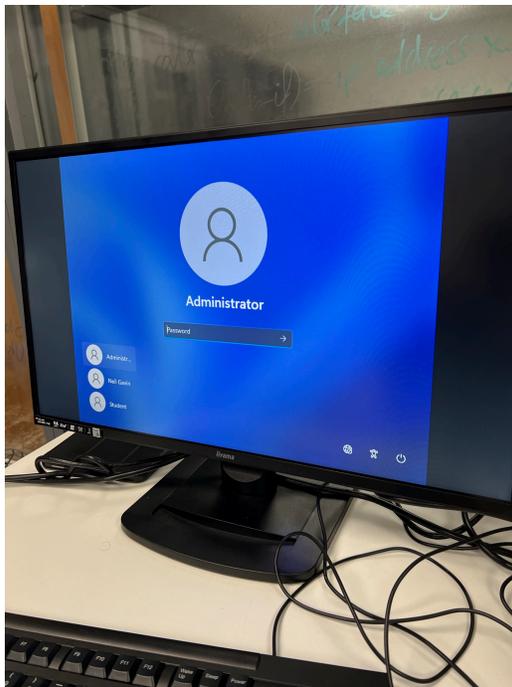


Figure 7: The display at 800x600 resolution.

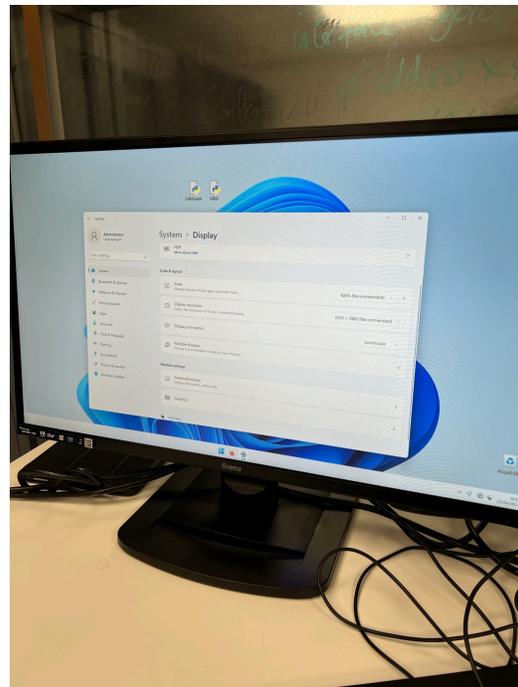


Figure 8: The display at 1920x1080 resolution.

Fault #5: No internet connection

Fault Type & Description To ensure the system was working correctly, I had to test the system's internet connectivity. The system uses an external USB-based Wi-Fi adapter. There was no Wi-Fi adapter recognized in the Windows system tray. This could be either a hardware or software fault.

Diagnostic To check if it was a hardware fault, I tried plugging the adapter into different USB ports and I tried another adapter. This did not fix the issue. This rules out a hardware issue. To confirm it was a software fault, I opened Device Manager to check if the adapter was being recognized. The adapter appeared in DM, however it was disabled.

Solution I re-enabled the adapter in Device Manager and connected to the "eduroam" network.

Result I was able to successfully connect to the internet.

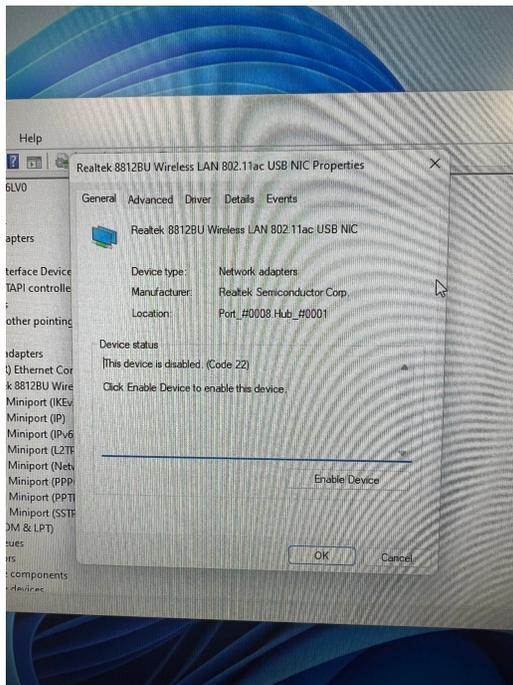


Figure 9: The Wi-Fi adapter is disabled.

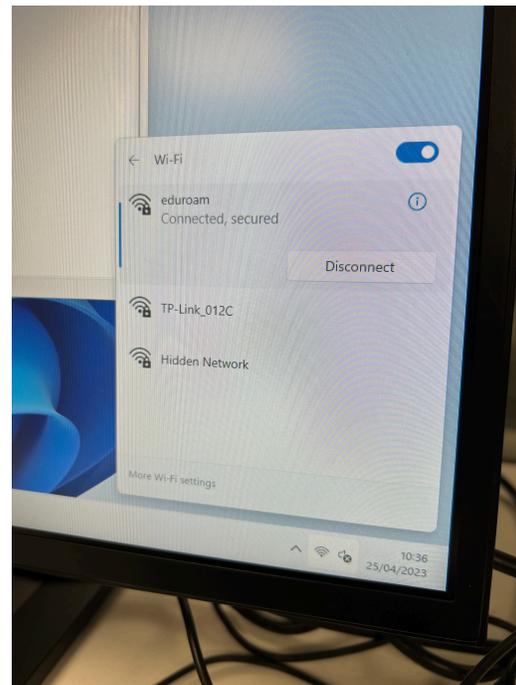


Figure 10: The Wi-Fi adapter is re-enabled and connected.

This finishes the repair. The computer is now able to boot successfully into Windows and can connect to the internet.

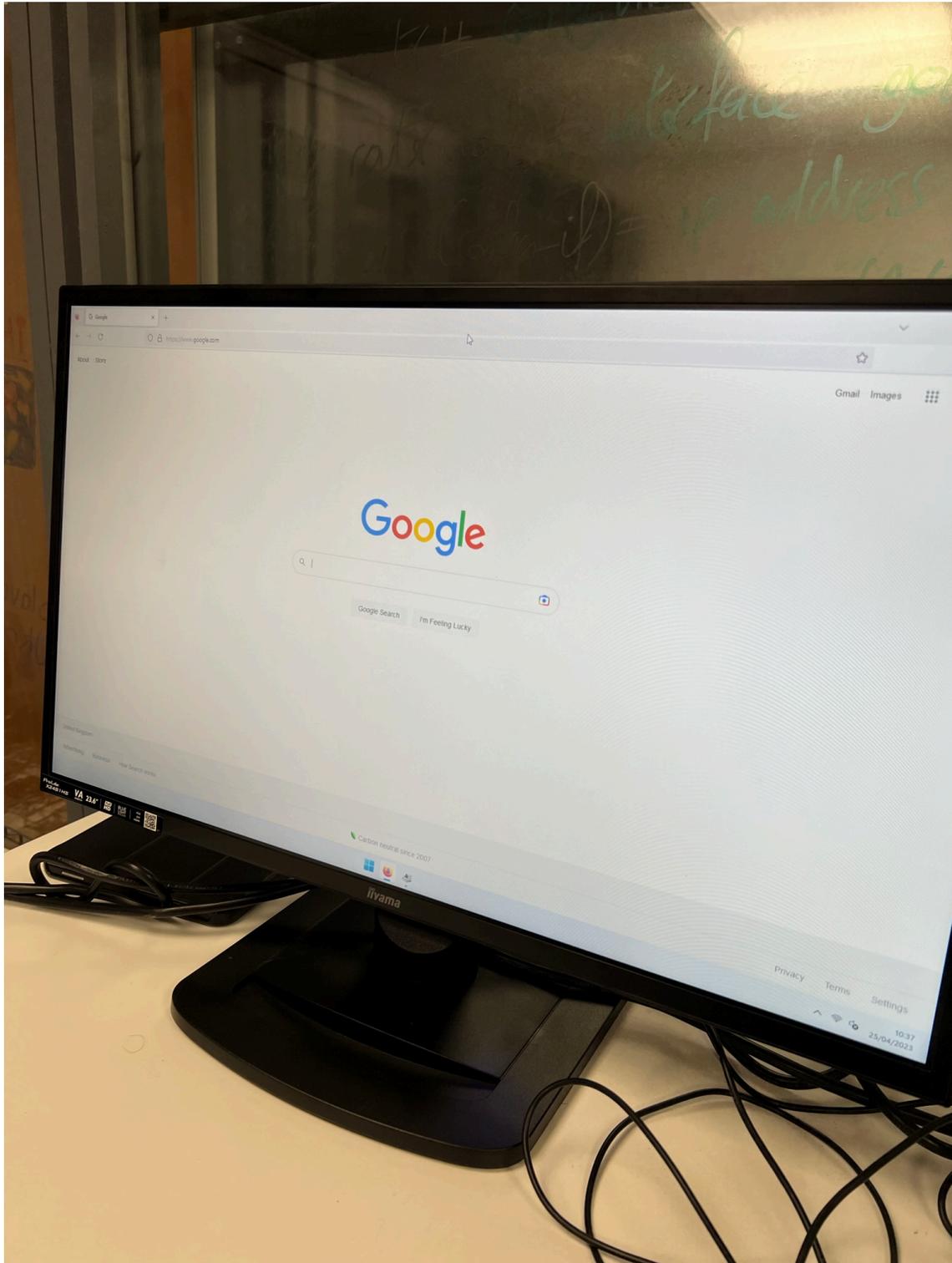


Figure 11: The PC fully repaired, with working internet.

Justifying my Fault Remedies

Hardware Fault

Fault Number I will be justifying fault #1: the system will not POST due to the RAM being not being properly seated.

How I fixed it I fixed this fault by re-seating the RAM into slot "DIMMA1".

Justification I put the RAM into the slot "DIMMA1" as in the motherboard's manually, it states that memory must first be populated into slot "DIMMA1" to ensure the best performance and to allow the system to POST. If I did not use this slot, the system may not POST. If it does POST, the performance would be significantly reduced.

Software Fault

Fault Number I will be justifying fault #5: no internet connection due to a disabled network adapter.

How I fixed it I went into Device Manager and re-enabled the adapter.

Justification There are a few different ways this could have been resolved. For example, this could have been done within the settings app or through the command line. However, I chose against the Windows settings app as it requires you to go through many sub menus and would eventually require you to go to the control panel to re-enable the adapter. I also chose against the command line as it requires more advanced knowledge of the adapter name and the commands to re-enable it. I chose the Device Manager application for its simplicity and its intuitive nature, only requiring a few clicks of your mouse to enable the adapter.

Working Practices during the Repair

Throughout the repair, I ensured that I followed appropriate health and safety guidelines and good working practices.

Health and Safety

To ensure my safety, the safety of my colleagues and of the PC components, I ensured the following:

- I worked in a clean and tidy environment, preventing any trip hazards.
- I disconnected all power to the machine whilst working on it, ensuring I could not accidentally shock myself.
- I used an anti-static wristband connected to ground at all times, reducing the risk of ESD damaging any components.

Good Working Practices

To ensure my work was efficient and professional, I ensured the following:

- All screws were properly organized, so all screws can be returned to the correct place within the system.
- I only modified settings that were required to complete repair, preventing any unexpected issues when returned to the user.
- I did not access any user data during the repair, protecting their privacy.
- During the repair I did not leave the computer unattended, removing the risk of someone not authorized accessing the system.