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Assignment

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List of Abbreviations

CPU	Central Processing Unit
RAM	Random Access Memory
GPU	Graphics Processing Unit
IC	Integrated Circuit
I/O	Input/Output
SSD	Solid-State Drive
HDD	Hard Disk Drive
PCIe	Peripheral Component Interconnect Express
PCB	Printable Circuit Board
DDR	Double Data Rate
HDMI	High-Definition Multimedia Interface
GDDR	Graphics Double Data Rate
GB	Gigabytes
TB	Terabytes
W	Watts
GHz	Gigahertz
PSU	Power Supply Unit
USB	Universal Serial Bus
ISO	International Organisation for Standardization

GDPR	General Data Protection Regulation
NIST	National Institute of Standards and Technology
DDoS	Distributed Denial-of-Service
OS	Operating System

1 Task 1:

1.1 Introduction

In this task, the objective given was to design a custom work-from-home setup to meet the needs of an Electrical Engineer. The computer should be capable of performing proficiently with software for design and simulations. The custom desktop computer should also be able to handle other basic activities and tasks, and have reliable security software to protect against cybersecurity threats.

1.2 Hardware component shopping list

The learner created a shopping list including all the components they have decided are an appropriate contender for this scenario. This list can be seen in Table 1 below.

Table 1: Potential PC Components

Item	Product Name	Cost	Spec. Summary
CPU	AMD Ryzen 7 7800X	£330.04	5 GHz, 120 watts
CPU	Intel Core i9-14900K Processor	£394.99	6 GHz, 125 watts
Motherboard	Gigabyte Z790 Aorus Elite AX ATX Motherboard	£190.97	DDR5 ATX form factor
Motherboard	Asrock X650 PG Lightning	£136.92	DDR5 ATX form factor
RAM	Crucial DDR5 RAM 32GB	£319	32GB DDR5
RAM	Lexar THOR Z Series RGB DDR5 RAM 32GB	£399.99	32GB DDR5
Storage	Crucial P310 1TB SSD M.2 2280 NVMe PCIe Gen4	£129.98	1TB

Storage	acer Predator GM7 2TB SSD	£239.99	2TB
GPU	ASUS Dual GeForce RTX 5060 8GB GDDR7 OC Edition	£358.99	8GB GDDR7
GPU	ASUS DUAL RTX5070 OC	£499.99	12GB GDDR7
Case	Fractal Design Meshify C	£82	Mid tower
Case	NZXT H5 Flow Mid Tower PC Case	£60	Mid Tower
Power Supply	Corsair RM750x SHIFT 750W Power Supply	£89.99	750W
Power Supply	MSI MAG A650GL Power Supply Unit	£65.55	650W
2 x Monitor	LG 27U631A-B.AEKQ Quad HD 27" IPS LCD Monitor - Black	2 x £139 = £278	27 inch QHD 1440p
2 x Monitor	Philips 27E1N1100A - 27 Inch FHD Monitor	2 x £79.97 = £159.94	27 inch FHD 1080p
Webcam, Keyboard and Mouse	Logitech C90 Webcam with Logitech MK295 Silent Wireless Mouse & Keyboard	£49.02 + £28.49 = £77.51	Full HD 1080p/30fps webcam with spill-resistant wireless keyboard and mouse

Webcam, Keyboard and Mouse	Logitech C920S HD Pro Webcam with Logitech MK270 Wireless Keyboard and Mouse	£55.99 + £19.99 = £75.98	Full HD 1080p/30fps webcam with wireless keyboard and mouse
Headset	Logitech H390 Wired Headset	£29.99	Wired USB
Headset	Logitech H340 Wired Headset	£15	Wired USB
Network Connectivity	UGREEN Ethernet Cable 2M	£6.99	2 metre 40GBPS 2000MHz RJ45 LAN cable
Network Connectivity	Wi-Fi	£0	Flexible wireless connectivity
Required Software	Windows 11 Pro, SolidWorks Electrical, PSpice, LabVIEW, Microsoft Office, Microsoft Teams		
Security Software	PCPROTECT	Free download or £99 per year	Internet security and VPN
Security Software	AVG	Free download or £64.99 per year (first year is £41.49)	Antivirus protection and enhanced firewall

From the components listed in Table 1 above, the learner then selected the most suitable components for the scenario, which are shown in Table 2 below.

Table 2: Chosen Components

Item	Product	Price (£)	Figure Ref.	Total Cost (£)
CPU	AMD Ryzen 7 7800X	£330.04	Figure 1	£330.04
Motherboard	Asrock X650 PG Lightning	£136.92	Figure 2	£466.96
RAM	Lexar THOR Z Series RGB DDR5 RAM 32GB	£399.99	Figure 3	£866.95
Storage	Crucial P310 1TB SSD M.2 2280 NVMe PCIe Gen4	£129.98	Figure 4	£996.93
GPU	ASUS Dual GeForce RTX 5060 8GB GDDR7 OC Edition	£358.99	Figure 5	£1,355.92
Case	NZXT H5 Flow Mid Tower PC Case	£60	Figure 6	£1,415.92
Power Supply	Corsair RM750x SHIFT 750W Power Supply	£89.99	Figure 7	£1,505.91
Monitor	LG 27U631A-B.AEKQ Quad	2 x £139 = £278	Figure 8	£1,783.91

	HD 27" IPS LCD Monitor - Black			
Webcam, Keyboard and Mouse	Logitech C90 Webcam with Logitech MK295 Silent Wireless Mouse & Keyboard	£49.02 + £28.49 = £77.51	Figures 9 & 10	£1,861.42
Headset	Logitech H390 Wired Headset	£29.99	Figure 11	£1,891.41
Network Connectivity	UGREEN Ethernet Cable 2M	£6.99	Figure 12	£1,898.40
Software	Windows 11 Pro, SolidWorks Electrical, PSpice, LabVIEW, Microsoft Office, Microsoft Teams			
Security Software	PCPROTECT	Free download or £99 per year		£1,997.40



AMD 3D V-CACHE™
AMD RYZEN
7000 SERIES PROCESSOR

7

AMD

AMD Ryzensets 7 7800X3D Processor with 3D V Cache technology (integrated Radeon Graphics, 8 cores/16 threads, 120W TDP, AM5 Socket, 104MB cache, up to 5.0 GHz max boost, no cooler)

[Visit the AMD Store](#)

4.8 ★★★★★ (7,322)

300+ bought in past month

-27% £330⁰⁴

RRP: £449.99

FREE Returns

Save 5% on any 4 Qualifying items > | [Terms](#)

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Style Name: **Ryzen 7 7800X3D**

Ryzen 5 7600 £165.92 £124.99	Ryzen 5 7600X £170.00 £124.99	Ryzen 7 7700 £230.00 £349.99	Ryzen 7 7700X £216.80 £325.99
Ryzen 7 7800X3D £330.04 £449.99	Ryzen 9 7900X £294.97	Ryzen 9 7900X3D £525.00	Ryzen 9 7950X £470.99

Figure 1: AMD Ryzensets 7 7800X3D CPU



ASROCK B650 PG LIGHTNING, AM5, ATX, 4 DDR5, 3 M.2, 4 SATA, HDMI

Brand: ASRock

4.2 ★★★★★ (166)

-9% **£136⁹²**

Was: £151.04

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Style Name: **Motherboard**

Brand ASRock

CPU socket Socket AM5

Compatible devices Personal Computer

RAM memory technology DDR5

Compatible AMD Ryzen 7000, 8000 & 9000 Series

[See more](#)

About this item

Figure 2: Asrock X650 PG Lightning



Lexar THOR Z Series RGB DDR5 RAM 32GB Kit (2x16GB) 6000 MHz, DRAM 288-Pin UDIMM Desktop, PC High-Performance Gaming Computer Memory for Intel XMP 3.0/AMD EXPO, PMIC/On-die ECC/1.35V

Visit the Lexar Store

4.3 ★★★★★ (46)

Amazon's Choice

50+ bought in past month

£399⁹⁹

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Style Name:

THOR Z 6000MHz

Size Name: 32GB Kit (2x16GB) CL38 Black

32GB Kit (2x16GB)...	32GB Kit (2x16GB)...	32GB Kit (2x16GB)...	32GB Kit (2x16GB)...
£409.99	£405.99	£459.99	£399.99

Figure 3: Lexar THOR Z Series RGB DDR5 RAM 32GB




Crucial P310 1TB SSD M.2 2280 NVMe PCIe Gen4, Up to 7,100MB/s, Laptop & Desktop (PC) Compatible, Internal Solid State Drive - CT1000P310SSD801

Visit the Crucial Store

4.6 ★★★★★ (8,431)

Amazon's Choice

1K+ bought in past month

£129⁹⁸

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Capacity: 1TB

1TB	2TB	4TB	See 1 options with no featured offers
£129.98	£199.99	£299.99 £569.99	

Style Name: P310 (PCIe 4.0)

Figure 4: Crucial P310 1TB SSD M.2 2280 NVMe PCIe Gen4





ASUS Prime GeForce RTX 5060 8GB GDDR7 OC Edition SFF Ready Graphics Card (PCIe 5.0, 8GB GDDR7, HDMI/DP 2.1, 2.5 slot, Axial tech fans, Dual BIOS)

Visit the ASUS Store

4.6 ★★★★★ (78)

Amazon's Choice

-7% £358⁹⁹

RRP: £386.25

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Style Name: RTX PRIME 5060 OC

RTX DUAL 5050 OC	RTX PRIME 5060 OC	See 4 options with no featured offers
£248.99	£358.99 £386.25	

Purchase options and add-ons

Available services

Expert service at your doorstep

Services performed after delivery

☐ £59.29 Unpack & Install

Figure 5: ASUS Dual GeForce RTX 5060 8GB GDDR7 OC Edition



NZXT H5 Flow - Compact ATX Mid-Tower PC Gaming Case - High Airflow - 2 x 120mm Fans Included - 360mm Front & 240mm Top Radiator Support - Cable Management System - Tempered Glass - White

Visit the NZXT Store

4.6 ★★★★★ (795)

£60⁰⁰

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Available at a lower price from [other sellers](#) that may not offer free Prime delivery.

Style Name: **Flow 2024**

Flow 2024 Flow RGB 2024 Elite Flow Flow RGB

Colour Name: **White**

 £71.99 ~~£89.99~~	 £60.00
--	---

Figure 6: NZXT H5 Flow Mid Tower PC Case



Corsair RM750x SHIFT Fully Modular ATX Power Supply - 80 PLUS Gold - ATX 3.1 - PCIe 5.1 - Zero RPM - Modular Side Interface - Black

Visit the Corsair Store

4.7 ★★★★★ (528)

-10% £89⁹⁹

Was: £99.99

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Available at a lower price from [other sellers](#) that may not offer free Prime delivery.

Size Name: **750 Watts**

750 Watts 850 Watts 1000 Watts 1200 Watts

Colour Name: **Black**

 £89.99 ~~£99.99~~	See 1 options with no featured offers
---	--

Model name RM750x SHIFT

Brand Corsair

Figure 7: Corsair RM750x SHIFT 750W Power Supply

LG 27U631A-B.AEKQ Quad HD 27" IPS LCD Monitor – Black

★★★★★ 4.9/5 11 reviews

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*Illustrative example: Credit amount £139.00. Pay 36 monthly payments of £5.63. Total amount payable £202.68. The interest rate for this purchase is 299%.
Representative example: Rate of interest 29.9% (variable). 29.9% APR representative (variable). Assume Credit Limit £1200.

[Important credit information](#)

Figure 8: LG 27U631A-B.AEKQ Quad HD 27" IPS LCD Monitor – Black

Computers & Accessories > Accessories > Audio & Video Accessories > Webcams & VoIP Equipment > Webcams



[Click to see full view](#)



Logitech C920 HD Pro Webcam, Full HD 1080p/30fps Video Calling, Clear Stereo Audio, HD Light Correction, Works with Skype, Zoom, FaceTime, Hangouts, PC/Mac/Laptop/Tablet/Chromebook - Black

[Visit the Logitech Store](#)

4.6 ★★★★★ (110,656)

Amazon's Choice

1 sustainability feature

1K+ bought in past month

-46% £49.02

RRP: £89.99

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Available at a lower price from [other sellers](#) that may not offer free Prime delivery.

Pattern Name: **Webcam**

Brand: Logitech

Photo sensor technology: Other

Video capture resolution: 1080p



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£49.02

FREE Returns

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Or fastest delivery **Tomorrow, 12 March**. Order within 9 hrs 6 mins. [Details](#)

Delivering to London E17 7 – [Update location](#)

In stock

Quantity: 1

[Add to basket](#)

[Buy Now](#)

Shipper / Seller: Amazon

Returns: Returnable within 30 days of receipt

Insurance plans: Available

Figure 9: Logitech C90 Webcam



Logitech MK295 Silent Wireless Mouse & Keyboard Combo with SilentTouch Technology, Full Numpad, Advanced Optical Tracking, Lag-Free Wireless, 90% Less Noise, QWERTY UK English Layout - Black

Visit the Logitech Store

4.2 ★★★★★ (2,732)

Amazon's Choice

1K+ bought in past month

Spring Deal

-29% £28.49

RRP: £39.99

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Available at a lower price from [other sellers](#) that may not offer free Prime delivery.

Style Name: **Single**

Pattern Name: **Silent Wireless Combo MK295**

Colour Name: **Black**

Brand Logitech

£28.49

FREE Returns

FREE delivery **Saturday, 14 March** on your first order to UK or Ireland. [Details](#)

Or fastest delivery **Tomorrow, 12 March**. Order within 2 hrs 7 mins. [Details](#)

Delivering to London E17 7 - [Update location](#)

In stock

Quantity: 1

Add to basket

Buy Now

Shipper / Seller Amazon

Returns Returnable within 30 days of receipt

Legal warranty Available

Payment Secure transaction

See more

Add to List

Figure 10: MK295 Silent Wireless Mouse & Keyboard



[Click to see full view](#)



Logitech H390 Wired Headset for PC/Laptop, Stereo Headphones with Noise Cancelling Microphone, USB-A, in-Line Controls for Video Meetings, Music, Gaming and Beyond - Black

Visit the Logitech Store

4.3 ★★★★★ (63,389)

500+ bought in past month

-6% £29.99

Was: £31.99

FREE Returns

Get a £40 Amazon Gift Card if approved for [The Amazon Barclaycard](#). Representative 28.9% APR variable. Credit broker: Amazon EU S.A.R.L. Lender: Barclays. T&Cs apply.

Available at a lower price from [other sellers](#) that may not offer free Prime delivery.

Style Name: **Wired**

Brand Logitech

Colour Black

Ear placement Over Ear

Form factor Over Ear

Impedance 32 Ohms

Noise control Active Noise Cancellation

Sensitivity 32 Ohm

See more

Buy new:

£29.99

FREE Returns

FREE delivery **Friday, 13 March**. [Details](#)

Delivering to London E17 7 - [Update location](#)

In stock

Quantity: 1

Add to basket

Buy Now

Shipper / Seller Jerco Micro

Returns Returnable within 30 days of receipt

Payment Secure transaction

Legal warranty Available

Save with Used - Like New

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Dispatches from Amazon

Figure 11: Logitech H390 Wired Headset

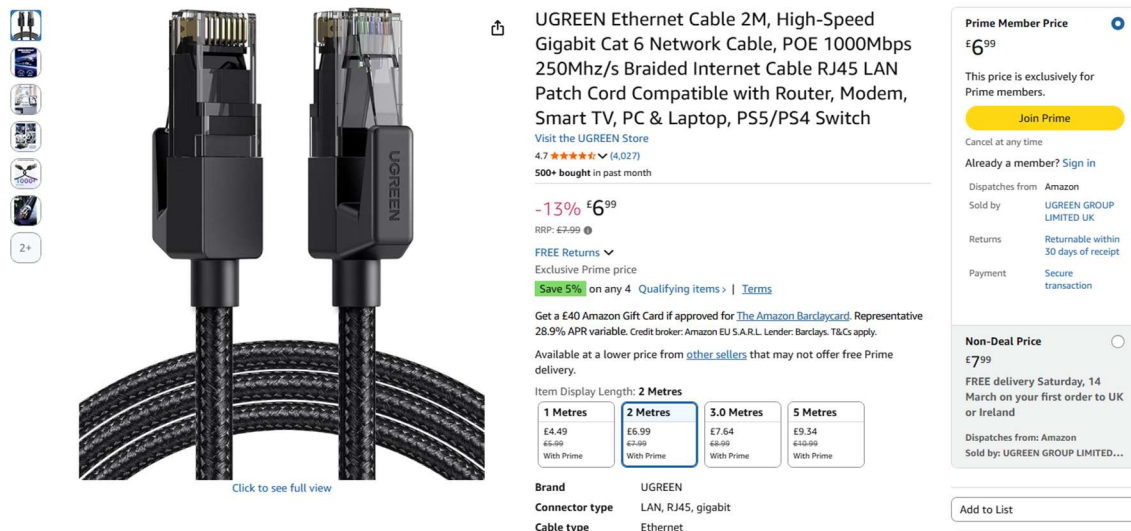


Figure 12: UGREEN Ethernet Cable 2M

1.3 Chosen Components Specification

1.3.1 CPU

The CPU controls the computer's operations and performs data-processing tasks [1]. The AMD Ryzen 7 7800X was chosen instead of the Intel Core i9-14900K because it offers better value for money. Although higher speeds are more beneficial, 5 GHz with 8 cores is more than sufficient for multitasking here. Most CPUs with 6–16 cores provide the best balance between performance and cost [2].

1.3.2 Motherboard

The motherboard is the main PCB of the computer, containing packages of ICs or chips, including the processor, cache memory, and connectors for I/O devices such as networks and disks [3]. The reason this motherboard was chosen is that it is compatible with the Ryzen 7000 series, offers a competitive price with strong features, and supports a dual-monitor setup, as it has an HDMI port and a DisplayPort.

1.3.3 RAM

RAM functions as the short-term memory for the computer. For example, when you're working on a file, the most recent data is stored in RAM for quicker access, whereas once you save that file, that copy will then be saved to the hard drive in long-term storage [4]. One of the reasons the Lexar THOR Z Series RGB DDR5 RAM 32GB was

chosen over the Crucial DDR5 RAM 32GB is because it has a higher memory bandwidth. Memory bandwidth is the measurement of how fast the CPU can exchange data with the main system memory, or in this case, the RAM [5]. This is helpful in this scenario as it reduces loading times and improves multitasking.

1.3.4 Storage

An SSD differs from an HDD because it uses non-volatile flash memory, allowing it to retain data without power and achieve much faster read/write speeds since it has no moving parts [6]. The Crucial P310 1TB PCIe Gen4 NVMe SSD was chosen instead of the Acer Predator GM7 2TB because it is cheaper and includes a heatsink. The heatsink helps draw heat away from the SSD's controller and NAND chips, improving performance and extending lifespan [7].

1.3.5 GPU

The GPU is a key computing component designed for parallel processing and is widely used for tasks like graphics and video rendering [8]. The ASUS Dual GeForce RTX 5060 8GB GDDR7 OC Edition was chosen instead of the ASUS Dual RTX 5070 OC because it is more power-efficient. The RTX 5060 uses about 145 W, compared to roughly 250 W for the RTX 5070, resulting in lower electricity use, reduced strain on the power supply, and quieter cooling. The RTX 5060 still provides more than enough performance for engineering work, with 8 GB of GDDR7 memory and suitable processing capability.

1.3.6 Case & Power Supply

The estimated total load of my components is around 400 W. With a 750 W Corsair RM750x SHIFT PSU, the system runs at roughly 50–60% load, which is within the PSU's optimal efficiency range. As an 80 PLUS Gold unit, it operates at about 90% efficiency at 50% load, as shown in Figure 13 [9]. This also provides plenty of headroom for future upgrades. The NZXT H5 Flow Mid Tower case was selected because it offers strong airflow, good expansion options, easy installation and maintenance, and full compatibility with the other chosen components.

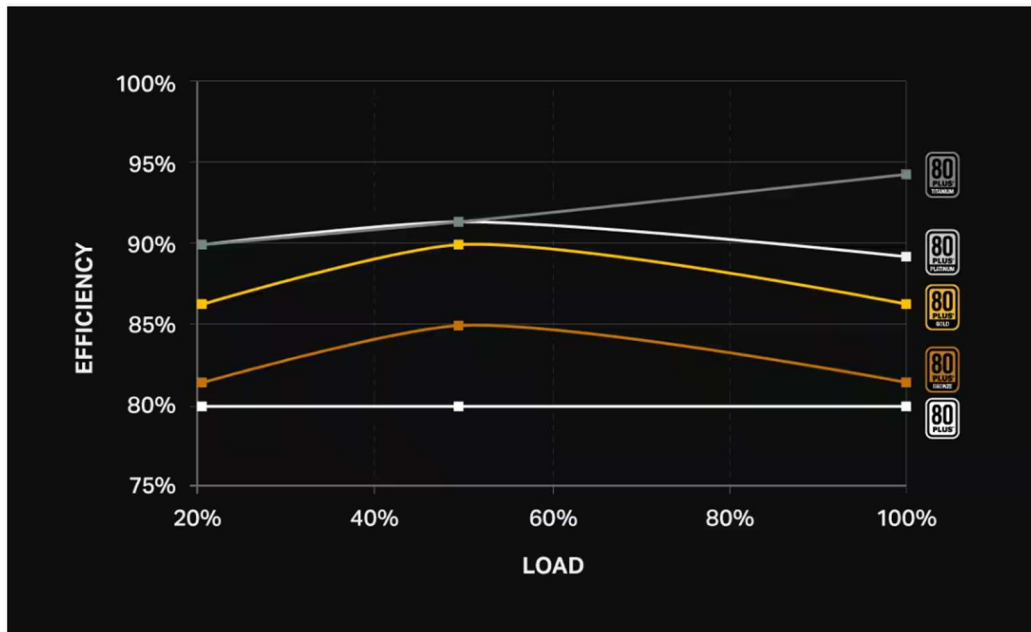


Figure 13: Graph of PSU efficiency ratings vs load percentage [9]

1.3.7 Monitor

Some of the reasons the G 27U631A-B.AEKQ Quad HD 27" IPS LCD Monitor was chosen over the Philips 27E1N1100A - 27 Inch FHD Monitor are because it has a higher resolution, better colour accuracy, and includes a USB-C connectivity option. It was decided that a dual monitor setup should be used as it is very common in electrical engineering to multitask and have multiple software running at the same time.

1.3.8 Network Connectivity

It was also decided that the PC will need a CAT 8 UGREEN Ethernet Cable connection, as it provides consistent speeds, low latency, and greater security than Wi-Fi. Unlike Wi-Fi, Ethernet doesn't fluctuate, which will then prevent consistent crashing or buffering, which can be viewed as unprofessional [10].

1.3.9 Software

The PC can efficiently run engineering software such as SolidWorks Electrical, PSpice, and LabVIEW, as well as Windows 11 Pro and Microsoft Office. Reliable security software was also included to protect against threats such as viruses, malware, and browser hijacking. PCPROTECT was the selected software, since 'AntivirusSoftwareGuide' reviewed it as one of the best options in 2026 [11].

2 Task 2:

2.1 Introduction

This task focuses on evaluating cybersecurity risks and developing strategies for a company, which recent audits have found several cybersecurity risks in the following areas:

- Outdated Firewall and Lack of Segmentation
- Outdated Firmware and Default Passwords
- Improper Third-Party Security
- Outdated Operating Systems
- Inadequate Employee Training

2.2 Identify and Evaluate the Impact of each Cybersecurity Risk

2.2.1 Outdated Firewall and Lack of Segmentation

Outdated firewalls are a major cause of unauthorised access and data breaches, exposing the entire network to threats [12]. Once exploited, attackers can reach sensitive, financial, or customer data. These risks are especially serious in industries where confidentiality and compliance are critical, such as those governed by ISO 27001, GDPR, or NIST standards [13].

2.2.2 Outdated Firmware and Default Passwords

A 2025 IBM survey found that 86% of router admin passwords remain unchanged from factory settings, highlighting ongoing complacency around basic security practices [14]. Outdated firmware also increases risk, as attackers can exploit unpatched vulnerabilities and weaken monitoring and threat detection [15].

2.2.3 Improper Third-Party Security

Research shows the growing impact of supply chain attacks. Acronis reports that, according to ENISA's "Good Practices for Supply Chain Cybersecurity", supply chain compromises made up 17% of intrusions in 2021, and 39–62% of organisations experienced a third-party cyber incident [16]. Such incidents increase vulnerabilities, raise the risk of supply chain attacks, and reduce transparency.

2.2.4 Outdated Operating Systems

Modern cyberattacks often probe for weak points in systems, such as outdated operating systems, legacy infrastructure, and unsupported endpoints. Key risk areas include endpoint security gaps, compliance and audit risks, access control vulnerabilities, and data governance breakdowns [17].

2.2.5 Inadequate Employee Training

Since human error accounts for 68% of security breaches in 2024, the importance of adequate employee training is vital. Some of the key reasons to prioritise cybersecurity training are to prevent phishing attacks, reduce the frequency of human error, and comply with regulatory frameworks like GDPR [18].

2.3 Prioritising Risks

During this section, the student utilised the risk matrix seen below (Figure 14) to aid in determining the order of prioritisation of risks.

Likelihood

RISK ASSESSMENT MATRIX					
Unlikely (1)	Low risk. No further action	Low risk. No further action	Low risk. No further action	Low risk. No further action	Medium risk. Further action optional
Seldom (2)	Low risk. No further action	Low risk. No further action	Medium risk. Further action optional	Medium risk. Further action optional	High risk. Further action necessary
Occasional (3)	Low risk. No further action	Medium risk. Further action optional	Medium risk. Further action optional	High risk. Further action necessary	Extreme risk. Act now
Likely (4)	Low risk. No further action	Medium risk. Further action optional	High risk. Further action necessary	Extreme risk. Act now	Extreme risk. Act now
Definite (5)	Medium risk. Further action optional	High risk. Further action necessary	Extreme risk. Act now	Extreme risk. Act now	Extreme risk. Act now
	Insignificant (1)	Marginal (2)	Moderate (3)	Critical (4)	Catastrophic (5)
	Consequence				

Figure 14: Risk Assessment Matrix [25]

2.3.1 Outdated Firewall and Lack of Segmentation Risks

This risk is the highest priority risk, as network segmentation is one of the strongest controls for preventing lateral movement. Lateral movement is the process by which cyber attackers spread through a network after gaining initial access, aiming to reach sensitive systems while avoiding detection [19].

2.3.2 Outdated Operating Systems

Unsupported operating systems contain widely known, unpatched vulnerabilities that attackers can exploit with little effort. Microsoft's "Digital Defense Report" states that over 90% of ransomware attacks reaching the encryption stage begin on unmanaged devices lacking proper security controls [20].

2.3.3 Outdated Firmware and Default Passwords

Outdated firmware and default passwords pose a high-priority risk because attackers can easily exploit these weaknesses to gain a foothold in the network or pivot into more sensitive systems. Even if embedded devices do not store customer data, they can still provide network access, disrupt operations, or be hijacked for botnets or DDoS attacks.

2.3.4 Improper Third-Party Security

Improper third-party security is ranked as the fourth-highest priority risk because, whilst the impact can be severe, the likelihood varies depending on the supplier's security of their processes. The potential impact of this risk can be long-term reputational and operational consequences, as well as counterfeit components or exploitable firmware in critical products.

2.3.5 Inadequate Employee Training

Although this risk is also important, it ranks the lowest priority primarily because of the other higher-priority weaknesses. Poor employee training increases the likelihood of phishing emails and other scams, affecting businesses. The impact, however, is often limited due to the strength of internal controls, and in this case, the more severe risks stem from structural weaknesses (e.g. outdated firmware, operating systems, etc.).

2.4 Cybersecurity Strategy

2.4.1 Outdated Firewall and Lack of Segmentation Rules

To help mitigate this risk, the company can improve their network segmentation, which is a network security practice and a defence-in-depth strategy of dividing the main network into multiple, smaller subnetworks to better protect sensitive data and limit lateral movement to the rest of the network [21]. The business can also update the firewall or improve it to a more advanced, modern version.

2.4.2 Outdated Firmware and Default Passwords

To address this risk, the company must immediately replace all outdated firmware with new and more secure options. Furthermore, all default passwords should be made stronger and unique to each device/account. To help with this, the company can use a password generator tool or refer to an online password strength tool, which can confirm how strong your password is against intruders. An example of an online password strength tool can be found in Appendix B.

2.4.3 Improper Third-Party Security

To mitigate this risk, the company should ensure that third-party collaborators follow recognised cybersecurity standards such as ISO 27001, which outlines requirements for protecting sensitive information and reducing the likelihood of breaches or cyberattacks [22]. The company should also verify that components from international suppliers comply with IEC 62443 to ensure industrial systems remain secure against cyber threats.

2.4.4 Outdated Operating Systems

To prevent this risk from occurring, the company should implement a regular patch management system for the OS and all software used. All workstations running unsupported operating systems should be replaced or upgraded with ones that include modern security patches.

2.4.5 Inadequate Employee Training

To help solve this risk, the business should introduce a mandatory cybersecurity awareness training session that covers phishing, password hygiene, safe browsing,

and incident reporting. The company should also conduct regular phishing simulations and establish a clear incident reporting process, so employees know how to escalate suspicious activity.

2.5 Incident Response Plan

2.5.1 Preparation

According to NIST, you should compile a list of the business's IT assets, identifying their importance and which ones are critical or hold sensitive data [23]. After that, you should set up monitoring and then determine which types of security events should be investigated and create detailed response steps for common types of incidents.

2.5.2 Detection and Analysis

The next step should be to collect data from IT systems, security tools, publicly available information, any signs that an incident may happen in the future, and data showing that an attack has happened or is happening. Analysis is defined by NIST as identifying a baseline or normal activity for the affected systems, correlating related events and seeing if and how they deviate from normal behaviour [23].

2.5.3 Containment, Eradication, and Recovery

Containment aims to stop the attack before it overwhelms resources or causes damage. In the eradication and recovery stage of this phase, you should aim to remove all elements of the incident from the environment. Once this has been completed, you can resume normal operations as soon as possible.

2.5.4 Post-Incident Activity

During this step of the incident response plan, you should conduct a lessons learned and update policies, firewall rules, and segmentation based on findings. This will ensure that any issues won't occur again. NIST emphasises continuous improvement and integrating lessons learned into governance and risk management [23].

2.6 Applicable Cybersecurity Standards

2.6.1 NIST CSF 2.0

NIST compliance provides a comprehensive foundation that aligns with many existing compliance standards, such as GDPR, HIPAA, ISO, and CIS Controls [24]. The proposed strategy aligns with this standard as it includes categories like awareness and training, cybersecurity supply chain risk management, incident management, and more [24].

2.6.2 ISO/IEC 27001

The proposed strategy aligns with this standard since it was recommended that the company implement an improved network segmentation process, and that it compares third-party cybersecurity practices to ISO 27001 when collaborating with them.

2.6.3 BS EN 62443

BS EN 62443 (IEC 62443) is a cybersecurity standard for industrial automation and control systems, such as those used in power plants and manufacturing. It is relevant here because the proposed strategy recommends assessing third-party components against this standard to help maintain the confidentiality of data in critical systems.

3 Conclusion

In Task 1, the learner found out that different computer components matter more for specific scenarios based on factors like application, memory, CPU speed, and compatibility. Additionally, the learner was curious about the recent rise in component prices, so they researched the reasons, which are in Appendix A.

In Task 2, the learner explored cybersecurity and found that attackers often exploit weaknesses like outdated firewalls, default passwords, and poor user training. After that, they then independently researched several cybersecurity tools, which are listed in Appendix B.

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Appendices

Appendix A – Research on Computer Components Price Increase

Appendix B - Cybersecurity Strategy Tools

Appendix A - Research on Computer Components Price Increase

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Factor	Brief Description	Direct Impact on Consumers
AI Boom	Drastic increase in demand for AI server chips.	Production capacity for consumer PC parts is reduced.
Production Cuts	Manufacturers intentionally lower factory output.	Scarcity in the market leads to automatic price increases.
Global Logistics	Rising costs for air and sea freight.	Final retail price of electronic products becomes more expensive.
Currency Fluctuation	Strengthening of the US Dollar against local currencies.	Importers in Europe, Asia, and South America must adjust prices upwards.

Figure A - 1: Screenshot of Factors Driving PC Part Inflation [A-1]

AI making prices rise

Chris Miller, author of Chip War, called AI "the main factor" driving demand for computer memory.

"There's been a surge of demand for memory chips, driven above all by the high-end High Bandwidth Memory that AI requires," he said.

"This has led to higher prices across different types of memory chips."

He said prices "often fluctuate dramatically" based on "demand and supply" - and demand is significantly up right now.

Figure A - 2: Screenshot of Primary Factor of PC Price Inflation [A-2]

Complete SSD Price Data Table: 2020-2026

Date	Avg \$/GB	1TB SSD Cost	2TB SSD Cost	YoY Change	Market Phase
Jan 2020	\$0.12	\$120	\$240	—	Pre-COVID baseline
Jul 2020	\$0.11	\$110	\$220	-8%	Early pandemic
Jan 2021	\$0.13	\$130	\$260	+8%	Supply chain stress
Jul 2021	\$0.14	\$140	\$280	+27%	Peak COVID pricing
Jan 2022	\$0.10	\$100	\$200	-23%	Oversupply begins
Jul 2022	\$0.08	\$80	\$160	-43%	Price collapse
Jan 2023	\$0.065	\$65	\$130	-35%	Fire sale era
Jun 2023	\$0.05	\$50	\$100	—	ALL-TIME LOW
Jan 2024	\$0.065	\$65	\$130	0%	Recovery begins
Apr 2024	\$0.095	\$95	\$190	+46%	Price surge
Sep 2024	\$0.085	\$85	\$170	—	Brief dip
Jan 2025	\$0.09	\$90	\$180	+38%	AI demand impact
Jul 2025	\$0.10	\$100	\$200	—	Shortage intensifies
Jan 2026	\$0.11	\$110	\$220	+22%	SHORTAGE CRISIS

Key insight: A 1TB SSD that cost \$50 in June 2023 now costs \$110+ in February 2026 — a 120% increase in just 2.5 years.

Figure A - 3: SSD Price between 2020-2026 [A-3]



Figure A - 4: Graph of Average Consumer SSD Price per GB from Jan 2020 – Feb 2026
[A-3]

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Appendix B - Cybersecurity Strategy Tools

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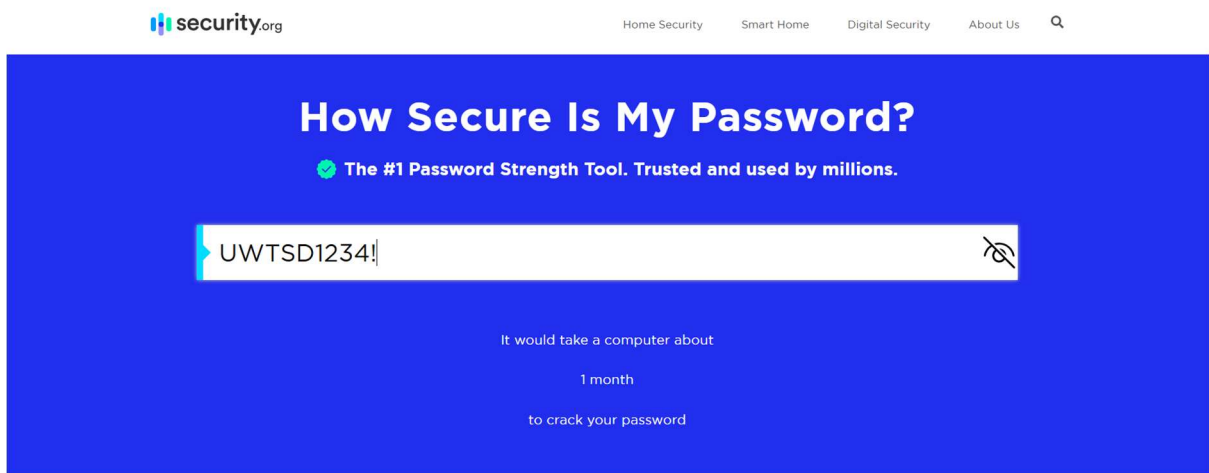


Figure B - 1: Online Password Strength Tool [B-1]

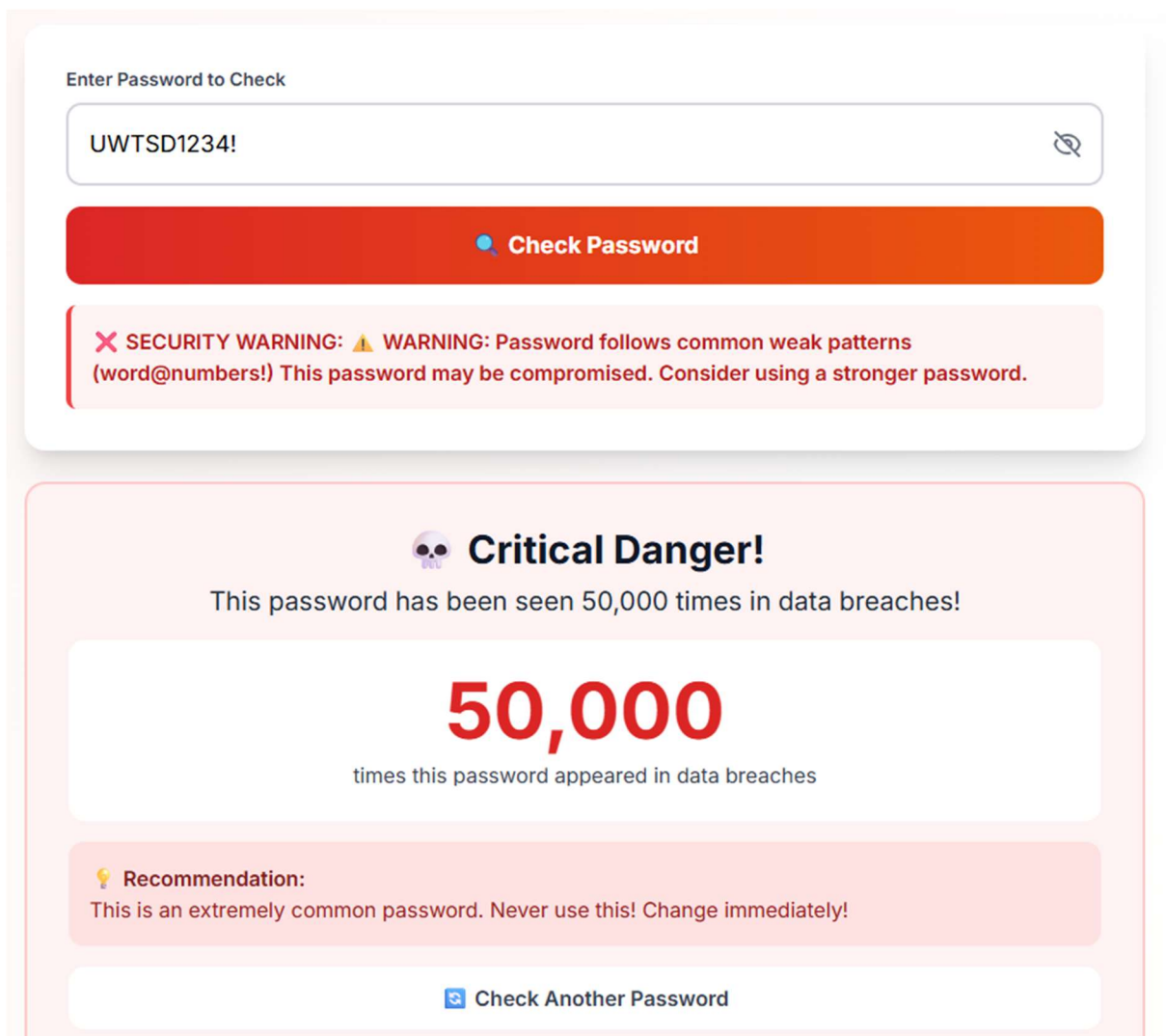


Figure B - 2: Free Online Password Leak Checker [B-2]

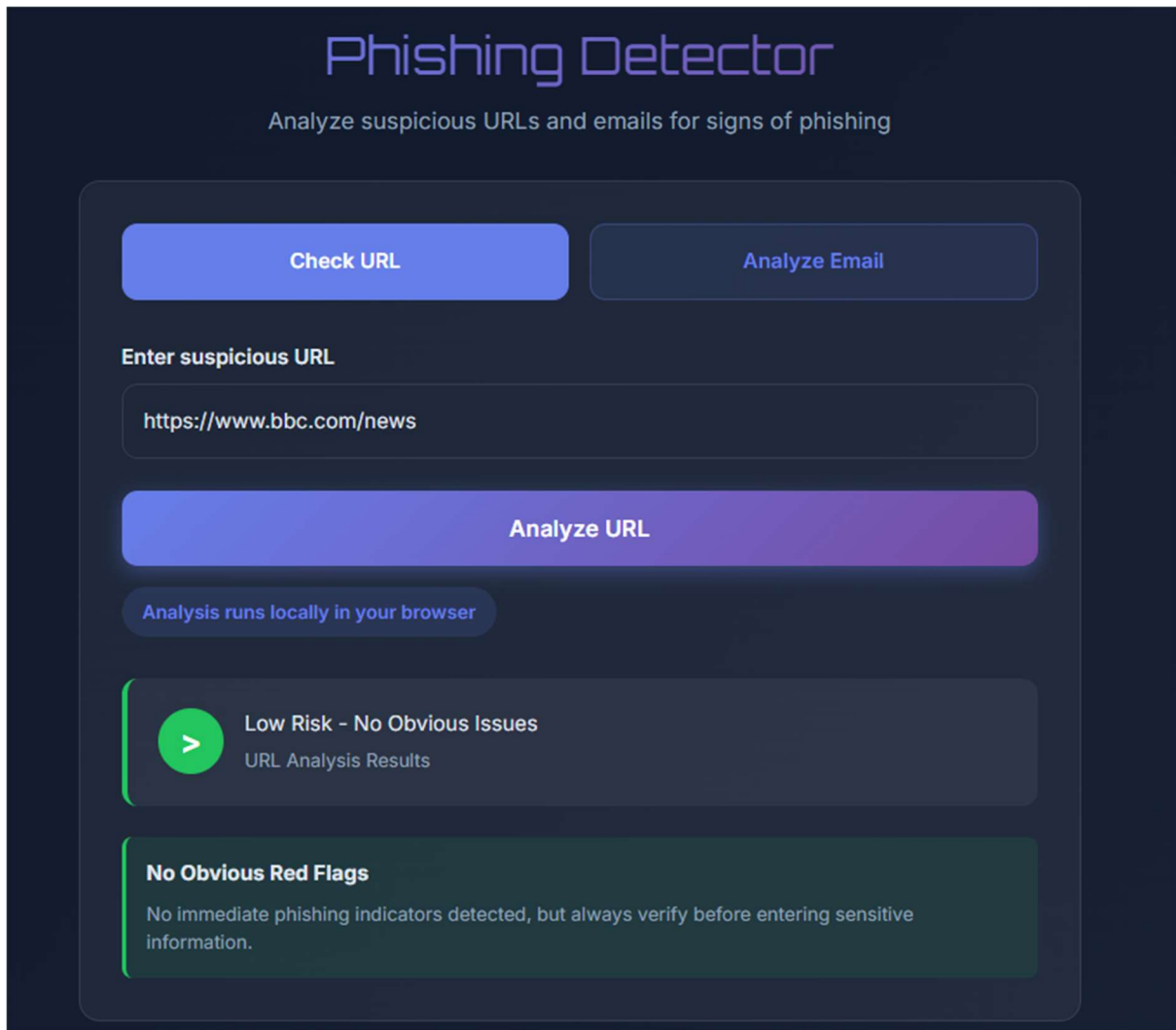


Figure B - 3: Free Online URL Checker [B-3]

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