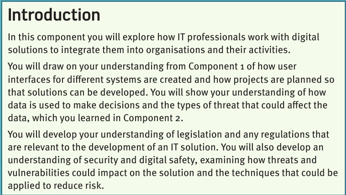
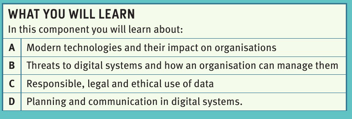
BTEC in DIT

Component 03 – Effective Working Practices – workbook

Name:

Class:





1. Communication Technologies

# Task 1

(a) Ad-hoc networks are commonly used in PANs. What does PAN stand for?

P\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ N\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) Wireless ad-hoc networks are commonly used when connecting your smartphone to a laptop. Identify three reasons why we might connect our smartphone to our laptop in this way.

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(c) The alternative to an ad-hoc network, is an “infrastructure” network where we connect via a central device like a router. Generally speaking, an Ad-Hoc network is cheaper to set up than an Infrastructure network. Why is this?

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# Task 2

(a) Below are four statements regarding Open Wi-Fi connections. Identify which statements are true and which are false.

**True False**

1. Open Wi-Fi is where you connect your laptop to your phone to share its connection.

2. Open Wi-Fi doesn’t require a password in order to connect to it.

3. Open Wi-Fi encrypts all data that is being transmitted over it.

4. Any data being sent over Open Wi-Fi could be intercepted & stolen.

(b) Open Wi-Fi is commonly used in restaurants and cafés. Why do you believe they use this?

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(c) Secure Wi-Fi connections usually use encryption. What type of encryption is used on Wi-Fi?

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# Task 3

There are a number of performance issues with ad-hoc networks. Explain these issues below.

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| --- | --- |
| Issue | Explanation |
| Maximum Speed |  |
| Maximum Range |  |
| Interference |  |

# Task 4

Samuel commutes by train a lot as part of his job. While on the train he tethers his laptop to his smartphone in order to use its mobile broadband. However, at times he finds he loses his internet connection.

Explain two potential issues that might be the cause for Samuel’s loss of internet.

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1. Features & Uses of the Cloud

# Task 1

(a) Anisah is a project manager for a digital advertising company. In her job she often works from home, rather than travelling to the office.

Explain two features of Cloud Storage that will make it easier for Anisah to work from home.

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(b) Below are three statements regarding features of Cloud Storage. Identify which statements are true and which are false.

**True False**

1. A disadvantage of cloud storage is it is expensive to increase storage where required.

2. Cloud storage can be used to share files with others.

3. It isn’t safe to back up your files to cloud storage.

(c) One of the benefits of cloud storage over local storage is availability. Explain what we mean by cloud storage being more available?

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# Task 2

(a) Below are four statements regarding Cloud Computing & Cloud Storage. Identify which statement is about which service by drawing lines between them.

Allows you to use applications via your browser.

Allows you to synchronise files between devices.

Helps ensure all users are using the same version of software.

Let’s people work on a single shared instance of a file.

**Cloud Computing**

**Cloud Storage**

(b) What is the difference between cloud storage and cloud computing? Explain this below.

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(c) In Anisah’s job as a project manager for a digital advertising company, she often finds she needs to work on the same files with her co-workers, with everyone needing to be able to open and edit the files.

Explain two features of Cloud Computing that will make it easier for Anisah to work on the same files as her co-workers.

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1. Selection of Cloud Technologies

# Task 1

(a) What do we mean by the term platform independent?

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(b) Explain why we don’t always want to select the cloud technology that has the most features.

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(c) Below is a drawing of a user interface for a cloud word processing software application.

A screenshot of a cell phone

Description automatically generated

Identify two ways the cloud software interface’s design makes it easier to use.

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(d) Freya is the IT manager for a tech company that has fifteen employees but is expanding quickly. The company is thinking of switching to using a cloud service provider to access cloud storage and software. Freya has been asked to choose a provider of these services.

Discuss the factors that Freya would need to consider before choosing a cloud service.

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# Task 2

(a) What do we mean by the term “device synchronisation”.

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(b) Below are three statements regarding the use of cloud & traditional systems together. Identify which statements are true and which are false.

**True False**

1. Files can be synced between cloud & local storage so they can be worked on locally.

2. Files edited while offline can’t be synced with cloud storage.

3. Cloud software can give notifications when events occur like a file being synced.

(c) Explain one situation where traditional storage and software may be preferable to cloud software.

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1. Implications of Cloud Technologies

# Task 1

(a) What is a disaster recovery policy?

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(b) Below are three statements regarding disaster recovery policies. Identify which statements are true and which are false.

**True False**

1. A disaster recovery policy may define when backups are made & where they’re stored.

2. Using cloud services weakens your ability to recover from a disaster.

3. Cloud service providers rarely have their own disaster recovery policies.

(d) Abdullah is thinking of using cloud storage in order to store the confidential financial information he keeps on his customers.

Discuss why doing this may be a serious security issue for his business.

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# Task 2

(a) If cloud services are accessed through your browser, identify two reasons why there may still be some compatibility issues.

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(b) Abdullah is now thinking about switching to cloud-based software to help his employees work collaboratively and remotely.

Evaluate how the maintenance of his software as well as getting up and running may be easier or more difficult after switching to cloud-based software.

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# Task 3

Cloud technologies can have some major impacts on the performance of computers and employees. Three of these are listed in the table below. Explain how these factors might have an impact.

|  |  |
| --- | --- |
| Consideration | Impact |
| Responsiveness to User |  |
| Complexity of the Task |  |
| Available Technology |  |

1. Selection of platforms and services

# Activity sheet 3.4: The paperless school

*A Modern technologies*

Springfield Academy has over 1200 students aged between 11 and 18, and employs over   
70 teachers.

You are a working for Springfield Academy as a digital information technology consultant.

The academy would like to become a paperless school. While students will still use paper in their lessons, the work of teachers and support staff will all be done using computing devices.

The academy has asked you to consider a number of different scenarios and, for each one,   
to recommend the most suitable computing device. You can choose from the following devices:

* desktop PC
* laptop
* notebook
* tablet
* smartphone.

For each scenario:

* 1. recommend a suitable device
  2. give reasons for your choice.

## Scenario 1

Karl Williams is an assistant headteacher. Karl needs to keep in regular contact with both the headteacher and the school office. Karl regularly spends time out of his office walking around the academy buildings and grounds.

Device:

Reasons for choice:

## Scenario 2

Nazir Hussein is a science teacher. Nazir travels by train to and from the school each day.   
The journey lasts one hour. Nazir wants to be able to prepare his lessons while travelling on   
the train.

Device:

Reasons for choice:

## Scenario 3

Hannah James is the school site manager. Hannah has a team of three assistants. Hannah would like her team to be given lists of tasks to be done. Hannah would like to be able to update the task list easily and communicate to her team instantly, wherever they are on the school site.

Device:

Reasons for choice:

## Scenario 4

Sylvia Weissenburger is a maths teacher. Sylvia teaches each day in the same classroom.   
She needs to be able to both prepare and deliver her lessons by connecting her device to a projector and display board.

Device:

Reasons for choice:

Take it further

For each of your choices, explain why you have rejected other types of device. If you are recommending a specific make and model of device, give detailed reasons for your choice.

1. Using Cloud and Traditional System Together

## Newer is not always better

Laura Stanton is an architect. Laura works three days a week in her London office, but on Mondays and Fridays she works from home. Laura sometimes also works at the weekends.

Laura uses a laptop at home, a desktop PC in her London office and a tablet when commuting between the two.

Laura uses cloud computing to synchronise her files across her devices.

Laura is currently using her laptop to edit a file that she originally created using her tablet.

1. Draw a diagram to show how files could be synchronised between Laura’s devices.
2. Explain how any changes made by Laura to the document are automatically synchronised.

Laura accidentally deletes a file on her laptop.

1. Explain the consequences for Laura if she does not use a data back-up service.

Laura is concerned that her cloud account has more files than the storage capacity of her tablet can handle.

1. Explain how Laura could configure her cloud synchronisation service to minimise the number of files stored on her tablet.

Take it further

Explain the benefits and drawbacks to Laura of using a cloud synchronisation service.

1. Choosing cloud technologies

Kylie Broadbent is a personal fitness trainer. Kylie runs her own business. Kylie has a small gym and fitness studio in some outbuildings in her garden, where she works with her clients. Sometimes Kylie visits clients in their homes or accompanies them on sporting and fitness activities outdoors.

Kylie uses fitness trackers and other portable devices to collect fitness data from her clients.   
This data is then analysed using apps designed for portable devices such as smartwatches, smartphones and tablets, as well as on Kylie’s laptop. Data security and privacy is very important for Kylie. Her clients rely on her to collect and store personal data, which they expect to be kept and used safely and securely.

Kylie has asked you to recommend cloud computing and cloud storage services that she could use. Kylie would like her clients to be able to access some, but not all, of the data that she holds on them, but not be able to access the data of any other client. Kylie needs as much flexibility as possible in terms of how the data she collects is used but, for her, security and privacy issues are very important.

## Your task

Recommend to Kylie a cloud-based system that will meet the needs of both her and her clients. **You should present your recommendations as a formal report**.

* You will need to conduct research into the various cloud-based services available.   
  Kylie’s needs may be best met by using a combination of different providers, each supporting   
  a specific part of the system.
* Kylie has not given you a budget, so recommend a range of providers: a low-cost, basic solution, and two more-expensive solutions that offer a better service.

Your recommendations report:

1. Maintenance, set up and performance considerations

Allan’s Travel Services is a travel agency based in the north of England. The owner, Stewart Allan, is thinking of using a cloud provider to supply computing and data services for the six travel agency shops that make up the business. The agencies are open six days a week between 8 a.m. and   
6 p.m., only closing on Sundays.

Stewart knows that you have knowledge of cloud computing services and has asked you for your help.

## Tasks

Stewart is considering using a cloud computing business based in New York City (United States of America). The business has said that the only time it carries out routine maintenance on its systems is between midnight and 5 a.m. on Sunday night/Monday morning. Cloud services will be unavailable during this time.

1. Explain why the cloud computing provider might need to carry out maintenance on its services.

1. Will this be a problem for Allan’s Travel Services?

1. ‘Cloud computing organisations should aim to avoid downtime altogether.’ Do you agree?   
   Give reasons for your answer.

Stewart has found another cloud computing provider. They will charge £250 per month for both cloud storage and cloud computing services. The price will be fixed for the first 12 months.

1. State one benefit to Allan’s Travel Services of having the price of the service fixed for   
   12 months.

1. Explain the drawbacks to Allan’s Travel Services of the fixed price agreement ending in   
   12 months’ time.

1. Changes to Modern Teams

# Task 1

(a) What is the meaning of the term globalisation?

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(b) Explain two benefits of teams becoming more multicultural.

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# Task 2

(a) Below are two statements regarding the impact of technology on workplace inclusivity. Identify which statements are true and which are false.

**True False**

1. Inclusivity is only concerned with making IT accessible for those with disabilities.

2. Modern technology has made workplace inclusivity worse overall.

(a) Workplace accessibility for the disabled has improved in many different ways due to modern technologies. Below are two technologies that have had an impact on disability inclusivity. Explain how these have helped.

|  |  |
| --- | --- |
| Technology | Explanation |
| Video Conferencing |  |
| Text-to-Speech Software |  |

# Task 3

(a) Below are four statements regarding how modern technology have changed when & where we work. Identify which statements are true and which are false.

**True False**

1. Modern technologies have often caused business to need to be available 24/7.

2. Individuals can sometimes work more flexibly, during hours that suit them.

3. The flexibility of modern workplaces makes it less accessible for people with disabilities.

4. Modern technology has made it harder to work from home.

(b) David is a single father of two children. He has a lot of responsibilities to his children but also needs to maintain a full-time job. Discuss how modern technologies have changed the way we work, such that David can fit his work life around his family responsibilities.

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1. Managing Modern Teams

# Task 1

(a) Cloud-based word processing software is very helpful in allowing employees in a business to work collaboratively when producing a report or some other kind of document.

Identify two tools commonly found in cloud-based word processing software that support collaboratively working.

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(b) Other than cloud-based software, identify and explain three different technologies that support collaborative working.

|  |  |
| --- | --- |
| Technology | Explanation |
|  |  |
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# Task 2

(a) Modern technology supports communication within a business. Identify and define three modern communication technologies.

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(b) How does improved communication benefit a business? Identify two benefits of using modern technology to communicate.

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# Task 3

(a) Project management software is commonly used for scheduling and planning how time is spent on a project. This software has several tools to support this. Identify four such tools below.

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(b) Thank to modern technology, there are many online tools for scheduling and planning employees time. For example, Trello.

Identify and describe two benefits of using online software like Trello in order to schedule and plan a modern teams time when working on a project.

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# Task 4

(a) Frieda works for a large multi-national company and is working on a project with co-workers based in offices in several countries around the world.

Discuss how modern technologies can help Frieda collaborate with her co-workers around the world and manage progress.

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1. Communicating with Stakeholders &   
   Accessibility

# Task 1

(a) What do we mean by the term “stakeholder”?

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(b) Identify three examples of stakeholders that a business might have and explain why they are a stakeholder of the business.

|  |  |
| --- | --- |
| Stakeholder | Explanation |
|  |  |
|  |  |
|  |  |

(c) Talha is a manager of a chain of supermarkets. Due to a recent issue over a product in the store, he needs to communicate with customers about a product recall. He has decided to use Social Media in order to communicate this recall with customers.

Evaluate Talha’s decision. Make sure you consider alternative methods and come to a conclusion as to whether he is correct in his decision to use social media.

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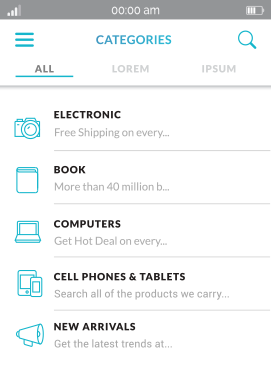
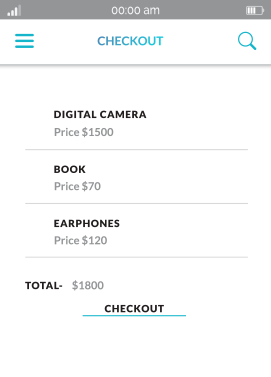
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# Task 2

(a) Below is a drawing of an online shopping apps user interface. Annotate the interface to identify features of the interface design that make it more accessible to users.

(b) In the user interface above, what accessibility features could be used to make it more accessible?

List and explain two possible features below.

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(c) Lois has decided to allow employees to work remotely from home on most days and even to work flexible hours where required.

Explain how this might impact on any disabled employees that she employs.

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1. Impact of Modern Technology on  
   Organisations

# Task 1

(a) Below are four statements regarding the impact of modern technology on an organisation’s IT infrastructure. Identify which statements are true and which are false.

**True False**

1. Modern technology has reduced the demand on a business’s network & internet connection.

2. Modern technology has put increased pressure on staff to be available outside of work  
 hours.

3. Modern technology has allowed us to make our products and services available worldwide.

4. Modern technology has made the need for encryption technology very important.

(b) A law firm has decided to start using cloud storage to store its business data. They are concerned about how this might impact on the organisation’s IT infrastructure. Identify two positive impacts and two negative impacts that it might have.

**Positive**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Negative**

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(c) If the law firm’s private data was stolen while it was stored on the cloud storage service, how might this negatively impact on the firm? Identify two possible impacts.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Task 2

(a) Many businesses use modern technology to support collaboration. Identify two benefits of using modern technologies this way.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(b) Below are three statements regarding the impact of modern technology on an organisation’s operation. Identify which statements are true and which are false.

**True False**

1. Collaboration can cause security issues, due to transferring data online.

2. Remote working tools can help to support accessibility & inclusivity.

3. Remote working can have negative impacts on morale due to being very isolated.

(c) Generally speaking, the growth of modern technologies has been seen as a positive impact on inclusivity and accessibility. However, there can be negatives to some groups. Explain below one way that modern technology may negatively impact on this.

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# Task 3

The law firm has decided to implement a number of modern technologies, including cloud storage, online software & video conferencing, in order to allow staff to work remotely more regularly.

Evaluate their decision to implement these technologies. Be sure to include a conclusion saying whether you think it overall is a good idea or not and why.

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Impact of Modern Technology on  
Individuals

# Task 1

(a) Below are four statements regarding the impact of modern technology on how and where individuals work. Identify which statements are true and which are false.

**True False**

1. Working from home requires self-discipline to not be distracted from work.

2. Most employees prefer to work at an office rather than at home.

3. Employees being allowed to use their own devices can encourage them to work out of  
 office hours.

4. Tools that support working from home include Video Conferencing & Cloud Computing.

(b) Modern technology allows individuals to work from home more easily. This benefits both the business and the individual employees. Identify two benefits to the business and two benefits to the employee.

|  |  |
| --- | --- |
| Business | Employee |
|  |  |
|  |  |

(c) What is a BYOD policy?

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(d) Ayesha runs a drinks company and is considering implementing a BYOD policy in the business to encourage employees to use their own devices. Discuss the pros and cons of this with regards to her business and her employees.

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# Task 2

Modern technology has many benefits and drawbacks when it comes to mental wellbeing. Evaluate the impact of on the mental wellbeing of individuals when using modern technology in the workplace. Be sure the conclude as to whether it has been an overall positive or negative.

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1. Why Systems are Attacked

# Task 1

(a) There are many reasons why systems are attacked. The table below lists six different categories of reasons why systems are attacked. For each provide an explanation. The first is given for you.

|  |  |
| --- | --- |
| Reason | Explanation |
| Fun/Challenge | Gaining unauthorised access due to wanting to ‘beat’ the system or impress others. |
| Industrial Espionage |  |
| Financial Gain |  |
| Personal Attack |  |
| Disruption |  |
| Data Theft |  |

(b) Cyber attacks are often for financial gain. This can be direct or indirect. Explain what we mean by direct and indirect financial gain.

Direct financial gain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Indirect financial gain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(c) What are two common methods of attack used when disruption is the reason why the system is attacked?

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(d) Personal attacks are often performed by disgruntled employees who are trying to gain revenge for some reason, such as because they were fired. Research a real-life example of where an employee has attacked their employer/former employer as revenge. Summarise your findings below.

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# Task 2

(a) Different reasons for attacks often lead to specific impacts. Match up the reasons for the attacks with the impacts you believe are most likely to occur. Tip: some reasons will have more than one likely impact and vice versa.

**Data Loss**

**Fun/Challenge**

**Damage to Public Image**

**Industrial Espionage**

**Financial Loss**

**Financial Gain**

**Reduction in Productivity**

**Personal Attack**

**Downtime**

**Disruption**

**Legal Action**

**Data Theft**

Share your findings when completing the previous task with a classmate. Did they find the same results as you?

(b) What legislation may lead to you suffering large fines if you have private data stolen during a cyber security attack?

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(c) Visit the website <https://haveibeenpwned.com/> and enter an email address you use. Answer the following questions.

i. Has your data been compromised in a data breach?

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ii. What data about you has been compromised?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

iii. Where passwords were stolen, were they encrypted/hashed?

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iv. What might an impact of this be on you?

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1. External Threats

# Task 1

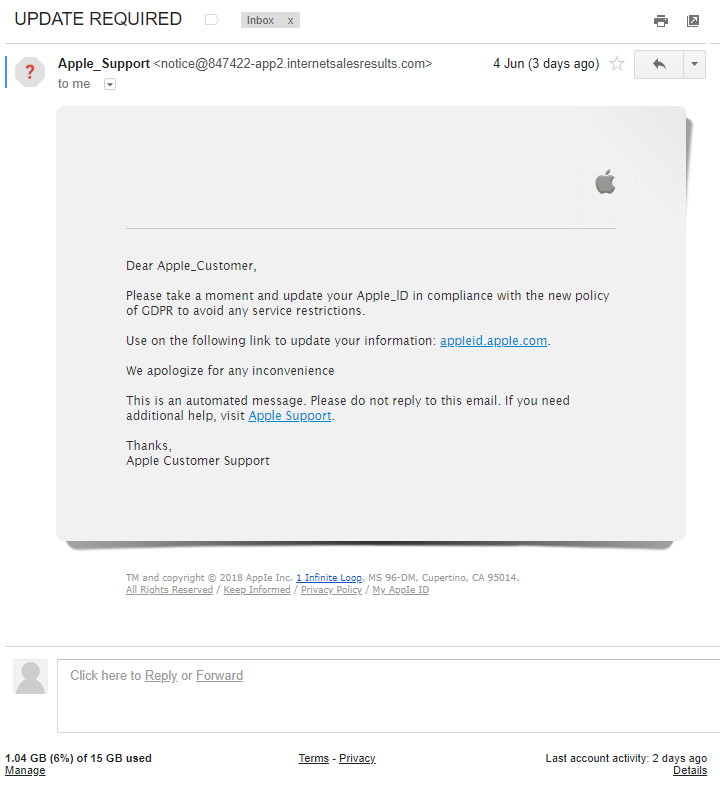
(a) Many social engineering threats are designed to steal username and password details rather than financial data and money. What might they use these login details for?

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(b) Below is an example of a phishing email. This is trying to get users to click on a link and enter their apple id login details so the attacker can use them to perform further crimes.

Annotate this email to identify at least 3 ways that you can tell it is a phishing email.



# Task 2

(a) Malicious software, or malware, come in a variety of different types. These different types of malware can spread and act in different ways and can have a different impact on your computer system. Identify these below.

|  |  |  |
| --- | --- | --- |
| Malware Type | Explanation | Impact |
| Virus |  |  |
| Worm |  |  |
| Botnet |  |  |
| Trojan |  |  |
| Ransomware |  |  |
| Spyware |  |  |

(b) There are several ways that a virus can infect a computer system. Identify two possible methods of infection below.

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# Task 3

(a) What is the difference between a white-hat hacker and a black-hat hacker?

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(b) What is the difference between phishing, spear-phishing and pharming?

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(c) Below are three statements regarding external threats to organisations. Identify which statements are true and which are false.

**True False**

1. A denial-of-service attack is where a virus infects a computer causing it to crash.

2. An example of a ‘Man-in-the-Middle’ attack is setting up a fake WiFi access point that  
 people connect to and stealing data as it is transmitted through the fake WAP.

3. Hacking is where an individual gains unauthorised access to a system/network.

1. Internal Threats

# Task 1

(a) Employees within an organisation can deliberately damage or steal systems and data from their employer. Identify two reasons why they might do this below:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) An employee may alter security controls within a business to make it easier for a malicious individual to attack the business from outside. Identify two possible security controls the attacker could modify.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(c) Below are a number of examples of internal and external threats to a business. Identify which of these are deliberate and which of these are accidental.

Responding to a phishing email asking for your login details.

Leaking confidential data to a rival business.

Accessing the server room and smashing equipment.

Spilling your coffee over your computer damaging it.

**Accidental**

**Deliberate**

# Task 2

(a) Sometimes an employee may unintentionally disclose data to a malicious individual. Identify three ways that this might happen.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) Portable storage devices being used within an organisation can be a serious threat to businesses. Explain why this statement is true below.

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(c) Below are four statements regarding internal threats to organisations. Identify which statements are true and which are false.

**True False**

1. Downloading email attachments is a very common way for viruses to spread.

2. You cannot be infected by a malware just by visiting an untrustworthy site, you must  
 download a file first.

3. Email attachments from colleagues are always safe to open.

4. Portable storage devices are safe to use at work, as long as they’re your own.

(d) Visiting untrustworthy websites can lead to a number of security issues. Identify three of these below:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. User Access Restrictions

# Task 1

(a) Below are listed several different user restriction methods. Identify which of these are physical security methods by ticking in the boxes.

1. Passwords…………………………………………………..………

2.Surveillance…………………………………………………..………

3. Locks ………………………………………………………………….

4. Levels of Access ……………………………………………………

(b) There are a number of benefits and drawbacks to using physical security methods in an organisation. Identify one of these benefits and one drawback below.

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# Task 2

(a) What do we mean by the term “principle of least privilege” and how does it protect an organisations data?

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(b) Daniel runs an accountancy firm with twenty employees. He has a local area network with shared file areas and each employee has their own work computer. To make it easier for employees to do their job, he has decided that all employees will have administrator access rights to the computers, full control over all files and unrestricted internet access.

Discuss Daniel’s decision to do this and advise him on what changes to his procedures you would advise.

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# Task 3

(a) Passwords are the most common form of authentication. However, they can be easy to guess if they aren’t sufficiently complex. Identify three rules you should follow for setting a complex password.

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(b) An alternative to passwords for authentication is biometrics. What are two benefits of using biometric authentication over password authentication?

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(c) Masimba has recently has a security scare when he was informed his email has been accessed in a country that he was not currently visiting. A friend told him that he should be using two factor authentication, but he has some concerns.

Discuss whether two-factor authentication would be a good method for Masimba to protect his email account.

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1. Data Level Protection 1

# Task 1

(a) What is a firewall?

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(b) Firewalls can be both hardware and software. But what is the difference between these two?

Explain the difference between a hardware and software firewall and how they protect our IT systems in different ways.

Hardware firewall \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Software firewall \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(c) In the area below draw an annotated diagram showing how a hardware firewall works.

# Task 2

(a) What is anti-virus software?

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(b) What is the difference between signature detection and heuristic detection? Which do you think would more accurately detect viruses?

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(c) Below are three statements regarding anti-virus software. Identify which of these statements are true and which are false.

**True False**

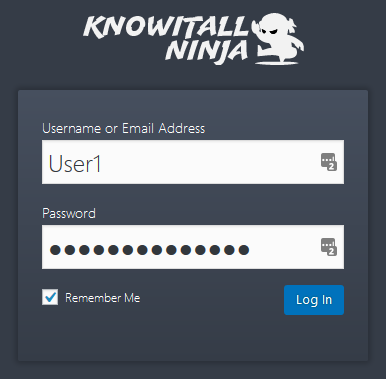
1. Anti-virus software can only detect viruses, not other forms of malware like worms.

2. Anti-virus software must be regularly updated, otherwise it won’t detect some malware.

3. Anti-virus software is very expensive and not affordable to the average user.

# Task 3

(a) Below is a drawing of a sign-in form for a website. Annotate this document to identify features of the interface design that can improve security.



(b) For each of the features identified above identify a threat that they might be able to protect us from being harmed by.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) Autocomplete is an interface design feature that can improve security. However, it could potentially be a security issue. Explain below why autocomplete may negatively impact on security.

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1. Data Level Protection 2 & Finding

Weaknesses

# Task 1

(a) What do we mean by the term “Device Hardening”?

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(b) Below are three statements regarding backup & recovery. Identify which of these statements are true and which are false.

**True False**

1. Backups should be performed once a day.

2. Backups should be stored in a remote location.

3. Cloud storage is an example of a remote backup location.

(c) Backups are an effective method of protecting yourself against the threat of human error. Explain how this statement is true?

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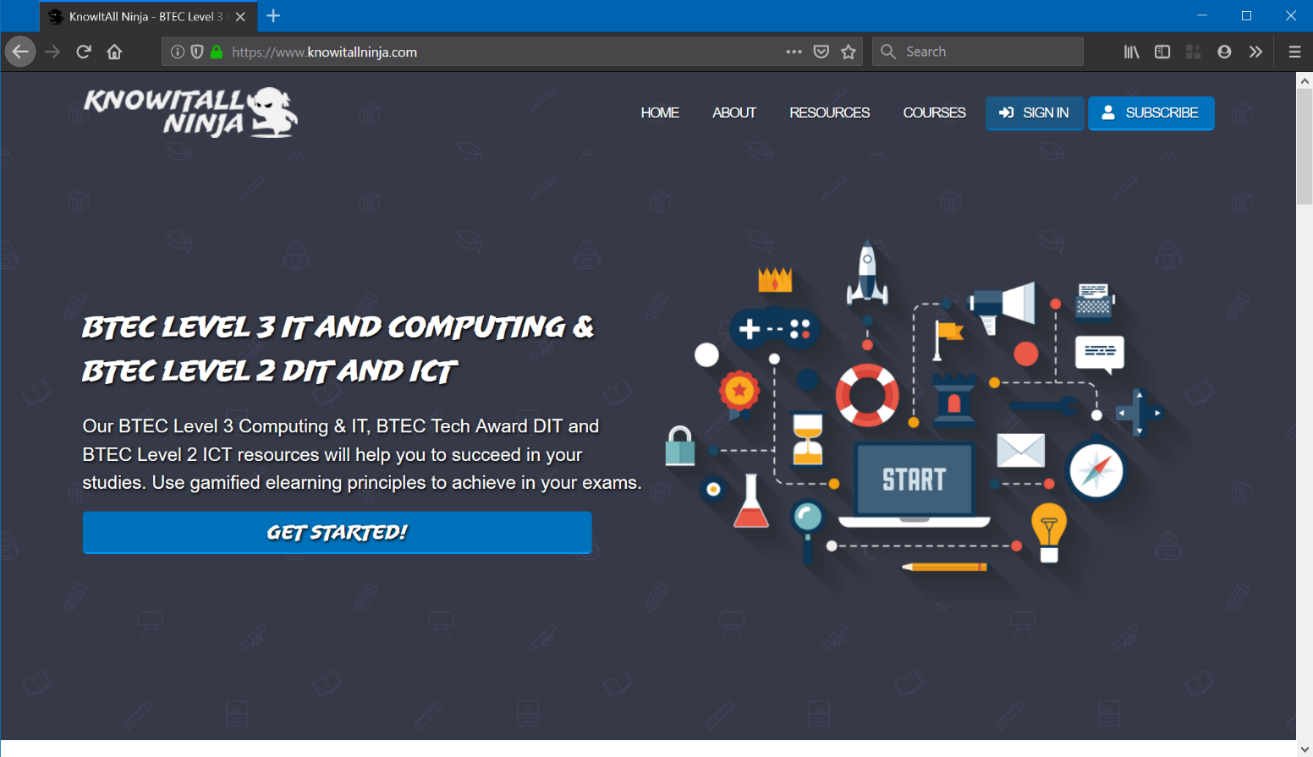
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# Task 2

(a) What do we mean by the term “encryption”?

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(b) Websites will often use encryption to protect the data you are transferring to the website. Below is an example of such a website. Annotate on the drawing to show you know that it is using encryption.



(c) A common method of encrypting data during transmission is using public key encryption. Use the diagram below to explain how public key encryption works.



# Task 3

(a) Some hackers are known as Ethical Hackers. These can be split into two categories. White-hat hackers and grey-hat hackers. Explain what the difference is between these two types of ethical hackers.

White-hat hackers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grey-hat hackers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) List below three different techniques used for penetration testing.

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3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) Jasmine is in charge of IT security for a medium sized law firm. She is considering hiring an ethical hacker to find weaknesses with the company’s current IT security procedures. Discuss whether this would be a good idea to do.

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1. Defining Responsibilities & Parameters

# Task 1

(a) Below are four statements regarding defining responsibilities. Identify which statements are true and which are false.

**True False**

1. The business CEO is in charge of defining who is responsible for implementing IT policies.

2. If we don’t choose someone for security concerns to be reported to, employees may not  
 report concerns they discover.

3. An employee that doesn’t follow their responsibilities could receive disciplinary action.

4. An individual should be made responsible for training staff on their responsibilities.

(b) Hamed wants to implement new cyber security procedures within his organisation. He knows he needs to define a number of responsibilities to staff to ensure the policy is implemented properly. Discuss what responsibilities he must assign.

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# Task 2

(a) One of the policies that Hamed is planning to implement is a new password policy. This will normally include guidelines for the dos and don’ts of password creation as well as guidelines for protecting passwords. Identify three guidelines for each of these areas that Hamed might want to implement.

|  |  |  |
| --- | --- | --- |
| Dos of Creation | Don’ts of Creation | Protection of Passwords |
|  |  |  |
|  |  |  |
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(b) What is the purpose of an acceptable software policy and why is one required?

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(c) What is a disadvantage of Hamed implementing strict acceptable software policies within his organisation?

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(d) Device hardening parameters will define what security technologies should be implemented and how they should be configured and maintained. Advise Hamed on two possible device hardening parameters he should implement.

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1. Disaster Recovery

# Task 1

(a) Below are four questions in regards to setting disaster recovery policies. Answer these four questions.

i. What is a disaster recovery policy?

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ii. Why is it important that we define who is responsible for preparing for and responding to a cyber security attack?

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iii. Your disaster recovery policy should define the backup process. What are some of the key information we should define about the backup process?

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iv. What is a disaster recovery hot site?

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# Task 2

(a) Using the disaster recovery steps we have learnt, produce a graphical timeline for disaster recovery in the space below.

(b) Late Knight Games runs a popular online video game. It has recently suffered a cyber security attack which saw their servers go down and potentially user data stolen.

Explain the steps that Late Knight Games should follow in response to the attack.

1. Investigate – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. Respond – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. Manage – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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4. Recover – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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5. Analyse – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Shared Data

# Task 1

(a) A local clothing retail business has recently opened a website to sell its clothes online. They have been informed that they could make use of cookies to improve the customer satisfaction and sales made on the website. Explain three ways cookies could be used by the website to achieve these goals.

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3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(b) When customers first visit the website, they’re often greeted with the following popup message.

www.localretailwebsite.co.uk wants to:

Know your location

Block

Allow



Explain two possible reasons why the local retail website may want to know the customers location?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(c) The online shop would like to customise its home page with products that the customers might be interested in buying. Explain two methods that they could use to achieve this.

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(d) Sometimes the clothing retail websites may need to exchange data customers enter on the website with a third-party. Can you explain one reason why the retail website may want to do this?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Task 2

(a) In the previous task we looked at a number of different ways that the local clothes retail shop’s website will use shared data. In the table below, identify and explain 2 advantages and 2 disadvantages of using shared data in these ways.

|  |  |
| --- | --- |
| Advantages | Disadvantages |
|  |  |
|  |  |

# Task 3

(a) What is the name of the legislation that protects the personal data of individuals and should be considered when using shared data?

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(b) The local clothing retail business is concerned about the way it uses personal data that users share with it. It wonders if it is taking its responsibilities seriously enough. Discuss some of the responsibilities that the company has towards the shared data it gathers and uses.

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1. Environmental Concerns

# Task 1

(a) Below is a drawing representing the lifecycle of an IT system. Annotate the drawing to identify where there might be negative environmental impacts occurring.







(b) Below are three statements regarding the environmental impact of IT systems. Identify which of these statements are true and which are false.

**True False**

1. £90m+ is wasted by UK companies each year by leaving computers turned on when not in use.

2. The majority of old thrown out technology is recycled.

3. Manufacturing IT systems often involves the use of non-renewable natural resources.

# Task 2

(a) Gwenda is considering whether to upgrade or replace her desktop PC, and she wants to have as little environmental impact as possible. She has decided to upgrade the device. Discuss whether this was the correct decision.

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# Task 3

(a) Gwenda also has a laptop and is looking for a way to reduce the amount of power the device consumes. Identify two possible ways she can do this through the device’s settings.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(b) Electronic distribution of software can help reduce the impact of IT systems on the environment. Explain why this statement is true.

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1. Equal Access & Net Neutrality

# Task 1

(a) Many developing countries do not have the same access to technology that we do in the developed world. This can have many short-term and long-term impacts on students in these developing countries.

In the table below, identify two possible short-term impacts and two possible long-term impacts.

|  |  |
| --- | --- |
| Short-Term | Long-Term |
|  |  |
|  |  |

(b) Websites are sometimes developed in a way that makes them difficult to access for those with disabilities. The Web Content Accessibility Guidelines should be followed in order to make your website accessible. There are four key principles to this which are listed in the table below.

Identify an example of how you can meet each of these key features.

|  |  |
| --- | --- |
| Key Principle | Example |
| Perceivable |  |
| Operable |  |
| Understandable |  |
| Robust |  |

# Task 2

(a) The basic idea behind Net Neutrality is that “All Data is Equal”. Explain what we mean by this.

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(b) Net neutrality can impact on different groups in different ways. Some positively and some negatively. Using the table below, explain how net neutrality impacts on each of the groups identified.

|  |  |
| --- | --- |
| Group | Explanation |
| Individuals |  |
| Content Providers (e.g. Netflix) |  |
| Internet Service Providers |  |

(c) If we didn’t have net neutrality, this could particularly impact on small online businesses competing with larger businesses. Explain why this statement is true.

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1. Acceptable Use & Boundaries

# Task 1

(a) Identify two possible purposes for acceptable use policies within an organisation.

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2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) There are seven different parts to an acceptable use policy. These are listed in the table below. For each give an explanation of the section and example of what it might say.

The first section has been completed to help guide you.

|  |  |  |
| --- | --- | --- |
| Section | Explanation | Example |
| Scope | Who the document applies to. | This policy applies to all KnowItAll Ninja employees, contractors and agents. |
| Assets |  |  |
| Acceptable |  |  |
| Unacceptable |  |  |
| Monitoring |  |  |
| Sanctions |  |  |
| Agreement |  |  |

# Task 2

(a) The use of social media for business purposes has caused a blurring in social and businesses boundaries. Explain two negative impacts of this on a business’s employees.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(b) Tyler’s employer has recently implemented a “Bring Your Own Device” policy. Initially he was really pleased about this and started to use his personal laptop at work each day. However, he has found this has had a negative impact on his personal life as he is feeling more stressed. Discuss how Tyler using his own laptop at work may negatively impacted on his personal life.

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1. Data Protection

# Task 1

(a) The Data Protection Act 1998 had 8 principles. These 8 principles are listed in the table below. For each of these, explain what this means to a business in practice. The first of these is completed for you.

|  |  |
| --- | --- |
| Principle | Explanation |
| Personal data shall be processed fairly and lawfully |  |
| Personal data shall be obtained only for one or more specified & lawful purposes |  |
| Personal data shall be adequate, relevant and not excessive |  |
| Personal data shall be accurate and, where necessary, kept up to date |  |
| Personal data shall not be kept for longer than is necessary for its purposes |  |
| Personal data shall be processed in accordance with the rights of data subjects |  |
| Appropriate technical and organisational measures shall be taken to protect data |  |
| Personal data shall not be transferred outside the EEA without adequate protection |  |

(b) The Data Protection Act 1998 was recently replaced by a new law. What is this law called?

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(c) Under the new data protection law, what is the maximum punishment for a company that breaches it?

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# Task 2

(a) What do we mean by the right to be forgotten?

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(b) What is the EU cookie law and how does it affect how businesses can use cookies?

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1. Intellectual Property & Criminal

Misuse

# Task 1

(a) Each type of intellectual property covers a different type of “creation of the mind”. Explain what types of creation each intellectual property type covers.

Patent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Copyright \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Trademark \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) Below are listed the three types of intellectual property. Complete the table about these three types of intellectual property.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Intellectual Property Type | What Symbol Identifies This? | What Law Covers This? | Does it Need to be Registered? | How Long Does it Last? |
| Patent |  |  |  |  |
| Copyright |  |  |  |  |
| Trademark |  |  |  |  |

(c) You must get permission to use someone else’s intellectual property. How is this permission usually given?

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(d) What three steps should you follow if someone infringes on your intellectual property rights?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Task 2

(a) The Computer Misuse Act 1990 is the legislation that covers computer misuse, such as spreading viruses and hacking. It has four different offences, which are listed in the table below.

For each of the offences, give an example of a crime it covers and the maximum punishment given.

|  |  |  |
| --- | --- | --- |
| Offence | Explanation | Max Punishment |
| Offence 1 – Unauthorised access to computer material |  |  |
| Offence 2 – Unauthorised access with intent to commit or facilitate commission of further offences |  |  |
| Offence 3 – Unauthorised acts with intent to impair, or with recklessness as to impairing, operation of a computer |  |  |
| Offence 3a – Making, supplying or obtaining anything which can be used in computer misuse offences |  |  |

1. Use of Different Forms of Notation

# Task 1

(a) Below are descriptions of 3 different types of diagram used when planning IT systems. Match the definition to its name.

Shows how data moves between different processes in a system.

Breaks down processes into simple steps to make it easy to describe & understand.

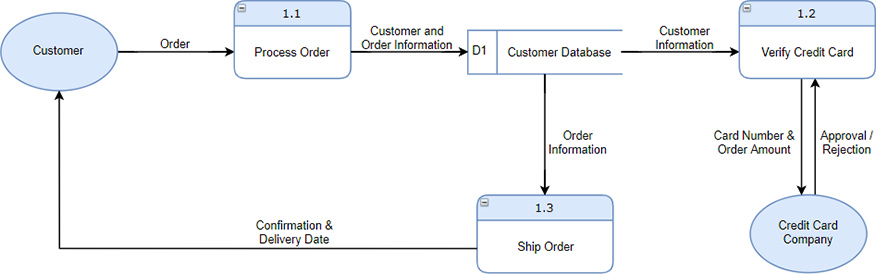
Shows data flow internally between different parts of a business & externally between organisations.

**Flow  
Chart**

**Data Flow Diagram**

**Information Flow Diagram**

(b) Below is an example diagram, followed by a series of questions.



(i) What type of diagram is this?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(ii) What type of system does this represent?

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(iii) If we wanted to plan out the exact steps involved with the “Process Order” box, what type of diagram would we use?

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# Task 2

(a) In your home, what computers do you have? How are these all connected together and to the internet? Draw a diagram in the space below to describe your home network.

# Task 3

(a) What is the benefit of presenting information through written information and tables rather than via diagrams?

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(b) Below are three statements regarding tables and written information. Identify which statements are true and which are false.

**True False**

1. Tables are used predominately when presenting graphical data.

2. Data in tables is not appropriate when presenting information to a large group.

3. Written information is often used alongside diagrams to help with interpretation.

28. Data Flow Diagrams

# Task 1

(a) Below are four different symbols used in data flow diagrams. Match each of these with a description of what they represent.

A file, form or database table that will hold data for later use.

An instruction or action that is being carried out producing an output.

The direction that data is moving between other objects.

A person, organisation or outside system that sends or receives data from the system.

(b) Below are six statements regarding data flow diagrams. Identify which statements are true and which are false.

**True False**

1. Every process box must have at least one input and one output.

2. Data flows should be labelled to describe the data that is being transferred.

3. External entities can directly communicate with each other.

4. Data cannot go directly from an external entity to a data store.

5. Data stores can only have inputs, not outputs.

6. Level 0 Data Flow Diagrams do not have data stores & have only one process box.

# Task 2

(a) The text below describes the holiday booking process for an online travel agency.

* The customer enters their booking request details (dates, no. of people, destination).
* The booking system searches for available holidays that match the customer’s request.
* A list of holidays are sent to the customer.
* The customer chooses a holiday and enters their payment details.
* The payment details are checked with the bank and an authorisation or rejection is returned.
* The paid for holiday booking is stored and booking confirmation is sent to the customer.

Produce a Level 0 Data Flow Diagram for this system on the next page. You may want to use <https://www.draw.io/> to produce the diagram and then paste it into the worksheet.

(b) Now you’ve created the Level 0 Data Flow Diagram, expand this out into a full Level 1 Data Flow Diagram.

30. Information Flow Diagrams

# Task 1

(a) There are three main symbols used in an information flow diagram. Complete the table below to identify and explain the purpose of each of these symbols. Some of the data has been filled out to guide you.

|  |  |  |
| --- | --- | --- |
| Symbol | Name | Description |
|  | Actor |  |
|  |  |  |
|  |  | The information and the direction it is moving in. |

(b) When creating an information flow diagram there are some basic rules to follow. Identify three of these rules below:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Task 2

The text below describes the flow of information for booking an appointment with a doctor at the local GP.

* A patient phones the reception and requests an appointment.
* The reception refers the information to the doctor.
* The doctor phones the patient and discusses the symptoms with the patient.
* The doctor sends a recommendation for an appointment to the reception.
* The reception emails/texts the appointment booking details to the patient.

Produce an information flow diagram for this process on the next page. You may want to use <https://www.draw.io/> to produce the diagram and then paste it into the worksheet.

30. Information Flow Diagrams

# Task 1

(a) Below are four different symbols used in flowcharts. Match each of these with a description of what they represent.

A data i/o box, representing where the program receives input or gives output.

Called terminators, they mark the beginning & end of the flowchart.

A process box, representing when an action must be performed.

A decision box, representing where a yes/no decision must be made.

(b) Answer the following questions about flow charts.

What do we call the arrows which represent the flow of data between our different boxes?

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How many arrows do we have leaving a decision box?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many arrows do we have leaving a data i/o box?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What type of box would we use, if it was going to be labelled “Enter patient id number”?

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# Task 2

The text below describes the process of making a cup of coffee. Draw a flowchart for this process.

* Boil the kettle
* Add coffee to the cup
* Add boiling water
* If milk is needed add it.
* If sugar is needed add it.

Produce flowchart for this process on the next page. You may want to use <https://www.draw.io/> to produce the diagram and then paste it into the worksheet.

(b) A college wants to create a flowchart describing the process of enrolling students onto a course. The process is described below:

* Enter student’s GCSE grades.
* Check grades meet entry requirements for their course, if they don’t refuse the enrolment.
* Check GCSE English & Maths are at least grade 4, if they aren’t enrol them also on a GSCE retake course.
* Complete course enrolment and issue a welcome day reminder card.

Produce flowchart for this process below. You may want to use <https://www.draw.io/> to produce the diagram and then paste it into the worksheet.

# Task 3

(a) Below is an example flowchart that contains several errors. Annotate this diagram to identify all of the errors you can find.

