Cambridge (CIE) IGCSE ICT

Your notes

Communication

Contents

Your notes

Email

What is email?

- Email is a **method of exchanging messages** and files over the internet
- The main uses of email are:
  - **Personal communication**
  - **Professional correspondence**
  - **Marketing**
- Companies provide **guidelines** about **acceptable use** of emails
- Guidelines about emails from a company include:
  - **Purpose** of the email
  - Using **acceptable language**
  - Email **security**, including anti-virus software

Email Guidelines & Constraints

Acceptable Language Guidelines

- Acceptable and **appropriate language** must be used depending on the **recipient** and **purpose** of the email
- An example of this includes using a **professional tone** when sending a work-related email
- **No offensive or obscene language** or images should be used
- **No racism or violent content** should be in email messages
- **No illegal material** should be sent
- The **laws within a country** can see that **emails are monitored** and people can be **punished** for what they write
- Some additional rules to follow regarding email language include:
  - Include a **clear subject line**
  - Use a **professional email address**
  - Use **professional salutations**
  - **Do not use all capitals** as it implies shouting

Need for Security

- Email security is crucial to **protect sensitive information from being accessed** or altered
- Email inboxes should be protected by **strong passwords** which are frequently changed
- **Spam filters and antivirus software** should be in place at all times to protect users' inboxes from both **passive attacks** and **active attacks**

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Netiquette

- Netiquette (Inter**net** et**iquette**) is the need to respect others online
- It is an agreement to respect the opinion of others in online forums, internet messages and emails
- Some common examples to remember are:
  - Most posts are public and can potentially be read by anyone
  - A clear, inoffensive and succinct language will be used
  - Give a good impression of yourself, considering, the tone of writing, spelling, punctuation and grammar

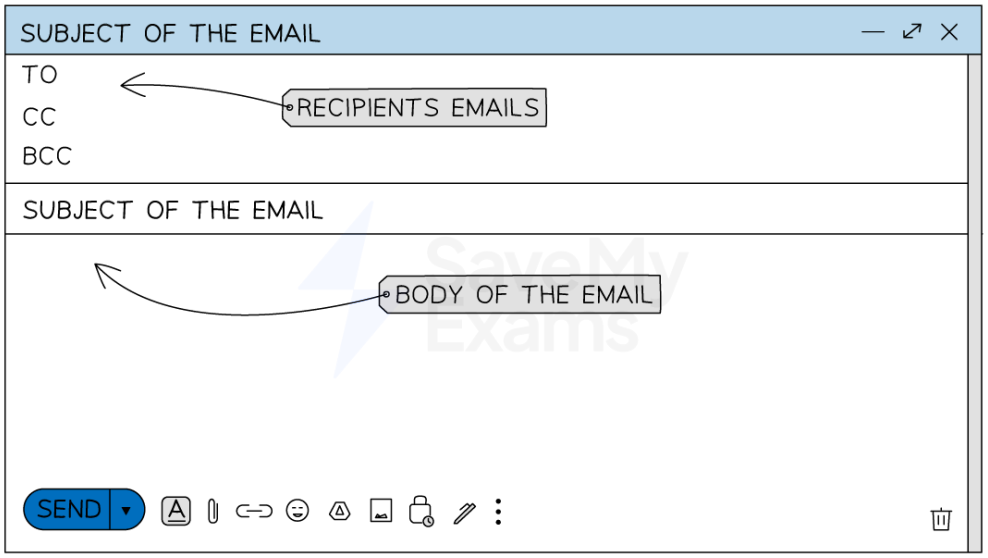
Sending Emails

Email Groups

- Email groups allow for **mass communication** with a **defined set of recipients**
- It is **easier to send out multiple emails** if the addresses are grouped together
- The benefit of doing this is that it ensures **no one misses out on an email** containing key information
- A drawback of email groups is that **spammers can utilise them** to target a large group of people with ease

Email Operations

- There are three key email operations to be aware of:
  - **Carbon Copy (CC)** - this is used when you want to include additional recipients to view the email
  - **Blind Carbon Copy (BCC)** - this is used when you want additional recipients to view the email without other recipients knowing
  - **Forward** - This allows you to send an existing email to a new recipient
  - **Attachments** - These allow files to be sent along with the email message



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Spam

What is spam?

- Spam is **unwanted/unsolicited junk mail** which is sent in **large numbers** to inboxes
- Spam fills the users' inboxes, often with **advertising** content or for **phishing/spreading malware**
- Phishing emails will be used to **act as a reputable company or organisation** in the aim of **getting your personal details** such as usernames and passwords

How can spam emails be detected?

- Spam emails often has **multiple spelling or grammatical errors**
- They often use **broken English**, though this is now improving with the use of AI
- Spam emails will **not address you by name**
- Often spam emails will ask you to **enter your details by clicking a link**
  - Reputable companies have now stopped doing this to make identifying spam a lot easier

How can spam emails be prevented?

- Preventing spam emails is becoming easier as email providers' **anti-spam filters** become stronger and more efficient
- Users can ensure they **do not agree to marketing emails** from companies they register with
- Users can also ensure they **do not reply to emails with sensitive data** or complete online forms for websites by **clicking links in an email**

- Instead, they should visit the website of their own accord and then log in as usual

Your notes

Worked Example

Describe the ways that a user can recognise spam and methods to help prevent it. **[6]**

How to answer this question:

Give a maximum of 4 bullet points on how users can recognise spam content and then a maximum of 4 points on how they can prevent spam content.

Answers:

Recognising spam (max 4):

- Multiple spelling/grammatical errors
- Asked to carry out tasks immediately such as click on a link
- Does not ask for you by name
- Stored in a SPAM folder
- Email asks for personal information
- Large amount of repeated emails from the same user
- Lots of other similar email addresses in the send-to-box

Prevention methods (max 4):

- Use a spam filter
- Not filling in your details on the online form
- Not replying to spam emails
- Not having an auto-reply set
- Not consenting to marketing when providing details to a company

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The Internet

What is the Internet?

- The Internet is a **network of networks** which allows users to
  - Share and distribute information outside of an organisation
  - Send and receive emails
- The internet has many features to it which users can use to communicate and share information with others

Blogs, Forums & Wikis

What is a blog?

- We**b logs** (blogs) are journals shared on the internet by a writer (blogger)
- They are regularly updated and often written in an **informal or conversational style** like a journal, managed by individuals or small groups
- People can **share** their **views and opinions** on a variety of topics including
  - **Movies**
  - **Food and restaurants**
  - **Game releases**
- Blogs are usually presented in **reverse chronological order**
- They allow for **reader comments**, facilitating some level of discussion
- Other internet users can't change the content of the blogs, they can only read them

What is a forum?

- A forum is an **online discussion site** where people can hold conversations in the form of posted messages
- They are often organised around specific topics or interests, and divided into categories known as **threads**
- Unlike blogs, forums are primarily focused on **peer-to-peer interaction**
- They may require users to create an account before posting
- Forums can be **moderated** or **unmoderated**
  - A **moderated forum** is under the **control of an administrator** who determines what can and can't be posted, **preventing inappropriate** or **hurtful content** from being published

- An unmoderated forum means that **no one is in charge** and the moderation of the forum **relies upon voluntary action between the users** of the site

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What is a wiki?

- A wiki is a website or web application that **allows users to add or edit content**
- It is designed to **facilitate collaboration and knowledge sharing** from many people
- It holds information on many topics which can be searched
- Posts are **not in chronological order**
- The structure is determined by the content or its users
- Changes can be tracked and reverted if necessary

Social Networks

What is a social network?

- **A social network** website is a platform where users can connect with others and share content
- They include platforms such as
  - **Facebook**
  - **TikTok**
  - **X (Twitter)**
  - **Instagram**
  - **LinkedIn**
- Social networking platforms usually require users to **create a profile** and allow them to share text, images, videos, and links
- They facilitate **interaction, collaboration, and information sharing** on a large scale
- Privacy settings allow users to **control who can see their content**

Internet Service Providers (ISP), URLs & Web Browsers

Internet Service Providers (ISPs)

- An Internet Service Providers (**ISP**) is a company that provides access to the Internet to users and businesses
- The ISP provides internet access by leasing equipment and telecommunication lines to users that are required to access the internet

Web browsers

- A web browser is a software application used to locate, retrieve, and display content on the WWW

- Web browsers are used to display web pages which include images, videos and other files
- A hyperlink is a word/phrase/image which references data that the reader can follow by clicking or tapping, usually taking you to another web page
- Most web browsers have the following features:
  - **Home page**
  - Ability to **bookmark favourites**
  - Keep a **history of visited websites**
  - **Hyperlinks** which allow users to navigate between pages

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Uniform Resource Locator (URL)

- Uniform Resource Locators (URLs) are the web address a user types into a web browser
- Websites are stored in the form of an IP address however, these are not user friendly
- Instead, an alphanumeric format is used for the benefit of humans
  - An example is www.savemyexams.com

Search Engines, Evaluating Information and Risks of the Internet

What are search engines?

- Search engines are **tools that locate and display web pages** related to the **search terms entered by the user**
- They are essential for **navigating** the vast amount of information on the internet
- They **index** millions of web pages and use **algorithms** to rank the **relevance** of each page to the search terms

How do search engines work?

- Search engines work in three stages:
  - **Crawling**
  - **Indexing**
  - **Ranking**
- **Crawling** is when web crawlers **scour the internet daily** to retrieve new websites
- **Indexing** is how websites are **categorised** based on the content of their web pages, keywords and metadata
- **Ranking** is how websites are ranked and **listed on search engine pages** - this depends on many factors to display the most relevant results

Amount of information

- Search engines can provide an overwhelming amount of information, making it crucial to use **specific and relevant search terms**
- Using **quotation marks** for exact phrases, **plus signs** for mandatory terms, or **minus signs** for excluding terms can help refine the search

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Finding relevant and reliable information

- The relevance of information is determined by the search engine's algorithm, which considers factors such as keyword frequency, page quality and EEAT
- Reliable information typically comes from reputable sources such as **educational** establishments, **governments**, or well-established **industry** websites

Evaluating information found on the internet

- The internet offers a wealth of information, but not all of it is accurate or reliable
- Assess the reliability of information by considering the reputation and credibility of the source
- Determine the validity of information by checking it against other reputable sources
- Consider whether the information is biased, looking for perspectives that may be promoting a particular viewpoint
- Check how up-to-date the information is, as outdated information can be misleading

Risks of the internet

- There are a variety of arguments for policing the internet

Arguments for policing the internet	Arguments against policing the internet
▪ The internet contains a large amount of inappropriate and criminal material	▪ Data restriction: Parental, educational, and ISP controls could limit access to certain information or websites
▪ The internet can expose users to harmful or illegal content	▪ It can be argued that it would go against freedom of speech
▪ More control would prevent younger users and vulnerable groups from being exposed to undesirable content	▪ It is not up to one person to define what people find offensive

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Protocols

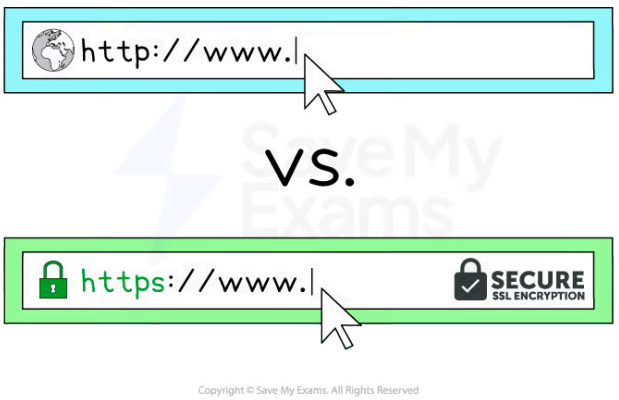
What is a protocol?

- A protocol is a **set of rules** that govern **communication** on a network
- There are protocols for different purposes, some of them include:
  - **HTTP & HTTPS**
  - **FTP**
  - **SSL & TLS**
  - **VoIP**
  - **SMTP**

HTTP & HTTPS

What is HTTP & HTTPS?

- Hypertext Transfer Protocol (**HTTP**) allows communication between clients and servers for **website viewing**
- HTTP allows clients to **receive data** from the sever (fetching a webpage) and **send data** to the server (submitting a form, uploading a file)
- **HTTPS** works in the same way as HTTP but with an **added layer of security**. All data sent and received using HTTPS is **encrypted**
- HTTPS is used to **protect sensitive information** such as passwords, financial information and personal data

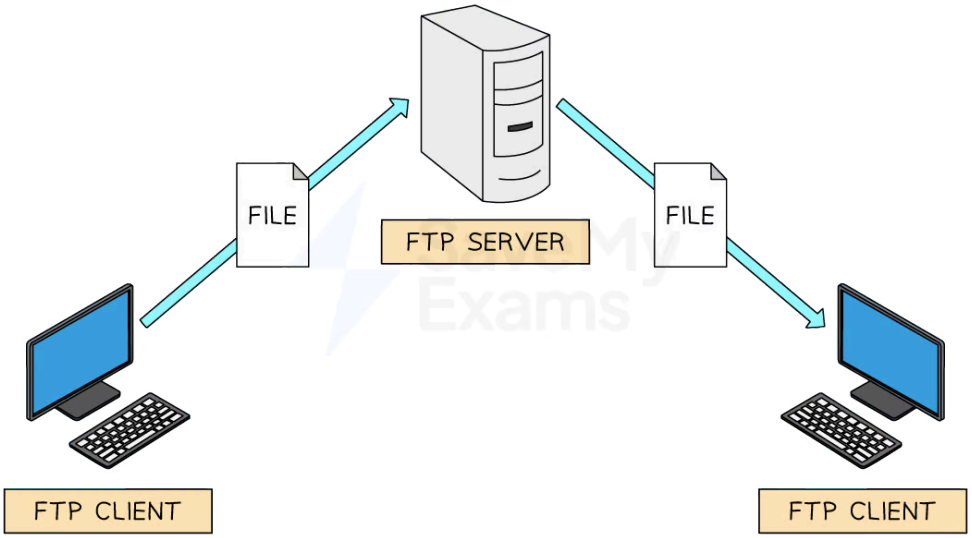


FTP

What is FTP?

Your notes

- File Transfer Protocol (**FTP**) allows sending and receiving files between computers
- Uploading and downloading files to/from a web server is often completed using FTP
- FTP offers greater efficiency and support for bulk transfers and large files such as resuming interrupted transfers
- FTP clients are software applications that use the FTP protocol to make the process easier for users



SSL & TLS

What is SSL & TLS?

- Secure socket layer (**SSL**) is a **security protocol** developed to provide secure communication over the internet
- TLS is a **successor to SSL** and is also a security protocol used to provide secure communication over the internet
- They both use a combination of symmetric and asymmetric **encryption** to secure data and ensure data integrity
- SSL operates by encrypting a user's data using a **public key**
  - This is done by sending a **digital certificate** to the user's browser
  - This contains the **public key** which can be used for authentication

Where is SSL used?

- SSL is used in a variety of situations where a secure connection is required, some examples of this include:

- **Online banking**
- **Online shopping**
- **Using cloud storage**
- **Messaging**
- **Social networking websites**
- **Intranets/extranets**

Worked Example

Protocols are associated with the internet and an intranet.

Identify **three protocols** and for each one, **identify a use**. [6]

Answers

Matched pairs:

HTTP/HyperText Transfer Protocol
Transfer data between a webserver and the browser//display/loads pages//connect to a webpage [1]

HTTPS/ HyperText Transfer Protocol Secure variant

One from:
Transfer data between a webserver and the browser securely [1]
Display/loads secure pages [1]
Connect to a secure webpage [1]
Secure variant of HTTP [1]

FTP/File Transfer Protocol
Transfers files between computers/website [1]

SSL/TLS
Determines variables of the encryption for both the link and the data being transmitted [1]

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