Cambridge (CIE) IGCSE ICT

Manage Files Effectively

Contents

* File Formats

File formats

What are file formats?

- File formats are the **file types** used to store the data in a file

- File formats **define the structure and organisation** of the data in a file and **determine which software can be used** to read the contents of the file

- There are a variety of file formats used, depending on the type of file being used

Generic file formats

- **Generic** file formats are file types that are compatible and **allow sharing between different devices** and software programs

- **Non-generic** files are types that require **special software or hardware** to be accessed

- Generic file types are needed for the following reasons:

  - Allowing the exchange of data across **different types of applications**

  - They are **widely adopted** and therefore can be accessed by many users or devices

  - Generic files can be **created, edited and accessed across many different devices**

Characteristics & uses of file formats

Generic Images Files

- Joint Photographic Expert Group (.**jpg**)

  - JPEG is a widely used image file format which uses the lossy compression method

  - **Significantly reduces file size** while maintaining acceptable image quality

  - JPEG files are **commonly used** for storing and transmitting digital photographs

- Portable Network Graphic (.**png**)

  - PNG uses lossless compression

  - PNGs **preserve high-quality images** whilst still providing small file sizes

  - Its **transparency support** allows its graphics to be placed into different backgrounds easily

  - They are commonly used for:

    - **web design**

    - **digital illustrations**

    - **logos**

- icons
- Graphics Interchange Format (.**gif**)
  - Used for **short, animated images** and simple graphics
  - Use a lossless compression algorithm
  - Maintain **high image quality** while keeping file sizes small
  - Used in online platforms, including social media, messaging apps, and websites

Generic Video Files

- Moving pictures expert group layer 4 (.**mp4**)
  - A **multimedia container** rather than a single file format
  - Can be used for video, image, and audio types
  - Uses advanced compression techniques to achieve high-quality video playback
  - The compression algorithm **keeps file sizes relatively small**
  - Popular for streaming and transferring videos online
- Quicktime Movie (.**mov**)
  - A multimedia container format developed by Apple
  - **Used for storing video, audio, and other media data**
  - Can maintain excellent image quality while retaining smaller file sizes
  - **Suitable for online streaming and local playback**
  - Widely used in:
    - **professional video editing**
    - **film production**
    - **multimedia projects**

Generic Audio Files

- Moving pictures expert group layer 3 (.**mp3**)
  - A **popular audio file format** known for its high-quality
  - Allows for a **significant reduction in file size** but minimal differences in sound quality
  - **Compatible with a wide range of devices** and audio streaming platforms
  - Become the standard format for digital music distribution
- Waveform File Audio format (.**wav**)
  - **Uncompressed audio** file format known for its high lossless quality
  - Preserves the original audio waveform.

- Commonly used in:

  - **music industry**

  - **broadcast**

  - **multimedia production**

Generic Text Files

- Text (.**txt**)

  - Used for **storing plain text data**

  - Contains only **human-readable text** without any additional formatting or styling

  - Extensively **supported across different platforms** and applications

  - Can be opened and edited using a word processor or basic text editor

- Rich Text Format (.**rtf**)

  - RTF is a file format used for **storing formatted text documents** that can contain different text styles, fonts, colours, and other basic formatting elements

  - RTF can be opened and edited using a wide range of text editors and word processors, making them suitable for creating documents that require basic formatting, such as letters, reports, and academic papers

- Comma separated values (.**csv**)

  - A **plain text file format** used for storing data in a **structured manner**

  - Consist of **rows and columns**, with each cell **separated by a comma**

  - Widely supported

  - **Easy to import and export** data between different applications and platforms

  - Commonly used for tasks involving **data analysis**, **database management**

  - Can be easily opened and edited using spreadsheet software

- Portable Document Format (.**pdf**)

  - Widely used file format with its ability to **retain the layout and formatting** of documents across a range of platforms

  - Documents contain text, images, graphics, and even interactive elements.

  - **Can be password-protected** to stop unauthorised users from editing

  - Allows users to provide a digital signature feature acting as a digital 'ink signature'

Generic Compressed Files

- Zip (.**zip**)

  - A container **used for compression**

- Allows **multiple files and folders to be compressed** into a single, smaller-sized archive
- Uses **lossless compression** algorithms to reduce file sizes
- Roshal archive (**.rar**)
  - A container used for compression
  - **Similar to .ZIP**, however, it uses a **proprietary compression algorithm**
  - Generally results in **higher compression ratios** compared to other formats
  - Commonly used for sharing files over the internet and when space-saving is essential

Generic Web Development & Browsing Files

- Hypertext Markup Language (**.html**)
  - A global file format used **for creating and structuring web pages**
  - Contain **text-based code** that defines the structure, layout, and content of a webpage
  - **Rendered by web browsers**, allowing users to view and interact with web pages
  - Used across many different devices and platforms
- Cascading Style Sheets (**.css**)
  - A file format that is **attached to an HTML document**
  - Used to **determine presentation and styling** such as colours, fonts, layout, and positioning
  - Is widely **used in web development** to create responsive and attractive designs

Worked Example

A teacher wants to write a document and could save the document as a **.txt** or an **.rtf** file format. **Explain** the difference between .txt and .rtf file formats. [3]

Answer

Three from:

RTF has basic formatting (embolden, underline, etc.) while TXT is plain text [1]

RTF is capable of paragraph formatting while TXT is not [1]

RTF is capable of creating bulleted lists while TXT is not [1]

RTF files can include images while TXT cannot [1]

TXT takes up less memory while RTF takes up more memory [1]