**Experiment 12**

**Objective**: To study text, video, and animation file formats.

**Theory:**

**Text File Format:**

1. **.doc -**  A doc is a document file format used by microsoft word, also used with most word processing software, including openoffice. Doc stands for document file. A doc file can contain formatted text, images, tables, graphs, charts, page formatting, and print settings. With each version of microsoft word, the standards for the doc format change slightly which can cause some compatibility issues.
2. **.docx** - A file with the docx [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is a microsoft word open xml format document file.Docx files are [xml](https://www.lifewire.com/what-is-an-xml-file-2622560)-based and can contain text, objects, styles, formatting, and images, all of which are stored as separate files and ultimately compacted in a single, [zip](https://www.lifewire.com/zip-file-2622675)-compressed docx file.Microsoft started using docx files in [microsoft word](https://www.lifewire.com/microsoft-word-4159373) beginning in word 2007. Earlier versions of word use the [doc](https://www.lifewire.com/what-is-a-doc-file-2622716) file extension.
3. **.log** - A log file is a [log](https://techterms.com/definition/logfile) used by various operating systems and programs. It typically contains a plain text log of certain events with their timestamps. Log files may be created by the operating system to keep track of system events or by a software installation program to list location and names of installed files.
4. **.msg** - A Msg is a file [extension](https://whatis.techtarget.com/definition/extension) for a mail message file [format](https://whatis.techtarget.com/definition/format) used by microsoft outlook and [exchange](https://searchwindowsserver.techtarget.com/definition/Microsoft-Exchange-Server).  An msg file can contain plain ascii text for the headers and the main message body as well as [hyperlinks](https://searchmicroservices.techtarget.com/definition/hyperlink) and attachments.  Msg files may be exported for the purposes of [archiving](https://searchstorage.techtarget.com/definition/archive) and storage or scanning for [malware](https://searchsecurity.techtarget.com/definition/malware).
5. **.rtf** - A rtf is a text file format used by microsoft products, such as word and office. Rtf, or [rich text format](https://searchexchange.techtarget.com/definition/Rich-Text-Format), files were developed by microsoft in 1987 for use in their products and for cross-platform document interchange. Rtf is readable by most word processors. Rtf files support text style formatting, as well as images within the text. Rtf files can be converted into a different format by changing the formatting selection when saving the word document.
6. **.txt** - A txt is a file extension for a text file, used by a variety of [text editors](https://whatis.techtarget.com/definition/text-editor). [Text](https://whatis.techtarget.com/definition/text) is a human-readable sequence of [character](https://whatis.techtarget.com/definition/character)s and the words they form that can be encoded into computer-readable formats. There is no standard definition of a text file, though there are several common formats, including [ascii](https://whatis.techtarget.com/definition/ASCII-American-Standard-Code-for-Information-Interchange) (a cross-platform format), and [ansi](https://searchdatacenter.techtarget.com/definition/ANSI)(used on [dos](https://searchsecurity.techtarget.com/definition/DOS) and [windows](https://searchwindowsserver.techtarget.com/definition/Windows) platforms).
7. **.wpd** - A wpd is a file [extension](https://whatis.techtarget.com/definition/extension) for corel’s proprietary word processing program, wordperfect for [windows](https://searchwindowsserver.techtarget.com/definition/Windows).wpd files support formatted text, [vector graphics](https://searchmicroservices.techtarget.com/definition/Scalable-Vector-Graphics-SVG), [raster graphics](https://whatis.techtarget.com/definition/raster-graphics) and tables.
8. **.wps** - The WPS file format is very similar to the DOC format, it too is a text document but it is created with Microsoft Works Word Processor; and does not include advanced formatting options and macros that a Word document may contain. Most versions of Microsoft Word can open a WPS file, as well as Microsoft Publisher. However this format has been discontinued since 2006 and replaced with the standard MS Word DOC format.
9. **.fodt** - Text document saved in the OpenDocument format, but stored as a flat XML file instead of the [.ZIP](https://fileinfo.com/extension/zip) container used by [.ODT](https://fileinfo.com/extension/odt) files; allows the document information to be more human readable; also provides an easier alternative than the ODT format for generating documents automatically without needing a document editor.

**Audio File Format:**

1. **.aac -** A [file](https://www.lifewire.com/what-is-a-file-2625878) with the AAC [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is a MPEG-2 Advanced Audio Coding file. It's similar to the [MP3](https://www.lifewire.com/mp3-file-2622780) audio format but includes some performance improvements. Apple's iTunes and iTunes Music Store use Advanced Audio Coding as their default encoding method for music files. It's also the standard audio format for Nintendo DSi and 3DS, PlayStation 3, DivX Plus Web Player, and other devices and platforms.
2. **.aif -** An AIF file is an audio file created using the Audio Interchange File Format ([AIFF](https://techterms.com/definition/aiff)). It contains uncompressed CD-quality audio similar to a [.WAV](https://fileinfo.com/extension/wav) file and is commonly used to store standard CD audio.
3. **.m3u -** An m3u file is a media playlist file supported by several media players such as winamp and itunes. It contains a playlist of mp3s and other audio or video files and lists the locations of media files in a [plain text](https://techterms.com/definition/plaintext) format. M3u playlists are typically used for audio playlists, but some may also include references to video files. M3u files contains references to media files, but not the actual files themselves.
4. **.mid -** A [file](https://www.lifewire.com/what-is-a-file-2625878) with the .MID or .MIDI [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) (pronounced as "mid-ee") is a Musical Instrument Digital Interface file.It is basically instructional file that explain how the sound should be produced once attached to a playback device or loaded into a particular software program that knows how to interpret the data. This makes MIDI files perfect for sharing musical information between similar applications.
5. **.mpa -** An MPA file is an audio file compressed with MPEG Layer II compression, which reduces the file size while minimally affecting the overall sound quality. It is based on the MPEG-1 audio-coding standard and was later updated for the MPEG-2 specification.
6. **.ra -** Audio file used by realplayer, an audio and video [streaming](https://techterms.com/definition/streaming) program; may reference a streaming audio file online or may contain audio data; can use various codecs to compress audio with variable bit rates; uses a proprietary real compression algorithm.
7. **.wav -** file format for audio. Wrapper file format that can incorporate an audio bitstream with other data chunks. One common bitstream encoding is [lpcm](https://www.loc.gov/preservation/digital/formats/fdd/fdd000011.shtml) (linear pulse code modulation). Preservation reformatting projects generally use the one of the broadcast wave variants, [wave\_bwf\_1](https://www.loc.gov/preservation/digital/formats/fdd/fdd000356.shtml) or [wave\_bwf\_2](https://www.loc.gov/preservation/digital/formats/fdd/fdd000357.shtml), both standards of the european broadcast union.
8. **.wma - WMA** is a file extension used with Windows Media Player. WMA stands for Windows Media Audio. WMA is both an audio [format](https://whatis.techtarget.com/definition/file-format) and an audio [codec](https://searchunifiedcommunications.techtarget.com/definition/codec). WMA was intended to be a competitor for the [MP3](https://whatis.techtarget.com/fileformat/MP3-MPEG-Audio-Layer-3-AC3-file) and RealAudio audio formats.

There are 4 versions of the WMA codec:

* + WMA is the original codec, and was initially released in 1999.
  + WMA Pro is an improved [lossy](https://whatis.techtarget.com/definition/lossless-and-lossy-compression) [codec](https://searchunifiedcommunications.techtarget.com/definition/codec) intended for audio professionals, though it is limited by the current range of hardware and software needed to support the codec.
  + WMA Lossless is a [lossless](https://whatis.techtarget.com/definition/lossless-and-lossy-compression) [codec](https://searchunifiedcommunications.techtarget.com/definition/codec) intended for archival and storage purposes. Using VBR, it can compress the audio file without any loss of quality.
  + WMA Voice is a lossy codec that was designed for low bandwith voice playback applications.

**Video File Format:**

1. **Asf** - An ASF file is a media file stored in the Advanced Systems Format (ASF), a proprietary video and audio container format. It contains audio and video data and optional metadata, such as title, author, and copyright bibliographic data. ASF files are developed by Microsoft primarily for [streaming](https://techterms.com/definition/streaming) media.
2. .**asx** - ASX is a file [extension](https://whatis.techtarget.com/definition/extension) for a [Microsoft](https://searchwindowsserver.techtarget.com/definition/Microsoft) Advanced Streaming Redirector Windows Media [meta](https://searchsqlserver.techtarget.com/definition/meta)file [format](https://whatis.techtarget.com/definition/format) used to point to an ASF formatted file and contain information such as author and copyright and bibliographical information as well as how the file is presented with actions and settings in [Windows Media Player](https://whatis.techtarget.com/definition/Windows-Media-Player-WMP).  ASX files are based on [XML](https://searchmicroservices.techtarget.com/definition/XML-Extensible-Markup-Language) [syntax](https://whatis.techtarget.com/definition/syntax) and support [ANSI](https://searchdatacenter.techtarget.com/definition/ANSI) and [Unicode](https://whatis.techtarget.com/definition/Unicode) UTF-8 encoding.
3. .**avi** - Avi stands for Audio Video Interleave, a [file](https://www.lifewire.com/what-is-a-file-2625878) with the AVI [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is a commonly used file format developed by Microsoft for storing both video and audio data in a single file.The AVI format is based on the Resource Interchange File Format (RIFF), a container format used to store multimedia data.AVI is typically less compressed than other, more popular formats like [MOV](https://www.lifewire.com/what-is-an-mov-file-2622779) and [MPEG](https://www.lifewire.com/mpeg-file-2622031), meaning that an AVI file will be larger than the same file in one of those more compressed formats.
4. .**flv** - Flv stands for Flash Video, a file with the FLV [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is a file that uses Adobe Flash Player or Adobe Air to transmit video/audio over the internet.Flash Video has long been the standard video format used by nearly all embedded video on the internet including the videos found on YouTube, Hulu, and many more websites. However, many streaming services have dropped Flash in favor of HTML5.The [F4V](https://www.lifewire.com/f4v-file-2621203) file format is a Flash Video file that's similar to FLV. Some FLV files are embedded in [SWF](https://www.lifewire.com/swf-file-4138363) files.
5. .**mov** - A [file](https://www.lifewire.com/what-is-a-file-2625878) with the MOV [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is an Apple QuickTime Movie file that's stored in a QuickTime File Format (QTFF) container file.An MOV file can store audio, video, and text in the same file through different tracks, or the tracks can point to the data stored elsewhere in another file.iOS devices like iPhones and iPads are a common place to see MOV files because that's the default file format that those devices record video in.
6. .**mp4** - A [file](https://www.lifewire.com/what-is-a-file-2625878) with the MP4 [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is an abbreviation for an MPEG-4 Video file, which is a compressed file format that can contain not only video, but also audio and subtitles.MP4 files are usually seen when you download a video from the internet or use a DVD ripping program to save a DVD to your computer.Files like this that only have audio are sometimes saved with the [.M4A](https://www.lifewire.com/m4a-file-2621957) extension.
7. .**mpg** - An MPG file is a common video file that uses a digital video format standardized by the Moving Picture Experts Group ([MPEG](https://techterms.com/definition/mpeg)). It stores video, audio, and [metadata](https://techterms.com/definition/metadata) interleaved together. MPG files are often used for creating movies that are distributed on the Internet.
8. .**rm** - An RM file is a multimedia file used by RealPlayer, an audio and video playback and streaming program. It contains audio or video data or a link to a [streaming](https://techterms.com/definition/streaming) media file, which is played back as it is downloaded. RM files are commonly used for streaming content over the Internet such as video and Internet radio. RM stands for RealMedia. RealMedia files usually use RealNetwork’s own proprietary Realvideo and RealAudio [codec](https://searchunifiedcommunications.techtarget.com/definition/codec)s.
9. .**swf** - SWF is a file extension for a [Shockwave](https://whatis.techtarget.com/definition/Shockwave) [Flash](https://whatis.techtarget.com/definition/Flash) file format created by Macromedia and now owned by Adobe. SWF stands for Small Web Format. SWF files can contain video and vector based animations and sound and are designed for efficient delivery over the web.  SWF files can be viewed in a web browser using the Flash plug in. It may contain text, [raster](https://techterms.com/definition/rastergraphic) graphics, and interactive content written in ActionScript.
10. .**vob** - A [file](https://www.lifewire.com/what-is-a-file-2625878) with the .VOB [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is most likely a DVD Video Object file, which can contain both video and audio data, as well as other movie-related content like subtitles and menus. They're sometimes encrypted and normally seen stored at the [root](https://www.lifewire.com/what-is-a-root-folder-or-root-directory-2625989) of a DVD within the VIDEO\_TS folder. 3D models called Vue Objects use the VOB file extension too. They're created by the E-on Vue 3D modeling program and can be textured using the information stored in a [MAT](https://www.lifewire.com/mat-file-2621969) (Vue Material) file. The Live for Speed car racing video game uses VOB files too, for the purpose of texturing and modeling 3D cars. The vehicles are symmetrical and therefore only half of the model is contained in the VOB file; the rest is generated by the game.
11. .**wmv** - A file with the WMV [file extension](https://www.lifewire.com/what-is-a-file-extension-2625879) is a Windows Media Video file, compressed with one or more of Microsoft's video compression formats. It's a common format used to store video in Windows, which is why some [third-party programs](https://www.lifewire.com/what-is-a-third-party-app-4154068) use it for things like short animations. Windows Media Audio files are similar, but only contain audio data - no video. These files use the [WMA extension](https://www.lifewire.com/wma-file-2622397).

**Animation File Format:**

1. **.**[**stl**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#stl) **-** Design format used for stereolithography, a rapid prototyping technology used for producing three-dimensional parts; contains a 3D design used as a master model for creating numerous prototypes. Stereolithography is an interchange file format. It is used to save [CAD](https://techterms.com/definition/cad) files in a standard format that can be read by multiple CAD applications.
2. **.**[**obj**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#obj) **-** An OBJ file is a standard 3D image format that can be exported and opened by various 3D image editing programs. It contains a three-dimensional object including 3D coordinates, texture maps, polygonal faces, and other object information. The OBJ format is widely considered to be a universal format for 3D image editing applications. The OBJ file commonly contains references to one or more[. MTL](https://fileinfo.com/extension/mtl) files, which contains surface shading material.
3. **.**[**fbx**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#fbx) **-** 2D or 3D drawing saved in the Autodesk FBX format; maintains the full fidelity and functionality of the original file and can be manipulated by multiple programs; used for creating interoperability between 3D applications. FBX files can be converted from [.OBJ](https://fileinfo.com/extension/obj), [.DXF](https://fileinfo.com/extension/dxf), [.3DS](https://fileinfo.com/extension/3ds), and [.DAE](https://fileinfo.com/extension/dae) (COLLADA) formats using the free FBX conversion utility.
4. **.**[**collada**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#collada) **-** 3D interchange file format used for exchanging digital assets between multiple graphics programs; based on the COLLADA (COLLAborative Design Activity) [XML](https://techterms.com/definition/xml) schema, which is now owned and developed by Autodesk. The COLLADA format was originally developed by Sony and is now jointly supported by Sony and the Khronos Group.
5. **.**[**3ds**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#threeds) **-** A 3DS file is a 3D image format used by Autodesk 3D Studio. It contains mesh data, material attributes, bitmap references, smoothing group data, viewport configurations, camera locations, and lighting information. 3DS files may also include object animation data. 3DS files consist of blocks of data called "chunks" that contain an ID and length description. Chunks store the shapes, lighting, a viewing information that together represent the three-dimensional scene.
6. **.**[**iges**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#iges) **-** Vector format for saving wireframe models that represent 2D or 3D designs; based on the IGES (Initial Graphics Exchange Specification) standard; stores data in a ASCII text format, which makes it easy to transfer to different programs and platforms. IGES files commonly use the [.IGS](https://fileinfo.com/extension/igs) extension.
7. **.**[**step**](https://all3dp.com/3d-file-format-3d-files-3d-printer-3d-cad-vrml-stl-obj/#step) **-** A STEP file is a 3D model file formatted in STEP (Standard for the Exchange of Product Data), an ISO standard exchange format. It contains three-dimensional data in a format that can be recognized by multiple programs. In the CAD industry it can be difficult to share models between users with different [CAD](https://techterms.com/definition/cad) systems. The STEP format was developed as a solution to this problem. It is designed to be used similarly to how the [.PDF](https://fileinfo.com/extension/pdf) format is used for saving documents in a widely supported format. You would most likely see the file when it is sent to you by another CAD user sharing a 3D model that you can view using different CAD software.