

MS-DOS A closer look at an OS.

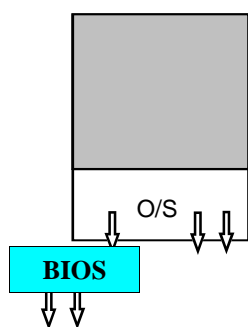
The objective of this session is to put a framework around the theory that has been studied so far in this course.

By using MS-DOS as an example of an operating system this section will take a closer look at Hardware (CPU, Input Devices, Output Devices and Storage Devices) and Software (Operating System, Applications, Tools and Utilities).

Turning the P.C. on.

When you turn on an IBM PC Compatible microcomputer for the first time, the first thing that happens is that a piece of hardware on the machine called the BIOS is wired to take control of the machine.

BIOS - Basic Input / Output System



For the IBM PC family, the ROM BIOS was developed to split the work between the not yet available OS and BIOS. The ROM BIOS is a chip that contains programs written to provide a preset list of instructions to deal specifically with Input/Output. The BIOS programs are stored on a ROM Chip so it loads very quickly into RAM for execution.

The first BIOS was designed and released by IBM for the IBM PC. As manufacturers have released their own designs a number of different companies have developed BIOS to be compatible with the original IBM BIOS and support new features in the industry. Other makers of BIOS chips are computer manufacturers such as Compaq, and specialty BIOS manufacturers such as AMI (American Megatrends), and Phoenix.

The programs in the BIOS provide a foundation of software controls to access devices such as storage devices and display information. The “B” Basic in BIOS means that these programs were designed to be very rudimentary, as a starting point and can be superseded by the OS or application program.

Microcomputers such as Apple’s Macintosh have far more sophisticated software controls built into the hardware. The Macintosh “BIOS”, known as the Mac Toolbox, defines fancy ways to do graphics, and understands defines how a mouse is, so that application programmers have more “tools” for writing their programs.

When you start up the IBM PC Compatible, the machine is designed (wired) to give control of the machine to the BIOS. The following is a list of the fundamental activities the BIOS carries out.

Power on Self Test (POST)

An example of this recognition system is that some video cassette players will control the TV, while others cannot.

One of the first thing the BIOS does is to take an inventory, check the list of hardware that is connected to the machine, if it recognises what it finds, then it ticks it off as something that the OS and other programs can use.

If the BIOS does not recognise a piece of hardware connected to the computer, then it just doesn’t consider it worthwhile and you cannot use the BIOS to access these devices.

Checking for the Operating System

A *second thing* the BIOS does, is to check the storage devices it recognises to see whether they contain the Operating System to complete the machine start up. More specifically the BIOS refers to storage devices "A:" and "C:". These storage devices are the first floppy disk drive, and the first hard disk drive installed on the machine.

Floppy Disks - Looking for the OS

Most BIOSs are configured to check the floppy diskette first for an operating system (a feature supporting the original designs of PCs having only floppy diskettes.)

System Boot Sector (SBS)

The BIOS checks the floppy disk for a System Boot Sector (SBS) and if one exists it will load the program loader inside the SBS and transfer control to it. In general the program loader inside the SBS will load the remainder of the operating system files required to start a microcomputer.

If no System Boot Sector is found, or no program loader can be found, the BIOS will generally send a message to the screen to inform the user that an error has occurred. A common message may look like:-

```
Non system-disk or disk error.  
Replace and strike any key when ready.
```

Because the IBM PC Compatible BIOS is designed to look for an MSDOS FAT format diskette, the diskette is always assumed to having a FAT file structure. The contents may be different depending on the operating system, but the startup process is the same.

MS-DOS

An **MS-DOS start-up diskette** will contain as a minimum the following files.

COMMAND.COM	- the transient/command processor
MSDOS.SYS	- the base system
IO.SYS	- input / output system program routines

Where msdos.sys, and io.sys are usually hidden files that is generally not seen when using the DIR command to list files.

Windows 95/98

A **Windows 95/98 start-up diskette** will contain as a minimum the following files.

COMMAND.COM	- the transient/command processor
MSDOS.SYS	- a text file with initialisation information
IO.SYS	- input / output system program routines
DRVSPACE.BIN	- system program routines to support special hard disk configurations.

Of course, the Windows 95/98 startup diskette does not start up the full Windows operating system but only a character based minimal system commonly used for maintenance or for older MSDOS programs that cannot run inside the newer

operating system.

Windows NT

A **Windows NT start-up diskette** will contain as a minimum the following files.

ntldr	- loader program for loading the NT OS
boot.ini	- boot initialisation used to build the Boot Loader Operating System Selection menu on Intel x86-based computers
ntdetect.com	- NT Hardware detection program routines to check the hardware and build a hardware list. This overrides the information provided by the BIOS.

Hard Disks - Looking for an OS

Because hard disks have continued to evolve into more exotic configurations, supporting more and more space than the original designs envisioned the mechanism by which the BIOS is to understand how the Hard Disk is configured was to create two special sectors on the Hard Disk.

Master Boot Record

The System Boot Sector, as originally designed for the floppy diskette, remains to simplify things. Another reserved sector, the Master Boot Sector (MBS) also known as the Master Boot Record (MBR) was created to contain at least the following information.

- Disk Configuration, Layout, Partition information
- Location of the System Boot Sector

When the BIOS looks for the operating system on the hard disk it loads the information in the Master Boot Record so it can understand how things are stored on the hard disk (as well as other things) then it locates the System Boot Sector where it loads the Operating System loader program into RAM.

Voila!

Once the OS loader is in RAM the BIOS transfers control to the loader which completes the loading, executing of the operating system.

If the BIOS does not find a valid Master Boot Record or System Boot Sector to start the operating system then it will give an error message.

Non system-disk or disk error.
Replace and strike any key when ready.

Otherwise it will give a message such as:

Starting windows 95.

File System - Organising Secondary Storage

A key component of an operating system is to organise and configure the use of secondary storage devices for a standard mechanism of recording and retrieving information. Organising secondary storage includes defining and maintaining what has generally been termed a “File System” for storing or ‘filing’ data.

Many operating systems on microcomputers use a hierarchical filing system sometimes analogous to the Filing Cabinet, its folders and files within folders. Although applications find it easy to request a file, and to write information to disks the operating system has to deal with different ways the different hard disks operate and the different ways data is stored and organised, all these functions in micro-seconds.

Working with Files

Define: What is a file?

Although a file can contain anything that can be generated for storage by a computer it is often categorised into two types of things.

A file contains either

- (i) user or otherwise created information (data) or
- (ii) computer instructions (programs)

Within these two categories can be very different types of files.

MS-DOS, an operating system is itself made up of different data and program files.

Identifying Files

An important part of OS design is compatibility between newer OSes and previous popular systems.

MS-DOS's File System design, specifically the naming conventions, was in part due to the popular OS of the time, CPM. CPM had an 8.3 naming convention and to minimise changes for programmers moving from CPM to MS-DOS, Microsoft retained this file naming convention.

Every file has to have a name/label an identifier for differentiating it from another file. The label, identifier we give files is usually called “filenames”.

MS-DOS's File System restricts filenames to contain 8 letters/characters with an “extension” which itself can be made of three letters/characters.

This MS-DOS limitation on naming files is also referred to as “8.3”.

More specific rules governing the naming of files in MS-DOS are:

- Have no more than 8 letters/characters
- Can use the alphabet, 0 to 9 and the following special characters: underscore(_), caret (^), dollar sign, tilde (~), exclamation point (!), number sign (#), percent sign(%), ampersand (&), hyphen(-),braces({ }),at sign(@), apostrophe('), and the grave accent(`). No other special characters are acceptable.
- Spaces are not allowed, commas, backslashes, or periods (except the period that separates the name from the extension).
- Cannot use filenames already being used by the OS such as: CLOCK\$,

CON, AUX, COMn (where n=1-4), LPTn (where n=1-3), NUL, and PRN.

Example of 8.3

An example for the 8.3 is the name Samiuela Taufa. This name requires 14 characters, including the space. To fit 8.3 you can manipulate, change the name to something like:

STAUFA
SAMTAUFA
SAMT

Some of the characters on the keyboard are used by the operating system to mean different things so they cannot be used in file names. Characters included in this category are: * - asterix, ? - question mark, " " space.

Windows 95 supports Long Filenames (LFN) which allows filenames to be up to 255 characters long, including spaces.

The Macintosh Hierarchical File System (HFS) supports up to 32 characters including spaces.

Windows NT's NTFS and OS/2's HPFS both support 255 character long filenames.

These operating systems also provide tools for graphically viewing the contents of the hard disk and the commands discussed in this section are not necessary.

Extensions as a Clue

Extensions are used to help us identify the purpose or group type of a file. For example, some conventions used in file names for MS-DOS are:

.BAT, .COM, .EXE are names for files that contain instructions, programs which MS-DOS can execute/run to perform a task.

.BAT **B**ATch instructions
.COM **C**OMmand instructions
.EXE **EXE**cutable instructions
.DOC **DOC**ument
.TXT **TeX**T
.TMP **TeM**Porary file

More sophisticated OS's such as the Macintosh OS use separate components of the file system to record data about the creating program. The Macintosh resource fork is infinitely more stable for defining a file than the extensions used by the MS-DOS believers.

Other file names usually have a special purpose, or the user screwed up in writing their filename. Files are usually created by applications who give you the option of naming the file.

File Size, Date, and Time

Like a good secretary, when MS-DOS stores your files it also records three other bits of information:

1. The size of the file
2. The Date it was created or last modified
3. The Time it was created or last modified.

The MS-DOS Command Prompt

MS-DOS as an operating system does not have a built in graphical user interface such as Windows 95 or Windows 3.x or the Macintosh. Operating Systems such as MS-DOS have a 'command shell' where the operating system receives commands from the user through the keyboard, the outer 'shell' of the services the OS offers.

Each command for MS-DOS is entered from the keyboard when the computer

displays what is called “the command prompt”. On most MS-DOS machines the command prompt looks like:

```
C:\>_   or   A:\>_
```

The prompt defines:

- 1 What disk drive am I sitting on.
- 2 What directory am I in.
- 3 A blinking “_” cursor to indicate where typing on the keyboard will begin displaying on the screen.

At this prompt you can type in anything you want, and if the operating system understands it as something useful it will do something about it, otherwise it will think your stupid.

```
C:\>I want to play games
Bad command or file name
```

Using the Keyboard:

ENTER MS-DOS does not know that you have completed your instruction list until you have hit the “enter” key.

BACKSPACE Correction key. This key is usually found above the **ENTER** key with an arrow pointing to the left. You can use this key to delete the character before the cursor. Continue pressing the **BACKSPACE** key to delete additional characters until there are no characters in front of the cursor.

CTRL+ALT+DEL

Re-starts your computer (executes a warm boot).

When you restart your computer, or execute a “warm boot”, all of the data in the conventional memory area of the computer is lost.

Files - Getting a Listing

So how can we get a listing of the files in the directory?

DIR DIRectory listing

DIR is an MS-DOS command to give you the listing of the files and folders/directories on the disk. To tell MS-DOS that you want a directory listing, you type “dir” at the MS-DOS prompt (without the “quotes”).

Use a sample listing to highlight

- a) the file name
- b) the file size
- c) the date
- d) the time

```
C:\>dir
```

Suggest:

```
AUTOEXEC.BAT
CHKLIST.MS
```

```
Volume in drive C is SAMIUELAT
Volume Serial Number is 1B7E-A90F
Directory of C:\
```

Files indicate

- a) different filename lengths
- b) different file sizes
- c) US date formats

```
BALLPT      <DIR>      07-09-93    2:32p
DOS         <DIR>      07-09-93    2:26p
PCMCIA     <DIR>      07-09-93    2:32p
TEMP       <DIR>      02-04-94    9:01p
```

```

WINDOWS          <DIR>                07-09-93    2:27p
AUTOEXEC  BAT          1,342 02-13-94    3:17p
CHKLIST   MS           27 12-11-93    2:41p
COMMAND   COM        54,619 09-30-93    6:20a
CONFIG    SYS         1,704 02-26-94    4:45p
SCANDISK  LOG          463 11-30-93    9:30p
VERSION                   53 04-15-93   10:03a
WINA20    386          9,349 11-18-92    9:00a
VERS62    MSD          5,779 12-05-93    8:46p
WIN311    MSD        44,548 01-31-94   12:05a
          14 file(s)                117,884 bytes
                                   4,014,080 bytes free

```

Results:

List of files in the order that MS-DOS has it on the disk.

- The file names
- The file size
- The dates the files were created/last modified
- The times the files were created/last modified

When you execute the command DIR by typing it in at the MS-DOS Prompt, the computer will look at the “directory” and put onto the screen a list of files within the “directory” similar to the sample above.

*Files - Listing by Groups (using the * “wildcard”)*

The DIR command can use “parameters” (words that follow the command to tell the command extra things to do) to allow the user to customise the result they get.

```
DIR *.EXE
```

By executing the “DIR *.EXE” command we are telling MS-DOS to give us a listing of all files that begin with “*” (which means any letter or group of letters/characters) and ends with the extension .EXE. The asterix is called a “wildcard”.

Files - Listing by Groups (using the ? “wildcard”)

Where * meant any letter or group of letters, ? means any single character.

For example: When you typed in:

```
DIR *.EXE
```

This told MS-DOS to list all files that end with .EXE.

When you type in:

```
DIR ?.EXE
```

This tells MS-DOS to list all files that have one letter and end with .EXE.

Files - Another Listing View

The list we get from DIR is a long winded list of details about the files when at times all we want to do is look at the names of the files. To get a listing of only the MS-DOS file names, use the DIR command parameter (switch) “/W”.

At the MS-DOS prompt type in:

```
DIR /W
```

/W stands for wide view.

Files - What's in it

So how can we take a look at what is in a file?

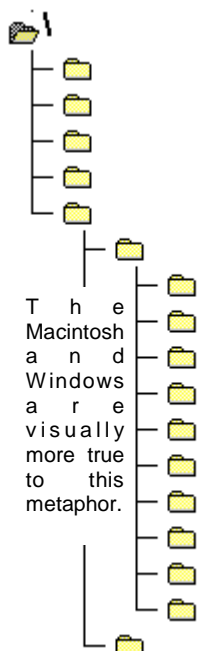
Generally, to view the contents of a file you would use the program that created the file to open the file and display its content.

TYPE. A simplistic method of viewing the contents of a file is to use the MS-DOS command “type”. This command “types” the contents of a file onto the screen for viewing.

For example, to view the contents of the file a:john.txt on a disk in drive B:, you would use the following command:

```
type b: john.txt
```

MS-DOS's Filing System



MS-DOS uses a hierarchial filing system, a filing system where deeper levels within the filing system can contain more files but the filing system has a ‘root’ or upper most part of the hierarchy from where everything branches. In Windows Explorer we are shown the branches of the root system as being folders. We can create new folders by selecting File | New | Folder.

MS-DOS names the branches of the root system, “directories” an earlier metaphor to the telephone directories, whereas Macintosh and Windows operating systems refer to the branches as folders as analogy of the office filing cabinet.

The hierarchical filing system, can be viewed physically as like an upside tree, with the roots at the top of the tree and the tree branches at the bottom.

Each floppy diskette, and hard disk drive can be referred to as a separate filing cabinet, or separate upside-down tree.

The top most folder cabinet is called the “root”, (symbolised as “\” in our diagram) where all the branches come from. This equates to staring at the filing cabinet and seeing the labels on the filing cabinet.

You can leave sheets on paper on top of the filing cabinet “root”, which soon becomes a real mess or you can use the drawers and label the drawers by their purpose.

Within the draws, you can just throw your papers in, or you can file papers into Manilla folders.

The filing system allows you repeat this metaphor further so that you can have as many branches from the root as you want, and as many branches from the branches as you want.

DIrectories - Folder Names

The naming of directories is exactly the same as for names for files.

MS-DOS commands refer to the current directory by its name or by the special/reserved directory name, the “.” period. The parent directory of the current directory can be referred to by its name or by a double period (..). When you use the **dir** command to view the files and directories in a directory (other than the root directory), you will see these entries listed, representing the current and parent directories.

- . refers to the current directory
- .. refers to the parent directory (parent, the directory from which another directory exists)

DIrectories - PATHS

When discussing the map to uniquely identify a specific file, the specific directions for the file is called the *path*. The *path* specifies the location of a file within the directory tree. You can think of it as the route MS-DOS must travel, starting at the root directory, to get to files in another directory. For example, suppose that drive D: has this directory tree:

```
D:\>tree
Directory PATH listing
Volume Serial Number is 211A-14D6
D:\
+---ART
    +---WORK
    +---HOME
    +---SCHOOL
```

To get to the files in the directory named “HOME”, MS-DOS must go through the following directories: root (\), ART, and HOME.

In MS-DOS commands, you designate the path in the following way:

```
\art\home
```

This is the path of the directory “HOME”. The first backslash represents the root directory; the second backslash separates the HOME directory from its parent directory, ART.

DIRectories - making them

Directories are created manually by the using the MS-DOS commands MD (Make Directory) or MKDIR (MaKe DIRectory).

The command is typed in at the MS-DOS prompt, followed by the 8.3 name that you want to give the directory:

```
MD dirname
```

Example:

With the MD command, you can increase the mess of files on the filing cabinet by putting piles of useless manila folders on top of it as well. As noted before, the key to a useful filing system is to balance the use of folders with your files.

Suppose you are in the root directory (\) and you want to create a directory named QUEEN to store you data. To create a directory named SAMT, type the following command:

```
md QUEEN
```

```
C:\>MD QUEEN
```

```
C:\>dir
```

```
AUTOEXEC  BAT           1,342  02-13-94   3:17p
COMMAND   COM           54,619  09-30-93   6:20a
CONFIG    SYS           1,704   02-26-94   4:45p
QUEEN     <DIR>           03-07-94  11:36p
```

The directory QUEEN has been successfully created by MS-DOS, as indicated by the results from the **dir** command.

DIRectories - UNcreating them

Most of this stuff is taken straight out of the examples in the MS-DOS manual.

It would be good to run a training program on how to read a technical manual (after they get a better understanding of the basics.)

The command to get rid of/remove unwanted directories is RD (Remove Directory) or RMDIR (ReMove Directory). As a safeguard against mistakes in choosing to remove a directory the operating system will not perform the task of removing a directory unless the directory contains no files.

To remove the directory QUEEN that was created you would type in:

```
rmdir queen
```

DIRectories - How do you get into the different directories?

CD - Change Directory or CHDIR (CHange DIRectory) displays the name of the current directory or changes the current directory.

Changing to the root directory. The root directory is the top of the directory hierarchy for a drive. To return to the root directory, type the following command:

```
cd \
```

If you are want to move into/change to a directory called \form7 and you are in the root directory, then you can type in:

```
cd \form7    or    cd form7
```

Suppose you have a directory named SPECIALS with a sub-directory named SPONSORS. To change your current directory to \SPECIALS\SPONSORS, type the following command:

```
cd \specials\sponsors  
  \SPECIALS\SPONSORS\DRINKS  
  ↑           ↙         ↗  
  ROOT       SEPARATORS
```

Or, if your current directory is \specials, you can use the following command to change to the \SPECIALS\SPONSORS

```
cd sponsors
```

To change from a sub-directory back to the parent directory, type the following:

```
cd ..
```

To display the name of the current directory, you can use **cd** without a parameter. For example, if your current directory is \phones\girls on the disk in drive C:, type **cd** to see the following response:

```
C:\PHONES\GIRLS
```

DIrectories - TREE, a graphical view of the upside down tree directory

MS-DOS supplies a program called TREE.COM that “draws” a picture of what directories and subdirectories you have on your disk/diskette. This function is already available to Microsoft Windows 3.x users using File Manager (winfile.exe), Microsoft Windows 95/98 users using Windows Explorer (explorer.exe) and Macintosh OS users using the Finder.

Since TREE.COM is a program file, to execute TREE.COM from the MS-DOS prompt you type:

```
TREE.COM    or  
TREE
```

When TREE is executed/run it will draw an upside down tree diagram of subdirectories as TREE can “see” it from where you typed in the command TREE.

TREE.COM’s behaviour can be modified by adding parameters to the command

line. By adding the parameter for the directory you wanted listed TREE will draw the upsidedown view of the directories from the name of the directory you specified.

For example, from the root directory of A:, you can type in either:-

```
tree A:\          or  
tree
```

```
A:\>tree a:\  
Directory PATH listing  
Volume Serial Number is 211A-14D6  
A:\  
+---ART  
|   +---WORK  
|   +---HOME  
|   +---SCHOOL  
+---WORK  
|   +---PEOPLE  
|   +---NOT_DONE  
+---SIONE
```

But if what you were really interested in was the ART directory itself, and not anything else, then you could have used the “parameter” of your choice of directories.

```
A:\>tree a:\ART  
Directory PATH listing  
Volume Serial Number is 211A-14D6  
A:\ART  
+---WORK  
+---HOME  
+---SCHOOL
```

Microsoft Windows 95 - Seeing What's on Your Computer

For a good summary, review of how to find things on your computer and looking around then read the booklet *Introducing Microsoft Windows 95, "Seeing What's on Your Computer."*

BIOS LAB Work Assignment 1

Shutdown your computer, turn it on and watch the display of information presented by the BIOS about what equipment it has detected. Study the startup information when the computer starts up and complete what information is known about the below devices.

C.P.U.:
Input Devices:
Output Devices:
Storage Devices:

BIOS LAB Work Assignment 2

When you turn the PC on, there are a series of audible sounds and visible changes to the PC that indicate to you that the BIOS is checking the hardware. You can hear a little “ping” sound telling you the motherboard is being checked, lights flash on to tell you the keyboard, screen, and disk drives are being checked.

List the signal indicating the BIOS at work, and what device it is checking. List the order in which you notice the signals.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

When the computer is turned on, the top left hand corner of the screen shows a counter of ____ KB ticking away.

What is the highest value of that number?

This number represents the amount of RAM in KB that is available on the machine for programs and data. How much RAM is available on your machine?

If you supply the diskettes for these preparatory labs, then to simplify things just change the COMPSCI directory to some other directory name in the secondary course.

BIOS LAB Work Assignment 3

Verify this by checking how often the disk drive lights indicate that the BIOS is looking at it. If the BIOS only does a hardware check once, then all the above mentioned indicators should only occur ONCE. If the BIOS does search for the OS as indicated in the notes then it should only relight the A: and the C: drive. (*Note: some BIOS's can be modified to only look for the OS on the HDD*)

Write down how many times each of the drive lights on the PC come on when the machine is turned on.

A: _____ B: _____ C: _____

At the conclusion of these device searches by the BIOS the operating system is loaded.

Windows / MS-DOS LAB Work Assignment 4

1. When Windows and MS-DOS's OS Loader is loading the operating system they

write a little message to the screen to tell the user they are working. Write down the message indicating the operating system is starting up.

Write the MS-DOS prompt that the computer displays on the screen for you.

Windows / MS-DOS LAB Work Assignment 5

1. Get a listing of the files in the root directory of the boot drive. Write down the file size, creation date, creation time for the following files:

COMMAND.COM

2. How many files are in the directory listing?

3. Which files use all of the 8.3 characters for their filename?

Windows / MS-DOS LAB Work Assignment 6

In Windows Explorer, open the Windows folder inside the [C:] drive.

*{MS-DOS exercise: in the directory where the MS-DOS Prompt displays
C: \WINDOWS}*

List the first three files showing on the screen with the extensions as shown below. Make sure you can see the extensions by checking the View | Options | View and making sure there is **no** tick on the “Hide MS-DOS file extensions for file types that are registered.”

{MS-DOS exercise: What are the first three files to show up on the screen when you type the following commands:}

extension EXE.

*{MS-DOS exercise: type DIR *.EXE /p}*

extension COM. *{MS-DOS exercise: type DIR *.COM /P}*

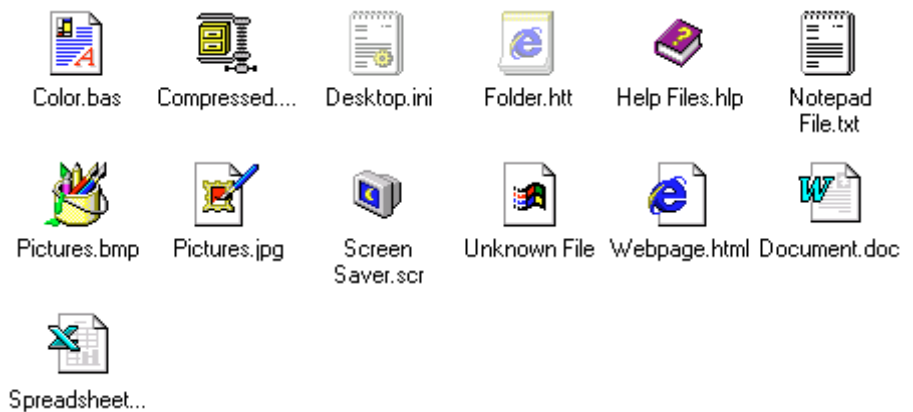
files beginning with the letter “C”

{MS-DOS exercise: type DIR C.* /P}*

{MS-DOS exercise: Files that have the extensions .COM, .EXE, .BAT can be executed at the MS-DOS prompt by typing in the name of the file. Write down the name of one of these files.}

{MS-DOS exercise: Execute or Run the above listed program by typing the name in at the MS-DOS Prompt, write down what happens.}

Windows displays files using pictures to indicate what it knows about it.



Windows displays data files and program files it understands by using different icons.

Find *at least three* of the above icons and double click on it to find out what happens to files with the above pictures. List the icons you have tried and describe which application program started and what happened.

MS-DOS LAB Work Assignment 7

Repeat the previous LAB session, except instead of using “*” use the “?” and write

down what happens. Try using more “?” (e.g. dir ?????.???) and write down what happens.

MS-DOS LAB Work Assignment 8

At the boot disk root directory, answer the following questions.

1. How many lines of files do you get by using the regular **dir** command? How many lines of files do you get if you use the **dir /w** command?

2. Use the “type” command on two files in the Windows directory ending with the extension *.TXT. Write the names of the two files down, and write down the last two lines that was displayed on the screen when you keyed in the “type” command.

i.

ii.

Windows / MS-DOS LAB Work Assignment 9

Windows Explorer allows the creation of folders/directories and exploring the storage facilities.

Create a folder/directory named: TEMP from the root directory.

Ensure all further instructions in this assignment is done within the TEMP directory.

1. Create a folder/directory named: COMPSCI by using the MD command.

2. Move, change into the directory COMPSCI by using the command.

{MS-DOS exercise: Your MS-DOS prompt has now changed, write down what the prompt now reads}

3. Create a folder/directory named CLASS

4. Move, change into the folder/directory CLASS

{MS-DOS exercise: Your MS-DOS prompt has now changed, write down what the prompt now reads}

5. Create a directory using your name.
6. Change to that new directory.
{MS-DOS exercise: Your MS-DOS prompt has now changed, write down what the prompt now reads}

6. Change to the root directory
{MS-DOS exercise: Your MS-DOS prompt has now changed, write down what the prompt now reads}

- (The following questions apply only to PCs not using Windows 95 or Windows 98)
7. Execute, run the program named TREE.COM

8. Draw a picture of what you have just created on the computer from the picture that is displayed by the program **tree** or in Windows Explorer.

Review Questions

1. The commands MD\TEST and MD TEST
 - a) require that the TEST sub-directory be empty
 - b) are equivalent if issued from the root directory
 - c) can never, under any circumstances, produce the same result.
 - d) all of the above

Sources and Reference

Microsoft MS-DOS 5.0 Reference Manual, Microsoft Press
 Tornsdorf, Manfred & Helmut Tornsdorf, DOS 6.0 Complete, Abacus, 1993
 Student Manual DOS Introduction Course, Education Development Centre, 1992
 Siliva, Tonga. Liahona High School 1997 Term 4 Final Exam, Computer Studies
 Form 5 (TSC)

<http://www.qsc.edu.to> - Queen Salote's SchoolNET Website
<http://www.tongatapu.net.to> - **Tonga on the 'NET**

Queen Salote's SchoolNET Website does not require Internet access as it is not connected to the world wide Internet but uses the same technology within Queen Salote College and participating schools.

<http://www.qsc.edu.to> is available on all networked computers at Queen Salote College.