

EE102: Software Engineering I

Section 4 – Major Services

Storing Information:

- **Files**

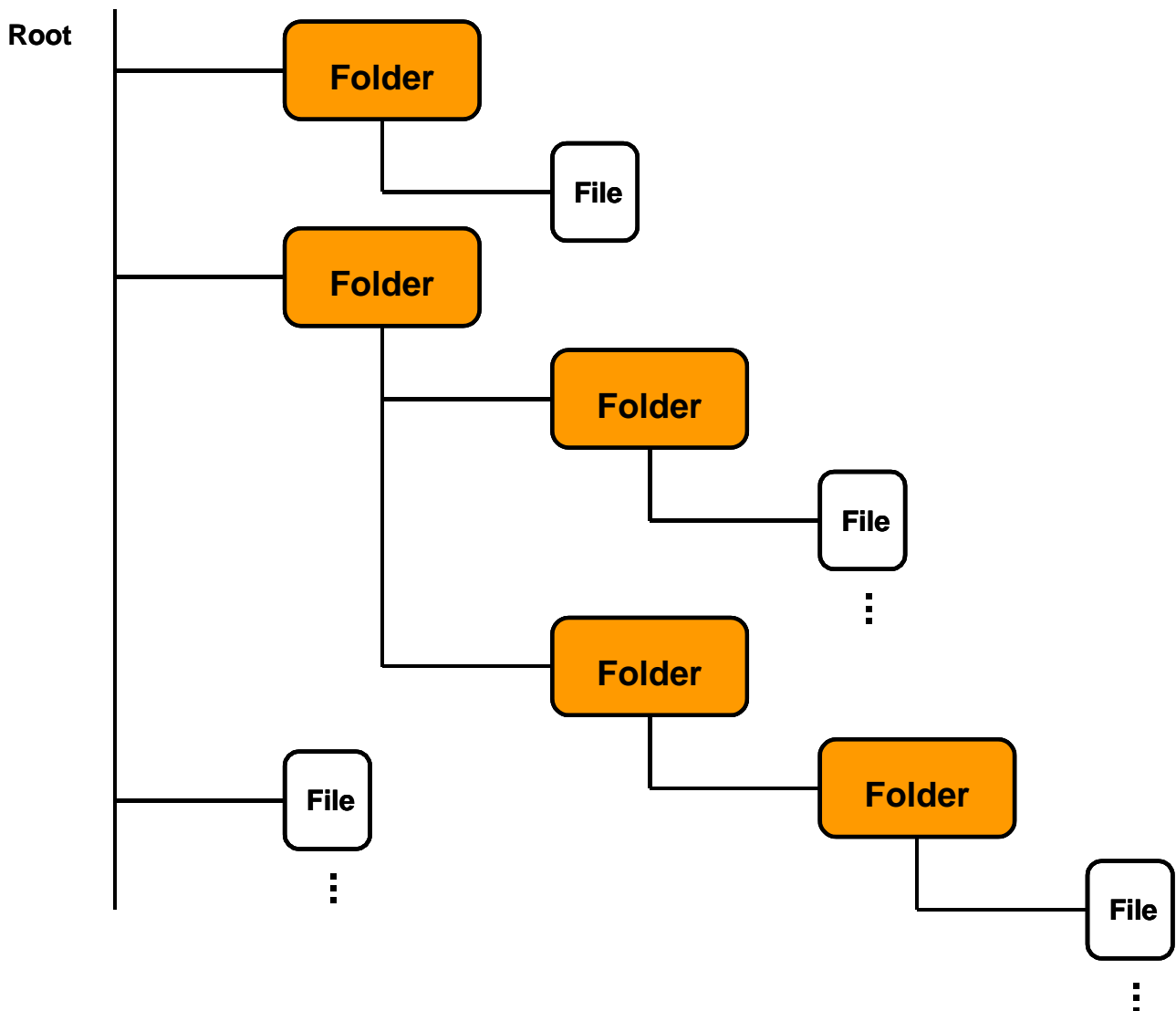
- Text Documents
- Images
- Videos
- Audio Files
- Programs
- Multimedia Documents

- **Naming**

- File name (in general suggesting file content)
- Extension (in general suggesting file format)

- **File System**

- Used to organize files in order to find them easier
- Similar to a filing cabinet
- Uses folders (denoted **directories**) to group related files
- File system is in general arranged **hierarchically**



• Storage Device

- Hard disk drive, floppy disk, ZIP disk, CD-ROM, DVD-ROM
- Root directory is the highest level of the file system
- In Windows OS a letter is assigned to the root in order to identify it (e.g. A:\, C:\, D:\)
- In Unix or Linux the root is identified by “/”

- **Path**

- Each file is uniquely identified by its **path + name**
- The path lists all the directories from the root to the file
- File name in general includes a suggestive name, “.” and the extension
- In Windows OS: C:\Temp\DCU\ee102\lecture1.doc
- In Linux OS: \tmp\DCU\ee102\lecture1.doc

- **File Types and Extensions**

- In general each file type has an associated extension
- Adding certain extension is not compulsory, but it helps manipulating the files

- **File Types and Applications**

- For each file type there is an application to process it
- Processing includes reading, displaying, editing, saving
- In general there is a strong association between file type, extension and application to process it
- However more than one application can be used to process the same type of file

- **File Types and Applications (in Windows OS)**

- Plain text (e.g. .txt – Textpad or Wordpad)
- Formatted text (e.g. .doc – Microsoft Word)
- Images (e.g. .jpg, .gif – Paint Shop Pro)
- Audio (e.g. .mp3, .wav – Winamp)
- Video (e.g. .avi, .mpg – Windows Media Player)

User Interfaces:

- **Motivation**

- Used to allow for user interaction with the computer
- In general they have tools to simplify this interaction

- **Types**

- Two major types, complementary to each other
- **Command Line Interface (CLI)**
- **Graphical User Interface (GUI)**
- In general the user decides which one to use depending on the task to be completed
- The users must develop certain degree of familiarity and competence with both types of interface
- The users will learn to decide when to use CLI and when the usage of GUI is more appropriate

- **Command Line Interface (CLI)**

- The interaction with the computer is mainly textual
- Commands are inputted via keyboards
- In general the results are displayed in text mode
- Some users find CLI faster
- Elements: command line prompt, display window

- **Graphical User Interface (GUI)**

- The interaction with the computer is mainly via mouse
- Text is inputted via keyboards, commands via menus
- In general the results are displayed in various windows
- Some users find GUI more user-friendly
- Elements: windows, menus, tool bars, etc.

- **Notes**

- We will use GUI during regular computer operation
- We will use CLI for compilation and running of C programs

World Wide Web (WWW):

- **Motivation**

- Allows fast and convenient access to information
- A major way to exchange information

- **Server**

- A **server machine** is a computer (in general a high specs one) dedicated to solving a particular task or providing certain service
- A **server application** is the program that solves that task and provides that service

- **Client**

- A **client machine** is a regular computer that can connect to a server in order to avail from a service provided
- A **client application** is the program that allows the connection to the server in order to have the task solved

- **Protocol**

- A set of rules both the server and the client must obey in order to allow for their inter-communication
- FTP (File Transfer Protocol) – supports file transfer
- HTTP (HyperText Transfer Protocol) – supports hypertext document transfer

- **What is WWW?**

- Extreme large collection of documents (sources of information) known as **resources**
- Resources are hosted by servers
- The main service provided by these servers is to answer to any request for documents by delivering them
- Clients located all over the world can request access to these resources

- **Resources**

- Many resources are text documents, which could include images, sounds, videos, etc.
- Each resource has an address that uniquely identifies it
- The address consists of:
 - the protocol used for transmission (e.g. HTTP)
 - the name of the server that hosts the resource
 - the path to the resource
 - the name of the resource
- E.g. <http://www.eeng.dcu.ie/~ee102/notes/lecture1.doc>

- **Web site**

- A collection of related resources is organized as a Web site
 - e.g. DCU web site: <http://www.dcu.ie>
 - e.g. EENG web site: <http://www.eeng.dcu.ie>
 - e.g. EE102: <http://www.eeng.dcu.ie/~ee102>

- **Web Browser**

- Most of the resources are formatted using the HyperText Markup Language (HTML)
- Special client application is required such as when provided the address of a resource, it:
 - connects to the server,
 - requests the resource,
 - receives the document
 - interprets the HTML document and
 - displays the result
- This client application allows the user to follow hyperlinks by clicking on them
- This application is denoted **Web Browser**
 - e.g. Netscape Communicator
 - e.g. Microsoft Internet Explorer

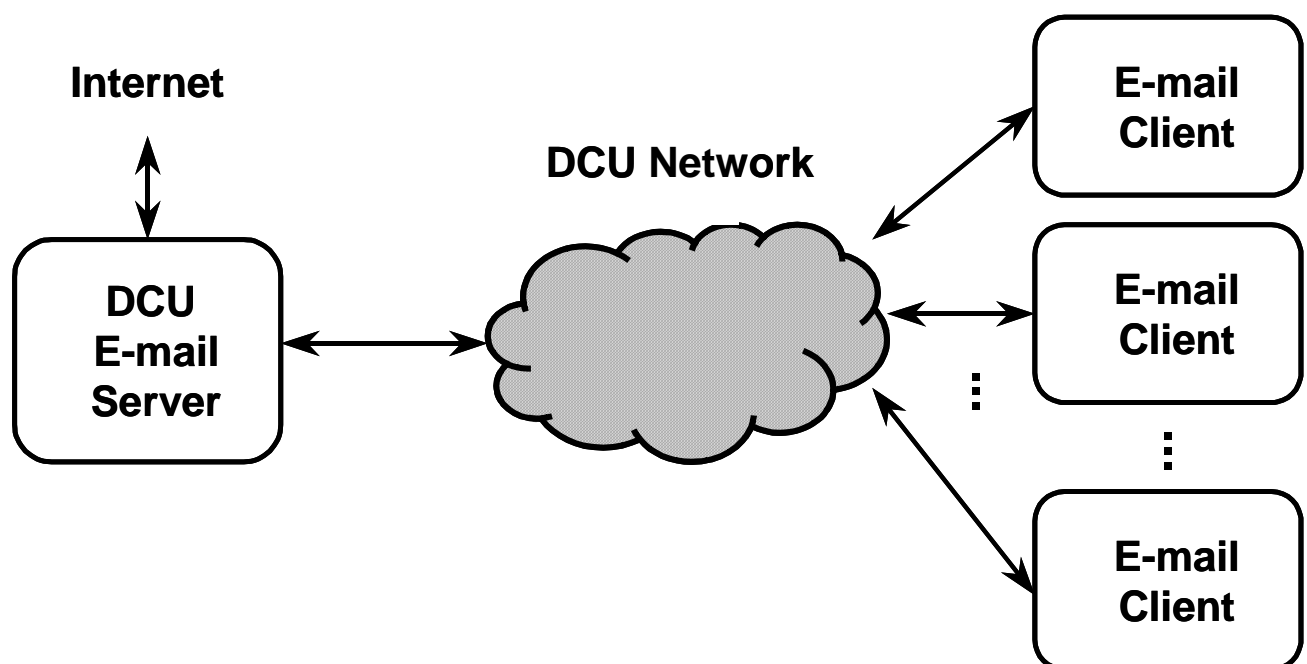
E-mail:

- **Motivation**

- Allows fast and convenient communication
- A major manner of information exchange

- **DCU E-mail**

- The Internet browser (e.g Microsoft Internet Explorer) will be used as the client application
- The user must indicate the entry to the server e-mail service in form of a web address: **http://mail.dcu.ie**
- Client and server will inter-communicate and will provide full e-mail service to the users: checking of username and password, e-mail composing, sending and receiving, e-mail storage, etc.



- In order to use e-mail service the user needs an e-mail account on the e-mail server
- The account is created at DCU registration and is identified by username and password
- In order to be able to receive e-mails advertise your contact e-mail address which has the following form of: studentID@mail.dcu.ie

- **Etiquette for using e-mail**

- Do not write in an e-mail anything you would not like to receive yourselves
- Be very polite, especially with staff members and persons older than you
- Check HEAnet, DCU and School of Electronic Engineering Acceptable Use Policy documents
- Non-acceptable use of e-mail leads to **Disciplinary Action**

- **E-mail lists**

- Are normally associated to certain topics of interests
- Allow e-mail messages to be sent to many people at once
- Only people that have subscribed to the e-mail list will receive those e-mails
- Are used to broadcast useful information (e.g. laboratory requirements, exam dates)

- Allow for discussion forums to exist when people cannot be physically present, enabling the response in their own time
- Require special server application that maintains a list of e-mail addresses
- The users send e-mail to a given address and the e-mail list server application forwards the message to all subscribers in the list
- Regularly this application maintains an archive of all messages sent
- This application allows for the intervention of a human supervisor in order to ensure appropriate use of the facility
- It also allows for selective distribution of some messages

- **ee102 e-mail lists**

- **ee102-talk@maillist.eeng.dcu.ie**
- e-mail conference list specifically setup for this module
- All the ee102 students are automatically subscribed
- Broadcasts any e-mail to all the members
- You can use it to ask for help or to provide help
- **ee102-reports@maillist.eeng.dcu.ie**
- e-mail report list specifically setup for this module
- All the ee102 students are automatically subscribed
- Delivers any e-mail to the demonstrators and lecturer only
- The lecturer is the supervisor!