

UNIT 6



Operating Systems

STARTER

1 Study this screen display and answer these questions.

- 1 How do you enter Unix commands?
- 2 Which Unix commands does it show?
- 3 What is the output of each command?
- 4 What will happen when the last command is entered?
- 5 Which other Unix commands do you know?

Fig 1
Unix screen display

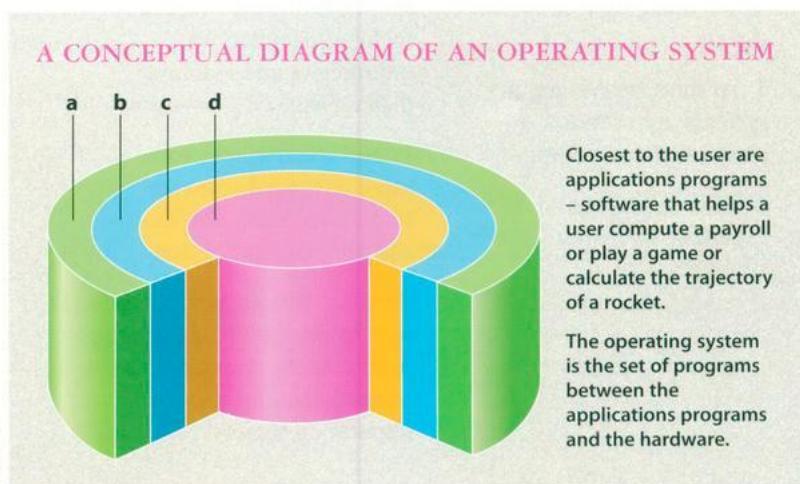
```
$ date
Mon Sep 19 12:45:38 BST 2005
$ passwd
passwd: Changing password for dsea03
Enter login password:
New password:
$ ls
home local mnt packages scratch
$ logout >
```

READING

2 Match the labels to the four layers of this diagram with the help of the diagram caption.

- 1 applications programs
- 2 user
- 3 hardware
- 4 operating system

Fig 2
Conceptual diagram of an operating system



3 Study this text title. What do you think it means?

Operating Systems: Hidden Software

Now read this text to check your answer and to find the answers to these questions:

- 1 What difference is there between applications software and operating systems?
- 2 Why is the supervisor program the most important operating system program?
- 3 What is the difference between resident and non-resident programs?
- 4 What are the main functions of an operating system?

When a brand new computer comes off the factory assembly line, it can do nothing. The hardware needs software to make it work. Are we talking about applications software such as wordprocessing or spreadsheet software? Partly. But an applications software package does not communicate directly with the hardware. Between the applications software and the hardware is a software interface – an operating system. An operating system is a set of programs that lies between applications software and the computer hardware.

The most important program in the operating system, the program that manages the operating system, is the supervisor program, most of which remains in memory and is thus referred to as resident. The supervisor controls the entire

operating system and loads into memory other operating system programs (called non-resident) from disk storage only as needed.

An operating system has three main functions: (1) manage the computer's resources, such as the central processing unit, memory, disk drives, and printers, (2) establish a user interface, and (3) execute and provide services for applications software. Keep in mind, however, that much of the work of an operating system is hidden from the user. In particular, the first listed function, managing the computer's resources, is taken care of without the user being aware of the details. Furthermore, all input and output operations, although invoked by an applications program, are actually carried out by the operating system.

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4 Complete the gaps in this summary of the text on operating systems using these linking words and phrases:

<i>although</i>	<i>in addition</i>
<i>because</i>	<i>such as</i>
<i>but</i>	<i>therefore</i>

The user is aware of the effects of different applications programs operating systems are invisible to most users. They lie between applications programs, wordprocessing, and the hardware. The supervisor program is the most important. It remains in memory, it is referred to as resident. Others are called non-resident they are loaded into memory only when needed. Operating systems manage the computer's resources, the central processing unit., they establish a user interface, and execute and provide services for applications software. input and output operations are invoked by applications programs, they are carried out by the operating system.

LANGUAGE WORK**-ing form (1) as a noun; after prepositions**

We can use the *-ing* form of the verb as a noun. It can be the subject, object, or complement of a sentence. For example:

- 1 *Managing* the computer's resources is an important function of the operating system.
- 2 The operating system starts *running* the user interface as soon as the PC is switched on.
- 3 Another function of the operating system is *executing* and *providing* services for applications software.

The *-ing* form is also used after prepositions. This includes *to* when it is a preposition and not part of the infinitive. For example:

- 4 *Without* the user *being* aware of the details, the operating system manages the computer's resources.
- 5 We begin *by focusing* on the interaction between a user and a PC operating system.
- 6 We look forward *to having* cheaper and faster computers.

5 Rewrite each of these sentences like this:

An important function of the operating system is to manage the computer's resources.

Managing the computer's resources is an important function of the operating system.

- 1 One task of the supervisor program is to load into memory non-resident programs as required.
- 2 The role of the operating system is to communicate directly with the hardware.
- 3 One of the key functions of the operating system is to establish a user interface.
- 4 An additional role is to provide services for applications software.
- 5 Part of the work of mainframe operating systems is to support multiple programs and users.
- 6 The task in most cases is to facilitate interaction between a single user and a PC.
- 7 One of the most important functions of a computer is to process large amounts of data quickly.
- 8 The main reason for installing more memory is to allow the computer to process data faster.

6 Complete these sentences with the correct form of the verb: infinitive or -ing form.

- 1 Don't switch off without (close down) your PC.
- 2 I want to (upgrade) my computer.
- 3 He can't get used to (log on) with a password.
- 4 You can find information on the Internet by (use) a search engine.
- 5 He objected to (pay) expensive telephone calls for Internet access.
- 6 He tried to (hack into) the system without (know) the password.
- 7 You needn't learn how to (program) in HTML before (design) webpages.
- 8 I look forward to (input) data by voice instead of (use) a keyboard.

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PROBLEM-SOLVING**7**

Try to find the commands from the lists below which will have these actions.

VMS	Unix
help	write
directory	cp
search	lpr
copy	ls
rename	mkdir
print	date
show users	rm
show time	man
create/directory	grep
phone	rwho
delete	mv

Action	VMS command	Unix command
List all the files in a directory		
Delete a file		
Rename a file		
Copy a file		
Send a file to a printer		
Obtain help		
Create a directory		
Show date and time		
Show users on system		
Talk to other users on system		
Search for a string in a file		

SPEAKING**8**

Work in pairs, A and B. Each of you has information about some popular operating systems. Find out from the information you have and by asking each other, the answers to these questions:

Student A Your information is on page 184.

Student B Your information is on page 190.

- 1 Which operating system is used on Apple Macintosh microcomputers?
- 2 What is Palm OS designed for?

- 3 Name one system used on IBM mainframes.
- 4 Which operating system is Linux related to?
- 5 Which operating systems are specifically designed for multimedia?
- 6 Which operating systems are produced by the Microsoft Corporation?
- 7 Which operating system is distributed as freeware?
- 8 Which network operating system is becoming less popular?
- 9 Which operating system is most suited for use in the living room of a family home?
- 10 Which operating systems are used by DEC VAX minicomputers?

WRITING

9 This description of the Mac OS X is drawn from the table below. Write a similar description of Linux.

Mac OS X is a Unix-based operating system designed for use on Apple Mac computers. It includes memory-protection, pre-emptive multitasking and symmetric multiprocessing support. Graphics are provided by a graphics engine known as Quartz. It has advanced-PDF standards support, OpenGL and Quicktime integrated into the OS. The operating system features are accessed through a graphical user interface called Aqua.

	Mac OS X	Linux
type	Unix-based	Unix-based
computer	Apple Mac	wide variety
features	memory-protection, pre-emptive multitasking, symmetric multiprocessing support	variety of distribution kits available
graphics engine	Quartz	XFree86
standard support	advanced-PDF, OpenGL, Quicktime	
user interface type	GUI	command line, GUI
user interface	Aqua	KDE, Gnome
source code availability	not available	freely available

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SPECIALIST READING

A Find the answers to these questions in the following text.

- 1 What did Linus Torvalds use to write the Linux kernel?
- 2 How was the Linux kernel first made available to the general public?
- 3 What is a programmer likely to do with source code?
- 4 Why will most software companies not sell you their source code?
- 5 What type of utilities and applications are provided in a Linux distribution?
- 6 What is X?
- 7 What graphical user interfaces are mentioned in the text?

LINUX



Linux has its roots in a student project. In 1992, an undergraduate called Linus Torvalds was studying computer science in Helsinki, Finland. Like most computer science courses, a big component of it was taught on (and about) Unix. Unix was the wonder operating system of the 1970s and 1980s: both a textbook example of the principles of operating system design, and sufficiently robust to be the standard OS in engineering and scientific computing. But Unix was a commercial product (licensed by AT&T to a number of resellers), and cost more than a student could pay.

Annoyed by the shortcomings of Minix (a compact Unix clone written as a teaching aid by Professor Andy Tannenbaum) Linus set out to write his own 'kernel' – the core of an operating system that handles memory allocation, talks to hardware devices, and makes sure everything keeps running. He used the GNU programming tools developed by Richard Stallman's Free Software Foundation, an organisation of volunteers dedicated to fulfilling Stallman's ideal of making good software that anyone could use without paying. When he'd written a basic kernel, he released the source code to the Linux kernel on the Internet.

Source code is important. It's the original from which compiled programs are generated. If you don't have the source code to a program, you can't modify it to fix bugs or add new features. Most software companies won't sell you their source code, or will only do so for an eye-watering price, because they believe that if they

³⁵ make it available it will destroy their revenue stream.

What happened next was astounding, from the conventional, commercial software industry point of view – and utterly predictable to ⁴⁰ anyone who knew about the Free Software Foundation. Programmers (mostly academics and students) began using Linux. They found that it didn't do things they wanted it to do – so they fixed it. And where they improved it, ⁴⁵ they sent the improvements to Linus, who rolled them into the kernel. And Linux began to grow.

There's a term for this model of software development; it's called Open Source (see www.opensource.org/ for more information).

⁵⁰ Anyone can have the source code – it's free (in the sense of free speech, not free beer). Anyone can contribute to it. If you use it heavily you may want to extend or develop or fix bugs in it – and it is so easy to give your fixes back to ⁵⁵ the community that most people do so.

An operating system kernel on its own isn't a lot of use; but Linux was purposefully designed as a near-clone of Unix, and there is a lot of software out there that is free and was designed ⁶⁰ to compile on Linux. By about 1992, the first 'distributions' appeared.

A distribution is the Linux-user term for a complete operating system kit, complete with the utilities and applications you need to make ⁶⁵ it do useful things – command interpreters, programming tools, text editors, typesetting tools, and graphical user interfaces based on the X windowing system. X is a standard in academic and scientific computing, but not ⁷⁰ hitherto common on PCs; it's a complex distributed windowing system on which people implement graphical interfaces like KDE and Gnome.

As more and more people got to know about ⁷⁵ Linux, some of them began to port the Linux kernel to run on non-standard computers. Because it's free, Linux is now the most widely-ported operating system there is.

[Adapted from 'Smooth Operator' by Charles Stross, Computer Shopper magazine, November 1998]

B Re-read the text to find the answers to these questions.

1 Match the terms in Table A with the statements in Table B.

Table A

- a Kernel
- b Free Software Foundation
- c Source code
- d Open Source
- e A distribution
- f X

Table B

- i A type of software development where any programmer can develop or fix bugs in the software
- ii The original systems program from which compiled programs are generated
- iii A complete operating system kit with the utilities and applications you need to make it do useful things
- iv A standard distributed windowing system on which people implement graphical interfaces
- v An organisation of volunteers dedicated to making good software that anyone could use without paying
- vi The core of an operating system that handles memory allocation, talks to hardware devices, and makes sure everything keeps running

2 Mark the following statements as True or False:

- a Linux was created in the 1980s.
- b Minix was created by a university student.
- c Linux is based on Unix.
- d Minix is based on Unix.
- e Linux runs on more types of computer than any other operating system.

UNIT 7

Graphical User Interfaces

STARTER

1 Study this diagram of a graphical user interface (GUI). Identify these features:

- | | |
|---------------|-----------|
| 1 window | 5 taskbar |
| 2 icon | 6 submenu |
| 3 menu | 7 desktop |
| 4 system tray | 8 button |

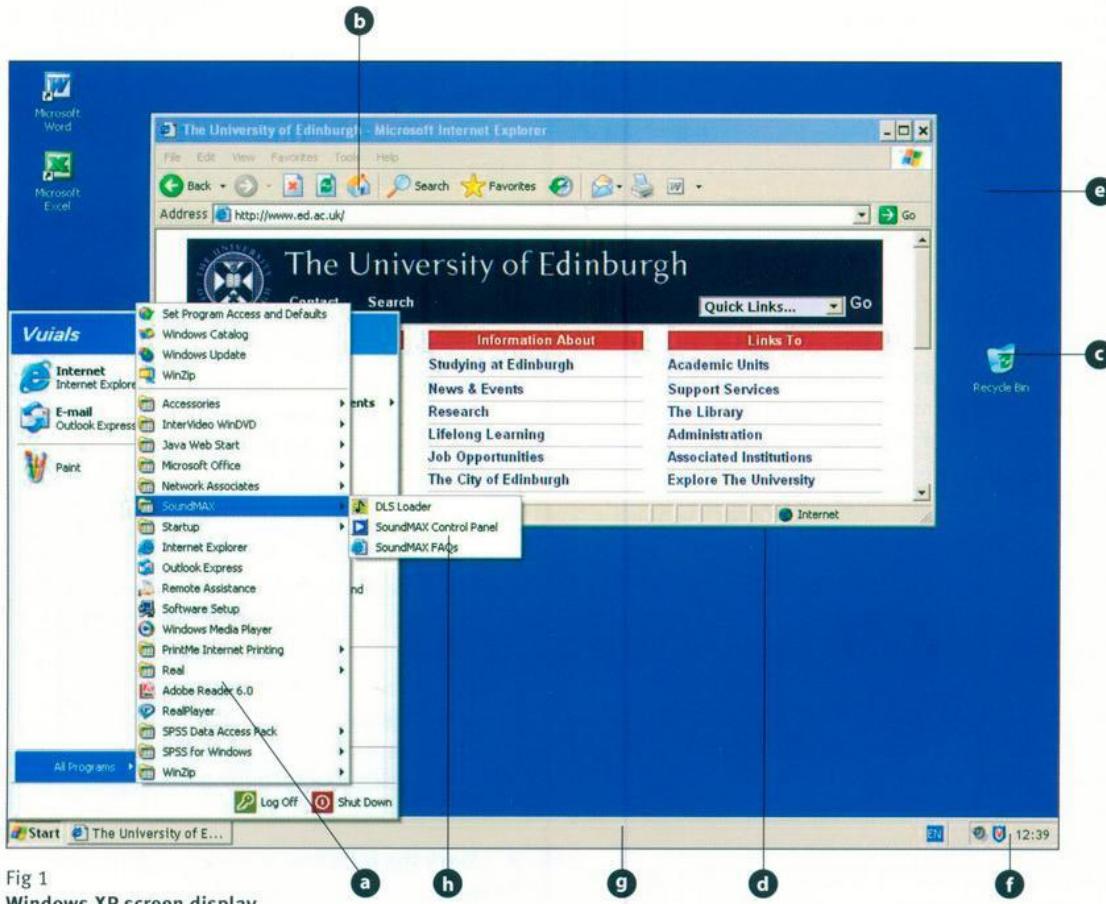


Fig 1
Windows XP screen display

2 Study this second example of a GUI.

- 1 How does it differ from Fig 1?
- 2 In what ways is it the same?

Document

This is a text file which tells us something about the contents of this CD-ROM. You can read it by simply double-clicking on it – your Mac will then automatically find the program needed to open it.

Application

This is an application, or program icon. Double-clicking on it will start the program. It's not always obvious whether an icon is for a document or a program, but you soon get to be able to spot these things.

Folder

This is a folder icon, and these all tend to look the same – like a kind of 3D view of a suspension file. Sometimes they're adorned with other graphics, but they're usually pretty easy to spot. Double-clicking on a folder icon displays that folder's contents in another window, which is what we've done here.

Hard Disk icon

Folders, files, documents and other items are displayed as little icons like this. This one, in fact, represents your Mac's internal hard disk.

CD-ROM icon

Your hard disk icon (and Wastebasket icon) may be the only ones you see on your desktop. If you insert a CD-ROM, though, it will appear as an icon on your desktop too. We've double-clicked on it to display its contents. To eject a CD, by the way, you have to drag its icon onto the Wastebasket – you can't just press the CD-ROM drive button. If you do, you'll be waiting an awful long time.

Folder window

When you double-click on a folder or a disk drive, its contents are displayed in a window like this one. These contents can be documents, programs or other folders.

Wastebasket icon

The Wastebasket is where you throw things you no longer need. It doesn't empty straight away, (though as you can see, ours is so full the lid's fallen off), so you can change your mind if you have to. When you want to eject a disk, be it a CD-ROM or a floppy disk (if you've got a floppy disk drive attached), you drag its icon on to the Wastebasket and the Mac will spit it out automatically.

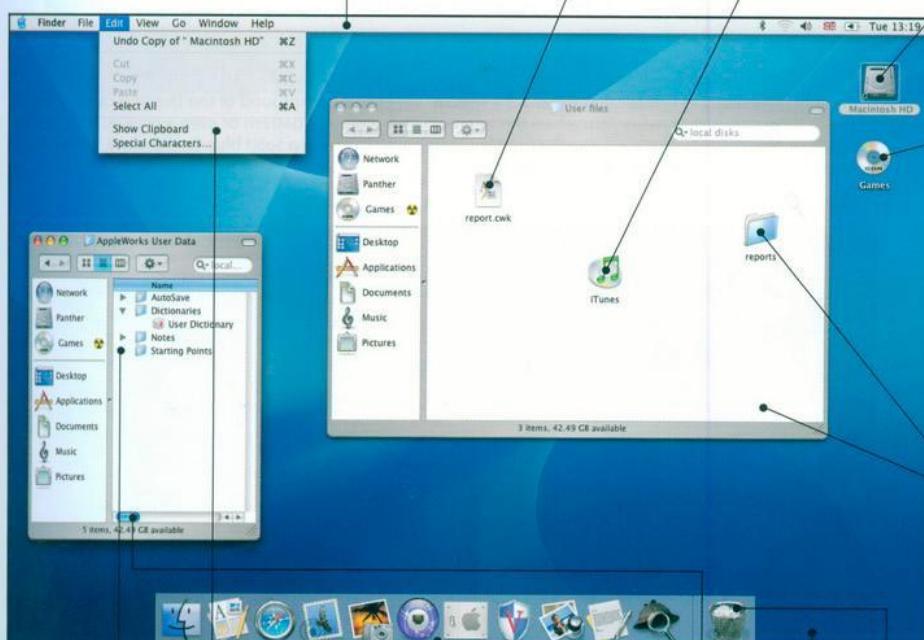


Fig 2
Mac GUI

List view

This is another folder window, but this time we're looking at the contents in 'List' view. Otherwise, it's the same as the window next to it – a 'window' on a folder, basically. You can nest folders many layers deep, in case you're wondering, and you're likely to get confused long before your Mac does – try to keep your filing system as simple as possible.

Menu/menu option

To open a menu, click on its name in the menu bar. This displays a drop-down list like the one you see here. To choose one of the menu options, just click on it (the options are highlighted as the mouse pointer moves over them to help you get the right one). Don't forget to always shut down your Mac via this menu, NOT by simply switching the power off.

Dock

Found at the bottom of your screen, the Dock gives you instant access to the things you use most. Use the Dock to organise everything from documents and applications to websites and QuickTime movies. To put items within easy reach, simply drag and drop them into the Dock.

Scrollbar

You'll see these gadgets whenever the contents of a folder won't fit in the window. You click on either the horizontal or vertical scroll arrows to display more of the contents – either that, or drag on the little blue 'scrollbox'.

Desktop pattern

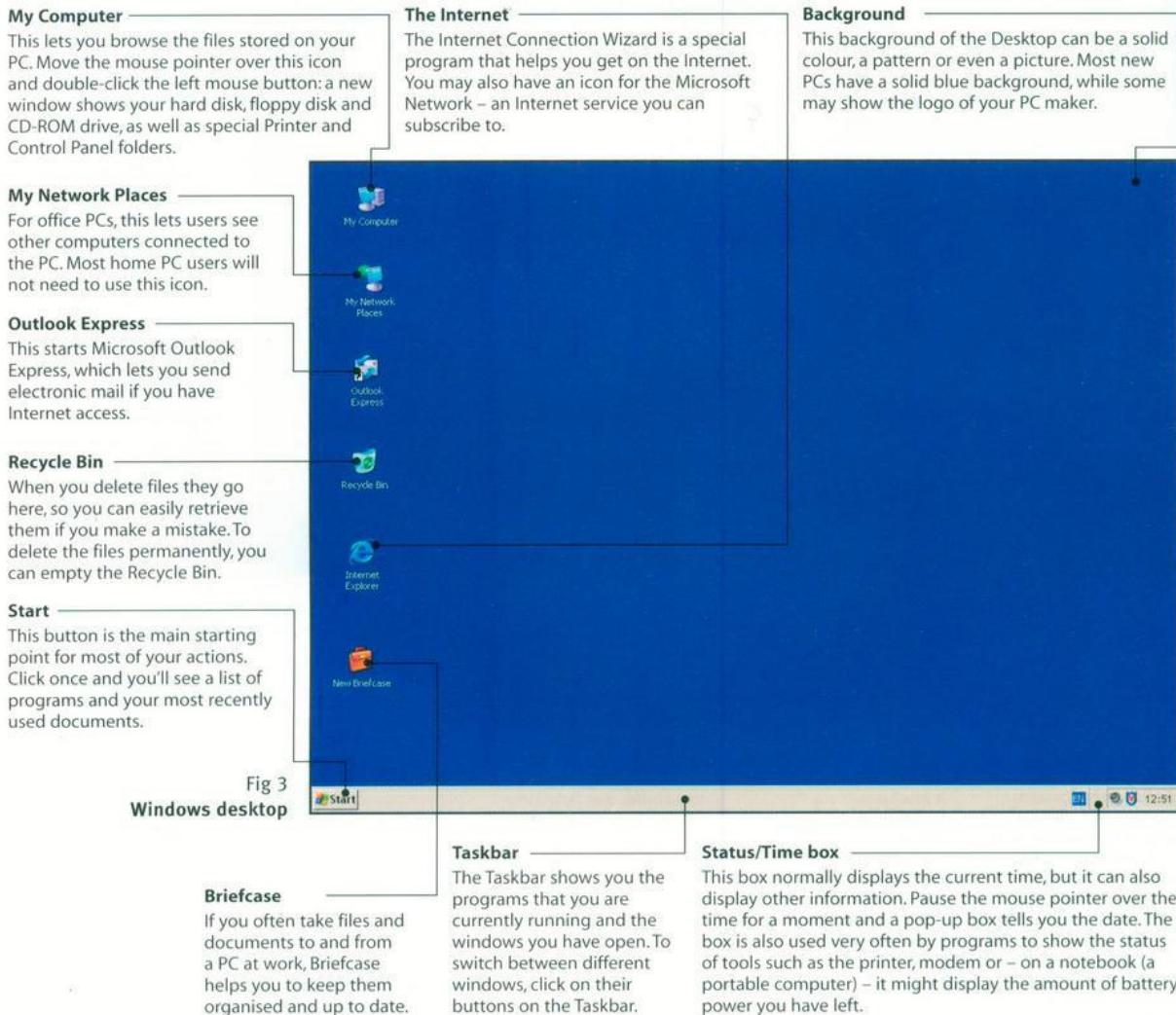
This background image can be swapped for many more via the Appearance control panel. You can use a repeating 'pattern' like this, or a single image – a scanned photograph for example.

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READING

3 Study this diagram of the Windows Desktop and answer these questions about its features.

- 1 What does Outlook Express let you do?
- 2 Which feature shows you current programs?
- 3 How do you read the date?
- 4 What is *Briefcase* for?
- 5 Which background colour is most common?
- 6 Which feature shows other computers networked with yours?
- 7 Which feature lets you see which files are stored on your PC?
- 8 What is the program that helps you get on the Internet?
- 9 How do you delete files permanently?



LANGUAGE WORK**Verbs + object + infinitive; Verbs + object + to-infinitive**

New developments in computing are often designed to make something easier. These verbs are often used to describe such developments:

allow	let
enable	permit
help	

Study these examples:

- 1 A GUI *lets you point* to icons and click a mouse button to execute a task.
- 2 A GUI *allows you to use* a computer without knowing any operating system commands.

- 3 The X Window System *enables Unix-based computers to have* a graphical look and feel.
- 4 Voice recognition software *helps disabled users (to) access* computers.

Allow, enable and permit are used with this structure:

verb + object + to-infinitive

Let is used with this structure:

verb + object + infinitive

Help can be used with either structure.

4 Complete the gap in each sentence with the correct form of the verb in brackets.

- 1 The Help facility enables users (get) advice on most problems.
- 2 Adding more memory lets your computer (work) faster.
- 3 Windows allows you (display) two different folders at the same time.
- 4 The Shift key allows you (type) in upper case.
- 5 The MouseKeys feature enables you (use) the numeric keypad to move the mouse pointer.
- 6 ALT + TAB allows you (switch) between programs.
- 7 The StickyKeys feature helps disabled people (operate) two keys simultaneously.
- 8 ALT + PRINT SCREEN lets you (copy) an image of an active window to the Clipboard.

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5 Describe the function of these features using 'enabling' verbs.

- 1 In a window, the vertical scroll bar
- 2 The Find command
- 3 The Undo command
- 4 Cut and paste
- 5 The Print Screen key
- 6 Menus
- 7 Recycle bin
- 8 Tooltips

PROBLEM-SOLVING **6** Study this version of a GUI. Which part of the screen would you touch if you want to:

- 1 make a phone call?
- 2 send an email?
- 3 access a keyboard?
- 4 record an appointment?
- 5 get help?
- 6 write new mail?

What do you think happens if you touch these areas of the screen?
g, h, i, j, k, l

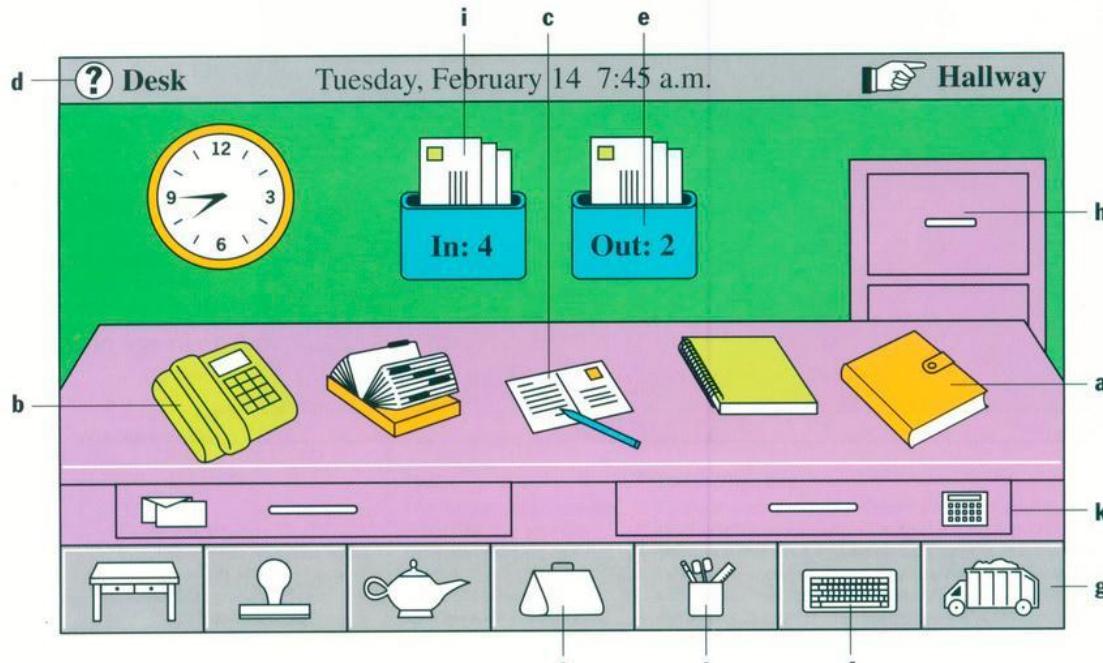


Fig 4
Magic Cap GUI

SPEAKING

7 Work in groups. Complete this questionnaire for yourself. Then take turns in your group to explain how to perform each of these actions. You may need these verbs:

choose
right/left/double-click on
hover
drag and drop
select

Do you know how to:	Yes	No
1 create a folder?		
2 start a program?		
3 shut down the system?		
4 adjust the speaker volume?		
5 arrange the icons?		
6 display the date?		
7 in Windows, show Tooltips?		

WRITING

8 Study these instructions for moving a file from one folder to another using Windows Explorer. Then write your own instructions for one of the actions in Task 7. Compare your instructions with those given in the Help facility on your computer.

TO MOVE A FILE

- 1** If you want to move a file that was saved in a different folder, locate and open the folder.
- 2** Right-click the file you want to move; then click Cut on the shortcut menu.
- 3** Locate and open the folder where you want to put the file.
- 4** Right-click the folder; then click Paste on the shortcut menu.

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SPECIALIST READING

A Find the answers to these questions in the following text.

- 1 What developments are driving the development of completely new interfaces?
- 2 What has inspired a whole cottage industry to develop to improve today's graphical user interface?
- 3 In what way have XML-based formats changed the user interface?
- 4 What type of computers are certain to benefit from speech technology?
- 5 Name a process where a mouse is particularly useful and a process where it is not so useful.
- 6 What facilities are multimodal interfaces likely to offer in the future?
- 7 What type of input device will be used to give vision to the user interface?
- 8 What development has led to an interest in intelligent agents?
- 9 List ways in which intelligent agents can be used.

USER INTERFACES

Cheaper and more powerful personal computers are making it possible to perform processor-intensive tasks on the desktop. Break-throughs in technology, such as speech recognition, are enabling new ways of interacting with computers. And the convergence of personal computers and consumer electronics devices is broadening the base of computer

5 users and placing a new emphasis on ease of use. Together, these developments will drive the industry in the next few years to build the first completely new interfaces since SRI International and Xerox's Palo Alto

10 Research Center did their pioneering research into graphical user interfaces (GUIs) in the 1970s.

True, it's unlikely that you'll be ready to toss out the keyboard and mouse any time soon. Indeed, a whole cottage industry – inspired by the hyperlinked design of the World Wide Web – has sprung up to improve today's graphical user interface. Companies are developing products that

20 organize information graphically in more intuitive ways. XML-based formats enable users to view content, including local and network files, within a single browser interface. But it is the more dramatic

25 innovations such as speech recognition that are poised to shake up interface design.

Speech will become a major component of user interfaces, and applications will be

35 completely redesigned to incorporate speech input. Palm-size and handheld PCs, with their cramped keyboards and basic handwriting recognition, will benefit from speech technology.

40 Though speech recognition may never be a complete replacement for other input devices, future interfaces will offer a combination of input types, a concept known as multimodal input. A mouse is a

45 very efficient device for desktop navigation, for example, but not for

changing the style of a paragraph. By using both a mouse and speech input, a user can first point to the appropriate paragraph and then say to the computer, 'Make that bold.' Of course, multimodal interfaces will involve more than just traditional input devices and speech recognition. Eventually, most PCs will also have handwriting recognition, text to speech (TTS), the ability to recognize faces or gestures, and even the ability to observe their surroundings.

At The Intelligent Room, a project of Massachusetts Institute of Technology's Artificial Intelligence Lab, researchers have given sight to PCs running Microsoft Windows through the use of video cameras. 'Up to now, the PC hasn't cared about the world around it,' said Rodney A. Brooks, the Director of MIT's Artificial Intelligence Lab. 'When you combine computer vision with speech understanding, it liberates the user from having to sit in front of a keyboard and screen.'

It's no secret that the amount of information – both on the Internet and within intranets – at the fingertips of computer users has been expanding rapidly. This information onslaught has led to an interest in intelligent agents, software assistants that perform tasks such as retrieving and delivering information and automating repetitive tasks. Agents will make computing significantly easier. They can be used as Web browsers, help-desks, and shopping assistants. Combined with the ability to look and listen, intelligent agents will bring personal computers one step closer to behaving more like humans. This is not an accident. Researchers have long noted that users have a tendency to treat their personal computers as though they were human. By making computers more 'social,' they hope to also make them easier to use.

As these technologies enter mainstream applications, they will have a marked impact on the way we work with personal computers. Soon, the question will be not 'what does software look like' but 'how does it behave?'

B Re-read the text to find the answers to these questions.

1 Match the terms in Table A with the statements in Table B.

Table A

- a GUI
- b Multimodal interface
- c Intelligent agent
- d TTS
- e The Intelligent Room

Table B

- i Software assistant that performs tasks such as retrieving and delivering information and automating repetitive tasks
- ii Text to speech
- iii Graphical user interface
- iv A project of the Massachusetts Institute of Technology's Artificial Intelligence Lab
- v A system that allows a user to interact with a computer using a combination of inputs such as speech recognition, handwriting recognition, text to speech, etc.

2 Mark the following statements as True or False:

- a Fewer people are using computers because computer functions are becoming integrated into other electronic devices.
- b Keyboards and mice will soon not be required for using personal computers.
- c There have been no improvements in interface design since the development of the GUI.
- d Speech recognition is likely to completely replace other input devices.
- e Computer speech and vision will free the user from having to sit in front of a keyboard and screen.
- f Intelligent agents will make computers seem more like humans.

UNIT 8

Applications Programs

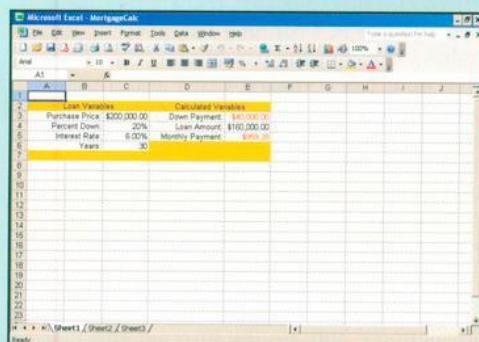
STARTER

1

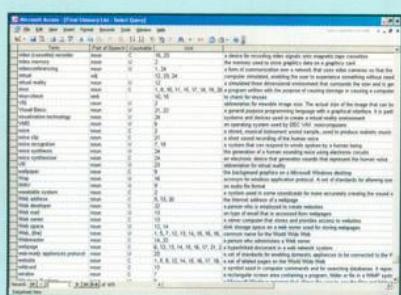
Identify these applications programs.



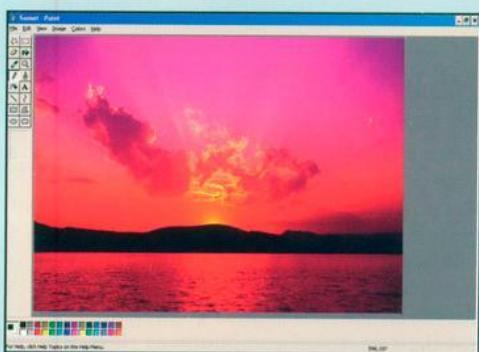
8



b



6



d



e

Fig 1
Screen displays

2 Conduct a survey to find out who in your class:

- 1 can name a spreadsheet program
- 2 has used a spreadsheet
- 3 can name a database program
- 4 has used a database
- 5 knows how to insert graphics into a document
- 6 can name a wordprocessing program
- 7 can centre a line of text
- 8 can disable the autocorrect

3 Study this diagram of a medical centre. Which applications/programs will be used by the following?

- 1 Reception
- 2 Practice Manager
- 3 Doctors

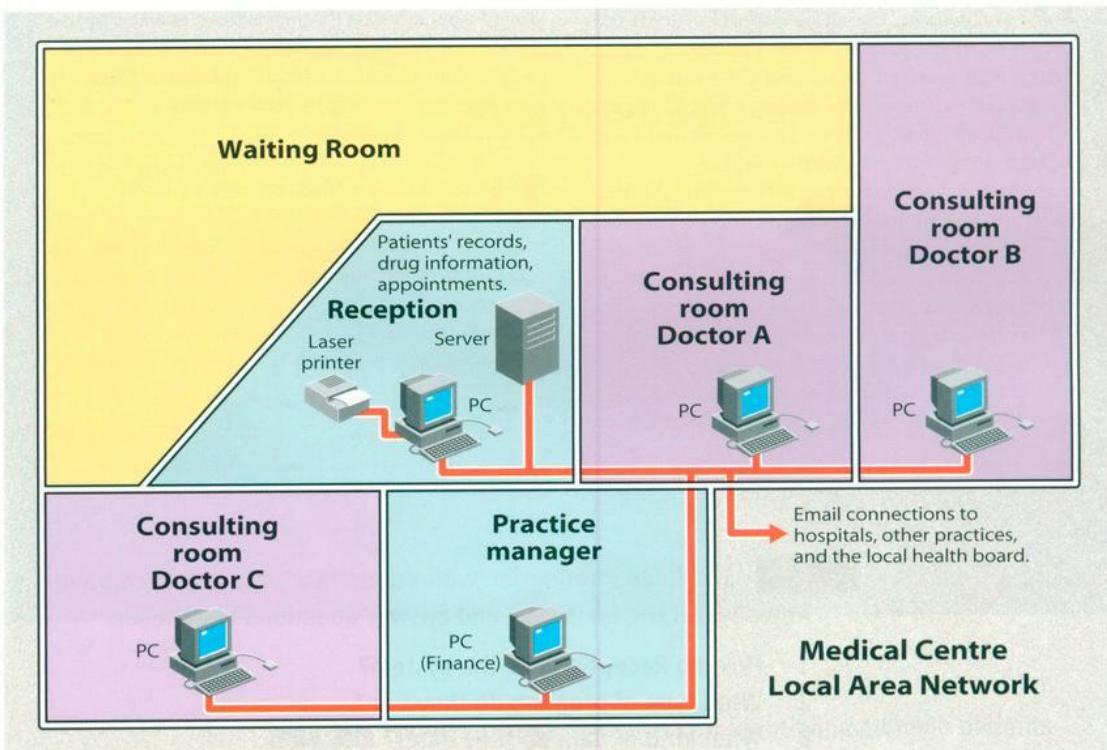


Fig 2
Medical centre LAN

54 UNIT 8 Applications Programs

READING

4 Work in groups. Read paragraph A and additional paragraphs selected by your teacher. Complete this note-taking frame for each text you read.

B	C	D
Users		
Use		
Program types		
Data input		
Output		

A The system consists of 5 networked PCs, one in each of the consulting rooms, one in the Practice Manager's office and the other in Reception alongside the file server. (Each PC has its own laser printer.) All users have access to Microsoft Office.

B Doctors use the system to access a number of databases. The most important holds the records of all the patients in the practice. These files contain personal details and the medical history of the patient. The doctor can call up the appointments book prior to the consultation. By clicking on the patient's name, they have immediate access to that patient's records. At the end of each consultation, the doctor enters brief case notes including the diagnosis and treatment. This database can also be used to produce statistics for research and reports.

Doctors can also access a drugs database on CD-ROM which provides prescribing information on thousands of drugs including their suitability for different categories of patients. This

is updated every month. Another database is a conditions dictionary which provides information on a wide range of problems.

C Reception staff use specially tailored software developed from a database to enter all appointment dates and times for each doctor. The program generates daily lists of appointments and can be accessed by the doctors. Reception use the patient database to identify children and old people who are due to have vaccinations. They then use mailmerging to create letters asking for appointments to be made.

D The Practice Manager uses a payroll package based on a spreadsheet to calculate salaries for each employee of the health centre. She enters all income and expenditure to produce practice accounts. She uses a database to produce a monthly rota of which doctors are on call in evenings and at weekends. This rota is available over the network to all users.

5 Exchange information with others in your group to complete notes for all the texts. Ask and answer questions like these:

- 1 How do Reception use the system?
- 2 What type of program do they use?
- 3 What kind of data do they enter?
- 4 What is the output from the program?

LANGUAGE WORK**Instructions/complex instructions**

Study this extract from an instruction manual for software for doctors in a health centre.

PATIENT BROWSER

Patient Browser allows you to find specific patients and open their records. It also allows you to identify different categories of patients.

- 1 To find patients, first click on the appropriate tab (Personal, Address or Registration).
- 2 Enter the search criteria. A combination of tabs may be used (e.g. enter a surname under the Personal tab and select a doctor in the Registration tab).
- 3 Select the Defaults button if you wish to clear the criteria boxes of any existing entries, or to search for all patients, but the list may be a long one.
- 4 Start the search by clicking on the Find button.

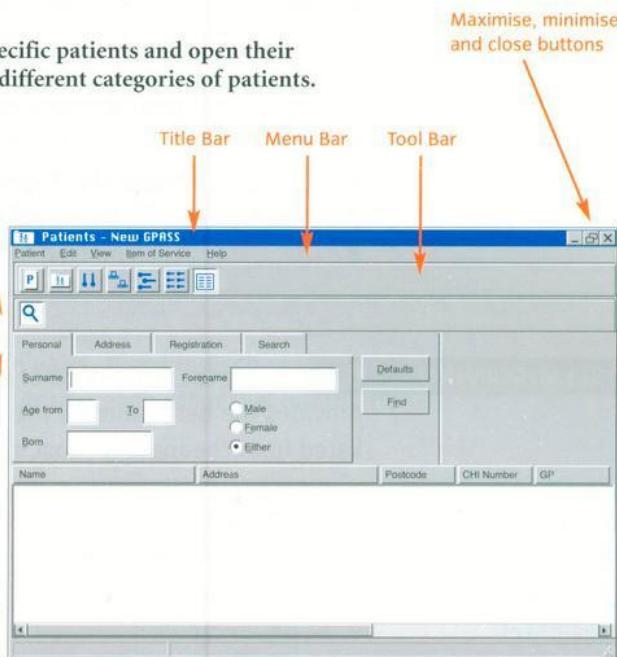


Fig 3
GPASS

We make simple instructions using the infinitive:

Click on the appropriate tab.
Enter the search criteria.

We can add an explanation using the *to-infinitive* or *by + -ing*:

To find patients, click on the appropriate tab.
Click on the Find button *to start* the search.
Start the search *by clicking* on the Find button.

We can put the instructions in order using sequence words:

First click on the appropriate tab.
Then enter the selection criteria.
Finally click on the Find button.

We can link two instructions and emphasise their order like this:

Having entered the selection criteria, click on the Find button.
Once the selection criteria *have been entered*, click on the Find button.

- 6** Write simple instructions for identifying all male patients called Smith in the 16 to 50 age group registered with Doctors Warner and Roberts.

56 UNIT 8 Applications Programs

7 Complete the gaps in these instructions for finding the records of all members of the Green family living in postcode WX14 3PH and registered with any doctor in the practice.

- 1 First enter the search criteria by
- 2 To , enter Green in the Surname box.
- 3 Ensure both male and female members of the family are found by
- 4 select the Address tab.
- 5 Having , enter the postcode.
- 6 choose the Registration tab.
- 7 Once , select All doctors.
- 8 , click on Find to

PROBLEM-SOLVING **8** Study these versions of OfficeSuite and decide which version provides the best value for the following users. The versions are listed from cheapest to most expensive.

OfficeSuite Standard	OfficeSuite Small Business Edition	OfficeSuite Professional
<ul style="list-style-type: none"> • wordprocessor • spreadsheet • presentation program • email • PIM 	<ul style="list-style-type: none"> • wordprocessor • spreadsheet • DTP • email • PIM • small business tools 	<ul style="list-style-type: none"> • wordprocessor • spreadsheet • database • DTP • presentation program • email • small business tools
OfficeSuite Premium	OfficeSuite Developer	
<ul style="list-style-type: none"> • wordprocessor • spreadsheet • database • DTP • presentation program • email • PIM • small business tools • website editor • image editor 	<ul style="list-style-type: none"> • wordprocessor • spreadsheet • database • DTP • presentation program • email • PIM • small business tools • website editor • image editor • developer tools 	

- 1 A salesperson who wants to make presentations at conferences.
- 2 An administrative assistant who needs to write office correspondence and send and receive emails.
- 3 A programmer who wants to develop applications tailored to a company's needs.
- 4 A company wanting to produce its own in-house newsletter.
- 5 A company wishing to develop its own website.
- 6 A company which wants to analyse all its sales records.
- 7 A promotions person who wants to be able to edit complex graphics and incorporate them in brochures.
- 8 A company which wants to share documents on a local area network.

SPEAKING

- 9** Work in pairs, A and B. Each of you has a review of a computer game. Find out from each other this information:

- 1 The name of the game.
- 2 The company who produce it.
- 3 The platform on which it's played.
- 4 The bad points.
- 5 The good points.
- 6 The star rating.

Student A Your game details are on page 185.

Student B Your game details are on page 191.

WRITING

- 10** Work in groups. Decide which applications programs would be used and for what purpose, by the following:

- 1 a museum
- 2 publishers of a subscription-only magazine
- 3 police headquarters

- 11** Write your recommendations for one of the users in Task 10.

Give reasons for each applications program you recommend.

SPECIALIST READING

A Find the answers to these questions in the text below.

- 1 How do you pay for the applications provided by an ASP?
 - a no charge
 - b charged according to use
 - c single payment
- 2 What two main services does an ASP provide?
- 3 How does an ASP ensure that they have enough storage space for the changing needs of customers?
- 4 What types of applications are available from ASPs?
- 5 Why is it useful for a small business to be able to rent specialist tools from an ASP?
- 6 What is one of the best established areas of ASP use?

Application Service Providers

If your hard disk is packed to bursting point, the IT department is far too busy to fix your email problems, and your business can't afford to buy the tools that you'd like to develop the company's website, then it's time to think about using an application service provider (ASP). Rather than installing software on each machine or server within your organisation, you rent applications from the ASP, which provides remote access to the software and manages the hardware required to run the applications.

There are a lot of advantages to this approach. The havoc caused by viruses makes the idea of outsourcing your email and office suite services an attractive option. It also gives you more flexibility – you pay for applications as and when you need them, rather than investing in a lot of costly software which you're then tied to for years. Not having to worry about upgrading to the latest version of your office suite or about battling with the complexities of managing an email system, leaves businesses with more time. Time to focus on what they do best.

However, there are some potential pitfalls. To use applications remotely requires a lot of bandwidth, which is only really available from a broadband connection or a leased line to the ASP itself. It is also important to ensure that the ASP will be able to provide a secure, reliable service which will be available whenever you need it.

Providing applications and storage space for vast numbers of users requires some powerful technology on the part of the ASP. This includes security controls and data storage as well as providing the physical links to customers. For

the most part, ASPs don't own the data centres that store the information. Instead, they lease space from data storage specialists. In this way,
 40 they can be confident of meeting customers' increasing storage requirements by buying more space as it's needed.

There's a wide variety of applications available for use via ASPs. Office suite applications and
 45 email services are two of the most generic applications available through ASPs. Large, complex business applications such as enterprise resource planning tools like SAP are another popular candidate for delivery through
 50 an ASP. Other business services, such as payroll and accounting systems are also available. This is particularly beneficial to small businesses which are likely to grow quickly and don't want to deal with the problems caused by
 55 outgrowing their existing system and having to move to a high-end package. ASPs also offer a means of using specialist tools that would otherwise prove prohibitively expensive. Small businesses have the opportunity to use such
 60 tools for short periods of time as and when they need them, rather than having to buy the software as a permanent investment.

One of the major barriers for small businesses which want to make a start in e-commerce is
 65 ensuring that they have sufficient resources to cope with sudden large increases in customers. This means not only having adequate storage for all your customers' details, but ensuring that you have the technology in place to handle
 70 stock levels, efficient delivery and large volumes of traffic. It's very rare for an e-commerce business to handle all of these elements by itself, making this one of the best-established areas of ASP use. Being able to respond
 75 rapidly to changes in the size of your customer base and the type of product that they want to order from your business, demands more flexibility than traditional software can provide.

B Re-read the text to find the answers to these questions.

1 Note the advantages and disadvantages of using an ASP.

2 Match the items in Table A with the statements in Table B.

Table A

- a Website
- b ASP
- c Virus
- d Office suite
- e Bandwidth
- f Broadband
- g Data centre
- h SAP

Table B

- i Set of standard programs used in an office
- ii Facility for storing large amounts of information
- iii Capacity of a network connection
- iv High capacity Internet connection
- v Self-replicating program
- vi Common enterprise resource planning tool
- vii Application service provider
- viii Collection of related webpages

3 Using information from the text, mark the following as True or False:

- a Software from an ASP must be installed locally on a user's computer.
- b You need a high bandwidth connection to use an ASP service.
- c ASPs usually use their own storage space for customers.
- d Using an ASP gives you more flexibility.
- e An e-commerce business usually provides all of the required technology itself.

[Adapted from 'ASP and you shall receive' by Maggie Williams, PC Direct Magazine, November 2000]



Pairwork: Student A

UNIT 2

- Workgroup server
- Dual Xeon 2.8GHz processor
- 800MHz FSB
- 2GB ECC DDR2 (400MHz) SDRAM (upgradeable to 8GB)
- 250GB 7200rpm SATA hard drive (upgradeable to 1TB)
- 19" TFT XGA (1024X768) flat panel monitor
- 48X CD-ROM drive

UNIT 3

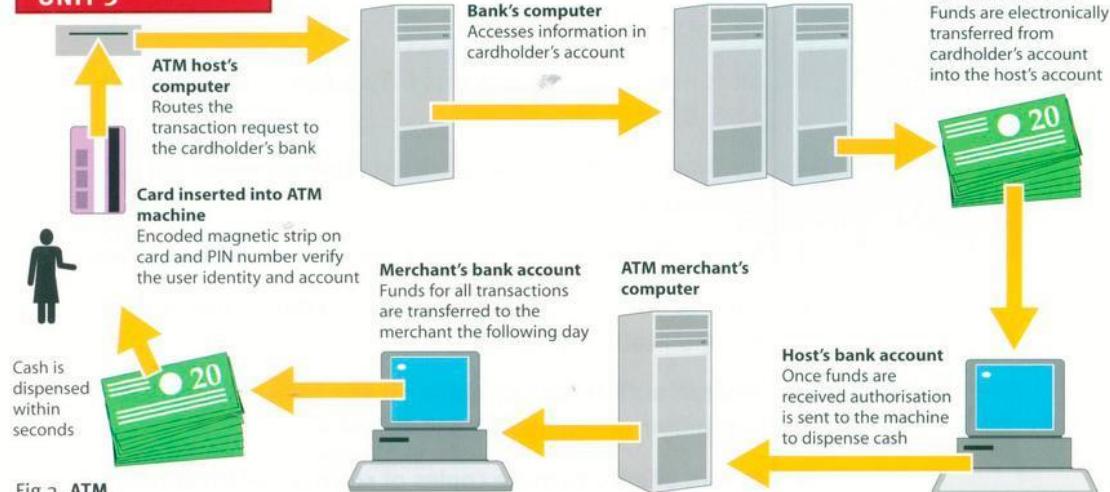


Fig 3 ATM

UNIT 6

Mac OS The graphically-oriented operating system used on Apple Macintosh microcomputers. The latest version is MAC OS X.

MVS, VM, OS/390 An operating system used on IBM mainframes.

NetWare An operating system that was widely used on local area networks (LANs) but is losing popularity.

Linux An operating system that was derived from Unix and is available as freeware.

Windows XP Microsoft Corporation's operating system for PCs.

UNIT 8

reviews

Counter-Strike: Condition Zero

PC | Valve/Vivendi | Universal Games | ★★★★

Counter-Strike is the world's favourite online game – it sold 1.5m copies, and introduced the concept of co-operative multiplay to an audience of hardcore gamers.

- Condition Zero is the first major update to Counter-Strike and, although it offers more to those who wish to play it alone rather than online, it should still prove enormously popular. When played online, the primary improvement concerns

the graphics. A number of detailed changes to weaponry, new maps and so on have been introduced. Players might find it disappointingly similar to the original.

But Condition Zero marks Counter-Strike's emergence as a credible single-player game, thanks to the introduction of AI-controlled "bots". You can play full-blown multiplayer-style games by picking a team of bots and fighting enemy

bots, or work through an 18-mission single-player campaign and, as you progress, upgrade your team with improved AI-controlled team-mates.

Condition Zero's single-player mode offers a good way of acquiring the skills to prosper in competitive online first person shoot-'em ups.

Steve Boxer

UNIT 9

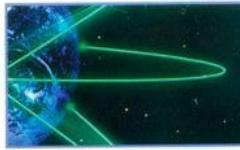
Explain to your partner with the help of these notes what DVD disks are, how DVD disks store such large quantities of information and how that information is read.

DVD = Digital Versatile Disk

- can hold complete movie
- like CD in size and thickness
- but CD drives use red laser light, DVD drives use blue
- blue laser has shorter wavelength therefore data can be denser

DVDs can be double-sided

- each side can have two layers
- top layer 4.7GB, bottom layer 3.8GB, total capacity = 17GB
- data transfer rate twice rate of CD-ROM

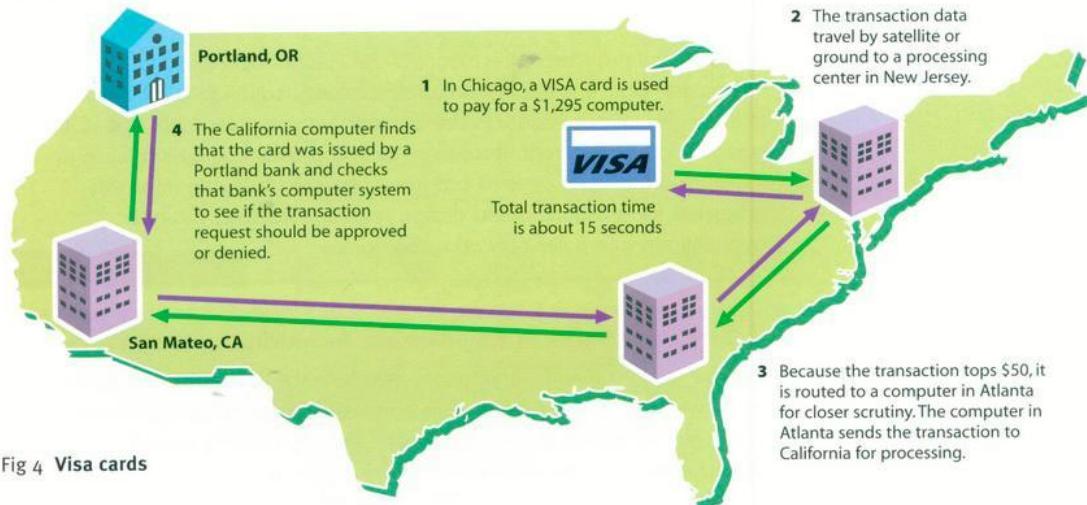


Pairwork: Student B

UNIT 2

- Portable
- Intel Pentium M 725 processor (1.6GHz, 2MB L2 cache, 400MHz FSB)
- 1GB 333MHz DDR SDRAM
- 60GB hard drive
- 17" TFT Wide Screen WXGA (1440X900)
- Integrated 8X DVD +RW Drive
- Microsoft Windows XP Home Edition

UNIT 3



UNIT 6

Unix Old command-driven operating system that is still commonly used on most types of computer including mainframe and personal computers.

VAX/VMS An operating system used by DEC VAX minicomputers.

BeOS An operating system created especially for working with multimedia.

Palm An operating system designed for use on personal digital assistants (PDAs) and smartphones.

Windows Media Center A version of Windows XP designed to be simple to use in the home to control multimedia systems.

UNIT 8

reviews

Spiderman 2

PS2, Xbox, GameCube | Activision | ★★★★

Despite the fact that this game is based on a film, Spiderman 2 turns out to be one of the best action-adventure games released this year.

Activision has taken a leaf out of Grand Theft Auto's book by including an impressively modelled city (in this case, New York) and has added a physics engine. So this version of the game not only lets you swing around with all the grace Spidey shows in the movie, but also possesses rigour: sling a

web and it will attach itself to a building and stay attached at the same point.

Spiderman has also acquired a gravity-defying super-jump and countless satisfying moves, such as the ability to run up the sides of buildings, and immobilise enemies in a web and swing them around to take out fellow baddies. Try leaving webbed baddies hanging from lamp posts.

Gloriously varied missions build up a decent storyline, evil bosses abound, and you can even deliver pizzas. Climb to the top of the Empire State Building, swallow-dive into an elegant free-fall, and defy gravity with a judiciously timed web just before you hit the ground.

Even though it is associated with a film, you should take it seriously.

Steve Boxer

UNIT 9

Explain to your partner with the help of these notes what MPEG Video is and how it operates.

MPEG = method of compressing/decompressing video signals to reduce size by up to 95%

- video sequences stored in series of frames
- intraframe (I-frame) every 1/3rd second has most important picture information
- between I-frames are predicted frames (P-frames) and bidirectional frames (B-frames)
- P- and B-frames store changes only
- P- and B-frames preserve video quality between I-frames
- Human eye can't detect information discarded



Peter Gudella/Shutterstock.com

ISSUE: HOW SERIOUS IS SOFTWARE PIRACY?

SOFTWARE IS EASY TO STEAL. You don't have to walk out of a Best Buy store with a box of expensive software under your shirt. You can simply copy the software from your friend's digital device or download it from BitTorrent. It seems so simple that it couldn't be illegal. But it is.

Software counterfeiting is the large-scale illegal duplication of software distribution media and sometimes even its packaging. According to Microsoft, many software counterfeiting groups are linked to organized crime and money-laundering schemes that fund a diverse collection of illegal activities, such as smuggling, gambling, extortion, and prostitution. Counterfeit software is sold in retail stores and through online auctions. Often the packaging looks so authentic that buyers have no idea they have purchased illegal goods.

Internet piracy uses the Web as a way to illegally distribute unauthorized software. In Net jargon, the terms *appz* and *warez* (pronounced as "wares" or "war EZ") refer to pirated software. Some *warez* have even been modified to eliminate serial numbers, registration requirements, expiration dates, or other forms of copy protection. Web sites, file sharing networks, and auction sites sell or distribute hundreds of thousands of pirated software products.

In many countries, including the United States, software pirates are subject to civil lawsuits for monetary damages and criminal prosecution, which can result in jail time and stiff fines. Nonetheless, studies seem to indicate that about 39% of computer software is not properly licensed. According to a Business Software Alliance (BSA) and IDC Piracy Study, \$82 billion of software was legitimately purchased worldwide, but software worth a whopping \$52.2 billion was pirated.

Piracy statistics seem to indicate a rampant problem, but aggregating the data worldwide hides the real story. A look at geographical regions and individual countries is much more revealing.

For example, in the United States, software piracy has been in a steady decline. The 2016 BSA *Global Software Survey* reveals that only 17% of software

used by U.S. consumers was pirated. In Japan, the rate has reached an all-time low of 18%, and the EU is not far behind with a 29% rate. In contrast, Zimbabwe has a 90% piracy rate. In Iraq the rate is 85%, and in Ukraine it is 82%. China has a piracy rate of 70%.

Factors such as income levels, law enforcement, and educational outreach are likely to affect the discrepancies in piracy rates among regions and countries. Countries with the lowest income levels tend to have the highest piracy rates. Software priced for developed countries may be beyond the reach of consumers in emerging nations.

The industry, too, is changing. The price tag for consumer-level software rarely exceeds \$100. Expensive software titles such as Microsoft Office and Adobe Creative Suite are offered via monthly subscriptions. Affordable software reduces one of the main incentives to seek pirated software.

The popularity of mobile devices also has had an effect on software piracy. Most mobile apps cost just a few dollars, and many of them

are free. They are available primarily from app stores that make piracy difficult. Consumers who legitimately purchase low-cost apps for their mobile devices tend not to seek pirated applications for their full-size computers.

And consumer tastes are changing. Software piracy has become a drop in the bucket compared to the tide of content infringement. On BitTorrent, for example, only 4% of pirated content is software. BitTorrent users are far more interested in pirated movies, television shows, and pornography. Similar statistics represent infringing behavior at venues such as Usenet and cloud storage services.

As piracy heads in new directions in developed countries, the issue of emerging nations still remains. Some industry analysts believe that productivity gains from using pirated software do not offset gains that might be made if software was legitimately licensed. That argument may be hard to justify, however, to cash-strapped consumers in emerging nations.