

Record Structures

CHAPTER 16: Files and

PASTPAPERS

N.B. These pastpapers may rely on the knowledge gained from the previous chapters.

9 SEC '97-PAPER 2B-Q8

a. Three terms that are normally referred to in databases are;

- Field
- Record
- File

Briefly explain each of these terms.

[6]

b. In a database file one field has to be unique.

i. Explain why.

[2]

ii. What is this field normally called?

[1]

c. A library system is being designed in which **TWO** of the files will be the **BOOKS** file and the **BORROWERS** file.

i. Mention **THREE** fields, together with their type, which you expect to find in the **BOOKS** file

[3]

ii. Mention **THREE** fields, together with their type, which you would expect to find in the **BORROWERS** file.

[3]

iii. Mention **ONE** advantage of having the **BORROWERS** file sorted by name.

[2]

What is each of the following called? The first one has been done for you:

A field which uniquely identifies a record in a database: *Keyfield*

A low-level programming language using mnemonics: _____ [1]

A group of 1024 bytes: _____ [1]

A number of interconnected computers: _____ [1]

Arranging a set of records into order: _____ [1]

Adding a record to the end of a file: _____ [1]

11 SEC '98-PAPER 1-Q11 (CONSULT CHs 8 & 13)

Provide ONE reason to explain each of the following statements:

Direct access is faster than sequential access for retrieving a record from a file. [2]

A modem is required for computer communications over telephone lines. [2]

Logical errors in a program are more difficult to find than syntax errors [2]

12 SEC '98-PAPER 2A-Q1

a. **Software piracy** is a crime.

- i. What do you understand by software piracy? [1]
- ii. How can software houses fight this crime? [2]
- iii. What other measures can be taken to possibly curb this crime? [2]

b. Developing and spreading **computer viruses** is also a crime.

- i. What is a computer virus? [1]
- ii. How can a computer virus be spread? [1]
- iii. Identify some of the possible effects of computer viruses. [2]
- iv. How can a computer virus be eradicated? [1]

c. In a school computer laboratory, piracy and computer viruses are a major headache for technical support staff.

- i. What are the reasons for this? [2]
- ii. What possible measures may be taken by the technical staff to reduce the possibility of these two crimes? [2]
- iii. Identify three other routine tasks performed by the technical staff in the school's computer laboratory. [3]

What is the relation between fields, records and files?

[3]

Explain each of the following types of files.

Grandfather, father, son files;

Master file;

Transaction file;

Backup file;

Archive file.

[5x2]

Briefly explain each of the following operations which can be carried out on files:

Search a record;

Update a record;

Sort a file;

Merge files.

[4x1]

What is each of the following called? The first one has been done for you:

- a. A group of 1024 bytes: *A kilobyte*
- b. A group of 1024 Kilobytes: _____ [1]
- c. Where text copied from a document is placed temporarily before it is pasted back: _____ [1]
- d. Combining a wordprocessor document with a list of addresses to produce personalised letters: _____ [1]
- e. A file of changes to be made to a master file: _____ [1]
- f. Step-by-step instructions on how to carry out a process: _____ [1]

Name two of each of the following:

Types of computer networks.

1. _____ 2. _____ [2]

Data access methods

1. _____ 2. _____ [2]

Types of documentation.

1. _____ 2. _____ [2]

Types of graphics storage formats.

1. _____ 2. _____ [2]

18 SEC '00-PAPER 1-Q2

a. Mention **TWO** precautions you should take in order to safeguard important data on your computer.

[2]

1. _____

2. _____

b. Mention **TWO** precautions you should take in order to safeguard important data stored on a floppy diskette.

[2]

1. _____

2. _____

22 SEC '02-PAPER 1-Q2

A doctor's surgery uses a database to schedule patient appointments. The schedule file contains the following fields:

Patient__Name Home__Address Gender Date__of__Birth
Date Telephone Time Reason__for__visit

Using this file:

- (i) Name a field that could be used to store a single character code. **[1]**
- (ii) Suggest a field that could be broken down into **THREE** smaller fields. **[1]**
- (iii) Suggest names for these **THREE** new fields. **[1]**

State whether each of the following is TRUE or FALSE.

a. Giving a friend a copy of the database management software you own is an example of software piracy. [1]

.....

b. An image scanner is an input device. [1]

.....

c. Encrypted messages is a way to prevent them from being deleted or lost. [1]

.....

d. A computer virus is a computer program written with a malicious intent and can attach itself to programs. [1]

.....

Distinguish between each of the following pairs:

a. Sequential access file and random access file [2]

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.....

b. Master file and transaction file [2]

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.....

c. Check digit and range check [2]

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d. Data integrity and data security [2]

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.....

5. Explain the following terms:

a. Database

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.....

b. Record

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.....

c. File

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.....

d. Sequential File

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.....

e. Direct Access File

.....
.....

[10]

3. A video rental shop uses a computerised system to store information about videos for rent and about video library members.

The *Customer File* stores information about video library members. Each member is identified by a unique member number.

The *Video File* stores information about videos for rent. Every record in this file is identified by a unique video number. A 'rental type' field indicates the rental duration which might be of one day, three days or seven days. An 'availability' field indicates whether the video is currently available for rent.

(a) Suggest **with reason**, a suitable data type for the following fields of the video file: [3]

- (i) video number;
- (ii) rental type;
- (iii) availability.

The system also includes a *Loans File* to store information on each rental. Each record in the Loans file stores a member number, a video number and some other information.

(b) What is the purpose of the member number and the video number in the loans file? [2]

(c) Mention one other field of the *Loans File*. [2]

(d) Name the **TWO** files which are modified when a video is returned. Describe the necessary changes in these files. [6]

This computerised system was **tailored** for this business some years ago. Rental material is now also available on DVDs. The shopkeeper would like to keep the information about the type of medium (video or DVD) on which the viewing material is recorded.

(e) Explain what is meant by **tailored** software. [2]

(f) How can this new additional information be stored in the *Video File*? [2] Indicate any changes to the record structure if necessary.

(a) What is the difference between *Applications Software* and *System Software*? [2]

(b) State whether each of the following programs is *Applications Software* or *System Software*: [4]

- (i) word processor;
- (ii) operating system;
- (iii) printer driver;
- (iv) spreadsheet;
- (v) antivirus software;
- (vi) a computer game;
- (vii) web browser;
- (viii) disk defragmentation software.

(c) Name a secondary storage medium that can store both sequential access and direct access files. [2]

Name another medium that can store only sequential files.

(d) Consider these two applications: [2]

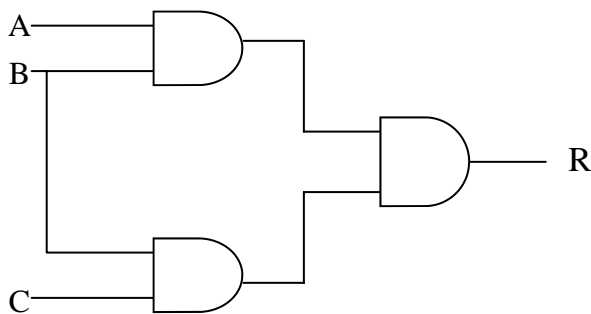
- (i) Payroll
- (ii) Airline Booking Reservation.

For **each one** suggest whether sequential access or direct access files should be used.

	A	B
1		Sales
2	Jan	Lm4,177.00
3	Feb	Lm3,625.00
4	Mar	Lm4,310.00
5	Total	

(e) What function would you use in cell B5 to find the total sales of January, February and March? [3]

(f) Consider the following circuit and answer the questions below.



(i) When $A = 0$ (i.e. false) what is the value of R ? [2]

(ii) If $R = 1$ what must be the values of A , b and C ? [2]

(a) Give ONE hardware procedure and ONE software procedure used to deter privacy.

(i)

(ii) [2]

(b) Give TWO ways of protecting a computer against viruses.

(i)

(ii) [2]

(c) Give TWO ways how to make sure that confidential data is kept private.

(i)

(ii) [2]

- (a) The following statement appeared in a Computer Magazine:
“So what’s the harm in copying your software for a friend? You may think that aren’t doing much damage but piracy is a serious issue in the IT industry.”
- (i) Name TWO different practical examples of program piracy. [2]
- (ii) Briefly discuss the potential damage of program piracy to businesses that develop software. [2]
- (b) Security is becoming a growing concern to most computer users.
- (i) List TWO practical examples of security problems that could occur in the internet environment. [2]
- (ii) What is the function of a firewall? [1]
- (c) A network card converts data from a digital format suitable for transmission over the network (such as light pulses).
- (i) Name another hardware device used regularly for communication between computers. [1]
- (ii) What is the function of this device? [2]
- (d) You subscribe to an Internet Service Provider (ISP), and obtain the following e-mail address: lucky.fish@InterMal.co.mt.
- (i) What is *e-mail*? [1]
- (ii) Which part of the e-mail address given above is your username? [1]
- (iii) The part .mt refers to Malta. Mention TWO other country abbreviations used in an internet address. [1]
- (e) (i) What is a *web browser*? [1]
- (ii) Name ONE commonly used web browser. [1]
- (iii) What does the acronym HTML stand for and what is its use? [2]
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What is each of these called?

- (a) The output device which enables you to make a hardcopy of text and graphics. [1]

- (b) The process of checking whether the data being inputted is correct. [1]

- (c) The system software which isolates the user from the complexities of the hardware. [1]

- (d) The storage medium which stores programs and data which are currently being processed by the CPU. [1]

- (e) Copies of data files which enable restoration of the system in case of system malfunction. [1]

42 SEC '06-PAPER 2A Q1 (CONSULT CHs 4, & 9)

A local bank operates from a head office and has several branches spread across a large geographical area supplying financial services to clients. The computers at the various bank branches are networked with the computer system at the head office.

a) What type of network is this? Justify your answer. [2]

Each branch has a number of computers configured in a star network. The data generated from the various branches and the head office are shared over a distributed data system.

b) Mention TWO advantages and TWO disadvantages of a distributed data system over a centralised data system. [4]

c) Name TWO devices, the first of which is particularly suitable for reading the line of characters at the bottom of bank cheques and the second of which is used to deposit or withdraw money from the bank. [2]

d) For ONE of the input devices you have named, mention ONE advantage of its particular use. [1]

John's salary is transferred directly to his personal bank account by means of *Electronic Fund Transfer*. He uses *Direct Banking* to check his account balance and to pay his bills from home.

e) Define the terms Electronic Fund Transfer and Direct Banking. [4]

Data security is concerned with preventing the loss of data. [4]

f) Briefly describe TWO security measures for protecting confidential data.
