Level 2 Create automated procedures for ICT operating systems (7540-234)

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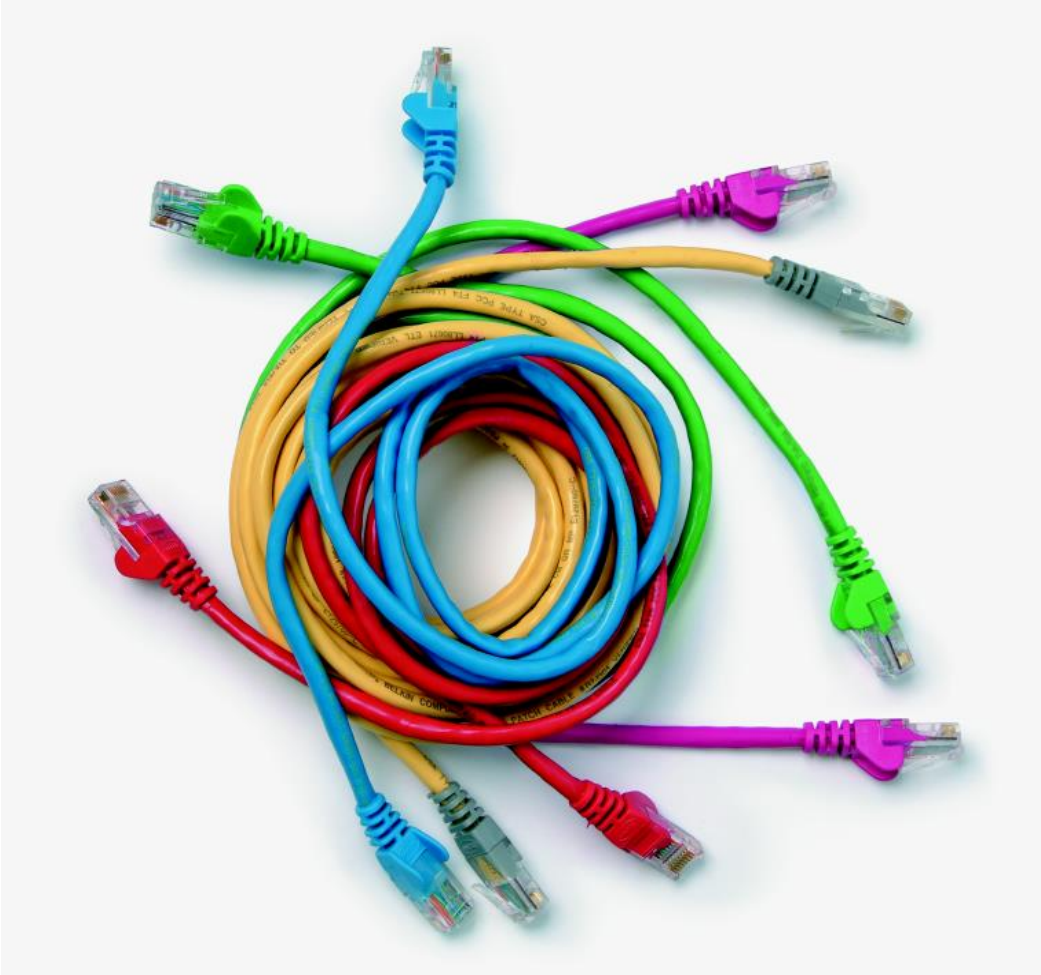
Systems and Principles
Assignment guide for Candidates
Assignment A



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Level 2 Create automated procedures for ICT operating systems (7540-234) Assignment A

Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 2 Create automated procedures for ICT operating systems (7540-234).

Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will **not** be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance

The recommended time allowance for this assignment is **2 hours**.

Level 2 Create automated procedures for ICT operating systems (7540-234)

Candidate Instructions

Time allowance: 2 hours

Assignment set up:

This assignment is made up of **three** tasks:

- Task A – Explore different strategies for allocating storage space
- Task B – Explore transaction updates in databases
- Task C – Work with command languages

Scenario

Micro Tech specialise in developing software used by operating systems. They have been hired to provide solutions for a client's problems. As a contracted employee of Micro Tech, your team leader has assigned you the task of providing solutions.

Task A – Explore different strategies for allocating storage space

Micro Tech have been contracted to write software for operating system memory and file allocation. Two storage strategies are being considered:

Strategy 1 – First Fit

This strategy finds the first area of storage that is large enough to fulfil a request. It allocates the requested size in this area and then reduces the size of the block of storage remaining free.

Strategy 2 – Best Fit

This strategy finds the smallest area of storage that is large enough to fulfil the requested size in this area and then reduces the size of the block remaining free.

Table 1 below shows the allocation of storage at a given moment in time:

Storage locations	Used or Free
1000 to 1100	Used
1101 to 1249	Free
1250 to 1350	Used
1351 to 1399	Free
1400 to 1500	Used
1501 to 1899	Free
1900 to 2000	Used

Table 1

Requests are received for the allocation of:

- 45 bytes
- 130 bytes
- 10 bytes
- 350 bytes

1 For **each** of the above four allocations, produce a diagram to show the effect on the store layout using Strategy 1.

2 For **each** of the above four allocations, produce a diagram to show the effect on the store layout using Strategy 2.

Task B – Explore transaction updates in databases

Your team leader has asked you to investigate a suspected software problem where incorrect results are being produced in database records. The system is a real-time multi-access system where transactions are processed against the database as they occur. Table 2 below shows record number 106 from the database:

Record	Customer Name	Balance
106	Smith	£100.75

Table 2

The following actions occurred during processing:

- Application A reads record 106.
- Application B reads record 106.
- Application A updated record 106 by adding £50.25 to the balance and writing record 106 back to the database.
- Application B updated record 106 by deducting £20.00 from the balance and writing record 106 back to the database.
- At the end of these actions, Record 106 contains a balance of £80.75.

1 (Please complete Tasks B1 and B2 using the Answer Sheet provided.)

Specify what the correct balance should be for record 106 after the updates.

2 State what action should be taken to prevent the incorrect balance for record 106.

Task C – Work with command languages

Your team leader has asked you to write some file housekeeping tasks using a command language. Your team leader has stated that the code should be fully commented and includes the procedure name and author name.

1 Using a command language, create **two** directories called JCL and BACKUP.

2 Use a text editor to create a text file called TEST1.TXT. This file should include the following text:

This text is to be displayed on screen to confirm the correct operation of the procedure DISPTEXT created using a command language.

3 Save TEST1.TXT in the directory JCL.

4 Using a command language:

a create a procedure that performs as follows:
- displays the contents of the file TEST1.TXT on the screen if successful
- displays an error message "An error has occurred in DISPTEXT" on the screen if unsuccessful

b name the procedure DISPTEXT
c save the procedure in the JCL directory.
d test procedure DISPTEXT for both successful and unsuccessful completion

Evidence can be provided by redirection of output or a screen print

e print a listing of the commented procedure DISPTEXT.

5 Using a command language:

a create a procedure that performs as follows:
- copies all files in the JCL directory to the BACKUP directory and displays a directory listing of the BACKUP and JCL directories on the screen if successful
- displays an error message "An error has occurred in BACKFILE" on the screen if unsuccessful

b name the procedure BACKFILE
c save the procedure in the JCL directory
d test procedure BACKFILE for both successful and unsuccessful completion

Evidence can be provided by redirection of output or a screen print

e print a listing of the commented procedure BACKFILE.

6 Using a command language:

a create a procedure that performs as follows:
- accepts a command line parameter for a directory name and then for every file in that directory renames the file with an extension BK, then displays a directory listing of the directory on the screen if successful
- displays an error message "An error has occurred in RENFILE" on the screen if unsuccessful

b name the procedure RENFILE
c save the procedure in the JCL directory
d test procedure RENFILE for both successful and unsuccessful completion

Evidence can be provided by redirection of output or a screen print

e print a listing of the commented procedure RENFILE.

7 Using a command language:

a create a procedure that performs as follows:
- runs the procedures DISPTEXT, BACKFILE and RENFILE one after another
- if DISPTEXT does not run successfully, then BACKFILE and RENFILE should not be run
- if BACKFILE does not run successfully, then RENFILE should not run

b name the procedure FILEHK
c save the procedure in the JCL directory
d test procedure FILEHK for both successful and unsuccessful completion

Evidence can be provided by redirection of output or a screen print

e print a listing of the commented procedure FILEHK.

When you have finished working:

- Sign each document above your name and label all removable storage media with your name.
- Hand all paperwork and removable storage media to your assessor.

If the assignment is taken over more than one period, all paperwork and removable media must be returned to the test supervisor at the end of each sitting.

End of assignment

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