Level 2 Create automated procedures for ICT Operating Systems (7266/7267-416/7450-234)

www.cityandguilds.com/e-quals07
March 2007
Version 1.0

e-Quals
Assignment guide for Candidates
Assignment D

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City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400
www.cityandguilds.com
learnersupport@cityandguilds.com

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Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 2 Create automated procedures for ICT Operating Systems (7266/7267-416/7450-234).

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**.

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Candidate instructions

Candidates are advised to read **all instructions** carefully before starting work and to check with your assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: 2 hours

Assignment set up: A scenario is provided for candidates in the form of a company specification for services they require.

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

- **Task A** - requires candidates to explore different strategies for allocating storage space for files.
- **Task B** - requires candidates to explore transaction updates in databases.
- **Task C** - requires candidates to work with command languages.

Scenario

Delta Systems specialise in developing software for operating systems. They have been hired to provide solutions for a client's problems. As a contracted employee of Delta Systems your manager has assigned you the task of providing solutions for a range of problems.

Task A

Delta Systems have been contracted to write software for operating system file allocation in a multi-user multitasking system.

Two storage strategies are being considered.

Strategy 1 – Non-contiguous
This strategy finds the first area of free storage that is available and allocates bytes from the file removing the used bytes from the free space list. If the whole file has not been stored it finds the next available storage and allocates bytes from the file and continues allocating bytes until the whole file is stored.

Strategy 2 – Contiguous
This strategy must store the complete file without splitting it. The file is stored in the first available free space that is large enough to contain the whole file. The used bytes are then removed from the free space list.

Table.1. below shows the disk free space list at a given moment in time:

Start address of Storage	Number of bytes free
1000	100
2100	200
2800	200
3500	500
4500	300
6000	300

Table.1.

Request are received for the allocation of

File A 50 bytes
File B 100 bytes
File C 400 bytes
File D 1000 bytes

1 For **EACH** of the above FOUR file allocations, show the effect on the free space list using Strategy 1.

2 For **EACH** of the above FOUR file allocations, show the effect on the free space list using Strategy 2.

Task B

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 account number 909576 from the database:

Account Number	Customer Name	Account Type	Balance
909576	Laslo	D	£200.99

The following actions occurred during processing:

- Application X read account number 909576
- Application Y read account number 909576
- Application X updated account number 909576 by deducting £100 from the balance and writing the record back to the database
- Application Y updated account number 909576 by adding £50 to the balance and writing the record back to the database
- At the end of these actions account number 909576 contained a balance of £250.99.

1 Specify what the correct balance should be for account number 909576 after the updates.

2 State what action should be taken to prevent the incorrect balance for account number 909576.

Task C

Your manager has asked you to write some file housekeeping tasks using a command language. The code should be fully commented and include the procedure name and author name.

1 Create two directories called JOBPROCS and BACKUP.

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

> This file is called TESTFILE.TXT and is used to test the job control procedures.
> The file was created by *your name*.

3 Save TESTFILE.TXT in the directory JOBPROCS

4 Using a command language
   a. create and run a procedure that performs as follows:
      - displays the contents of the file TESTFILE.TXT on the screen if successful
      - displays an error message "An error has occurred in DISPFILE" on the screen if unsuccessful

      evidence can be provided by redirection of output or a screen print
   b. name the procedure DISPFILE
   c. save the procedure in the directory JOBPROCS
   d. print a listing of the commented procedure DISPFILE.

5 Using a command language
   a. create and run a procedure that performs as follows:
      - copies all the files in the directory JOBPROCS to the directory BACKUP and displays a directory listing of the BACKUP directory if successful
      - displays an error message "An error has occurred in BACKFILE" on the screen if unsuccessful

      evidence can be provided by redirection of output or a screen print
   b. name the procedure BACKFILE
   c. save the procedure in the JOBPROCS directory
   d. print a listing of the commented procedure BACKFILE.

6 Using a command language
   a. create and run a procedure that performs as follows:
      - renames all files with in the directory BACKUP with an extension of .BAK, then displays a directory listing of the directory BACKUP on the screen if successful
      - displays an error message "An error has occurred in RENFILE" on the screen if unsuccessful

      evidence can be provided by redirection of output or a screen print
   b. name the procedure RENFILE
   c. save the procedure in the directory JOBPROCS
   d. print a listing of the commented procedure RENFILE.

7 Using a command language

a. create and run a procedure that performs as follows:
   - deletes all files with an extension of .TXT in the directory BACKUP then displays a directory listing of all the files in the directory BACKUP on the screen if successful
   - displays an error message “An error has occurred in DELFILE” on the screen if unsuccessful

   evidence can be provided by redirection of output or a screen print
b. name the procedure DELFILE
c. save the procedure in the directory JOBPROCS
d. print a listing of the commented procedure DELFILE.

8 Using a command language

a. create and run a procedure that performs as follows:
   - runs the procedures DISPFILE, BACKFILE, RENFILE and DELFILE one after the other
   - if BACKFILE does not run successfully, then RENFILE and DELFILE should not be run
   - if RENFILE file does not run successfully then DELFILE should not be run

   evidence can be provided by redirection of output or a screen print
b. name the procedure HOUSEKP
c. save the procedure in the directory JOBPROCS
d. print a listing of the commented procedure HOUSEKP.

Note

- At the conclusion of this assignment, hand all paperwork and removable media to the test supervisor.
- Ensure that your name is on the removable media and all documentation.
- If the assignment is taken over more than one period, all removable media and paperwork must be returned to the test supervisor at the end of each sitting.

Published by City & Guilds
1 Giltspur Street
London
EC1A 9DD
T +44 (0)20 7294 2468
F +44 (0)20 7294 2400
www.cityandguilds.com

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