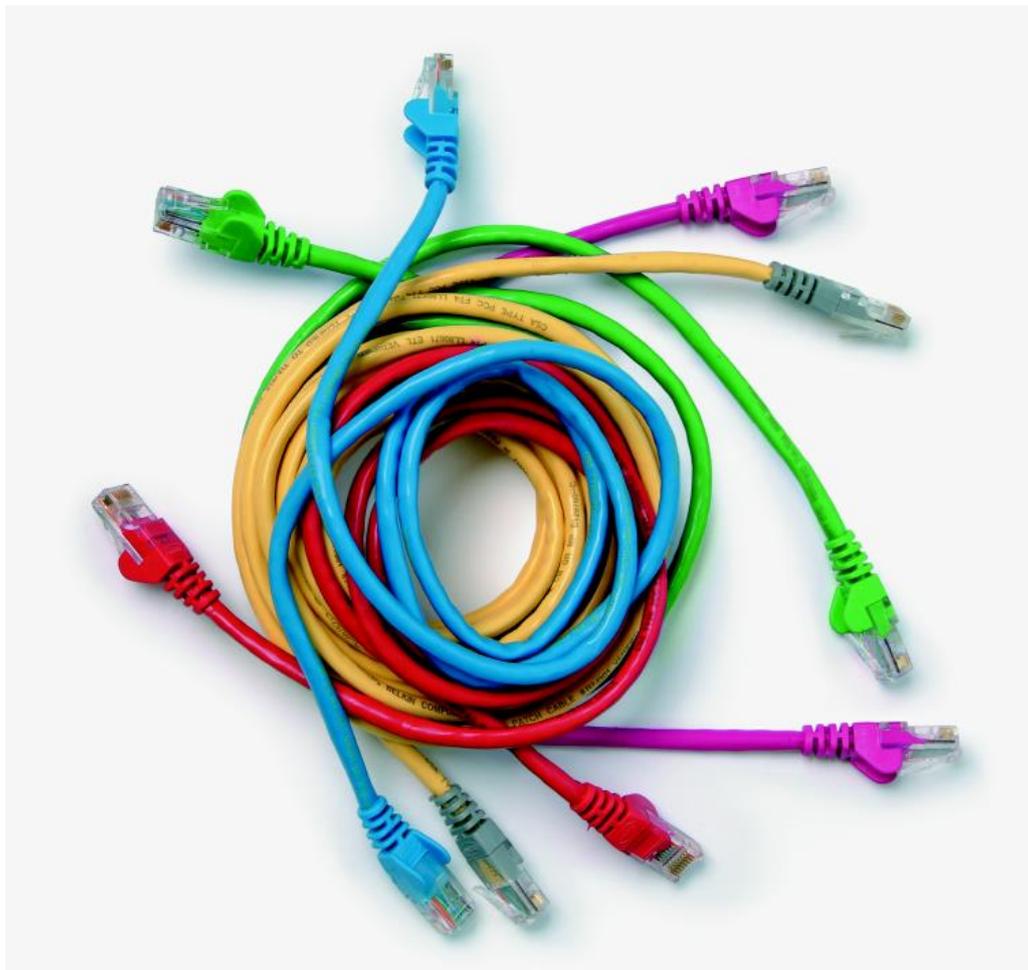


Level 3 Creating an object oriented computer program using Java (7540-037/7630-321)

Assignment guide for Candidates Assignment B



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Assignment B

Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 3 Creating an object oriented computer program using Java (7540-037/7630-321).

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 **4 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: 4 hours

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

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

- **Task A** - provides a detailed design specification that should be followed by candidates when developing their program.
- **Task B** - requires the candidate to test the program and provide documentation.
- **Task C** - provides criteria that should be followed by candidates when producing their work.

Scenario

A finance company, Web Banking, is developing software for validating and handling times to use as a library routine available within the company. As an employee of Web Banking, you have been asked to create and test the software which will perform the following functions:

- determine whether a time in 24 hour format is valid
- subtract one time from another
- add one time to another.

The company also requires another routine to make a copy of an input file.

Task A

Candidates should use the following detailed specification to fulfil the company's requirements:

In this task you are required to create and test two new classes called newTime and newCopyFile.

- 1 **Write the code for a new class called newTime which requires the following methods:**
 - a **public boolean valid24Time (int hh, int mm)**
The hours (hh) can only be in the range 0-23 and the minutes (mm) can only be in the range 0-59.
This method must return true if the time is valid and false if the time is invalid.
 - b **public int addTime (int hh1, int mm1, int hh2, int mm2)**
Two times are passed to the method in 24 hour format as hours and minutes (hh1 and mm1, hh2 and mm2). The two times must be added together.
This method returns the calculated time as an integer in 24 hour format.
 - c **public int subtractTime (int hh1, int mm1, int hh2, int mm2)**
Two times are passed to the method in 24 hour format as hours and minutes (hh1 and mm1, hh2 and mm2). The second time must be subtracted from the first.
This method must return the calculated time as an integer in 24 hour format.
- 2 Write the code for a new class called newCopyFile which needs the following method:
public void copyFile (String inputfile, String outputfile)
Two filenames are passed to the method as strings. The first filename is for the input file and the second filename is for the output file. The input data from the first text file is to be copied to the second file as output.
- 3 Create a test class called newTest which tests the methods in the newTime class and the method in the newCopyFile class. The time values and the filenames should be input via the keyboard.

Task B

In this task you are required to test the program you have created and provide documentation.

- 1 **Create test data to test the newTime and newCopyFile classes and determine the expected results.**
- 2 Prepare a test plan, test the software, compare the actual results to the expected results keeping a log for each test which identifies any discrepancies between actual and expected results and records any amendments made to correct errors.
- 3 Print a listing of the code for all classes (newTime, newCopyFile and newTest).
- 4 Print a copy of the input file and the output file used to test the newCopyFile class.

Task C

Candidates should follow the criteria below when producing their work:

- 1 The program conforms to the design specification.**
- 2 The code is commented.
- 3 Meaningful names are used for classes, methods and attributes using consistent naming conventions.

Note

- Candidates should produce the following for their assessor:
 - Test data, test plan, expected results, actual results and the log of testing
 - A printed program listing of all classes (newTime, newCopyFile and newTest)
 - A printed copy of the input file and output file.
- 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.

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