



Java SE 8 Programming Language

Training Assignments


Document Code	25e-BM/HR/HDCV/FSOFT
Version	1.1
Effective Date	20/11/2012

RECORD OF CHANGES

No	Effective Date	Change Description	Reason	Reviewer	Approver
1	01/Oct/2018	Create a new Assignment	Create new	DieuNT1	VinhNV
2	19/Jun/2019	Update template	Fsoft template	DieuNT1	VinhNV

Contents

Medium Assignment 1 – Option 2: Concurrency and Java IO.....	4
Objectives:.....	4
Working requirements:.....	4
Technologies:	4
Assignment Specifications 1:	4
Assignment Specifications 2:	5
Guidelines:.....	5

	<table><tr><td>CODE:</td><td>JPL.M.A102</td></tr><tr><td>TYPE:</td><td>Medium</td></tr><tr><td>LOC:</td><td></td></tr><tr><td>DURATION:</td><td>120 MINUTES</td></tr></table>	CODE:	JPL.M.A102	TYPE:	Medium	LOC:		DURATION:	120 MINUTES
CODE:	JPL.M.A102								
TYPE:	Medium								
LOC:									
DURATION:	120 MINUTES								

Medium Assignment 1 – Option 2: Concurrency and Java IO

Objectives:

- » Understand basic concepts of the thread.
- » Know how to create a new thread, handling thread priorities.
- » Practice with the Life Cycle of a Thread.
- » Can enforcing thread synchronization.
- » Working with the multi-thread.

Working requirements:

- » JDK 8
- » Eclipse

Technologies:

The product implements one or more technologies:

- » Object Oriented Programming
- » Threading, IO.
- » Utility class: ArrayList, List, HashMap.

Assignment Specifications 1:

Write a program for inventory problem to illustrate the usage of synchronized keyword.

Note: The output should be similar as mentioned below:

```
Thread1Thread[test thread,5,main]
Thread2Thread[test thread,5,main]
Quantity ordered :13
Quantity on hand :487
Total quantify taken away by way of order :13
Quantity ordered :91
Quantity on hand :396
Total quantify taken away by way of order :104
```

Assignment Specifications 2:

Write a program to simulate the working process in a factory:

- There is task list that defines all the tasks to be performed
- A manager keeps on adding new tasks to the list
- There are several workers who check the task list regularly and take one of the tasks listed there to carry out. Each task should be taken by only one worker.

You should implement the **manager** and **workers** as concurrent threads.

Notes: A task can be represented simply as a String holding the task's name. Performing a task is as simple as printing out the worker's name and the task's name.

Hints:

- The task list is the shared resource
- To ensure any single task is taken by only one worker (i.e. there is no conflict), you may have to synchronize the threads
- The worker threads may have to wait for the manager thread to define new tasks.

Guidelines:

- Create a project named **JPL.M.A102**
- Create the packages corresponding with the above specifications in project JPL.M.A102.
- Create a package named **fa.training.main** contains the main() method to test the above threads.

-- THE END --