**Lab 4**

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| --- | --- | --- | --- |
| Student Name | | Student CSUSM ID | Contribution percentage |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

**Grading Rubrics (for instructor only):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Criteria | 1. Beginning | 2. Developing | 3. Proficient | 4. Exemplary |
| Program: functionality  *correctness* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: functionality  *Behavior Testing* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: quality ->  *Readability* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: quality ->  *Modularity* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: quality ->  *Simplicity* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Total Grade (100) |  | | | |

**Problems:**

Given the following design (next page), implement it in Java. Note:

1. You may add more attributes or operations to a class if necessary. Specifically, you may use meaningful operations for FBI\_Agent and CIA\_Agent classes. Remember that your CIA\_Agent and FBI\_Agent class should implement runnable interface. Each agent object has its own thread for doing the assigned tasks.
2. Read textbook to see some example code snippets for the object pool pattern (pp. 170—174).
3. Some corrections:

private ObjectPool(ObjectCreation\_IF c, int max){

instanceCount=0;

creator=c;

maxInstances=max;

pool = new Object[maxInstances];

}

public static ObjectPool getPoolInstance(ObjectCreation\_IF c, int max){

if (poolInstance==null)

poolInstance = new ObjectPool(c, max);

return poolInstance;

}

1. To demonstrate how a limited number of agents are requested to process tasks, your testing code (FBIAgentApp or CIAAgentAPP) should create a pool of 5 agents to service 10 task requesters. Each agent should leave a unique foot prints while it is serving a requester.

**Solution:**

* First, remember to zip the src folder of your project and submit the zip file to the ungraded assignment named “Lab4CodeSubmission”. One submission from each team.
* Paste a screenshot of a run of your program here.
* Also paste all you source code here.
* Save this report in PDF, then **each student** needs to submit the pdf report to the graded assignment named “Lab4ReportSubmission”.

