**Lab 6**

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Criteria | 1. Beginning | 2. Developing | 3. Proficient | 4. Exemplary |
| Modeling | 0-14 | 15-19 | 20-24 | 25-30 |
|  |  |  |  |
| Program: functionality  *correctness* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: functionality  *Behavior Testing* | 0-9 | 10-14 | 15-19 | 20 |
|  |  |  |  |
| Program: quality ->  *Readability* | 0-2 | 3-5 | 6-9 | 10 |
|  |  |  |  |
| Program: quality ->  *Modularity* | 0-2 | 3-5 | 6-9 | 10 |
|  |  |  |  |
| Program: quality ->  *Simplicity* | 0-2 | 3-5 | 6-9 | 10 |
|  |  |  |  |
| Total Grade (100) |  | | | |

**Problems:**

A system design in UML class diagram is shown below, where multiple notifications shown in a NotificationBar may share the same attached files or media objects. A client (Demo) may take two phases to initiate/use a NotificationCollection. In the first phase, the client may request the NotificationCollection 10 times, each time to add/create one Notification (with different string content). No attachment is associated with a Notification when it is created. In the second phase, the client may request the NotificationCollection to link the 1st, 2nd, and 3rd Notification objects to the same MediaAttachment object, and link 5th, 9th Notification objects to the same FileAttachment object, etc.



1. What design pattern is used for the classes (interfaces) in green? [10 points]
2. What design pattern is used for the classes in blue? [10 points]
3. Implement the design in Java. You may add more attributes or operations to a class if needed. Make sure all the relations are appropriately mapped into code. [80 points]

**Solution:**

* First, remember to zip the src folder of your project and submit the zip file to the ungraded assignment named “Lab6CodeSubmission”. 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 submit the pdf report to the graded assignment named “Lab6ReportSubmission”. One submission from each team.