CmpE 202 – Software Systems Engineering

Team Project #1

The requirements analysis and design specifications part of the projects will be specified using
the Unified Modeling Language (UML) on Rational Rose or any other suitable modeling tool,
such as Visio or Together. UML is a standard for creating visual abstractions for software
systems. Software developers can choose from (9) Nine different modeling techniques to
describe their system in the most appropriate manner. We will use just five of these (use cases,
CRC cards, class diagram, sequence diagrams, and activity Diagrams).

Rose is a CASE tool developed by IBM that provides computational support for creating UML
diagrams.

Traditional Model

Use the traditional model to generate the following for each of the problem statements.

1. Use Cases. Use the following template to document at least 3 significant use cases of the
   problem statements.
   1. Use Case Id.
   2. Use Case Title
   3. Actors & Corresponding Roles
   4. Classes
   5. Corresponding Attributes
   6. Corresponding Interfaces
   7. Use Case Description
   8. Alternatives

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2. Document all the CRC cards for all the (classes) classes in each of your team projects (CRC
   stands for Class Responsibility and Collaborations)

<table>
<thead>
<tr>
<th>Class Name (Role)</th>
<th>Responsibility</th>
<th>Collaborations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Clients (Role)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Servers</td>
</tr>
</tbody>
</table>

Attributes:

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3. **Class diagram (Traditional Model).** Create a Class diagram for each of your team problems based on the Traditional Model – Class descriptions of each of the problem statements should include all attributes and methods for the class. All class relationships (associations, aggregations, dependencies, and specializations) should be included in the class diagram. Association’s classes, interface classes, constraints, interfaces, tagged values and/or stereotypes, and notes must be included in the class diagram. *A full description of each of the problem statements’ class diagram should be included with the final submission.*

• The final product is a report with the following outline / the problem statement.

  Title:
  Authors Names
  Short Abstract
  1. Introduction [5 POINTS]
  2. Traditional Model + Evaluation (Six Model Essentials or 6 Adequacies) [30 POINTS]
  3. Three Use Cases using the attached template [20 POINTS]
  4. CRC Cards [20 POINTS] [5 POINTS]
  5. Class Diagram – Traditional (with descriptions) [30 POINTS] [5 POINTS]
  6. Three Sequence Diagrams & an ACTIVITY Diagram [20 POINTS]
  7. Your Own OO Design Heuristics (Optional)
  8. Your Own Lessons Learned (Optional) [Extra H&LL 10 POINTS]
  9. Conclusions
  References

Appendix A: Rewrite of the Team Project Requirements [5 POINTS] [20 POINTS]

TOP [Extra: 20 POINTS]

Project:

As stated on the syllabus, this project is worth 30% of the total grade. The project breakdown will be as follows (the % of Grade is the overall course grade):

<table>
<thead>
<tr>
<th>Item</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification Models (Diagrams)</td>
<td>18%</td>
</tr>
<tr>
<td>Final Report</td>
<td>7%</td>
</tr>
</tbody>
</table>

In addition to:

<table>
<thead>
<tr>
<th>Item</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Document “Complete Team Problem Statement” – Check the team project problem statement</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
Grading Criteria for the final submission (the final report without the team problem statement and the team presentation)

<table>
<thead>
<tr>
<th>Item</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrations and diagrams</td>
<td>30%</td>
</tr>
<tr>
<td>Completeness and accuracy</td>
<td>30%</td>
</tr>
<tr>
<td>The writing quality, readability, and organization</td>
<td>20%</td>
</tr>
<tr>
<td>Creativity, innovation, patterns and/or theme focus</td>
<td>20%</td>
</tr>
</tbody>
</table>

1. **Illustrations and diagrams**: This refers to any illustrated models, such as all diagrams, that provide clear and accurate models, such as object models, behavior models, etc. Make sure all models and their requirements are illustrated.

2. **Completeness and accuracy**: This refers to how completely the group has described the user context, different abstractions, and different models. Make sure all models and their requirements are complete and accurate.

3. **The writing quality, readability, and organization**: This refers to the quality of the report and how readable it is. It should be easy to understand. This also refers to how well-organized and readable the document is. If the document is written poorly, it will be downgraded.

4. **Creativity, innovation, patterns and/or theme focus**: Creativity and innovation will be rewarded. Try to come up with some good ideas that fit the innovative. This also refers to coming up with and documenting analysis and design patterns in your model and/or how will the select theme(s) are illustrated and elaborated in the entire document.