**Group Exercise**

**Object-Oriented Analysis And Design**

**Total Marks: 30%**

**Due Date: 31 march 2022 5pm (there will not be any extension of due date)**

**Instructions:**

1. This is a group work (a group of 4 students – students must have already formed the group by now as it was already announced during lectures several times) and you must only work with among your group members. Working with anyone outside your group is considered cheating and will get zero mark. Copying from any other sources will also get zero mark. If you have trouble finding group members please inform me by 9th March 2022. Individual work will get zero mark as this is a group exercise.
2. You will be given zero(0) marks if you do not submit on time. You are given ample time to submit earlier. Do not give excuses like internet problem etc.

3. You need to submit the following:

a. Part 1 deliverables and

b. Part 2 deliverables.

Submit only one zip folder with the file named as StudentID-StudentName.zip. The zip folder should contain all the source code (.java files and any resource files), sequence diagrams, and a class diagram.

4. Use only Java Swing to do the exercise.

5. **An interview session will be arranged and all your team members must present the work. If you miss the interview session you will get ZERO marks even though you submitted the work.**

**Question:**

This group work is an extension to Lab 5 – More Swing Components and Listeners. In the lab 5, we have seen how Java Swing can be used to develop a drawing program which can do free style drawing. In addition to the functionality we developed in the lab 5 (i.e. free style drawing, color setting, and line size setting) you are now required to add the following functionalities.

1. Add an icon to draw a rectangle in the toolbar. The program should be able to draw a rectangle with 2-point clicks in the drawing canvas when the rectangle drawing icon is activated in the toolbar.
2. Add an icon to draw a circle in the toolbar. The program should be able to draw a circle with 2-point clicks in the drawing canvas when the circle drawing icon is selected in the toolbar.
3. Similar to requirement 1) and 2) above, you now add TWO other SHAPES (not the same as 1) and 2)) to the program

Since this group exercise is extending lab 5, you can refer back to my video tutorial and use the solution as the base for this work.

Part 1 deliverables:

A UML class diagram and UML sequence diagrams (for each use case) for the whole program (i.e. including lab 5 requirements and the new additional requirements as stated above)

Part 2 deliverables:

An implementation of the whole program (i.e. including lab 5 requirements and the new additional requirements as stated above) using Java Swing.

**Marking Rubric**

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| --- | --- | --- | --- | --- | --- |
| Criteria | Poor (1 Mark) | Below Average (2 marks) | Average (3 marks) | Above Average- (4 marks) | Good (5 marks) |
| Class Diagram | The design is meaningless or many parts not done or UML notations used are wrong or presentation contains many mistakes | The diagram is drawn less senseful in the meaning it conveys or incomplete or many UML notations not correctly used. Or presentation contains many mistakes | The diagram is able to convey meaning but with a few parts incomplete or with some UML notations not correctly used or presentation is average. | Most of the diagram is comprehensible and illustrating most of the requirements or with some minor mistakes in the usage of UML notations or presentation has got some minor mistakes. | The diagram is comprehensible, clear, and complete. Correct UML notations used. Presentation is good. |
| Sequence Diagram |
| Rectangle drawing | Functionality don’t work. Design and implementation not coherent. Overall application integration fails. Presentation not convincing. | Some functionality doesn’t work well. Design ant implementation not coherent at most of the places. Overall application has some flaws. Presentation has got major mistakes | Toolbar icon works. Design and implementation not coherent in many places. The functionality works well. Overall application and all component integration work well. Presentation has got some minor mistakes | Toolbar icon works. Design and implementation not coherent in a few places. The functionality is flawless. Overall application and all component integration work well. Presentation has got some minor mistakes | Toolbar icon works. Design and implementation are coherent.  The functionality is flawless. Overall application and all component integration work well. Presentation is good. |
| Circle drawing |
| Shape 1 drawing |
| Shape 2 drawing |