<center>
CSE 5322: SOFTWARE DESIGN PATTERNS

March 22, 2023

Homework 2, 15%

Due: 04/05/2023 11:59PM
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1   Introduction

This homework assignment requires the student to design a desktop application for adding and deleting items, and displaying the result in a table. In addition, the application must also support undoing and redoing operations. When the application is started, it shows a window with an empty table and several buttons at the bottom of the window. The buttons are Add, Delete, Undo and Redo.

When the Add button is clicked, a dialog is launched, letting the user to enter the item ID and content, both of these are texts. The user can click the OK button of the dialog to add the item to the table, or click the Cancel button of the dialog to cancel the operation. If the table is not empty, the user can select a row and click the Delete button to delete the selected row. The user can click the Undo or Redo button to undo or redo the previous operation.

2   What to Do and Submit

This individual homework assignment requires the student to do and submit the following (equal weight):

1. Construct the expanded use case for this application; you can think that this application has only one use case.

2. For each nontrivial step of the expanded use case, write a scenario to describe how objects interact with each other to process the user request. The scenario must apply the controller pattern and the command pattern.

3. Convert the scenarios to scenario tables.

4. Convert the scenario tables to informal sequence diagrams. Show the patterns applied using UML note/stereotype.

5. Convert the informal sequence diagrams to design sequence diagrams. Show the patterns applied using UML note/stereotype.

6. Derive a design class diagram from the design sequence diagrams. Show the patterns applied using UML note/stereotype.

7. Implement your design in Java (see next section).

3   Implementation

1. The implementation must be in Java. You may use Swing or AWT, whichever you prefer. Provide comments in your code to show the patterns applied.

2. The implementation must include implementation of the graphical use interface.

3. The design must correctly apply the controller and command patterns AND the implementation must also correctly implement these patterns. A partially correct implementation is considered incorrect.

   Note: an implementation that runs and produces the correct result may not correctly implement the patterns.

4. Compile and run your application. Produce and submit screen shots to show that all the buttons are working correctly.

4   How To Submit

Submit your solution on Canvas in one file. Name your file as follows:

Lastname_Firstname_CSE5322_S23_HW2.zip, or
Lastname_Firstname_CSE5322_S23_HW2.rar

Additional submission instructions will be announced by the TA before the deadline.