You have to enhance the drawing tool in this homework. After you complete this homework, you can move a classifier, modify the properties of classifier, and add a new element to your diagram. Also, you have to continually maintain your test code and modify your class diagram.

1. (30%) **Move and Modify a classifier:** For moving a classifier from one position to another position, the first thing you should do is determine which one classifier you want to move. When you click on the screen, your program should capture the mouse event and know the position you click. And then, the mouse event handler could decide whether the position situated in one classifier or not. If the position situated in one classifier, the classifier should be selected and highlighted in another color. Once a classifier has been selected, you can change its position (drag and drop) and modify its properties (double-click). **Also, remember that these classifiers should be overlapped when you put down the classifier to a new position.**

   When you double-click a classifier for modifying its properties, there would show up another dialog called “property dialog.” The property dialog of the classifier may have multiple pages including the main page, attributes page, operations page. But if the class is kind of the interface, there are merely main page and operations page in the property dialog. In figure 1, it’s a sample to show the main page of a class. You can modify the classifier name and decide whether it’s a template class or not. But if the class is kind of the interface, the “Template Class” check box should not be enabled.
Also, in figure 2 and figure 3, there should be a list box to show the classifier's attributes and operations. You have to list the attributes and operations in sort. But you don’t have to implement the adding, deleting and modifying action in this problem.
Notes: You can refer the “Notebooks” in the GTK+ 2.0 tutorial to implement the multiple pages.

2. (30%) **Add, Delete and Modify the attributes and operations:** In this problem, you should implement the adding, deleting and modifying action for the “attributes” and “operations” pages. You can refer the figure 4 and figure 5 to know what the dialog should be like, when you add and modify an attribute or operation.
3. **Add a new element**: You should add some actions to create a new element for each type of classifier, generalization and relationship, and you can put these actions on the tool bar or in the menu. For example, if you want to add a new class to the diagram, you should execute a “adding a class” action. And then, the empty property dialog for the new class shows up. You fill in the properties for the class, and then press the “OK” button. Also, your program can compute the class’s width and height for drawing the class. And now, you can move the new class to decide which position you want to put it. For adding a new generalization and relationship, you should decide source or base classifier at first. And then choose another classifier for the target or derived classifier.

4. (5%) Please keep your unit tests running. You have to add any new tests for the new programs written in this homework. Also, you should maintain your unit test programs written before.

5. (5%) Draw class diagrams for the program in UML. To do this they need to have every function encapsulated in a class, if not already so. The class diagrams will be drawn in the design perspective. (Note: you do not need to draw the class diagram for unit tests).