

Exercise 13

Task 1 – Designing Superclasses and Subclasses

In this task, you design subclasses and a superclass using the information in the following paragraphs.

Publishing, Inc. has employees in several different positions. These positions are: Technical Writers, Graphic Illustrators, Managers, and Editors.

Publishing, Inc. wants you to create a program for tracking information about each of its workers. This information consists of the worker's name, job title, employee ID (in the range of 1 to 10000), and level (1, 2, and 3). Additionally,

- Managers must have a list of employees that they manage.
- Technical Writers, Graphic Illustrators, and Editors must have a list of skills that they have.
- Editors must have a value indicating whether they prefer to do electronic editing or paper-based editing.
- All subclasses must have a method to display the information for the employee type.

Demonstrate encapsulation for each of the classes in your design by including get and set methods in your design.

Task 2 – Creating and Using Superclasses and Subclasses

In this task, you develop subclasses and superclasses for the employee class hierarchy.

1. Create class files for each of the classes outlined in the first part of this exercise.
2. Create methods in each of the subclasses for displaying the information about the worker.
3. Create get and set methods, as detailed in your design, and use decision constructs to ensure that invalid data is not set.
4. Create a new Java class called EmployeeTest and add codes on the page.
5. Run the test program and verify the output.

```

public class EmployeeTest {

    public static void main (String args[]) {

        Editor myEditor = new Editor();
        TechnicalIllustrator myTI = new TechnicalIllustrator();
        TechnicalWriter myTW = new TechnicalWriter();
        Manager myManager = new Manager();

        myEditor.setName("Fred Hanson");
        myEditor.setJobTitle("Editor");
        myEditor.calculateEmployeeID();
        myEditor.setLevel(1);
        myEditor.setSkill("technical editing");
        myEditor.setSkill("typing");
        myEditor.setEditType(false);
        myEditor.displayEditorInformation();

        myTI.setName("Sara Smith");
        myTI.setJobTitle("Technical Illustrator");
        myTI.calculateEmployeeID();
        myTI.setLevel(3);
        myTI.setSkill("technical illustration");
        myTI.setSkill("video production");
        myTI.setSkill("media authoring");
        myTI.displayTechnicalIllustratorInformation();

        myTW.setName("James Ralph");
        myTW.setJobTitle("Technical Writer");
        myTW.calculateEmployeeID();
        myTW.setLevel(1);
        myTW.setSkill("technical writing");
        myTW.displayTechnicalWriterInformation();

        myManager.setName("Susan Smith");
        myManager.setJobTitle("Manager");
        myManager.calculateEmployeeID();
        myManager.setLevel(2);
        myManager.setEmployee(myEditor);
        myManager.setEmployee(myTI);
        myManager.setEmployee(myTW);
        myManager.displayManagerInformation();

    }
}

```