

Homework # 1

due Tuesday, September 18, 12:30 PM

In this assignment, you write a small Java applet that introduces you to the world, do a design of a PAWS-like system, and write a small text-based Java program that simulates temperatures in Milwaukee.

1 Introducing Yourself

In Chapter 3, Prof. Jia has the planet Venus introduce itself. For this assignment, write an applet `HelloFromMe.java` to introduce yourself. You must create an HTML file `HelloFromMe.html` so that the introduction can be done using `appletviewer`.

Give your name and something about where you originate. You should have a photo (probably of yourself) in `Me.gif` and at least two lines of text, in different sizes. Choose appropriate colors (which should be different than the ones in the book) and choose an appropriate initial window size. The picture should be centered within the window with an appropriate margin width.

None of us (to my knowledge!) come from Venus, and so you will need to find or create an appropriate GIF file. If you did this assignment in a previous semester, please choose a new picture and text.

2 UML Design

A simple grade system keeps grades for a single class. The professor can log on and view and modify any grade; students can only see (but not modify) their own grade. Develop an object-oriented model for this system:

1. Determine the actors and use cases of the system and describe the relationships among them using use case diagrams.
2. Elaborate each of the uses cases. Describe the scenarios in each of the use cases.
3. Identify the classes of the system, and describe the responsibilities and the features of each class.
4. Determine the relationships among the classes, and use class diagrams to depict the relationships.

Your assignment (which should be done on paper and turned in at the beginning of lecture) should aim to be as complete as possible for this simple system, including all use cases and exceptional behaviors. Don't attempt to model timing (time outs, etc.).

3 Cooler Near the Lake?

The directory `$CLASSHOME/src/homework1/` contains a file `heat.cc` that simulates a heat system involving a large lake and inland areas. When it is run, it prints simulated temperatures for the lake and for the areas. The area closest to the lake (Milwaukee's eastside?) shows influence from the lake (Lake Michigan?) whereas the area farthest from the lake (Waukesha?) shows little influence. The following questions are *optional!*

- According to the simulation, what is the coldest month for the Milwaukee's eastside?, Waukesha?
- What is the warmest month for each?
- When is the lake warmest?
- For what months is it indeed "cooler near the lake" in this simulation?
- Does this match with your experience? (The temperature given is the *mean* temperature over the day, not the high or low.)

What your actual task to do is to convert this program into two Java files: `Area.java` and `LakeClimateSystem.java`. You should arrange the code so that the same behavior is seen by

```
grid.cs % java LakeClimateSystem
```

4 Submitting Your Work

The design for the PAWS system should be turned in on paper at the *start* of lecture on Tuesday, September 18th. You may also turn it in ahead of time to me (John Boyland) in person.

You submit your program work by putting it in the `homework1` directory in your AFS class volume. You should have two separate directories (Eclipse "projects"), one called `intro` and the other called `heat`. In any case, you will lose permission to write things in this directory after the deadline, which is 12:30pm on Tuesday, September 18th. In other words, you must be done before lecture starts.

The `homework1` directory needs only to include the following:

- `intro/HelloFromMe.java`: the source code for the applet;
- `intro/HelloFromMe.html`: the HTML code for the applet;
- `intro/Me.gif`: the GIF file;
- `heat/Area.java`: The `Area` class;
- `heat/LakeClimateSystem`: The simulation program.

The sub-directories may include other files as well, such as `.class` files.