

Homework Assignment #1

Assigned: Sunday, June 24, 2012
Due: 11pm on Thursday, June 28th

Instructor: Yinggang Huang (email: huang58@wisc.edu)
TA: Newsha Ardalani (email: newsha@cs.wisc.edu)

Hand in your homework:

This homework assignment includes short survey, general concepts and programming in Java. You must do this homework alone. The learn@UW should be up some time this week, but please submit hw1 to huang58@wisc.edu to be consistent. Submit your HW1 with 1 compressed file (.zip for Windows or tar.gz for UNIX-bases OS's) containing your solutions to all problems, and name the compressed file your full legal name.

Assignment grading questions must be raised with Newsha or me within one week after the assignment is returned.

Collaboration Policy:

You are to complete this assignment individually. However, you are encouraged to discuss the general algorithms and ideas with classmates, TAs, and instructor in order to help you answer the questions. You are also welcome to give each other examples that are not on the assignment in order to demonstrate how to solve problems. But we require you to:

- not explicitly tell each other the answers
- not to copy answers or code fragments from anyone or anywhere
- not to allow your answers to be copied
- not to get any code on the Web

In those cases where you work with one or more other people on the general discussion of the assignment and surrounding topics, we suggest that you specifically record on the assignment the names of the people you were in discussion with.

Problem 0: Your Photo

Take a portrait-type photo of yourself and save it in jpeg format with a file name of the form: *last_first.jpg* where “*last*” is your family name and “*first*” is your given name. You can also submit one of your existing photos but at least you should be recognizable and thus yourself should not be too small in the photo. Your photo is meant for Newsha and me to recognize you in class or in office hours.

Please place the picture in the compressed file. If you do not submit a photo, 30% of the points will be taken off your score on HW1.

Problem 1: Facts (2 points)

1. What is the web address of the course home page for summer 2012?
2. What are the office hours of Newsha and mine?

Problem 2: Survey (8 points)

(This question has no wrong answers.)

- 1) What is your expected major(s) or what is your major?
- 2) Are you graduate or undergraduate?
- 3) Which year are you in pursuing bachelor, M.S. or Ph.D degree?
- 4) Have you taken any other Computer Science courses? If yes, please list them.
- 5) Why are you taking this course?
- 6) Do you have any computer programming experiences? If yes, please list the programming language(s) with which you have experiences.
- 7) What do you hope to get out of it?
- 8) Please vote yes or no for having scheduled computer labs for this course in Summer 2012? And why?

Problem 3: General Concepts (5 points)

- 1) What are the 5 required components for a computer according to Von Neumann model? And please list some representative devices belonging to each of those 5 categories.
- 2) Reorder “statement”, “class”, “instruction” and “method” so that from left to right, it is ordered from high-level to low-level in the hierarchy of those 4 terminologies.
- 3) List the names of at least 4 fundamental (primitive) data types in Java.
- 4) Write out the marks (delimiters) for commenting out a single line and multiple lines, respectively.
- 5) Rewrite an equivalent statement “`x = x % y;`” so that it’s shorter and thus more convenient to programmers.

Problem 4: Programming I (5 points)

1. Consider the following fragment of Java code:

```
int myInt = 2 * 3 + 4 * 3 + 2;  
System.out.println(myInt);
```

What is output to the user?
2. Consider the following fragment of Java code:
 - a. `int a = 11;`
 - b. `int b = 22;`
 - c. `int c = 33;`
 - d. `c = a;`
 - e. `b = c;`
 - f. `a = b;`
 - g. What is a, b and c after it is executed by computer?
3. Write a program that reads in an integer number, say a, from the program user, and then generate a random integer number, say b. Finally compute the result of a^b (power b of base a). Print out the result as well as a, b with some descriptions what they are. (For example, "The number that the user input is: <whatever a is>").
4. Write a snippet of code that produces the following output to the console when run:

```
*****  
*   * * *   *  
**  *  **  
***  ***  
**  *  **  
*   * * *   *  
*****
```
5. Write a statement that declares an integer variable called z and initializes it to a random number between 10,567 and 10,599, exclusive (assume a Random obj named gen has been created for you).

