

Homework 1 : Due February 7, 2008 (before the start of lecture)

ECE 122 Spring 2008

- 1.) Why is commenting important? What are the two ways a programmer can write comments in Java? How are they different? If proper notation is used, what does a computer do when it encounters a commented section when compiling or running?
- 2.) Discuss how a program in Java is created and compiled. Be sure to include the role of an editor, compiler, and interpreter in your description. What about the translation process makes Java especially useful?
- 3.) When writing your programs a large part of the work will be finding errors and correcting them. Many of these errors can be avoided by spending time carefully planning your programs before sitting down at a computer. Although you may find that the occurrence of errors diminishes with experience, some are always inevitable. Explain the three types of errors you will encounter while programming. How might planning help avoid these problems?
- 4.) Java is defined as an object oriented language; describe the relationship between objects and classes.
- 5.) The “print” and “println” methods will be used frequently in your programs. What is the output of the following code? Explain the difference between the “print” and “println” methods.

```
public class tester
{
    public static void main(String[] args)
    {
        System.out.println("Hello World");
        System.out.print("Welcome to ECE 122:");
        System.out.println("Intro to ECE II");
        System.out.println("Course Textbook:");
        System.out.println("Java Software Solutions, Foundations of Program Design");
        System.out.print("By John Lewis and William Loftus");
    }
}
```

- 6.) Discuss three advantages to using constants? How might using constants make a program more adaptable?
- 7.) If the following assignments were written in a program, what would be assigned to result after the following statements?
 - a. `int result = 45;`
 - b. `float result = 43.734F;`
 - c. `double result = .43;`
 - d. `int result = 45 % -7;`
 - e. `String result = "result";`
 - f. `double result = 16.0/5;`
 - g. `int result = 16/5;`
- 8.) If the following were written in a program, what would the value of result be after the following has executed?

```
int result;
int a = 3;
int b = 5;

result = a * b;
result += 16;
result -= a + b;
```

9.) Suppose a client asks you to write a computer program to keep track of the funds a person has in different accounts with the following specifications:

- The person has two checking accounts, one express checking account, and one savings account. Create an integer variable to represent the amount in each one. Be sure to choose relevant names for your variables.
- One of the checking accounts has \$10,054.00 dollars in it, the other has zero. The express checking account has \$1,254.00 dollars and the savings account has \$45,676.00 dollars in it. Initialize the variables representing the different accounts to the desired values.

The account holder has decided to move some funds around and wants you to update the amount in each of her accounts after the following transactions:

- She deposits \$15,000.00 dollars in her savings account then transfers \$12,000.00 dollars from the savings account to the checking account that initially had no money in it.
- She takes \$750.00 dollars from the express checking account and spends it.
- She transfers \$5,000.00 dollars from her savings account to her express checking account.

Once the transactions have been accounted for, print out the amount in each account with the variable name next to it.

Develop a Java class which will perform all of these operations. Write all the required code in the main method of your new class. Submit a screenshot of your program running showing the output. See the “Resources” section on the course web page for how to create a screenshot.