IST 256 Second Exam Review
Thursday, March 24, 2011

Exam Review Topics

These topics are all covered in either the Notes documents or in the labs.

1. RadioButtons, ButtonGroup, Checkboxes: isSelected()

2. Method definitions, scope keywords, return type, method name, formal parameters
   private void computeAll(int num, double whammy)
   { <proc body> }

3. method calls
   computeAll(16, 20.0);
   (number and types of parameters must match method definition)

4. Array declarations, allocations, initializations (one-dimensional)
   int [ ] numarray = new int [25];
   String [ ] colors = { "red", "blue", "green" }

5. Standard loop for going over arrays and doing something to each element

6. Write program to average all the elements of an array.

7. Exceptions: what is an exception?
   Give examples? NumberFormat, FileNotFound
   How can you tell if a method will cause an Exception?
   The header has a "throws" clause
   declare an exception variable: Exception e; IOException e; . . .

8. Methods to display exceptions
   e.getMessage()
   e.toString()
   e.printStackTrace()

9. try/catch structures (not the finally clause); explain the execution of this structure

10. Files: Classes for files, FileReader, FileWriter, BufferedReader, BufferedWriter
    declare a variable for one of these classes: BufferedReader in;
    create an instance of the class, which "opens" the file
    in = new BufferedReader(new FileReader("inputfile.txt");
    close any reader or writer: in.close()

11. Streams and the Scanner class
    using methods from the Scanner class to inspect and get items from the Stream
    hasNext(), next(), hasInt(), nextInt(), hasDouble, nextDouble()
    declare a scanner: Scanner sc;
    create a new instance: sc = new Scanner (in);
    what does the method useDelimiter() do?
    (defines the delimiters that occur between the items in the Stream)
    Scanners also have a close() method

12. Standard loop to read lines of data from a file
    suppose file has one int and one string on each line
    int number; String s;
    while (sc.hasNext())
    { // read all items on one line from the file here
        number = sc.nextInt();
        s = sc.next()
        // do something with number and s
        }

13. Writing to files
    methods for FileWriter: write() and newline()

14. Formatting
    converting numbers to strings with String.valueOf()

Exam given in iLMS with one sheet (2 pages or sides) of notes allowed.
No other materials
No other browser window open
No cell phones

Exam Review Problems

1. Understanding Arrays

Assume that a program has the following statements:

```
int [ ] numbers = new int[100];
for (int i=0; i < numbers.length; i++) {
        numbers [i] = i * 5;
}
System.out.println(numbers [30]);
```

What will be printed as the result of these statements?

2. Understanding Methods

Given the following program (a Java application)

```
public class Main
{
        public static double mysteryAmount ( int number )
        {
                double amount;
                amount = (number * number ) + 2;
                return amount;
        }
        public static void main (String [] args )
        {
                double value;
                value = mysteryAmount ( 9 );
                System.out.println ( value );
        }
}
```

What will print as the result of the program?

3. Writing a method

Design and write a method called *isWayBigger* that will take 2 integers as parameters and return a boolean result. The method will return true if the first number is at least 100 more than the second and false otherwise.

Give an example of a call to this method:

4. Writing another method

Design and write a method called *getAverageInt* that takes an array of integers as a parameter and returns the average of all the values in the array.