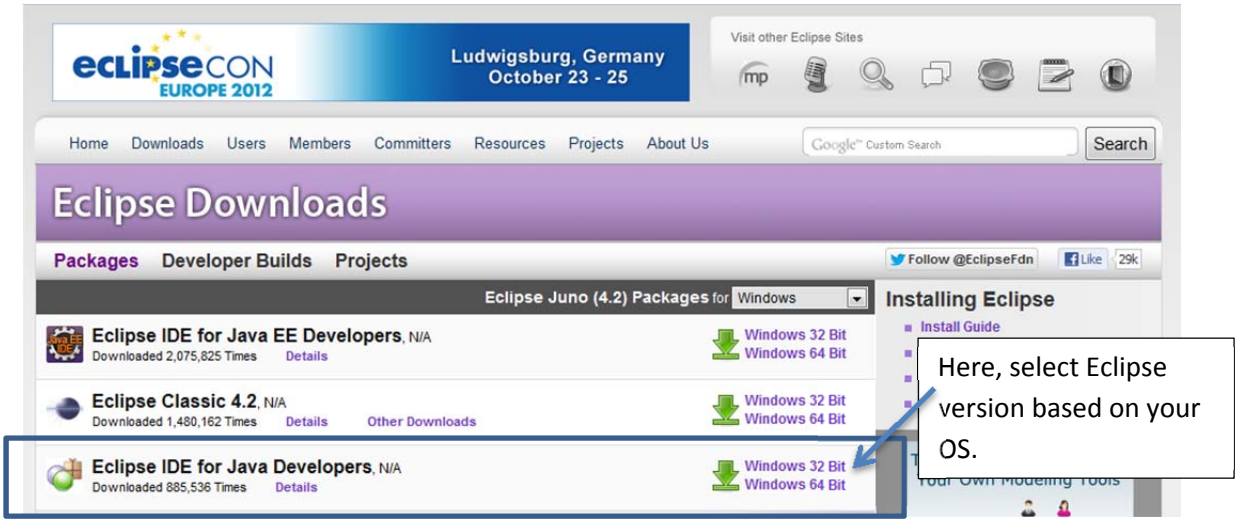
CSCI2010 Principle of Computer Science

Laboratory Two

Part 1: Set up Eclipse

1. Go to Eclipse website http://www.eclipse.org/downloads/
2. Download Eclipse



3. Extract Eclipse package into local directory
4. Run Eclipse by double clicking Eclipse.exe
5. Input a workspace folder name and remember this folder because all your source code will be stored into it.
6. Create a project called “lab2”.

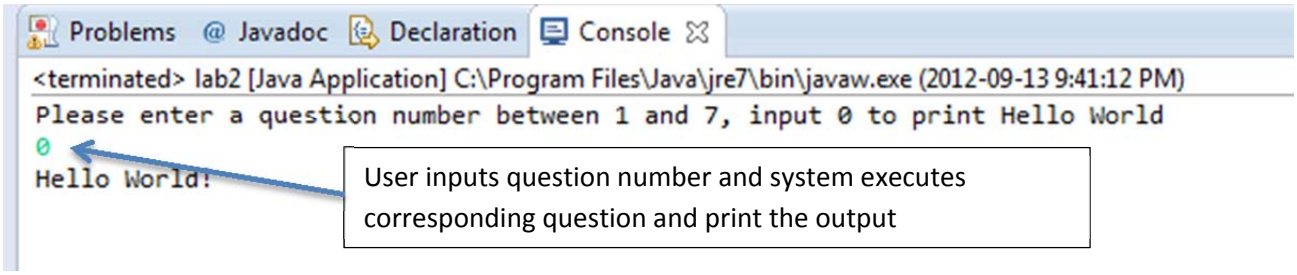
Part2: Programming Activity (10 marks)

In this part, we will write 5 Java programs. Currently, we already set up Eclipse environment and create a project named "lab2". Now, we need to create 2 Java classes files named "lab2" and "questions" respectively and put "main" function into "lab2" class.

Now, you can copy the source code in "questions" into your "questions" file. There are 5 predefined functions in "questions" file, each function corresponds to one question, and you need to fill in codes to realize the function.

Activity 0: Design a simple command line user interface (1 mark)

In this activity, you need to design a command line UI. User input a number between 1 and 5 inclusively; the system can execute the corresponding question. The following image shows an example of such UI.



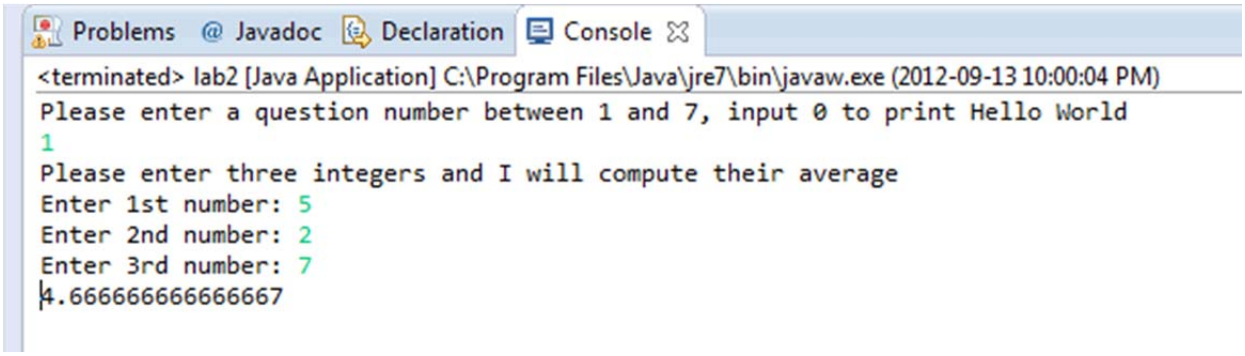
Activity 1: Computing Average (1 mark)

In this activity, user input 3 integers, and system prints the average. Part of the source codes is shown in the following image, Fill in the empty part without changing existing part. Put your code into "q1" function.

```
12    void q1()
13    {
14        int val1, val2, val3;
15        double average;
16        Scanner scan = new Scanner(System.in) ;
17
18        // get three values from user
19        System.out.println("Please enter three integers and " +
20                           "I will compute their average");
21
22        //Calculate average here
23
24        //Print it out here
25
26    }
27
```

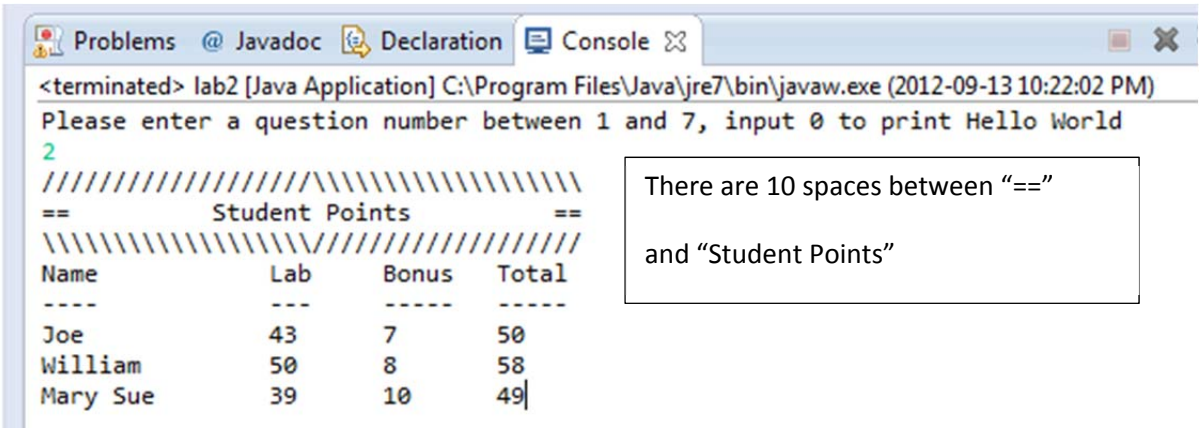
Finish the function here

Your system output should like the following image:



Activity 2: A Table of Student Grades (1 mark)

Fill in the code in "q2" and print out the following strings.



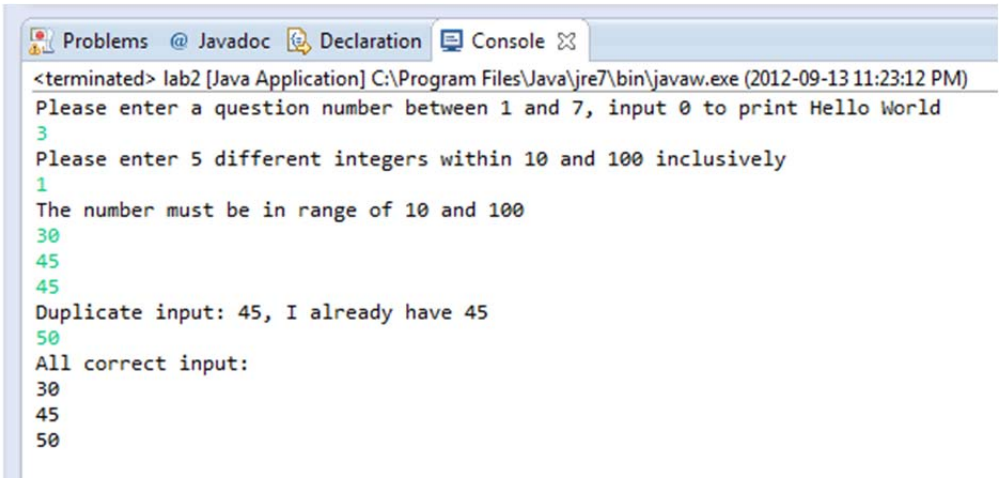
There are 10 spaces between "=="

and "Student Points"

Activity 3: Duplicate Elimination (3 mark)

Write an application that accepts five numbers, each between 10 and 100, inclusive. As each number is read, if the number is a duplicate, print out a message about the duplication. Use the smallest possible array to solve this problem. Display the complete set of unique values input after user enters all 5 integers.

An example output is shown below.



Activity 4: Using String Objects(2 marks)

Fill in the blanks in the program below as follows: (Section 3.2, especially the example in Listing 3.1, should be helpful):

(a) declare the variable town as a reference to a String object and initialize it to "Anytown, USA".

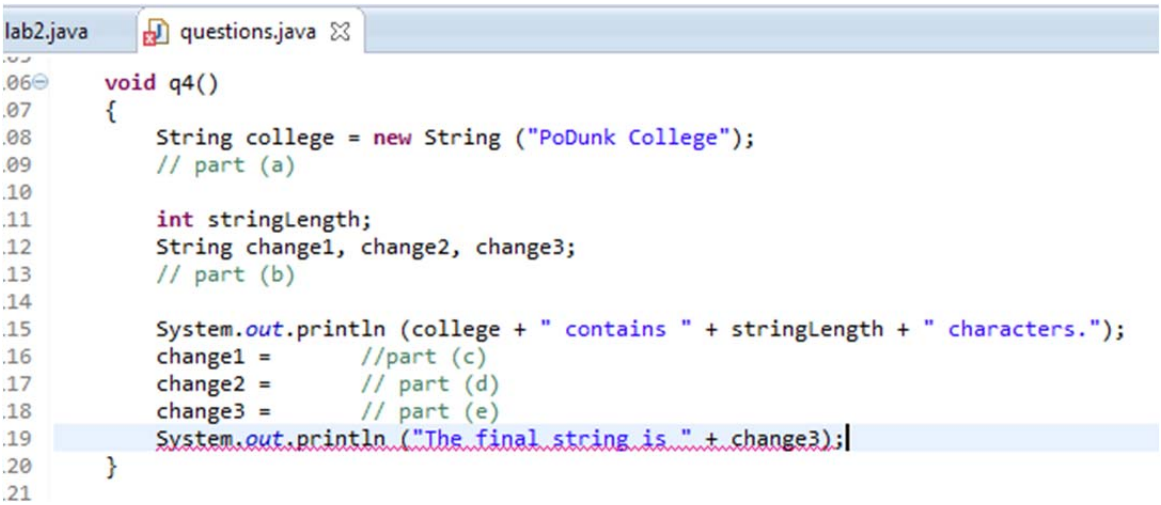
(b) write an assignment statement that invokes the length method of the string class to find the length of the college String object and assigns the result to the stringLength variable

(c) complete the assignment statement so that change1 contains the same characters as college but all in upper case

(d) complete the assignment statement so that change2 is the same as change1 except all capital O's are replaced with the asterisk (*) character.

(e) complete the assignment statement so that change3 is the concatenation of college and town (use the concat method of the String class rather than the + operator)

You can find the incomplete code in “q4” function, fill in this part and finish the function.

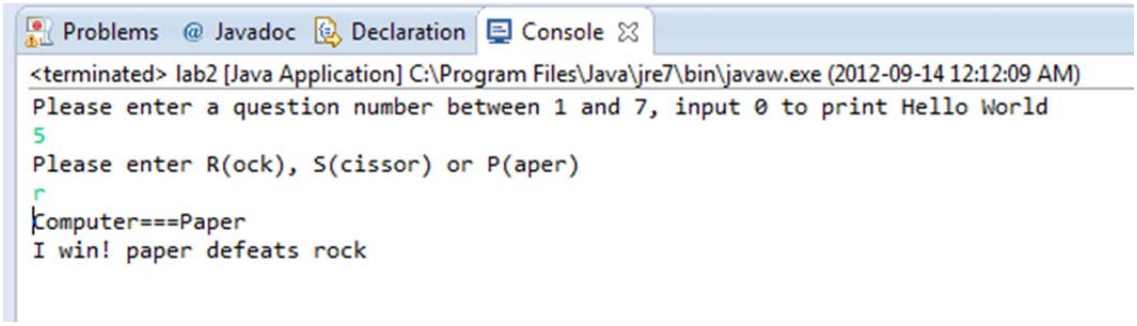


Activity 5: Rock, Paper, Scissors (2 marks)

Function q5 contains a skeleton for the game Rock, Paper, Scissors. Add statements to the program as indicated by the comments so that the program asks the user to enter a play, generates a random play for the computer, compares them and announces the winner (and why).

Note that the user should be able to enter upper or lower case r, p, and s. The user's play is stored as a string to make it easy to convert whatever is entered to upper case. Use a switch statement to convert the randomly generated integer for the computer's play to a string.

A possible output is displayed below.



What need to be submitted?

Please submit your “lab2.java” and “questions.java” on Blackboard learn, don’t submit Eclipse project.

==========End of Lab2==========