

King Saud University
College of Computer & Information Science
CSC111 – Lab03
IO, Variables, Expressions
All Sections

Instructions

Web-CAT submission URL:

<http://10.131.240.28:8080/Web-CAT/WebObjects/Web-CAT.woa/wa/assignments/eclipse>

Objectives:

- 1- Student should learn how to read a problem statement and analyze it as following:
 - a. Find out if program needs input, how many inputs it is going to accept and of what type.
 - b. Decide if variables are needed, how many variable and of what type.
 - c. Understand the computation operations that are needed to solve the problem and design a simple algorithm to solve it (i.e., if program needs to compute certain values using arithmetic expression).
 - d. Decide what is the program is going to output to the end user.
- 2- Student should learn how to define variable, and assign them values.
- 3- Students should learn how to write arithmetic expressions and use operators.
- 4- Students should learn about different numeric data types.

Lab Exercise 1

Write a program that prompts the user to enter two points (x_1, y_1) and (x_2, y_2) and displays their distance between them. The formula for computing the distance is $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

Note that you can use `Math.pow(a, 0.5)` to compute \sqrt{a} .

Here is a sample run:

```
Enter x1 and y1: 1.5 -3.4 ↵
Enter x2 and y2: 4 5 ↵
The distance between the two points is
8.764131445842194
```

Solution

- 1- Create a new project in eclipse and name it **lab03**
- 2- Create a new class and name it **Distance**. Make sure you choose the `public static void main` option.
- 3- Write the program as following (you can ignore comments):
- 4- When you are done, save your program and run it. Make sure it prints the output as shown above.
- 5- Submit your program to WebCAT through eclipse to get familiar with WebCAT. Ask your TA for help.

Lab Exercise 2

Write a program that reads an integer between 0 and 1000 and adds all the digits in the integer. For example, if an integer is 932, the sum of all its digits is 14.

Hint: Use the % operator to extract digits, and use the / operator to remove the extracted digit. For instance, $932 \% 10 = 2$ and $932 / 10 = 93$.

Here is a sample run:

```
Enter an integer between 0 and 1000: 999 ↵  
The sum of all digits in 999 is 27
```

Solution

- 1- Use the same project **lab03** that you created before
- 2- Create a new class and name it **SumDigits**. Make sure you choose the `public static void main` option.
- 3- Write the program as following (you can ignore comments):
- 4- When you are done, save your program and run it. Make sure it prints the output as shown above.
- 5- Submit your program to WebCAT through eclipse to get familiar with WebCAT. Ask your TA for help.

Done...