



COMSATS University Islamabad
Department of Computer Science
Programming Fundamentals (CSC103) – BSSE-2A & BSDS2B
Class Assignment – 1 (CLO-1)

Due Date: October 17, 2022 (16:00)

Instructions

Total Marks: 5 x 5 = 25

Submit assignment in printed form.

Answer to all questions should begin on new page.

Assignment document must contain a title page showing Assignment-1, your name and registration number.

Assignment document must also contain JAVA source code (For JAVA Programming Questions) along with output.

You must follow proper JAVA naming convention for identifiers and properly document your source code

Plagiarism: Plagiarism is not allowed. If found plagiarized, zero marks will be awarded in the assignment.



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Question – 1: This question focuses on the types of errors

- a. Write JAVA statements that can produce Syntax Errors. Give three different examples and write the names of errors
- b. Write JAVA statements that can produce Logical Errors. Give three different examples and briefly explain the reason (1-2 lines)
- c. Write JAVA statements that can produce Run Time Errors. Give three different examples and briefly explain the reason (1-2 lines)
- d. The following program has syntax errors. Write clearly type of error and its correction (in tabular form). After you have corrected the syntax errors, show the output of this program.

```
public class Test{  
    public static void main(String[] arg){  
        count = 1;  
        sum = count + PRIME;  
        x := 25.67;  
        newNum = count * ONE + 2;  
        sum + count = sum;  
        x = x + sum * COUNT;  
        System.out.println(" count = " + count + ", sum = "  
        + sum + ", PRIME = " + Prime);  
    }  
}
```



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Question – 2: This question focuses on the basic elements of JAVA language (comments, Special Symbols, Reserve Words and Identifiers)

Consider following JAVA Code

```
/*This program will calculate product of three numbers */
public class Product{
    public static void main(String[] args){
        int num1 = 10; // first number
        int num2 = 20; // second number
        int num3 = 1; // third number
        int result; //product of numbers
        result = num1 * num2 * num3;
        System.out.println("Product of numbers: "+result);
    }
}
```

You are required to identify following (Show your answer as tabular form)

- comments (Single Line, Multiline),
- Special symbols (three)
- Reserve words (three)
- Identifier (predefined and defined by user) (three each)
- Standard Input Stream Object
- Standard Output Stream Object



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Question – 3: This question focuses on the basic elements of JAVA language (Primitive Data Types, Expressions and Assignments, Arithmetic Operators, Order of Precedence, Augmented Assignment Operators, Type Conversion)

a. Write Java statements that accomplish the following.

- Declare `int` variables `x` and `y`.
- Initialize an `int` variable `x` to 10 and a `char` variable `ch` to ' B '.
- Update the value of an `int` variable `x` by adding 5 to it.
- Declare and initialize a `double` variable `payRate` to 12.50.
- Copy the value of an `int` variable `firstNum` into an `int` variable `tempNum`.
- Swap the contents of the `int` variables `x` and `y`. (Declare additional variables, if necessary.)
- Suppose `x` and `y` are `double` variables. Output the contents of `x`, `y`, and the expression `x + 12 / y - 18`.
- Declare a `char` variable `grade` and set the value of `grade` to 'A'.
- Declare `int` variables to store four integers.
- Copy the value of a `double` variable `z` to the nearest integer into an `int` variable `x`.

b. Suppose a, b and c are int variables and a = 5, b = 6, d = 2. What value is assigned to each variable after each statement executes? If a variable is undefined at a particular statement, report UND (undefined)

Statements	a	b	c	d
<code>a = (b++) + 3 * ++d;</code>				
<code>c = 2 * d + (++b) + a;</code>				
<code>b = 2 * (++c) - (a++);</code>				
<code>d = d++ + d + b++ + b;</code>				

c. Suppose a, b, and sum are int variables and c is a double variable. What value is assigned to each variable after each statement executes? Suppose a = 3 , b = 5 , and c = 14.1

Statements	a	b	c	sum
<code>sum = a + b + (int) c;</code>				
<code>c /= a;</code>				
<code>b += (int) c - a;</code>				
<code>a *= 2 * b + (int) c;</code>				



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JAVA PROGRAMMING QUESTIONS

Question – 4:

Research several car-pooling websites. Create an application that calculates your daily driving cost, so that you can estimate how much money could be saved by carpooling, which also has other advantages such as reducing carbon emissions and reducing traffic congestion. The application should input the following information and display the user's cost per day of driving to work:

- a) Total miles driven per day.
- b) Cost per gallon of gasoline.
- c) Average miles per gallon.
- d) Parking fees per day.
- e) Tolls per day.

Question – 5:

Write an application that inputs one number consisting of five digits from the user and show the number in reverse order. Note the reverse order must also be a number. E.g. 93324

The reverse order number: 4 2 3 3 9
