COMSATS University Islamabad
Department of Computer Science
Programming Fundamentals (CSC103)
Class Assignment – 2 (CLO-2)

Instructions

Answer to all questions should begin on new page.

Assignment document must contain a title page showing Assignment-2, your name and registration number.

Assignment document must contain JAVA source code along with output screenshots.

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

Name of the Assignment document file should be your Registration Number. E.g. FA23BSE02.docx

Submit your work via MS Teams

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

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1. Write a program that prompts the user to enter the number of students and each student's name and score, and finally displays the name of the student with the highest score.
2. Write a program that prompts the user to enter the number of students and each student's name and score, and finally displays the student with the highest score and the student with the second-highest score
3. Write a Java program to keep accepting integer values from user until a prime number is entered.
4. Write a program that prompts the user to enter an integer from 1 to 10 and displays a pyramid, as shown in the following sample run:

```
Enter the number of lines: 7 Enter
                    1
                  2 1 2
                3 2 1 2 3
              4 3 2 1 2 3 4
            5 4 3 2 1 2 3 4 5
          6 5 4 3 2 1 2 3 4 5 6
        7 6 5 4 3 2 1 2 3 4 5 6 7
```

5. Use nested loops that display the following patterns in four separate programs:

```
Pattern A          Pattern B          Pattern C          Pattern D
1                  1 2 3 4 5 6                1          1 2 3 4 5 6
1 2                1 2 3 4 5                2 1            1 2 3 4 5
1 2 3              1 2 3 4                3 2 1              1 2 3 4
1 2 3 4            1 2 3                4 3 2 1                1 2 3
1 2 3 4 5          1 2                5 4 3 2 1                  1 2
1 2 3 4 5 6        1                6 5 4 3 2 1                    1
```

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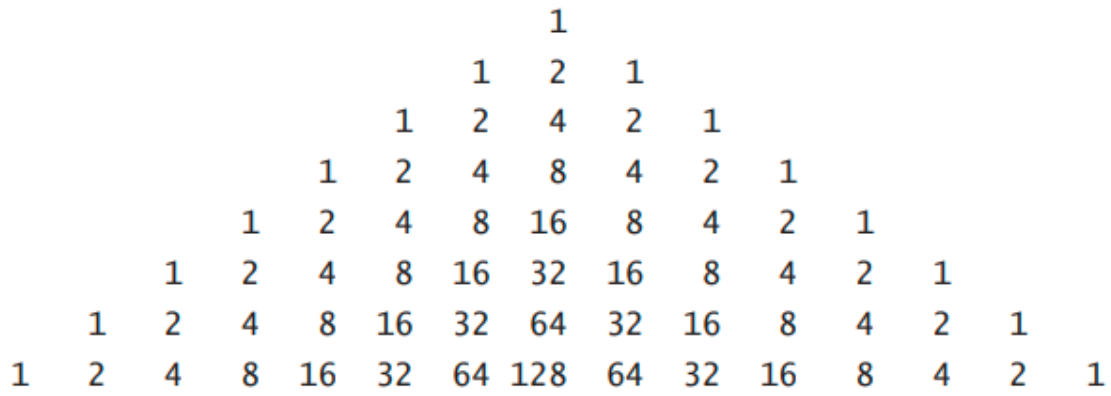
6. Write a nested for loop that prints the following output:



7. A positive integer is called a perfect number if it is equal to the sum of all of its positive divisors, excluding itself. For example, 6 is the first perfect number because 6 = 3 + 2 + 1. The next is 28 = 14 + 7 + 4 + 2 + 1. There are four perfect numbers less than 10,000. Write a program to find all these four numbers.
8. Write a program that prompts the user to enter a decimal integer and displays its corresponding binary value. Don't use Java's Integer.toBinaryString(int) in this program.
9. Write a program that prompts the user to enter a string and displays the string in reverse order.
10. Write a program to accept a sentence from user and find the number of vowels in it.