



## Zoho School for Graduate Studies

1) Write a single program to generate a multiplication and subtraction table for a given number.

2) Write a program to print a letters from the user input character to 'Z' without using strings.

Example 1: input : X  
Output : XYZ

Example 2: Input : M  
Output : MNOPQRSTUVWXYZ

3) write a program to find the difference between the given number and it's reverse number.

Example 1: Input : 12345  
Output : 12345 - 54321 = -41976

Example 2: Input : 543  
Output : 543 - 345 = 198

4) Write a program to define the functionality of a Bitwise operators.

5) Write a program to print the following pattern based on the alphabet.

Example 1:

Input: E  
Output:  
EEEE  
DDDD  
CCC  
BB  
A

Example 2:

Input:C

Output:

CCC  
BB  
A

6) Write a program for the following. Let consider 20 students in a class with the roll no 101-120. We are going to split them into four groups. Based on their roll number we are going to split them with the following logics.

Example 1:

Input : Total Number of students : 20

Output:

Group 1:

101  
105  
109  
113  
117

Group 2:

102  
106  
110  
114  
118

Group 3:

103  
107  
111  
115  
119

Group 4:

104  
108  
112  
116

7) Write a program to print the following output for the given input. You can assume the string is of odd length

Eg 1: Input: 12345

Output:

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1    1
2  2
3
4  4
5    5

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8) Write a program to demonstrate the functionalities of static keyword.

9) Given two sorted arrays, merge them such that the elements are not repeated

Example 1:

Input: Array 1: 2,4,5,6,7,9,10,13

Array 2: 2,3,4,5,6,7,8,9,11,15

Output: Merged array: 2,3,4,5,6,7,8,9,10,11,13,15

10) Alternate sorting: Given an array of integers, rearrange the array in such a way that the first element is first maximum and second element is first minimum.

Example: Input : {1, 2, 3, 4, 5, 6, 7}

Output: {7, 1, 6, 2, 5, 3, 4}

11) Java Program to left rotate the elements of a multidimensional array.

12) Write a program to print the number 7.50 without using String.

13) Write a program to find the area of the square

14) Write a program to find the area of the rectangle

15) Write a program to find the area of the cylinder

16) Write a program to evaluate the polynomial equation

$$aX^2 + bX + c = 0$$

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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17) Given the radius of two concentric circle, find the area of the space between the circles.

18) Evaluate the following expression on paper and on program and understand the difference

i) ++a-b-                      ii) a%b++                      iii) a\*=b+5                      iv) x=69>>>2

19) Evaluate the following expression on paper and on program and understand the difference

a+=a++ + ++a + -a + a-; when a=28

20) Evaluate the following expression on paper and on program and understand the difference

x = x++ \* 2 + 3 \* -x;

21) Evaluate the following expression on paper and on program and understand the difference

If int y = 10 then find int z = (++y \* (y++ + 5));

22) Evaluate the following expression on paper and on program and understand the difference

23) What is the value of x1 if x=5 ?

x1=++x - x++ + -x

- 24) Program to Find ASCII Value of a Character
- 25) Program to Compute Quotient and Remainder
- 26) Program to Demonstrate the Working of Keyword long
- 27) Program to Swap Two Numbers
- 28) Program to Check Whether a Number is Even or Odd
- 29) Program to Check Whether a Character is a Vowel or Consonant
- 30) Program to Find the Largest Number Among Three Numbers
- 31) Program to Find the Roots of a Quadratic Equation
- 32) Program to Check Whether a Number is Positive or Negative
- 33) Program to Check Whether a Character is an Alphabet or not
- 34) Program to Calculate the Sum of Natural Numbers and find the largest digit of the sum.
- 35) Program to Find Factorial of a Number and the factorial number's sum of digits.
- 36) Java Program to print the elements of an array present on even position
- 37) Java Program to print the elements of an array present on odd position
- 38) Java Program to print the largest element in an array
- 39) Java Program to print the smallest element in an array
- 40) Java Program to print the number of elements present in an array
- 41) Java Program to copy all elements of one array into another array
- 42) Java Program to find the frequency of each element in the array
- 43) Java Program to left rotate the elements of an array
- 44) Java Program to print the duplicate elements of an array
- 45) Java Program to print the sum of all the items of the array
- 46) Java Program to rotate the elements of an array in the right direction
- 47 - 50) Write a programs to print following patterns

1	9
1 2 1	8 9 8
1 2 3 2 1	7 8 9 8 7
1 2 3 4 3 2 1	6 7 8 9 8 7 6
1 2 3 4 5 4 3 2 1	5 6 7 8 9 8 7 6 5
1 2 3 4 5 6 5 4 3 2 1	4 5 6 7 8 9 8 7 6 5 4
1 2 3 4 5 6 7 6 5 4 3 2 1	3 4 5 6 7 8 9 8 7 6 5 4 3
1 2 3 4 5 6 7 8 7 6 5 4 3 2 1	2 3 4 5 6 7 8 9 8 7 6 5 4 3 2
1 2 3 4 5 6 7 8 9 8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8 9 8 7 6 5 4 3 2 1

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9 9 9 9 9 9 9 9 9
8 8 8 8 8 8 8 8
7 7 7 7 7 7 7
6 6 6 6 6 6
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1

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51) Write a program to display the number in reverse order without use of String functions.

Eg 1: Input: 12345

Output :The number in reverse order is : 54321

52) Using Recursion reverse the string such as

Eg 1: Input: one two three

Output: three two one

Eg 2: Input: I love india

Output: india love I

53) Write a program to give the following output for the given input:

Eg 1: Input: a1b10

Output: abbbbbbbbbbb

Eg: 2: Input: b3c6d15

Output: bbbccccccddddd

The number varies from 1 to 99.

54) Write a program to sort the elements in odd positions in descending order and elements in ascending order.

Eg 1: Input: 13,2 4,15,12,10,5

Output: 13,2,12,10,5,15,4

Eg 2: Input: 1,2,3,4,5,6,7,8,9

Output: 9,2,7,4,5,6,3,8,1

55) Write a program to print the alphabet 'C' with the stars based on the given numbers

Eg 1: Input: 4

Output:

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56) Write a program to make such a pattern like a pyramid with numbers increased by 1.

Eg: Input : 10

Output:

1

2 3

4 5 6

7 8 9 10

57) Write a program to print the following output for the given input. You can assume the string is of odd length

Eg 1: Input: 12345

Output:

1 5

2 4

3

2 4

1 5

58) Write a program to print the following pattern for the given input number.

Eg 1: Input: 4

Output:

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59) Find if a String2 is substring of String1. If it is, return the index of the first occurrence. else return -1.

Eg 1: Input: String 1: test123string

String 2: 123

Output: 4

Eg 2: Input: String 1: testing12

String 2: 1234

Output: -1

60) Write a program to find the sum of the series. The series will be like  $1 + 11 + 111 + 1111 + \dots$  n terms.

Eg 1: Input: Input the number of terms : 5

Output :

$1 + 11 + 111 + 1111 + 11111$

The Sum is : 12345

Eg 2: Input: Input the number of terms : 3

Output :

$1 + 11 + 111$

The Sum is : 123