Activity Intro to OOP 24th Oct (421 )

1. Write a Java program to check if a number is even or odd.
2. Write a program to calculate the average of three numbers.
3. Create a program to find the maximum of two numbers.
4. Write a program to calculate the factorial of a number.
5. Create a program to find the absolute value of a number without using the Math class.
6. Write a program to swap two numbers.
7. Write a program to determine if a number is prime.
8. Create a program to find the square root of a number.
9. Write a Java program to check if a person is eligible to vote.
10. Create a program to check if a number is positive, negative, or zero.
11. Write a program to determine the largest among three numbers.
12. Create a program to check if a character is a vowel or a consonant.
13. Write a program to check if a year is a leap year using if-else statements.
14. Create a program to compare two strings for equality.
15. Write a program to find the largest among four numbers.
16. Create a program to check if a given number is a perfect square.
17. Write a program to find the largest of three numbers using nested if-else statements.
18. Write a program to check if a number is positive, negative, or zero using nested if-else. Taking from users
19. Create a program to check if a number is even and positive.
20. Write a program to find the largest among three numbers using nested if-else.
21. Create a program to check if a number is a multiple of both 3 and 5.
22. Create a program to find the roots of a quadratic equation.
23. Write a program to determine the day of the week based on a number.
24. Create a program to check if a number is even, odd, or prime using else-if statements.
25. Write a program to convert a month number to its name.
26. Write a program to find the discount based on the total purchase amount.
27. Write a program to determine the number of days in a month using a switch statement.
28. Create a program to check if a character is a vowel or a consonant using a switch statement.
29. Write a program to print the first 10 natural numbers using a while loop.
30. Create a program to calculate the sum of natural numbers from 1 to N using a while loop.
31. Write a program to find the factorial of a number using a while loop.
32. Write a program to generate a Fibonacci series using a while loop.
33. Create a program to reverse a number using a while loop.
34. Create a program to print the multiplication table of a number using a while loop.
35. Write a program to calculate the power of a number using a while loop.
36. Create a program to calculate the square of a number using a while loop.
37. Write a program to print the first 10 natural numbers using a do-while loop.
38. Create a program to calculate the sum of natural numbers from 1 to N using a do-while loop.
39. Write a program to find the factorial of a number using a do-while loop.
40. Write a program to generate a Fibonacci series using a do-while loop.
41. Create a program to reverse a number using a do-while loop.
42. Write a program to calculate the power of a number using a do-while loop.
43. Create a program to calculate the square of a number using a do-while loop.
44. Write a program to print the first 10 natural numbers using a for loop.
45. Write a program to find the factorial of a number using a for loop.
46. Create a program to print the multiplication table of a number using a for loop.
47. Write a Java program to calculate the average value of array elements.
48. Write a Java program to test if an array contains a specific value.
49. Write a Java program to find the index of an array element.
50. Write a Java program to remove a specific element from an array.
51. Write a Java program to copy an array by iterating the array.
52. Write a Java program to insert an element (specific position) into an array.
53. Write a Java program to find the maximum and minimum value of an array.
54. Write a Java program to reverse an array of integer values.
55. Write a Java program to find duplicate values in an array of integer values.
56. Write a Java program to find duplicate values in an array of string values.
57. Write a Java program to find common elements between two arrays (string values).
58. Write a Java program to find common elements between two integer arrays.
59. Write a Java program to remove duplicate elements from an array.
60. Write a Java program to find the second largest element in an array.
61. Write a Java program to find the second smallest element in an array.
62. Write a Java program to add two matrices of the same size.
63. Write a Java program to test two arrays' equality.
64. Write a Java program to find a missing number in an array.
65. Write a Java program to move all 0's to the end of an array. Maintain the relative order of the other (non-zero) array elements.
66. Write a Java program to find the number of even and odd integers in a given array of integers.
67. Write a Java program to get the difference between the largest and smallest values in an array of integers. The array must have a length of at least 1.
68. Write a Java program to compute the average value of an array of integers except the largest and smallest values.
69. Write a Java program to check if an array of integers is without 0 and -1.
70. Write a Java program to check if the sum of all the 10's in the array is exactly 30. Return false if the condition does not satisfy, otherwise true.
71. Write a Java program to check if an array of integers contains two specified elements 65 and 77.
72. Write a Java program to remove duplicate elements from a given array and return the updated array length.  
    Sample array: [20, 20, 30, 40, 50, 50, 50]  
    After removing the duplicate elements the program should return 4 as the new length of the array.
73. Write a Java program to find the length of the longest consecutive elements sequence from an unsorted array of integers.  
    Sample array: [49, 1, 3, 200, 2, 4, 70, 5]   
    The longest consecutive elements sequence is [1, 2, 3, 4, 5], therefore the program will return its length 5.
74. Write a Java program to find the sum of the two elements of a given array equal to a given integer.  
    Sample array: [1,2,4,5,6]   
    Target value: 6.
75. Write a Java program to find all combinations of four elements of an array whose sum is equal to a given value.
76. Write a Java program to count the number of possible triangles from a given unsorted array of positive integers.     
    Note: The triangle inequality states that the sum of the lengths of any two sides of a triangle must be greater than or equal to the length of the third side.
77. Write a Java program to cyclically rotate a given array clockwise by one.
78. Write a Java program to find the rotation count in a given rotated sorted array of integers.
79. Write a Java program to arrange the elements of an array of integers so that all negative integers appear before all positive integers.
80. Write a Java program to arrange the elements of an array of integers so that all positive integers appear before all negative integers.
81. Write a Java program to sort an array of positive integers from an array. In the sorted array the value of the first element should be maximum, the second value should be a minimum, third should be the second maximum, the fourth should be the second minimum and so on.
82. Write a Java program that separates 0s on the left hand side and 1s on the right hand side from a random array of 0s and 1.
83. Write a Java program to separate even and odd numbers from a given array of integers. Put all even numbers first, and then odd numbers.
84. Write a Java program to replace every element with the next greatest element (from the right side) in a given array of integers.   
    There is no element next to the last element, therefore replace it with -1.
85. Write a program to display the cube of the number up to given an integer.   
    Test Data :  
    Input number of terms : 5   
    *Expected Output* :   
    Number is : 1 and cube of the 1 is :1   
    Number is : 2 and cube of the 2 is :8   
    Number is : 3 and cube of the 3 is :27   
    Number is : 4 and cube of the 4 is :64   
    Number is : 5 and cube of the 5 is :125
86. Write a program to find the sum of the series 1 +11 + 111 + 1111 + .. n terms.    
    Test Data :   
    Input the number of terms : 5   
    *Expected Output* :  
    1 + 11 + 111 + 1111 + 11111 +   
    The Sum is : 12345
87. Write a program to read n numbers from keyboard and find their sum and average
88. Write a program to accept a grade and declare the equivalent description :

|  |  |
| --- | --- |
| Grade | Description |
| E | Excellent |
| V | Very Good |
| G | Good |
| A | Average |
| F | Fail |

Test Data :   
Input the grade :a  
Expected Output :  
You have chosen : Average

1. Write a program to display the multiplication table of a given integer.   
   Test Data :  
   Input the number (Table to be calculated) : 15   
   *Expected Output* :   
   15 X 1 = 15   
   ...  
   ...   
   15 X 10 = 150
2. Print the following patterns using loop getting the number of line from user:

5

45

345

2345

12345

1

12

123

1234

12345

123456

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d.

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e.

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f.

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

g. (it should be odd number)

1

212

32123

4321234

32123

212

1

h. (it should be odd number)

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