Hands-on No. : **1a**

Topic : **Java – Control Flow Statements,Array and String**

Date : **04.08.2025**

Solve the following problems

Question No.	Question Detail
1	There is a group selection in a crowd for an event based on the entry ticket number. For every group, the group leader will be the one who's ticket number has 10 as it's factor. If anyone gives the ticket number tell him/her that they are a group leader or a group member. Sample Input: 5423 Sample Output: Group Member Sample Input: 5610 Sample Output: Group Leader
2	Write a program to print the numbers from 1 to 20 other than the given number. Input should be between 1 to 20. Sample Input: 6 Sample Output: 1 2 3 4 5 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Sample Input: 17 Sample Output: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 20 Sample Input: 23 Sample Output: Invalid Input
3	Write a program to print only the numbers divisible by 3 and 5 for a given number from 1. Sample Input: 20 Sample Output: 3 5 6 9 10 12 15 18 20 Sample Input: 40 Sample Output: 3 5 6 9 10 12 15 18 20 21 24 25 27 30 33 35 36 39 40
4	Jack and Emma are playing a number game. Jack should say the sum of the numbers that Emma says. He should sum until Emma says 'zero'. Help Emma to check if Jack is right or not by telling her the answer.

It is going to be hard but, hard does not mean impossible.

	Sample Input: 2 5 9 4 0 Sample Outut: 20 Sample Input: 6 8 2 5 3 9 0 Sample Output: 33
5	Write a program to read an integer variable 'Code'. If the Code value is 1, read double values and print the sum. If the Code value is 2, read the integers and print the product. If the code value is 3, read the strings and join them. Sample Input: 1, 24.50, 67.00 Sample Output: 91.5 Sample Input: 3, 'Hello', 'World' Sample Output: HelloWorld
6	Write a program to print all prime numbers between 1 and N(inclusive). N will be the input. Sample Input: 5 Sample Output: 2 3 5
7	Given a number N. Check if it is **perfect** or not. If it is perfect number print as zero else print 1.A number is **perfect** if sum of factorial of its digit is equal to the given number. **Sample Input:** N = 23 **Sample Output:** 0 **Explanation:** The sum of factorials of digits of 23 is 2! + 3! = 2 + 6 = 8 which is not equal to 23. Thus, answer is 0. **Sample Input:** N = 145 **Sample Output:** 1 **Explanation:** The sum of factorials of digits of 145 is 1! + 4! + 5! = 1 + 24 + 120 = 145 which is equal to 145.Thus, answer is 1.
8	Ana planned to choose a four-digit lucky number for his car. Her lucky numbers are 3, 5 and 7. Help her to find the car number, whose sum is divisible by 3 or 5 or 7. Provide a valid car number, fails to provide a valid input then display that number is not a valid car number. SampleInput:3573 SampleOutput:3573 is a valid car number SampleInput:3571 SampleOutput:3573 is a not valid car number

9.	Write a program to print all prime numbers between 1 and N(inclusive). N will be the input. Sample Input: 5 Sample Output: 2 3 5
10	Write a program to print the following star pattern Sample Input: 5 Sample Output: 
11	Write a program to print the following pattern Sample Input: 5 Sample Output: 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5
12	Write a program to print the following pattern Sample Input: 5 Sample Output: * * * * * * * * * * * * * * *
13	Write a program to print the following pattern Sample Input: 6 Sample Output:

	1 2 2 3 3 3 4 4 4 4 5 5 5 5 5 6 6 6 6 6 6
14	Write a program to print the following pattern Sample Input: 6 Sample Output: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
15	Write a program to print the following pattern Sample Input: 6 Sample Output: 1 0 1 1 0 1 0 1 0 1 1 0 1 0 1 0 1 0 1 0 1
16	Write a program to print the multiplication table from 1 to N (where N is a number entered by user). Sample Input: 10 Sample Output:

	<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr><tr><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr><tr><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr><tr><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr><tr><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td></tr><tr><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td></tr><tr><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td></tr><tr><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr><tr><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr></table>
17	Write a Java program to calculate frequency of digits in a number Sample Input: 34593334 Sample Output: 3 occurs 4 times 4 occurs 2 times 5 occurs 1 times 9 occurs 1 times
18	To check whether the given number is Armstrong number or not. Armstrong number in 3-digit numbers is a number whose sum of cubes of each digit is equal to the number itself. For example: 153 = 1*1*1 + 5*5*5 + 3*3*3 // 153 is an Armstrong number. Sample Input: 153 Sample Output: true Sample Input: 121 Sample Output: false
19	Take 20 integer inputs from user and print the following: a) number of positive numbers b) number of negative numbers c) number of odd numbers d) number of even numbers e) number of 0s. Sample Input: 1 -3 6 9 8 -13 -5 7 0 12 0 -4 4 0 17 21 6 16 11 19 Sample Output: 13 4 10 10 3
20	There is long queue in the billing counter of a supermarket. Tell the position of the specific customer if the names are the input. If not found, print -1. Sample Input: 5, [Smith Tim Eve John Dora], Eve

	Sample Output: 3 Sample Input: 5, [Smith Tim Eve John Dora], Mike Sample Output: -1
21	Write a program to find pair of elements in the array having sum of 10. If not found any, return -1. Sample Input: 1 2 8 3 Sample Output: (2,8) Sample Input: 1 2 3 4 5 Sample Output: -1
22	Write a Java program to replace each element of the array with product of all other elements in a given array of integers. Sample Input: 4,[1 2 3 4] Sample Output: 24 12 8 6
23	Get the values for an array of size 10. Write the logic to find whether the array elements are in Arithmetic Progression or Geometric Progression. If the array is in neither order display 'Random order'. Sample Input: 1 4 7 10 13 16 19 22 25 28 Sample Output: Arithmetic Progression Sample Input: 1 2 4 8 16 32 64 128 256 512 Sample Output: Geometric Progression Sample Input: 2 4 7 11 16 22 29 37 46 56 Sample Output: Random Order
24	In a lucky draw, XYZ finance company selects two sets of its customers for a promotion. If the customer's coupon is in first set, then the customer gets Rs.10000/- as cash prize. If it is in second set, then the customer gets tour tickets for two days. Otherwise, customer gets a batch 'Better luck next time'. Two sets of coupon numbers and a randomly picked customer coupon are the inputs. Help the company to say the result. Note: Consider each set has 10 distinctive customer coupons and no common coupons. Sample Input: [2 4 7 11 16 22 29 37 46 56], [1 5 9 10 13 18 19 22 25 28], 16 Sample Output: Rs.10000 Cash Prize Sample Input: [2 4 7 11 16 22 29 37 46 56], [1 5 9 10 13 18 19 22 25 28], 13 Sample Output: Tour Tickets for two days
25	Write a Java program to accept n numbers from console. Store all input numbers in the array. When the negative number is entered, the negative number is ignored and input stops. a. Replace the numbers in array as per following rules:

	b. Replace a number in array with 0 if it is even. c. Replace a number in array with 1 if it is odd. d. Replace a number in array with 2 if it is divisible by 8. e. Replace a number in array with 3 if it ends with 3. f. Replace a number in array with 4 if it is divisible by 9. g. If multiple rules apply to a number, use the rule that replaces with highest number h. Print the array before and after replacing Sample Input: 5 2 8 9 16 27 6 1 18 -12 Sample Output: [5 2 8 9 16 27 6 1 18], [1 0 2 4 2 4 3 1 4]
26	Given a string, return a new string made of 3 copies of the last 2 chars of the original string. The string length will be at least 2. Sample Input: Hello Sample Output: lololo Sample Input: Java Sample Output: vavava Sample Input: I Sample Output: String Length should be atleast Two
27	Write a Java program to accept a string from the user. Replace all vowels (‘a’, ‘e’, ‘I’, ‘o’, ‘u’) with ‘z’. If there are no vowels in the string just print the original word with the message “No vowels present”. Sample Input and Output: Enter a word: Hello Modified word: Hzllz Enter a word: rhythm No vowels present Original word: rhythm
28	Write a Java function that takes a sentence and a string as input and checks if the string is present. If it is, convert lowercase letters to uppercase and uppercase letters to lowercase, and return the converted string SampleInput and Output sentence = "Hello World from Java" search = "World" hELLO wORLD FROM Java sentence = "Coding is fun" search = "Python" Search String not found

29	A string S is passed as the input. S can contain alphabets, numbers and special characters. The program must print only the alphabets in S. Input: abcd_5ef8!xyz Output: abcdefxyz
30	Write a program to sort a set of names stored in an array in alphabetical order. Sample Input and Output: Enter the number of names: 5 Enter the names: Zara Bob Alice Charlie David Sorted names: Alice Bob Charlie David Zara
31	Write a Java program to print after removing duplicates from a given string. SampleInput and Output Enter a string: programming After removing duplicates: progamin