Java Full Stack February/March/May 2024 Batch

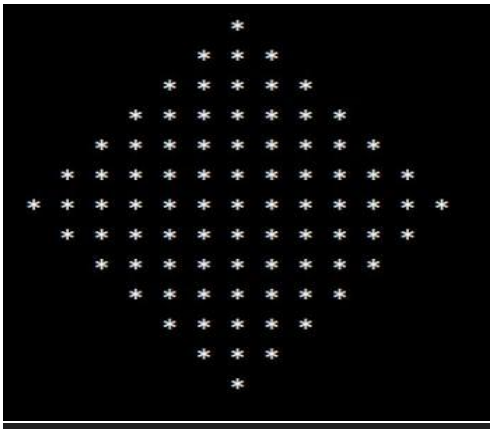
Machine Test 22/07/2024

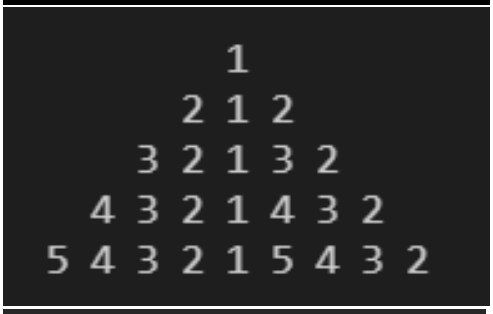
(Paper Set A)

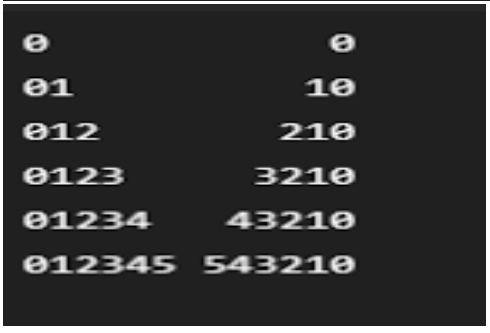
Instructions :

1) Proper indentation and comments should be write.
2) Your code should be clean and readable.
3) Take all inputs from user.
4) Solve any 2 questions from each section.
5) Solve one question from each section is must for passing.
6) Each program has 1 mark.

(Section-I)







(Section-II)

1) **Write a program in C to find a subarray with given sum from the given array?**
   Expected Output : The given array is : 3 4 -7 1 3 3 1 -4
   [0..1] -- { 3 4 }
   [0..5] -- { 3 4 -7 1 3 3 }
   [3..5] -- { 1 3 3 }
   [4..6] -- { 3 3 1 }

2) **Write a program in C to find the maximum for each and every contigious subarray of size k from a given array.**

Expected Output: The given array is: 1 3 6 21 4 9 12 3 16 10

The length of each subarray is: 4

The contagious subarray of length 4 and their maximum value are:

1 3 6 21 ----> 21

3 6 21 4 ----> 21

6 21 4 9 ----> 21

21 4 9 12 ----> 21

4 9 12 3 ----> 12

9 12 3 16 ----> 16

12 3 16 10 ----> 16

3) **Write a program to print all prime factors of numbers stored in array.**
   Create class PrimeFactor with methods void setArray(int arr[]) void AllPrimeFactors().

   Input - 12, 15, 28, 35, 49
   Output - For each number in the array, list its prime factors:
   Prime factors of 12: [2, 2, 3]
   Prime factors of 15: [3, 5]
   Prime factors of 28: [2, 2, 7]
   Prime factors of 35: [5, 7]
   Prime factors of 49: [7, 7]

(Section-III)

1) **Write a program to Encrypt data into binary form.**
   Create class BinaryCode with methods void setArray(char str[]) ,void Encrypt() and void Decrypt().
   Input – Hello
   Output - 01001001 01101110 01100100 01101001 01100001

2) **Wirte a program to calculate sum of digits located in String.**
   Input – "Hello 123 world 456 java 987 program".
   Output – 1566.

3) **You are given an 3x3 2D matrix representing an image, rotate the image by 90 degrees (clockwise)**
   Create class RotateImage with methods
   void setImage(char img[][])
   void RotateImage()
   Input - A B C
   D E F
   G H I

   Output - G D A
   H E B
   I F C

---- All The Best ----