CSA 0998 - Programming in java for application development.

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(1) Write program to print following pattern

```
Import java.util.Scanner;
Public class PatternPrinter{
    Public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        char c = input.next().charAt(0);
        int n = input.nextInt();
        for(int i=1; i<=n; i++){
            System.out.println(String.valueOf
                (c+" ").repeat(i).trim());
        }
    }
}
```

Input: *
3

Output:
*
* *
* * *

(21) find the year of given date is leapyear or not.

```
Import java.util.Scanner;
Public class leapYearCheck{
    Public static void main(String[] args){
        Scanner input = new Scanner(system.in);
        int year = Integer.parseInt(input.next().
                                    split("/")[2]);
        if((year %4==0 && year %100!=0 || year %400==0))
          {
           system.out.println("given year is leap year");
          }
         else{
          system.out.println("given year is not leapyear");
          }
    }
}
```

Input: 04/11/1947

Output: ~~year~~ given year is not leap year.

(3) find number of factors for given num

```
Import java.util.Scanner;
Public class FactorCounter {
   Public static void main(String[] args){
       int n = new Scanner(System.in).nextInt(), factors=0;
       for(int i =1;i<=n;i++) if(n%i==0) factors++;
       System.out.println("number of factors = "+factors);
       }
   }
```

Input: 100
Output: 9

(4) write program to print given number is perfect number or not.

```
Import java.util.Scanner;
Public class PerfectNumberChecker{
   Public static void main(String[] args){
       int  n= new Scanner(System.in),nextInt(), sum=0;
       for(int i=1; i<n;i++)if(n%i==0) sum+=i;
        if(n==sum){
         System.out.println(i+"is a perfect number");
         }
        else {
         System.out.println("it is not perfect number");
        }
   }
```

Input: 6
Output: i+is a perfect number

(5) write program to print no. of vowels in given statement.

```
Import java.util.Scanner;
Public class VowelCounter{
   Public static void main(String[]args){
    int vow = 0;
    for(char c: new Scanner(System.in).nextLine().to
                                    to CharArray())
      if("AEIOUaeiou".indexOf(c)!=-1) vow++;
    System.out.println("number of vowels=" + vow);

   }
}
```

Input: Saveetha School of Engineering
Output: Number of vowels = 12

(6) write a program to print ~~constant~~ consonants and vowels separately in given word.

```
Import java.util.Scanner;
Public class ConsonantVowels{
   Public static void main(String[]args){
    Scanner input = new Scanner(System.in);
    String name = input.nextLine(), vowels="", consonants
                                                  ="";
    for(char c: name.toCharArray())
      if("AEIOUaeiou".indexOf(c)!=-1) vowels += c+"";
        else consonants += c+"";
      System.out.println("consonants:"+consonants.trim());
      System.out.println("vowels:"+vowels.trim());

   }
}
```

Input: engineering
Output: consonants: ngnrng
vowels: eiee i

(7) write a program to print Fiboracci Series

```
Import java.util.Scanner;
Public class FibonacciSeries{
   Public static void main(String[] args){
      Scanner input = new Scanner (System.in);
      int n= input.nextInt() ,a1 =0, a2 =1;
      for(int i =0 ;i <n; i++){
         System.out.print(a1 + " ");
         a2 =a1 + (a1 =a2);
      }
   }
}
```

INput : 6
output : 0 1 1 2 3 5

(8) write a program to find Square, cube of given decimal num.

```
Import java.util.Scanner;
Public class Squarecube{
   Public static void main(String[] args){
      float n= new Scanner (System.in).nextFloat();
      System.out.Println("Square Number:" +(n*n));
      System.out.println(" cube Number: "+(n*n*n));
   }
}
```

InPut : 0.6
Output: Square number :0.36
Cube number : 0.21600002.

(9) Program to find the frequency each element in array.

```
Import java.util.HashMap;
Import java.util.Map;
Public class FrequencyCounter {
    Public static void main(String[] args) {
        int[] a = {1, 2, 8, 3, 2, 2, 2, 5, 1};
        Map<Integer, Integer> freq = new HashMap<>();
        for (int num: a) freq.put(num, freq.getOrDefault
                                  (num, 0)+1);
        freq.forEach((key, value) -> System.out.println
                                  (key+" | "+value));
    }
}
```

Output:
1|2
2|4
3|1
5|1
8|1

(10) write a Program to print given number is perfect number or not.

```
Import java.util.Scanner;
Public class PerfectNumberChecker {
    Public static void Main(String[] args){
        int n = new Scanner(System.in).nextInt(), sum=0;
        for (int i=1; i<n; i++)
            if (n%i==0) sum+=i;
        if (n==sum)
            System.out.println("it is perfect number");
        else
            System.out.println("it is not perfect number");
    }
}
```

Input: 6
Output: it's a Perfect number.

Write a Program to print hollow Square Symbol pattern? get Symbol from user.

```
Import java.util.Scanner;
Public class HollowSquarePattern{
   Public static void main(String[] args){
      Scanner input = new Scanner(System.in);
      char c = input.next().charAt(0);
      for(int i=1; i<=5; i++){System.out.println()}
         for(int j=1;j<=5;j++)
            System.out.print((i==1||j==1||i==5)||
                  j==5?c:' ')+" ");
   }
}
```

Input: *

Output:

```
* * * * *
*       *
*       *
*       *
* * * * *
```

Write a Program to print bellow pattern.

```
1
2 2
3 3 3
4 4 4 4
```

```
Import java.util.Scanner;
Public class NumberPattern{
    Public static void main(String[] args){
        int n = new Scanner(System.in).nextInt();
        for(int i=1;i<=n;i++, System.out.println())
            for(int j=1;j<=i;j++)
                System.out.print(i+" ");

    }
}
```

Input: 4

Output:

```
1
2 2
3 3 3
4 4 4 4
```