CSA0993 : Java Programming

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① Prime and composite numbers

```
Import java.util.Scanner;
Public class main{
    Public static void main (String[] args){
        int[] arr = {14, 54, 29, 71, 7, 59, 98, 23};
        int com = 0, pri = 0;
        for (int num : arr){
            int count = 0;
            for (int i=1; i<= num; i++){
                if (num % i == 0) count++;
            }
            if (count > 2) com++;
            else if (count == 2) pri++;
        }
        System.out.printf("Composite numbers : %d \n Prime
                numbers : %d \n", com, pri);
    }
}
```

output : Composite number : 8.
Prime number : 5

(2) Mth maximum number and Nth minimum number in an array and then find Sum of it ;

```
Import java.util.Arrays;
Public class main {
    Public static void main(String[] args) {
        int[] arr = {14, 16, 87, 36, 25, 89, 34};
        Arrays.sort(arr);
        int m=1, n=3;
        int max = arr[arr.length - m];
        int min = arr[n-1];
        System.out.printf("%d maximum number = %d\n%d
        minimum number = %d\n Sum = %d\n difference =
            %d\n", m, max, n, min, max+min, max-min);
    }
}
```

Output: 1 maximum number = 89
3 minimum number = 25
Sum = 114
Difference = 64

(3) write program to print total amount available in ATM machine with conditions applied.

```
Public class ATM Balance Calculator {
    Public static void main(String[] args) {
        int[] denominations = {500, 100, 200, 2000};
        int[] quantities = {4, 20, 32, 1};
        int totalBalance = 0;
```

```
for (int i=0; i < denominations.length; i++){
    totalBalance += denominations[i] * quantities[i];
}
System.out.println("Total Available balance in ATM: $" + totalBalance);
}
}
```

output: Total available balance in ATM: $12400

(4) write a program check string is Palindrom or not.

```
Import java.util.Scanner;
Public class PalindromeChecker{
    Public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);
        System.out.print("enter string to check palindrom: ");
        String input = scanner.nextLine();
        String reversed = new StringBuilder(input).reverse().toString();
        if(input.equals(reversed)){
            system.out.println("the input string is Palindrome");
        }
        else{
            System.out.println("the input string is not a palindrome");
        }
    }
}
```

output:

enter a string to check if it is Palindrome: noondadnoon

The input string is a Palindrome.

(5) write a program to conveat decimal num equivalent to binary num and octal num.

```
Import java.util.Scanner;
Public class numbaseConvertes{
   Public static void main(String[]args){
      int doc = 15;
      String bin = Integer.toBinaryString(doc);
      String oct = Integer.toOctalString(doc);
      System.out.println("binary num = "+bin);
      System.out.println("Octal num = "+oct);
   }
}
```

output: Binary number = 1111

(6) calculate bonus that has to given to employee and print salary that employee will get.

```
Import java.util.Scanner;
Public class EmployeeBonus{
   Public static void main(String[]args){
      Scanner input = new Scanner(System.in);
      System.out.print("enter grade of employee (A/B):");
      char grade = input.next().charAt(0);
      System.out.print("enter Salary of employee : ");
      double Salary = ~~bonus = 0;~~ Input.nextDouble();
      double bonus = 0;
```

```
if (grade == 'A'){
    bonus = salary * 0.05;
}
else if (grade == 'B'){
    bonus = salary * 0.10;
}
else {
    System.out.println(" invalid grade.");
    input.close();
    return;
}
if (salary < 10000){
    bonus += salary * 0.02;
}
System.out.println(" salary = $", +salary);
System.out.println(" Bonus = $", +bonus);
System.out.println(" total to be paid = $" +(salary+bonus));
}
}
```

Input, output:

enter grade of employee (A/B): A.

enter salary of employee : 8000

salary : $8000.0

bonus = $560.0

Total to be paid = $8560.0.

(7) write program to print first n perfect num.

```
Import java.util.Scanner;
Public class perfect numbers {
   Public static void main (String[]args){
      Scanner input = new Scanner (System.in);
      System.out.Print("enter the no.of perfect number to
                                                  print:");
      int n = input.nextInt();
      for (int j=2, count=0; count<n; j++){
      int sum=1;
      for (int i=2; i<=j/2; i++) if(j%i==0)sum+=i;
      if (sum==j){
         System.out.print(j+" ");
         count++;
}}}}
```

Input & output: enter no.of perfect number to print : 1
6.

(8) write program to print first n perfect num.

```
Import java.util.Scanner;
Public class perfect numbers {
   public static void main (String[]args){
      Scanner input = new Scanner (System.in);
      System.out.Print("enter no.of perfect number to
                                                  print:");
      int n = input.nextInt();
      for(int j=2;count=0;count<n;j++)
      {
```

```
int sum=1;
for(int i=2;i<=j/2;i++)if(j%i==0)sum+=i;
if(sum==j){
  System.out.print(j+" ");
  count++;
}}}
```

Input and output: enter no. of perfect numbers to print = 1
6

(9) write a program to enter marks of student in four subjects.

```
Import java.util.Scanner;
Public class Student Marks{
  Public static void main(String[]args){
    int a1=90;
    int a2=91;
    int a3=92;
    int a4=93;
    int total=a1+a2+a3+a4;
    float agg=total/4f;
    System.out.println("total="+total);
    System.out.println("aggregate="+agg);
    if(agg>75){
      System.out.println("Distinction");
    }
    else if(agg>=60){
      System.out.println("first division");
    }
    else if(agg>=50){
      System.out.println("second division");
    }
    else if(agg>=40){
      System.out.println("third division");
    }
```

```
else {
    System.out.println("fail");
}
}
```

output: Total = 366
Aggregate = 91.5
Distinction.

(10) write a program to calculate tax from given condition.

```
Import java.util.Scanner;
Public class tax calculator {
    Public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        System.out.print("enter your income:");
        int income = input.nextInt();
        float tax;
        if (income <= 150000){
            System.out.println("No tax");
        }
        else {
            tax = Math.max(0,(Math.min(income,300000) - 150000)*(0.10f)+
                Math.max(0,(Math.min(income,500000) - 300000)*0.20f)
                +Math.max(0,income-500000)*0.30f);
            System.out.println("Tax = " + tax);
        }
    }
}
```

Input: Enter your income: 200000
output: Tax = 5000.0.