1.Write a program that prompts the user to input a positive integer. It should then output a message indicating whether the number is a prime number.

```java
import java.util.Scanner;
public class PrimeNum {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int i,flag=0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a positive number");
        int x = sc.nextInt();
        sc.close();
        if(x == 0 || x == 1)
        {
            System.out.println("Not a Prime Number");
        }
        else
        {
            for(i=2;i<(x/2);i++)
            {
                if(x%i == 0)
                {
                    flag = 1;
                    break;
                }
            }
            if(flag == 0)
            {
                System.out.println("It's a Prime Number");
            }
            else {
                System.out.println("Not a Prime Number");
            }
        }
    }
}
```

Output:
```
Enter a positive number
45
Not a Prime Number
```

2.Write a program that prompts the user to input a positive integer. It should then print the multiplication table of that number.

```java
import java.util.*;
public class MultiTable {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        System.out.println("Enter a positive number");
        Scanner sc = new Scanner(System.in);
        int num = sc.nextInt();
        if(num<=0)
        {
            System.out.println("Invalid input");
        }
        else {
            for(int i=1; i<=10; i++)
            {
                System.out.println(num+"*"+i+" = "+num*i);
            }
        }
        sc.close();
    }

}
```

Output:
```
Enter a positive number
9
9*1 = 9
9*2 = 18
9*3 = 27
9*4 = 36
9*5 = 45
9*6 = 54
9*7 = 63
9*8 = 72
9*9 = 81
9*10 = 90
```

3.A student will not be allowed to sit in exam if his/her attendance is less than 75%.
Take following input from user

Number of classes held
Number of classes attended.
And print
percentage of class attended
Is student is allowed to sit in exam or not.

```java
import java.util.Scanner;
public class PercentAttend {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Scanner sc = new Scanner(System.in);
        System.out.print("Enter No.of Classes held: ");
        double a = sc.nextFloat();
        System.out.println();
        System.out.print("Enter No.of Classes attended: ");
        double b = sc.nextFloat();
        double percent = (b/a)*100;
        System.out.println("Percentage of classes attended is: "+percent+"%");
        if(percent<75)
        {
            System.out.println("Candidate is not allow to sit in exam");
        }
        else
        {
            System.out.println("Candidate is allow to sit in exam");
        }
        sc.close();
    }
}
```

Output:
```
Enter No.of Classes held: 20

Enter No.of Classes attended: 12
Percentage of classes attended is: 60.0%
Candidate is not allow to sit in exam
```

4.A company decided to give bonus of 5% to employee if his/her year of service is more than 5 years.
Ask user for their salary and year of service and print the net bonus amount. Note- create a method Employee Bonus to calculate the bonus and return it.

```java
import java.util.*;
public class EmployeeData {
    public static float EmployeeBonus(float y)
    {
        float bonus = (5*y)/100;
        return bonus+y;

    }
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter your Salary: ");
        int salary = sc.nextInt();
        System.out.println("Enter Year of Service: ");
        int yr = sc.nextInt();

        if(yr < 5)
        {
            System.out.println("Your not applicable for bonus ");
        }
        else
        {
            float Bon = EmployeeBonus(salary);
            System.out.println("Your Upgraded net bonus amount: "+Bon);
        }
        sc.close();
    }

}
```

Output:

```
Enter your Salary:
25000
Enter Year of Service:
7
Your Upgraded net bonus amount: 26250.0
```

5. Write a program to input the following details:
i)Employee Name
ii)Employee Salary
iii)Employee Year of joining

Calculate the Loyalty bonus of the Employee's by
a)if the year of their joining is on or before than 2017,and their
Salary is more than 30000/-,
then the bonus will be 22% of the salary.
b)if the year of their joining is on or before than 2017,and their
Salary is less than 30000/-,
then the bonus will be 33% of the salary.
c)if the year of their joining is on or before than 2012,
then the bonus will be 40% of the salary.
d)if the year of their joining is after 2017,and their Salary is less
than 30000/-,
then the bonus will be 15% of the salary.
e)if the year of their joining is after 2017,and their Salary is more
than 30000/-,
then the bonus will be 10% of the salary.

```java
import java.util.*;
public class ArrayBonus {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter no.of Employees");
        int len = sc.nextInt();
        String[] name = new String[len];
        int[] sal = new int[len];
        int[] yr = new int[len];
        System.out.println("Enter the details of Employees: ");
        System.out.println("++++++++++++++++++++++++++++++++");
        for(int i=0;i<len;i++)
        {
            System.out.println("Enter the name of Employee "+(i+1)+" : ");
            name[i] = sc.next();
            System.out.println("Enter the salary of Employee "+(i+1)+" : ");
            sal[i] = sc.nextInt();
            System.out.println("Enter the year of joining of Employee "+(i+1)+" : ");
            yr[i] = sc.nextInt();
            System.out.println("++++++++++++++++++++++++++++++++");
        }
        System.out.println("The Loyaliy bonus of employees are : ");
        int[] bon =new int[len];
        for(int i=0;i<len;i++)
        {
            if(yr[i]<=2017 && sal[i]>30000)
            {
                bon[i] = (sal[i]*22)/100;
                System.out.println("Bonus of "+name[i]+" is: "+bon[i]);
            }
            else if(yr[i]<=2017 && sal[i]<30000)
            {
                bon[i] = (sal[i]*33)/100;
                System.out.println("Bonus of "+name[i]+" is: "+bon[i]);
            }
            else if(yr[i]<=2012)
            {
                bon[i] = (sal[i]*40)/100;
                System.out.println("Bonus of "+name[i]+" is: "+bon[i]);
            }
        }
```

```java
            else if(yr[i]>2017 && sal[i]<30000)
            {
                bon[i] = (sal[i]*15)/100;
                System.out.println("Bonus of "+name[i]+" is: "+bon[i]);
            }
            else if(yr[i]>2017 && sal[i]>30000)
            {
                bon[i] = (sal[i]*10)/100;
                System.out.println("Bonus of "+name[i]+" is: "+bon[i]);
            }
            else
            {
                System.out.println("No bonus is issued.");
            }
        }
        sc.close();
    }
}
```

Output:

```
Enter no.of Employees
6
Enter the details of Employees:
++++++++++++++++++++++++++++++++
Enter the name of Employee 1 :
Arun
Enter the salary of Employee 1 :
35000
Enter the year of joining of Employee 1 :
2016
++++++++++++++++++++++++++++++++++
Enter the name of Employee 2 :
Beena
Enter the salary of Employee 2 :
28000
Enter the year of joining of Employee 2 :
2017
++++++++++++++++++++++++++++++++++
Enter the name of Employee 3 :
Hari
Enter the salary of Employee 3 :
50000
Enter the year of joining of Employee 3 :
2011
++++++++++++++++++++++++++++++++++
Enter the name of Employee 4 :
Muhammed
Enter the salary of Employee 4 :
24000
Enter the year of joining of Employee 4 :
2019
++++++++++++++++++++++++++++++++++
Enter the name of Employee 5 :
Peter
Enter the salary of Employee 5 :
32000
Enter the year of joining of Employee 5 :
2020
++++++++++++++++++++++++++++++++++
Enter the name of Employee 6 :
Nancy
Enter the salary of Employee 6 :
13000
Enter the year of joining of Employee 6 :
2021
++++++++++++++++++++++++++++++++++
The Loyaliy bonus of employees are :
Bonus of Arun is: 7700
Bonus of Beena is: 9240
Bonus of Hari is: 11000
Bonus of Muhammed is: 3600
Bonus of Peter is: 3200
Bonus of Nancy is: 1950
```

6. Write a program to check for the occurrence of a particular character in a string and display how many times it has occurred. note: take the String and the character to be checked as a input from the user.

```java
import java.util.Scanner;

public class StrOccur {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int count=0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the string: ");
        String s1 = sc.nextLine();
        System.out.println("Enter the character");
        char c = sc.next().charAt(0);
        for(int i=0;i<s1.length();i++)
        {
            if(s1.charAt(i)==c)
            {
                count++;
            }
        }
        if(count==0)
        {
            System.out.println(c+" is not present in given string ");
        }
        else
        {
            System.out.println(c+" is present in given string with "+count+" times");
        }
        sc.close();
    }
}
```

Output:

```
Enter the string:
Hello world
Enter the character
l
l is present in given string with 3 times
```

7. Write a program to implement nested try-catch block for NULL Pointer exception
and NumberFormat Exception

```java
public class NestedTryCatch {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        try
        {
            //inner try block 1
            try
            {
                String name= null;
                System.out.println(name.toLowerCase());
            }
            //catch block of inner try block 1
            catch(NullPointerException e)
            {
                System.out.println(e);
            }
            //inner try block 2
            try
            {
                Integer.parseInt("hello");
            }

            //catch block of inner try block 2
            catch(NumberFormatException e)
            {
                System.out.println(e);
            }
            System.out.println("other statement");
        }
         //catch block of outer try block
        catch(Exception e)
        {
            System.out.println("handled the exception (outer catch)");
        }

        System.out.println("normal flow..");
    }
}
```

Output:

```
java.lang.NullPointerException: Cannot invoke "String.toLowerCase()" because "name" is null
java.lang.NumberFormatException: For input string: "hello"
other statement
normal flow..
```