Program 1

Arithmetic Exception

```
public class MultipleCatchBlock1 {
	public static void main(String[] args) {
		try{
			 int a[]=new int[5];
			 a[5]=30/0; }
			catch(ArithmeticException e) {
				 System.out.println("Arithmetic Exception occurs");
				}
			catch(ArrayIndexOutOfBoundsException e)
		{
				 System.out.println("ArrayIndexOutOfBounds Exception
occurs");
				}
			catch(Exception e) {
				 System.out.println("Parent Exception occurs");
				}
			System.out.println("rest of the code");
	}
}
```

Compile by: javac MultipleCatchBlock1.java

Run by: java MultipleCatchBlock1

```
Arithmetic Exception occurs
rest of the code
```

Array Index out of Bounds

```
public class MultipleCatchBlock2 {
	public static void main(String[] args) {
		try{
			 int a[]=new int[5];
			 System.out.println(a[10]);
			}
			catch(ArithmeticException e)
		{
				 System.out.println("Arithmetic Exception occurs");
				}
			catch(ArrayIndexOutOfBoundsException e)
		{
				 System.out.println("ArrayIndexOutOfBounds Exception
occurs");
				}
			catch(Exception e)
		{
				 System.out.println("Parent Exception occurs");
				}
			System.out.println("rest of the code");
	}
}
```

Compile by: javac MultipleCatchBlock2.java

Run by: java MultipleCatchBlock2

```
ArrayIndexOutOfBounds Exception occurs
rest of the code
```

Null pointer Exception

```
import java.io.*;

class ne
{
	public static void main (String[] args)
	{
		// Initializing String variable with null value
		String ptr = null;

		// Checking if ptr.equals null or works fine.
		try
		{

			if (ptr.equals("gfg"))
				System.out.print("Same");
			else
				System.out.print("Not Same");
		}
		catch(NullPointerException e)
		{
			System.out.print("NullPointerException Caught");
		}
	}
}
```

Output:

```
NullPointerException Caught
```

Program 2

```
class
Table
	{
		void printTable(int n)
		{
			synchronized(this)
			{
				for(int i=1;i<=5;i++)
				{
					System.out.println(+n+"*"+i+"="+(n*i));
					try
					{
						Thread.sleep(400);
					}
					catch(Exception e)
					{
						System.out.println(e);
					}
				}
			}
		}
	}

	class Mythread1 extends Thread
	{
		Table t;
		Mythread1(Table t)
		{
			this.t=t;
		}
		public void run()
		{
			t.printTable(5);
		}
	}


	class Mythread2 extends Thread
	{
		Table t;
		Mythread2(Table t)
		{
			this.t=t;
		}
```

```
        public void run()
        {
                t.printTable(100);
        }
}

class Use
{
        public static void main(String args[])
        {
                Table obj = new Table();
                Mythread1 th1 = new Mythread1(obj);
                Mythread2 th2 = new Mythread2(obj);
                th1.start();
                th2.start();
        }
}
```

Output -

```
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
100*1=100
100*2=200
100*3=300
100*4=400
100*5=500
```

Program 3

```
import java.util.*;
import java.io.*;
public class ugly {
  public static void main(String args[]) {

    int inputNumber;
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter the number :");
    inputNumber=sc.nextInt();

    boolean check = true;

    for(int i = 2; i<=inputNumber; i++) {

      if(i!=2&&i!=3&&i!=5) {
        if(inputNumber%i==0&&checkPrime(i)) {

          check = false;
          break;
        }

      }
    }
    if(check) {
      System.out.println(inputNumber+" is an ugly number");
    } else {
      System.out.println(inputNumber+" is Not an ugly number");
    }
  }
  static boolean checkPrime(int number) {
```

```
    boolean flag = true;
    for(int i = 2; i<=number/2; i++) {
      if(number%i==0) {
        flag = false;
        break;
      }
    }
    return flag;
  }
}
```

```
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> javac ugly.java
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> java ugly
Enter the number :
25
25 is an ugly number
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop>
```

Program 4

```
import java.io.*;
import java.util.*;
class fibo {
        static int fib(int n)
        {
                if (n==0||n==1)
                        return 0;
        else if(n==2)
                        return 1;
                return fib(n - 1) + fib(n - 2);
```

```
        }

        public static void main(String args[])
        {
                int n;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the value of n : ");
        n=sc.nextInt();
                System.out.println(fib(n));
        }
}
```

```
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> javac fibo.java
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> java fibo
Enter the value of n :
9
21
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop>
```

Program 5

```
import java.io.*;
import java.util.*;

class duplicate {
   static int removeDuplicates(int arr[], int n) {
      if (n == 0 || n == 1)
         return n;
      int[] temp = new int[n];
      int j = 0;
      for (int i = 0; i < n-1; i++) {
```

```
        if (arr[i] != arr[i+1])
            temp[j++] = arr[i];
      }
      temp[j++] = arr[n-1];
      for (int i = 0; i < j; i++) {
         arr[i] = temp[i];
      }
      return j;
   }

   public static void main(String[] args) {
      int arr[] = {10, 20, 20, 30, 40, 40, 40, 50, 50};
      int n = arr.length;
      n = removeDuplicates(arr, n);
      for (int i = 0; i < n; i++) {
         System.out.print(arr[i]+" ");
      }
   }
}
```

```
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> javac duplicate.java
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop> java duplicate
10 20 30 40 50
PS C:\Users\VISHNU VARDHAN\OneDrive\Desktop>
```