Post Graduate Govt. College Sector - 11 Chandigarh

Practical File of
JAVA PROGRAMMING
BCA-16-503

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```
C:\Users\Asus\Desktop\Chirag\JavaPractical\01>javac 1.java && java j1
CHIRAG
CHIRAG
CHIRAG
```

1. Write a Program to Print Your Name Each Character in a new line with Blinking?

```java
class j1 {
    public static void main(String str[]) throws Exception{
        for(int i=0; i<5; i++){

            new ProcessBuilder("cmd", "/c", "cls").inheritIO().start().waitFor();

            for(int j=0; j<=i; j++){
                System.out.println("CHIRAG");
            }
            Thread.sleep(1000);
            new ProcessBuilder("cmd", "/c", "cls").inheritIO().start().waitFor();
            Thread.sleep(1000);

        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\02>javac 2.java && java j2
Enter your password :Chirag
Your encrypted password :******
```

2. Enter the Password from the User and Display Like *

```java
import java.util.Scanner;

class j2{
    public static void main(String []args) {
        System.out.print("Enter your password :");
        Scanner sc = new Scanner(System.in);

        String pass = sc.nextLine();
        System.out.print("Secret password :");
        for (int i=0; i<pass.length(); i++)
            System.out.print("*");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\03>javac 3.java && java j3
Enter the character :
e
ASCII is : 101
```

3. Enter character from user and print ASCII value

```java
import java.io.IOException;

class j3{
    public static void main(String as[]) throws IOException{
        System.out.println("Enter the character :");
        int x = System.in.read();
        System.out.println("ASCII is : " + x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\03>cd ../04 && javac 4.java && java j4
Enter a number :
23
23 is not divisible by 4
```

4. Enter number from user and check it is dividable by 4 or not

```java
import java.util.Scanner;
import java.io.IOException;

class j4{
    public static void main(String []args) throws IOException{
        System.out.println("Enter a number :");
        Scanner sc=new Scanner(System.in);

        int num=sc.nextInt();

        if(num%4==0)
            System.out.println(num  + " is divisible by 4");
        else
            System.out.println(num  + " is not divisible by 4");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\05>javac 5.java && java j5
Enter number to round off :
5.234
5
```

5. Enter number from user and round off it

```java
import java.util.Scanner;

class j5{
    public static void main(String []args){
        System.out.println("Enter number to round off :");
        Scanner sc=new Scanner(System.in);

        float number=sc.nextFloat();
        System.out.println(java.lang.Math.round(number));
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\06>javac 6.java && java j6
Enter marks of subject :1
23
Enter marks of subject :2
46
Enter marks of subject :3
34
Enter marks of subject :4
77
Average = 36.0
```

6. Enter a marks of 5 subjects and calculate average

```java
import java.util.Scanner;

class j6{
    public static void main(String []str){
        Scanner sc = new Scanner(System.in);

        double marks[] = new double[5];
        double total = 0.0;

        for(int i=1; i<5; i++){
            System.out.println("Enter marks of subject :"+ i);
            marks[i] = sc.nextDouble();
            total += marks[i];
        }
        System.out.println("Average = " + total/5);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\07>javac 7.java && java j7
Enter number
34
1
```

7. Enter a number from user and display 1 to that number

```java
import java.util.Scanner;

class j7{
    public static void main(String []str){
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter number ");
        int x=sc.nextInt();
        if(x!=0)
            System.out.println(x/x);
        else{
            x = 1;
            System.out.println(x);
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\08>javac 8.java && java j8
Enter a character OR press n to Quit
e
r
n

C:\Users\Asus\Desktop\Chirag\JavaPractical\08>█
```

8. Enter a character from user and when he press n then exit

```java
import java.io.IOException;

class j8{
    public static void main(String []args) throws IOException{
        java.io.InputStreamReader isr=new java.io.InputStreamReader(System.in);
        java.io.BufferedReader br=new java.io.BufferedReader(isr);
        char ch;

        System.out.println("Enter a character OR press n to Quit");

        do{
            ch=(char)br.read();

            if(ch=='n'){
                System.exit(1);
            }
        }while(ch!='n');
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\09>javac 9.java && java j9
Enter 1st Integer = 10
Enter 2nd Integer = 2
1st number is divided by 2nd number:10.0/2.0=5.0
```

9. Enter two numbers from user and divide first number with second

```java
import java.util.Scanner;

class j9{
    public static void main(String []args){
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter 1st Integer = ");
        double x = sc.nextInt();

        System.out.print("Enter 2nd Integer = ");
        double y = sc.nextInt();

        if(y==0){
            System.out.println("Denominator should not be equals to 0");
        }
        else{
            double result = x / y;
            System.out.println("1st number is divided by 2nd number:" + x + "/" +
y +"=" + result);
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\10>javac 10.java && java j10
Enter length of array:
4
Enter Elements into an array
3
2
1
5
Sorted array in acending order
1,2,3,5,
```

10. Enter array from user and sort them in ascending order

```java
import java.util.Scanner;

class j10{
    public static void main(String []arg){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter length of array:");
        int n=sc.nextInt();

        int number[]=new int[n];
        System.out.println("Enter Elements into an array");

        for(int i=0;i<number.length;i++){
            number[i]=sc.nextInt();
        }
        java.util.Arrays.sort(number);

        System.out.println("Sorted array in acending order");

        for(int j=0;j<number.length;j++){
            System.out.print(number[j]+",");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\11>javac 11.java && java j11
First Matrix
2 1
3 2
Second Matrix
3 1
1 4
Product Matrix
7 6
11 11
```

11. Enter two matrix from user and multiply them

```java
import java.util.Scanner;

class j11{
    public static void main(String[] args) {
        int i, j, k;
        int first[][] = {{2,1},{3,2}};
        int second[][] = {{3,1},{1,4}};
        int product[][] = new int[2][2];

        // Multiplying two matrices
        for (i = 0; i < 2; i++) {
            for (j = 0; j < 2; j++) {
                for (k = 0; k < 2; k++) {
                    product[i][j] += first[i][k] * second[k][j];
                }
            }
        }

        // Printing All Matrices
        System.out.println("First Matrix");
        for (i = 0; i < 2; i++) {
            for (j = 0; j < 2; j++) {
                System.out.print(first[i][j] + " ");
            }
            System.out.print("\n");
        }
        System.out.println("Second Matrix");
        for (i = 0; i < 2; i++) {
            for (j = 0; j < 2; j++) {
                System.out.print(second[i][j] + " ");
            }
            System.out.print("\n");
        }
        System.out.println("Product Matrix");
        for (i = 0; i < 2; i++) {
            for (j = 0; j < 2; j++) {
                System.out.print(product[i][j] + " ");
            }
            System.out.print("\n");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\21>javac 21.java && java j21
Enter date (DD MM YYYY format):
18 02 2002
Date is valid.


C:\Users\Asus\Desktop\Chirag\JavaPractical\21>javac 21.java && java j21
Enter date (DD MM YYYY format):
32 02 2002
Day is invalid.
```

12. Enter date from user and check it is valid or not

```java
import java.util.Scanner;

class j21 {
    public static void main(String []str){
        Scanner sc = new Scanner(System.in);
            int dd,mm,yy;

            System.out.println("Enter date (DD MM YYYY format): ");
            dd = sc.nextInt();
            mm = sc.nextInt();
            yy = sc.nextInt();

            //check year
            if(yy>=1900 && yy<=9999){
                //check month
                if(mm>=1 && mm<=12){
                    //check days
                    if((dd>=1 && dd<=31) && (mm==1 || mm==3 || mm==5 || mm==7 ||
mm==8 || mm==10 || mm==12))
                        System.out.println("Date is valid.\n");
                    else if((dd>=1 && dd<=30) && (mm==4 || mm==6 || mm==9 ||
mm==11))
                        System.out.println("Date is valid.\n");
                    else if((dd>=1 && dd<=28) && (mm==2))
                        System.out.println("Date is valid.\n");
                    else if(dd==29 && mm==2 && (yy%400==0 ||(yy%4==0 &&
yy%100!=0)))
                        System.out.println("Date is valid.\n");
                    else
                        System.out.println("Day is invalid.\n");
                }
                else
                    System.out.println("Month is not valid.\n");
            }
            else
                System.out.println("Year is not valid.\n");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\13>javac 13.java && java j13
Enter your Father name : C
Enter your Mother name : C++
Enter your Brother name : Python

Your Father name is C
Your Mother name is C++
Your Brother name is Python
```

13. Enter the relationship of your family

```java
import java.util.Scanner;

class j13 {
    public static void main(String[] args) {

        String[] rel = { "Father", "Mother", "Brother" };
        String[] input = new String[3];
        Scanner s = new Scanner(System.in);

        for (int i = 0; i < 3; i++) {
            System.out.print("Enter your " + rel[i] + " name : ");
            input[i] = s.nextLine();
        }

        System.out.println();

        for (int i = 0; i < 3; i++) {
            System.out.println("Your " + rel[i] + " name is " + input[i]);
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\14>javac 14.java && java j14
Private Data Member : private
Protected Data Member : protected
Public Data Member : public
Default Data Member : Default
```

14. Create class and each type of access specifier

```java
class j14 {
    private String a = "private";
    protected String b = "protected";
    public String c = "public";
    String d = "Default";

    j14() {
        System.out.println("Private Data Member : " + a);
        System.out.println("Protected Data Member : " + b);
        System.out.println("Public Data Member : " + c);
        System.out.println("Default Data Member : " + d);
    }

    public static void main(String[] args) {
        j14 obj = new j14();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\15>javac 15.java && java j15
Static function called by non-static function : Static Data Member
```

15. Use of static member and member function

```java
class j15{
    static String str = "Static Data Member";

    void disp(){
        show();
    }
    static void show(){
        System.out.print("Static function called by non-static function : ");
    }
    public static void main(String []arg){
        j15 obj = new j15();
        obj.disp();

        System.out.println(str);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\16>javac 16.java && java j16
Calling by Unnamed object :
Calling by Named object :
```

16. how to create an object

```java
class j16{
    void disp1() {
        System.out.println("Calling by Named object :");
    }
    void disp2() {
        System.out.println("Calling by Unnamed object :");
    }

    public static void main(String []arg){
        new j16().disp2();

        j16 obj = new j16();
        obj.disp1();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\17>javac 17.java && java j17
Calling by Reference object :
```

17. Reference object example

```java
class j17{
    void disp1() {
        System.out.println("Calling by Reference object :");
    }

    public static void main(String []arg){
        j17 obj = new j17();
        obj.disp1();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\18>javac 18.java && java j18
Default constructor is called
```

18. Use default constructer

```java
class j18{
    j18(){
        System.out.println("Default constructor is called");
    }

    public static void main(String []args){
        j18 obj = new j18();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\19>javac 19.java && java j19
1st Parameter = 1
2nd Parameter = 2
```

19. Use parameterized constructer

```java
class j19{
    j19(int x,int y){
        System.out.println("1st Parameter = " + x);
        System.out.println("2nd Parameter = " + y);
    }
    public static void main(String []arg){
        j19 obj=new j19(1,2);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\20>javac 20.java && java j20
Copy Constructor is called :
Result = First obj
```

20. Use copy constructer

```java
class j20{
    String str;

    j20(){}

    j20(j20 temp){
        System.out.println("Copy Constructor is called : ");
        str = temp.str;
    }
    public void disp(){
        System.out.println("Result = " + str);
    }

    public static void main(String []args) {
        j20 obj1=new j20();
        obj1.str = "First obj";

        j20 obj2=new j20(obj1);
        obj2.disp();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\21>javac 21.java && java j21
366712642
End of garbage collection
Finalize method called
```

21. Garbage collection using of finalize block

```java
class j21{
    public static void main(String[] args){
        j21 obj = new j21();
        System.out.println(obj.hashCode());
        obj = null;
        // calling garbage collector
        System.gc();
        System.out.println("End of garbage collection");

    }
    @Override
    protected void finalize(){
        System.out.println("Finalize method called");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\22>javac 22.java && java j22
20
30
```

22. Method overloading

```java
class j22{
    int sum(int x,int y){
        return x+y;
    }

    int sum(int x,int y,int z){
        return x+y+z;
    }

    public static void main(String[] args) {
        j22 s=new j22();

        System.out.println(s.sum(10,10));
        System.out.println(s.sum(10,10,10));
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\23>javac 23.java && java j23
java.lang.Boolean
java.lang.Byte
java.lang.Short
java.lang.Integer
java.lang.Long
java.lang.Float
java.lang.Double
java.lang.Character
String
```

23. Write a Program to Display all Datatype of java

```java
class j23{
    public static void main(String[] args) {
        boolean val=true;

        byte b = 1;
        short s = 2;
        int i = 5;
        long l = 35353503;

        float f = 3.5f;
        double d = 2.626;

        char c = 't';
        String str = "hello";

        //For Primitive
        System.out.println( ( (Object)val ).getClass().getName() );
        System.out.println( ( (Object)b ).getClass().getName() );
        System.out.println( ( (Object)s ).getClass().getName() );
        System.out.println( ( (Object)i ).getClass().getName() );
        System.out.println( ( (Object)l ).getClass().getName() );
        System.out.println( ( (Object)f ).getClass().getName() );
        System.out.println( ( (Object)d ).getClass().getName() );
        System.out.println( ( (Object)c ).getClass().getName() );
        //For Class
        System.out.println(str.getClass().getSimpleName() );
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\24>javac 24.java && java j24
a = 1 b = 2
```

24. Write a Program to show single level inheritance

```java
class a{
    protected int a;
}

class b extends a{
    public int b;

    b(int a,int b){
        this.a = a;
        this.b = b;
    }
    void display(){
        System.out.println("a = "+ a +" b = " + b);
    }
}

class j24{
    public static void main(String[] args) {
        b obj=new b(1,2);
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\25>javac 25.java && java j25
a=1 b=2 c=3
```

25. Write a program to show multi-level inheritance

```java
class a{
    protected int a;
}

class b extends a{
    protected int b;

}

class c extends b{
    int c;
    c(int a,int b,int c){
        this.a=a;
        this.b=b;
        this.c=c;
    }

    void display(){
        System.out.println("a="+a+" b="+b+" c="+c);
    }
}

class j25{
    public static void main(String []args) {
        c obj=new c(1,2,3);
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\26>javac 26.java && java j26
Class b:
20
Class c:
40
```

26. Write a program to show hierarchical inheritance

```java
class a{
    protected int a;
}
class b extends a{
    protected int b;

    b(int a,int b){
        this.a=a;
        this.b=b;
    }
    void sum(){
        System.out.println("Class b:");
        System.out.println(a+b);
    }
}

class c extends a{
    protected int c;
    c(int a,int c){
        this.a=a;
        this.c=c;
    }
    void sum(){
        System.out.println("Class c:");
        System.out.println(a+c);
    }
}

class j26{
    public static void main(String[] args) {
        b obj=new b(10,10);
        obj.sum();

        c obj1=new c(20,20);
        obj1.sum();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\27>javac 27.java && java j27
a=1 b=2
```

27. Write a program to show use of super in inheritance

```java
class a{
    public int a;
    a(int a){
        this.a=a;
    }
}
class b extends a{
    public int b;
    b(int a,int b){
        super(a);
        this.b=b;
    }

    void display(){
        System.out.println("a="+a+" b="+b);
    }
}

class j27{
    public static void main(String[] args) {
        b obj=new b(1,2);
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\28>javac 28.java && java j28
Super Class Constructor
Sub Class Constructor
```

28. Write a program to show use of super() to call explicit constructer of super inheritance

```java
class a{
    a(){
        System.out.println("Super Class Constructor");
    }
}
class b extends a{
    b(){
        super();
        System.out.println("Sub Class Constructor");
    }
}

class j28{
    public static void main(String[] args) {
        b obj=new b();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\29>javac 29.java && java j29
Class B
```

29. Write a Program to show overriding method in inheritance

```java
class a{
    void display(){
        System.out.println("Class A");
    }
}

class b extends a{
    void display(){
        System.out.println("Class B");
    }
}

class j29{
    public static void main(String[] args) {
        b obj=new b();
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\30>javac 30.java && java j30
Class A display function
Class B display function
Class C display function
```

30. Write a Program to show dynamic method dispatch in inheritance

```java
class A{
    void display(){
        System.out.println("Class A display function");
    }
}

class B extends A{
    void display(){
        System.out.println("Class B display function");
    }
}

class C extends B{
    void display(){
        System.out.println("Class C display function");
    }
}

class j30{
    public static void main(String[] args) {
        A obj1=new A();
        B obj2=new B();
        C obj3=new C();

        obj1.display();
        obj1 = obj2;
        obj1.display();
        obj1 = obj3;
        obj1.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\31>javac 31.java && java j31
Overriding the abstract function
```

31. Write a Program to show abstract class with abstract function inheritance

```java
abstract class A{
    abstract void display();
}

class j31 extends A{
    void display(){
        System.out.println("Overriding the abstract function");
    }

    public static void main(String []args) {
        B obj=new B();
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\32>javac 32.java && java j32
Display function of abstract class
```

32. Write a Program to show the example of Abstract class without abstract function.

```java
abstract class A{
    void display(){
        System.out.println("Display function of abstract class");
    }
}

class j32 extends A{
    public static void main(String[] args) {
        B obj=new B();
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\33>javac 33.java && java j33
33.java:11: error: cannot assign a value to final variable a
        obj.a=5;
           ^
1 error
```

33. Write a program to show the final data member in class

```java
class A{
    final public int a=10;
    void display(){
        System.out.println("a="+a);
    }
}

class j33{
    public static void main(String[] args) {
        A obj=new A();
        obj.a=5;
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\34>javac 34.java && java j34
34.java:9: error: display() in j34 cannot override display() in A
     void display(){
          ^
  overridden method is final
1 error
```

34. Write a program to show the final member function in class

```java
class A{
    final void display(){
        System.out.println("class A display function");
    }

}

class j34 extends A{
    void display(){
        System.out.println("Overridding display function");
    }

}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\35>javac 35.java && java j35
35.java:8: error: cannot inherit from final A
class j35 extends A{
                  ^
1 error
```

35. Write a program to show the final class

```java
final class A{
    void display(){
        System.out.println("class A display function");
    }

}

class j35 extends A{
     public static void main(String []arg){
        System.out.println("Trying to inherit a final class :");
     }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\36>javac 36.java && java j36 hello world
hello
world
```

36. Write to program to show command line argument in java

```java
class j36{
    public static void main(String[] args) {
        for (String var : args) {
            System.out.println(var);
        }
    }
}
```

```
C:\WINDOWS\system32\cmd.exe                              —    □    ×

   public static java.lang.String format(java.lang.String, java.lang.O
bject...);
   public static java.lang.String format(java.util.Locale, java.lang.S
tring, java.lang.Object...);
   public static java.lang.String valueOf(java.lang.Object);
   public static java.lang.String valueOf(char[]);
   public static java.lang.String valueOf(char[], int, int);
   public static java.lang.String copyValueOf(char[], int, int);
   public static java.lang.String copyValueOf(char[]);
   public static java.lang.String valueOf(boolean);
   public static java.lang.String valueOf(char);
   public static java.lang.String valueOf(int);
   public static java.lang.String valueOf(long);
   public static java.lang.String valueOf(float);
   public static java.lang.String valueOf(double);
   public native java.lang.String intern();
   public int compareTo(java.lang.Object);
   static {};
}

C:\Users\Asus\Desktop\Chirag\JavaPractical\37>

C:\Users\Asus\Desktop\Chirag\JavaPractical\37>javac 37.java && java j37
Hell
Hello
hi
The detail of String class in Command Prompt

C:\Users\Asus\Desktop\Chirag\JavaPractical\37>
```

37. Write a program to Displaying the Functionality of All public function of String class

```java
class j37 {
    public static void main(String[] args) {

        String str = "Hell";
        System.out.println(str);
        str += "o";
        System.out.println(str);
        str = "hi";
        System.out.println(str);

        try {
            System.out.println("The detail of String class in Command Prompt");

            Runtime.getRuntime().exec("cmd /c start cmd.exe /K \"javap
java.lang.String\"");
        } catch (Exception e) {
            System.out.print("Something is wrong....");
        }
    }
}
```

```
C:\WINDOWS\system32\cmd.exe                              —      □      ✕

  public java.lang.AbstractStringBuilder appendCodePoint(int);
  public java.lang.AbstractStringBuilder delete(int, int);
  public java.lang.AbstractStringBuilder append(double);
  public java.lang.AbstractStringBuilder append(float);
  public java.lang.AbstractStringBuilder append(long);
  public java.lang.AbstractStringBuilder append(int);
  public java.lang.AbstractStringBuilder append(char);
  public java.lang.AbstractStringBuilder append(boolean);
  public java.lang.AbstractStringBuilder append(char[], int, int);
  public java.lang.AbstractStringBuilder append(char[]);
  public java.lang.AbstractStringBuilder append(java.lang.CharSequence,
int, int);
  public java.lang.AbstractStringBuilder append(java.lang.CharSequence);

  java.lang.AbstractStringBuilder append(java.lang.AbstractStringBuilder
);
  public java.lang.AbstractStringBuilder append(java.lang.StringBuffer);

  public java.lang.AbstractStringBuilder append(java.lang.String);
  public java.lang.AbstractStringBuilder append(java.lang.Object);
  public java.lang.Appendable append(char) throws java.io.IOException;
  public java.lang.Appendable append(java.lang.CharSequence, int, int) t
hrows java.io.IOException;
  public java.lang.Appendable append(java.lang.CharSequence) throws java
.io.IOException;
  static {};
}

C:\Users\Asus\Desktop\Chirag\JavaPractical\38>
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\38>javac 38.java && java j38
Hell
The length of StringBuffer is 4
The detail of StringBuffer class in Command Prompt

C:\Users\Asus\Desktop\Chirag\JavaPractical\38>
```

38. WRITE A PROGRAM to Displaying the Functionality of All public function of StringBuffer

```java
class j38 {
    public static void main(String[] args) {

        StringBuffer str = new StringBuffer("Hell");
        System.out.println(str);
        System.out.println("The length of StringBuffer is " + str.length());

        try {
            System.out.println("The detail of StringBuffer class in Command
Prompt");

            Runtime.getRuntime().exec("cmd /c start cmd.exe /K \"javap
java.lang.StringBuffer\"");
        } catch (Exception e) {
            // : handle exception
            System.out.print("Something is wrong....");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\39>javac -d . 39.java && java p1.j39
Defining Package
```

39. Write a program of Defining Your own Package

```java
package p1;

class j39{

    public static void main(String[] args) {
        System.out.println("Defining Package");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\40>javac -d . 40.java && java p1.p2.j40
Nested Package.
```

40. Write a program of Defining Your own nested Package

```java
package p1.p2;

class j40{
    public static void main(String []arg){
        System.out.println("Nested Package. ");
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\41>javac -d . 41.java && java j41
Addition of 1 and 2 is= 3
```

41. Example for importing package

```java
import p1.pclass;

class j41{
    public static void main(String[] args) {
        pclass obj=new pclass();
        int x=obj.addition(1,2);

        System.out.println("Addition of 1 and 2 is= "+x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\42>java j42
Addition of 1 and 2 is= 3
```

42. Example for importing package with Qualified way

```java
class j42{
    public static void main(String[] args) {
        p1.pclass obj=new p1.pclass();

        int x = obj.addition(1,2);
        System.out.println("Addition of 1 and 2 is= " + x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\43>javac -d . 43.java && java p1.j43
Hi from other class
```

43. Program to show the example access protection in same package other class

```java
package p1;

class a {
    protected String str = "Hi from other class";
}

class j43 extends a {
    public static void main(String[] args) {
        a obj = new a();
        System.out.println(obj.str);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\44>javac 44.java && java j44
Addition of 1 and 1 is= 2
```

44. Example for Creating a User defined interface

```java
interface demo{
     int add(int x,int y);
}

class j44 implements demo{
    public int add(int x,int y){
        return (x+y);
    }
    public static void main(String[] args) {
        j44 obj = new j44();
        int x = obj.add(1,1);
        System.out.println("Addition of 1 and 1 is= "+x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\45>javac 45.java && java j45
Multiple Inheritance:
Addition of 5 and 5 is= 10
```

45. Example for multiple inheritance using interface

```java
interface a{
    int add(int x,int y);
}
interface b{
    int add(int x,int y);
}
class j45 implements a,b{
    public int add(int x,int y){
        return (x+y);
    }
    public static void main(String[] args) {
        j45 obj=new j45();
        int x=obj.add(5,5);

        System.out.println("Multiple Inheritance:");
        System.out.println("Addition of 5 and 5 is= "+x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\46>javac 46.java && java j46
var of Interface = 10
```

46. Example for Variable in Interface

```java
interface var{
    public static final int i = 10;
}

class j46 implements var{
    public static void main(String[] args) {

        System.out.println("var of Interface = "+ i);

    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\47>javac 47.java && java j47
Interface first :
Interface Second :
```

47. Example for interface Creating another interface

```java
interface first{
    void display1();
}
interface second extends first{
    void display2();
}

class j47 implements second{
    public void display1(){
        System.out.println("Interface first :");
    }
    public void display2(){
        System.out.println("Interface Second :");
    }
    public static void main(String[] args) {
        j47 obj=new j47();
        obj.display1();
        obj.display2();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\48>javac 48.java && java j48
In B class ,the value of x = 10
In C class ,the value of x = 10
```

48. Example for Dynamic method Dispatch through interface

```java
interface A{
    int x=10;
    void display();
}
class B implements A{
    public void display(){
        System.out.println("In B class ,the value of x = "+A.x);
    }
}
class C implements A{
    public void display(){
        System.out.println("In C class ,the value of x = "+A.x);
    }
}

class j48{
    public static void main(String[] args) {
        A obj;
        obj=new B();
        obj.display();
        obj=new C();
        obj.display();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\49>javac 49.java && java j49
Enter you name= chirag
chirag
```

49. Showing the Example of inputStreamReader class

```java
import java.io.*;
class j49{
    public static void main(String[] args) throws IOException {
        InputStreamReader reader=new InputStreamReader(System.in);
        BufferedReader br=new BufferedReader(reader);

        System.out.print("Enter you name= ");
        String name=br.readLine();
        System.out.println(name);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\50>javac 50.java && java j50
Enter your name : chirag
Your name is chirag
```

50. Showing the Example of input Stream BufferedReader class

```java
import java.io.*;

class j50 {
    public static void main(String[] args) throws IOException {
        String name = "";
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

        System.out.print("Enter your name : ");
        name = br.readLine();
        System.out.println("Your name is " + name);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\51>javac 51.java && java j51
Enter your name= chirag
chirag
```

51. Showing the Example of Scanner class

```java
import java.util.Scanner;

class j51{
    public static void main(String[] args) {
        Scanner sr=new Scanner(System.in);

        System.out.print("Enter your name= ");
        String name=sr.nextLine();
        System.out.println(name);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\52>javac 52.java && java j52
File Size : 26
Chirag
4243/19
Bca 3year
```
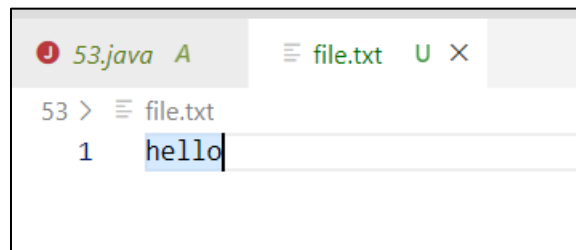
52. Showing the Example of dataInputStream class

```java
import java.io.*;

class j52{
    public static void main(String[] args) {
        try {
            InputStream input = new FileInputStream("file.txt");
            DataInputStream inst = new DataInputStream(input);
            int count = input.available();
            System.out.println(count);
            byte[] ary = new byte[count];

            inst.read(ary);
            for (byte bt : ary) {
                char k = (char) bt;
                System.out.print(k);
            }
        } catch (IOException e) {
            System.out.println("File is not found :");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\53>javac 53.java && java j53
Task is done :
```

```
J 53.java  A          ≡ file.txt   U  ✕
53 >  ≡ file.txt
   1    hello
```

53. Showing the Example of dataOutputStream class

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

class j53{
    public static void main(String[] args) {
        try {
            FileOutputStream file = new FileOutputStream("file.txt");
            DataOutputStream data = new DataOutputStream(file);

            data.writeChars("hello");
            data.flush();
            data.close();
            System.out.println("Task is done :");
        } catch (Exception e) {
            System.out.println("Task is failed :");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\59>javac 59.java && java j59 hello
For input string: "hello"
0
```

59. Program to show the example of Exception Handling unchecked exception

```java
class j59{
    public static void main(String args[]){
        int x=0;
        try{
            x=Integer.parseInt(args[0]);
        }

        catch(NumberFormatException e){
            System.out.println(e.getMessage());
        }

        catch(ArrayIndexOutOfBoundsException e){
            System.out.println(e.getMessage());
        }
        System.out.println(x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\60>javac 60.java && java j60 world
For input string: "world"
0
```

60. Program to show the example of Exception Handling unchecked exception with try catch block

```java
class j60{
    public static void main(String args[]){
        int x=0;
        try{
            x=Integer.parseInt(args[0]);
        }
        catch(NumberFormatException e){
            System.out.println(e.getMessage());
        }
        catch(ArrayIndexOutOfBoundsException e){
            System.out.println(e.getMessage());
        }
        System.out.println(x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\61>javac 61.java && java j61
[Ljava.lang.StackTraceElement;@15db9742
0

C:\Users\Asus\Desktop\Chirag\JavaPractical\61>javac 61.java && java j61 hello
For input string: "hello"
0
```

61. Program to show the example of Exception Handling using getMessage() getStackTrace()

```java
class j61{
    public static void main(String args[]){
        int x=0;
        try{
            x=Integer.parseInt(args[0]);
        }
        catch(NumberFormatException e){
            System.out.println(e.getMessage());
        }
        catch(ArrayIndexOutOfBoundsException e){
            System.out.println(e.getStackTrace());
        }
        System.out.println(x);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\62>javac 62.java && java j62
Inner try catch block
Outer try catch block
```

62. Program to show the example of Exception Handling nested try catch block

```java
import java.util.*;

class j62{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        try {
            try {
                int arr[]=new int[5];
                arr[5]=1;
            } catch (ArrayIndexOutOfBoundsException e) {
                System.out.println("Inner try catch block");
            }
            int x=Integer.parseInt("JAVA");

        } catch (NumberFormatException e) {
            System.out.println("Outer try catch block");
        }
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\63>javac 63.java && java j63
Enter your name: Chirag
Chirag
```

63. Program to show the example of throws keyword

```java
import java.io.IOException;

class j63{
    public static void main(String args[])throws IOException{

        java.io.InputStreamReader isr=new java.io.InputStreamReader(System.in);
        java.io.BufferedReader br=new java.io.BufferedReader(isr);

        System.out.print("Enter your name: ");
        String st = br.readLine();
        System.out.println(st);
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\64>javac 64.java && java j64
efwe
Exception in thread "main" java.util.InputMismatchException
        at java.util.Scanner.throwFor(Unknown Source)
        at java.util.Scanner.next(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at j64.main(64.java:21)

C:\Users\Asus\Desktop\Chirag\JavaPractical\64>javac 64.java && java j64
33
33
```

64. Program to show the example of throw keyword

```java
import java.util.Scanner;

class MyException extends Throwable{
    public String getMessage(){
        return "Negative number";
    }
}

class j64{
    static void display(int x) throws MyException{
        if(x<0){
            throw new MyException();
        }
        else {
            System.out.println(x);
        }
    }

    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
            int x = sc.nextInt();

        try{
            display(x);
        }
        catch(ArrayIndexOutOfBoundsException e){
            System.out.println(e.getMessage());
        }
        catch(NumberFormatException e){
            System.out.println(e.getMessage());
        }
        catch(MyException e){
            System.out.println(e.getMessage());
        }
    }

}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\65>javac 65.java && java j65
Enter the Age : -1
Caught the exception :
Age Invalid
```

65. Program to show the example of user define exception

```java
import java.util.Scanner;

class MyExp extends Exception{
    public MyExp(String s){
        // Call constructor of parent Exception
        super(s);
    }
}

class j65{
    void ageCheck(int age) throws MyExp{
        if(age<1){
            throw new MyExp("Age Invalid");
        }
    }

    public static void main(String args[]){
        j65 obj = new j65();
        try{
            System.out.print("Enter the Age : ");
            Scanner sc = new Scanner(System.in);
            int age = sc.nextInt();
            obj.ageCheck(age);
            System.out.println("Age Valid");
        }
        catch (MyExp ex){
            System.out.println("Caught the exception :");
            System.out.println(ex.getMessage());
        }
    }
}
```
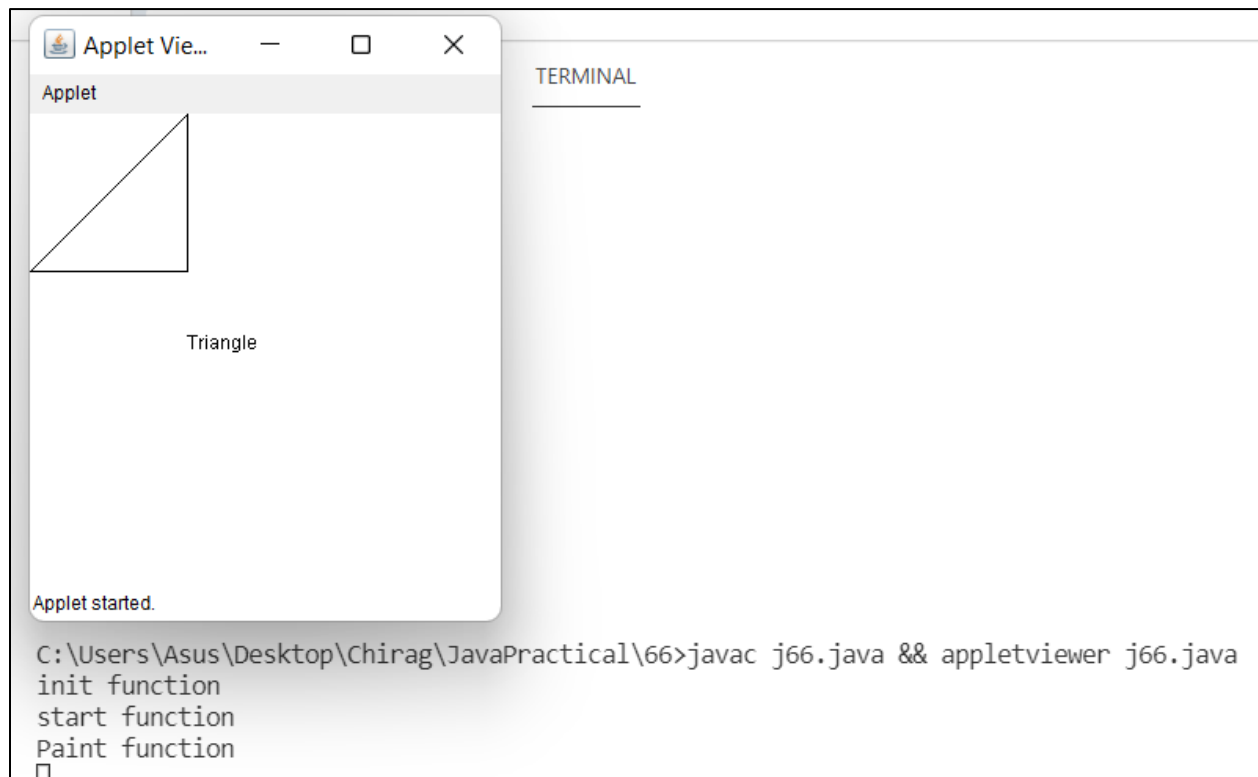
66. Program to show the example of Applet embedded in html page

```java
import java.applet.Applet;
import java.awt.Graphics;

public class j66 extends Applet{
    public void init(){ System.out.println("init function "); }
    public void start(){ System.out.println ("start function"); }

    public void paint (Graphics g){
        g.drawString("Triangle", 100,150);
        g.drawLine(100, 100, 100, 0);
        g.drawLine(0, 100, 100, 0);
        g.drawLine(100, 100, 0, 100);
        System.out.println ( "Paint function ");
    }

    public void stop(){ System.out.println("stop function "); }
    public void destroy(){ System.out.println("destroy function"); }
}

/*
<applet code="j66.class" width="300" height="300"> </applet>
*/
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\67>javac j67.java && appletviewer j67.java
init function
start function
Paint function
```


Applet Viewer window showing a triangle and the label "Triangle". Status bar: "Applet started."

67. Program to show the example of Graphic class function in applet

```java
import java.applet.Applet;
import java.awt.Graphics;

public class j67 extends Applet{
    public void init(){ System.out.println("init function "); }
    public void start(){ System.out.println ("start function"); }

    public void paint (Graphics g){
        g.drawString("Triangle", 100,150);
        g.drawLine(100, 100, 100, 0);
        g.drawLine(0, 100, 100, 0);
        g.drawLine(100, 100, 0, 100);
        System.out.println ( "Paint function ");
    }

    public void stop(){ System.out.println("stop function "); }
    public void destroy(){ System.out.println("destroy function"); }
}

/*
<applet code="j67.class" width="300" height="300"> </applet>
*/
```
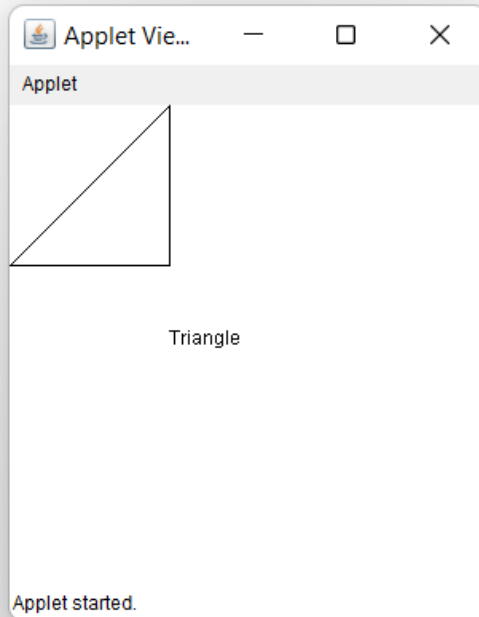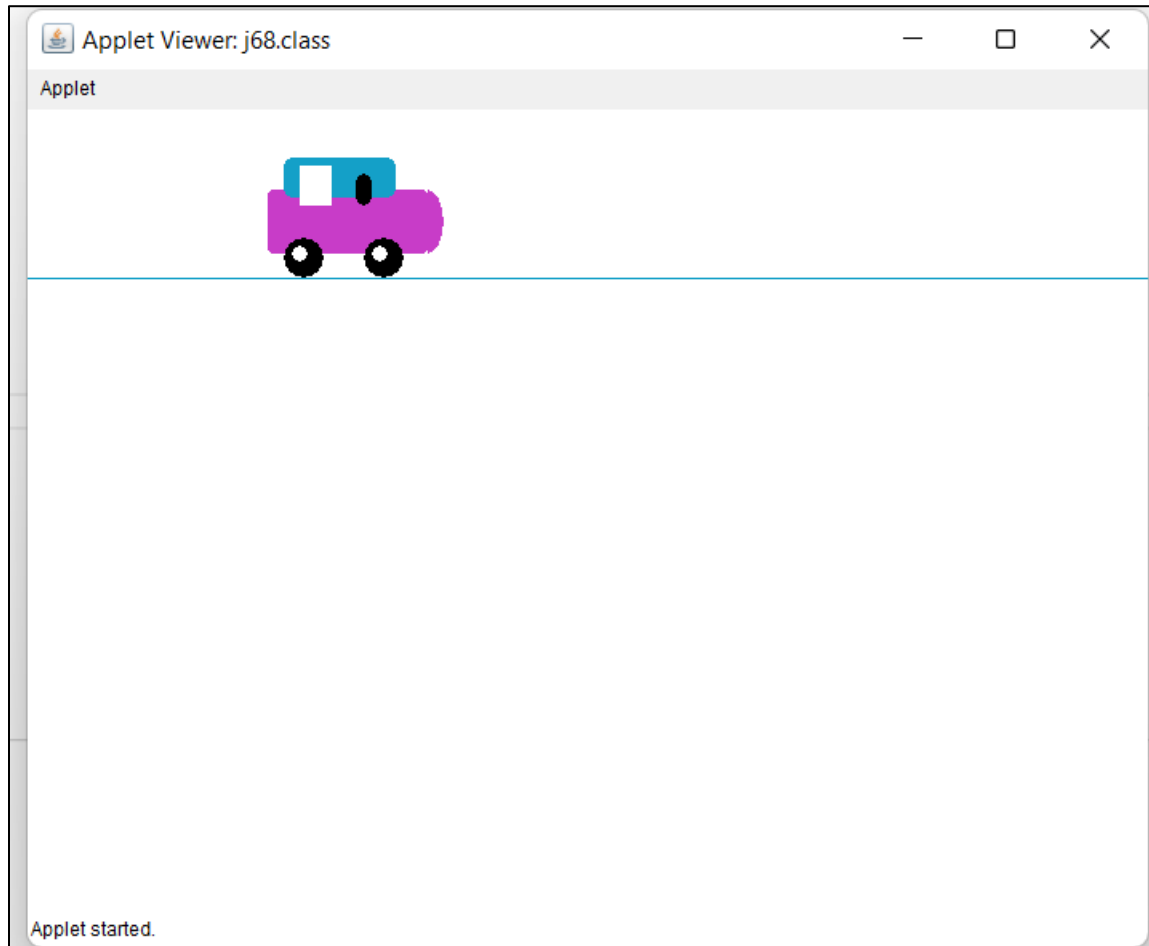
68. Program to show the example of car moving in applet

```java
import java.applet.*; import java.awt.*; import java.lang.*;
public class j68 extends Applet{
    int x,y, W;
    void step(){
        try{ Thread.sleep (200); }catch (Exception e){}
    }
    public void init(){ y = 30; x = 20; }
    public void paint(Graphics g){
        setBackground(Color.pink);
        W = getWidth();
        Color c1=new Color (20, 160,200);
        Color c2=new Color (200, 60,200);
        g.setColor(c1);

        g.drawLine(0,y+75,W, y+75) ;
        g.setColor(c2);
        g.fillRoundRect(x, y+20, 100, 40, 5, 5);
        g.fillArc(x+90, y+20,20,40,270,180);
        g.setColor(c1);

        g.fillRoundRect(x+10, y, 70,25,10,10);
        g.setColor (Color. white) ;
        g.fillRect (x+20,y+5,20,25);
        g.setColor (Color.black) ;
        g.fillRoundRect (x+55, y+10,10, 20,10,10);
        g.fillOval (x+10,y+50,25,25);
        g.fillOval (x+60, y+50 ,25,25) ;
        g.setColor (Color.white);
        g.fillOval (x+15, y+55, 10, 10) ;
        g.fillOval (x+65, y+55, 10, 10) ;

        x=x+10;
        step();
        if(x+100 < W)
            repaint();
        else{
            repaint(); x=20; y += 30;
        }
    }
}
/*<applet code="j68.class" height="500" width="700"></applet>*/
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\69>javac 69.java


C:\Users\Asus\Desktop\Chirag\JavaPractical\69>java j69
4211   Ravi
4215   Sourabh
4221   Gaurav
4243   Chirag
```

69. Program to show the example of JDBC

```java
import java.sql.*;

class j69{
    public static void main(String args[]){
        String url = "jdbc:mysql://localhost:3306/db";
        String uname = "root";
        String pass = "hello";

        try{
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con = DriverManager.getConnection(url, uname, pass);

            Statement st = con.createStatement();

            //TO store in table form
            ResultSet rs = st.executeQuery("select * from STUDENT ");

            //NEXT() because primary pointing location is before the first
            while(rs.next())
                System.out.println(rs.getInt(1)+"  "+rs.getString(2) );

            st.close();
            con.close();
        }
        catch(Exception e){
            System.out.println(e);
        }
    }
}
```
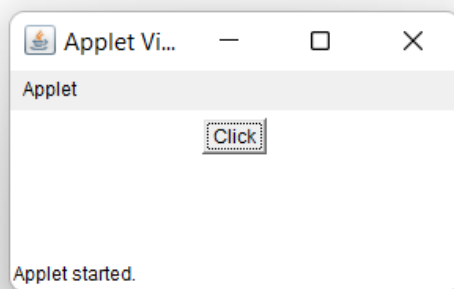
```
C:\Users\Asus\Desktop\Chirag\JavaPractical\70>javac j70.java && appletviewer j70.java
```
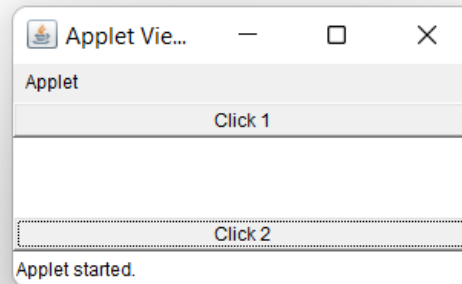
70.Program to show the example of Flowlayout

```java
import java.applet.Applet;
import java.awt.*;

public class j70 extends Applet{
    Button btn1=new Button("Click");
    public void init(){
        add(btn1);
    }
}

/*<applet code="j70.class" width="300" height="300"></applet>*/
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\71>javac j71.java && appletviewer j71.java
```

71. Program to show the example of Border layout

```java
import java.applet.Applet;
import java.awt.*;

public class j71 extends Applet{

    Button btn1 = new Button("Click 1");
    Button btn2 = new Button("Click 2");
    BorderLayout b=new BorderLayout();

    public void init(){
        this.setLayout(b);
        add(btn1,BorderLayout.NORTH);
        add(btn2,BorderLayout.SOUTH);
    }
}

/*<applet code="j71.class" width="300" height="300"></applet>*/
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\72>javac j72.java && appletviewer j72.java
java.awt.GridLayout[hgap=0,vgap=0,rows=3,cols=3]
```
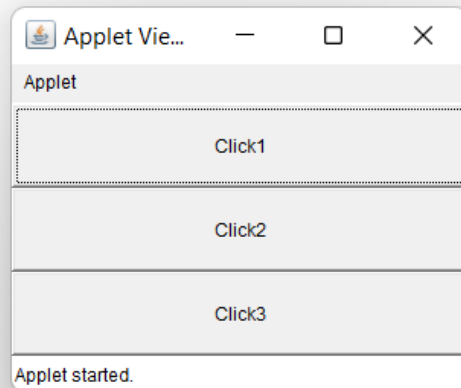
72. Program to show the example of Grid layout

```java
import java.applet.Applet;
import java.awt.*;

public class j72 extends Applet{
    GridLayout gl = new GridLayout(3, 3);

    Button btn1=new Button("Click1");
    Button btn2=new Button("Click2");
    Button btn3=new Button("Click3");

    public void init(){
        setLayout(gl);
        add(btn1);
        add(btn2);
        add(btn3);
        System.out.println(this.getLayout());
    }
}

/*<applet code="j72.class" width="300" height="300"></applet>*/
```

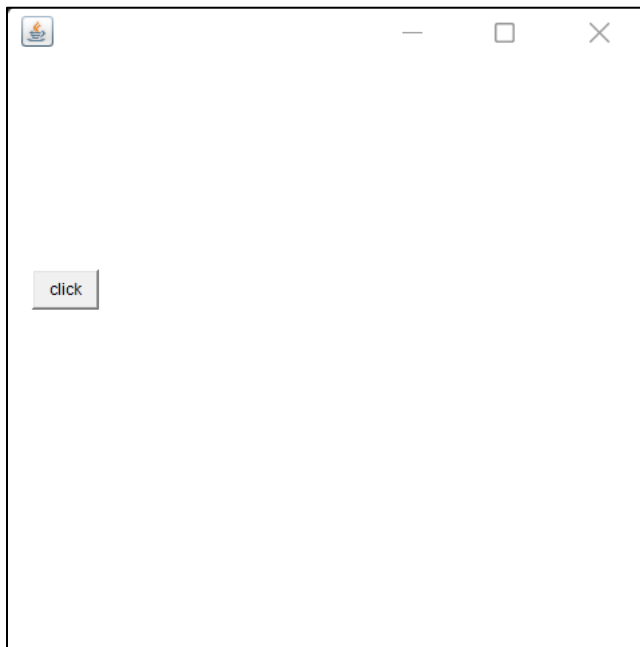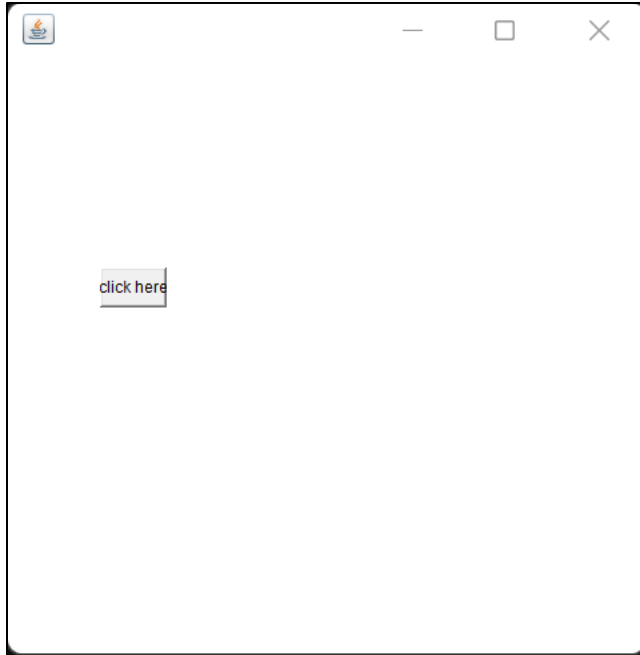**73. Program to show the example of add, mul, sub,div in frame**

```java
import java.awt.*;
import java.awt.event.*;
class Myframe extends Frame implements MouseListener,WindowListener{
    Label l1=new Label("First num");
    Label l2=new Label("Second num");
    Label l3=new Label("Result");
    TextField t1=new TextField();
    TextField t2=new TextField();
    TextField t3=new TextField();
    Button b1=new Button("Add");
    Button b2=new Button("Sub");
    Button b3=new Button("Mul");
    Button b4=new Button("Div");
    public void windowOpened(java.awt.event.WindowEvent w){}
    public void windowClosing(java.awt.event.WindowEvent w){
        System.exit(1);
    }
    public void windowClosed(java.awt.event.WindowEvent w){}
    public void windowIconified(java.awt.event.WindowEvent w){}
    public void windowDeiconified(java.awt.event.WindowEvent w){}
    public void windowActivated(java.awt.event.WindowEvent w){}
    public void windowDeactivated(java.awt.event.WindowEvent w){}
    Myframe(){
        this.setSize(500,500);
        this.setLayout(null);
        this.setTitle("My Frame");
        l1.setBounds(40,50,80,30);
        add(l1);
        l2.setBounds(40,100,80,30);
        add(l2);
        l3.setBounds(40,150,80,30);
        add(l3);
        t1.setBounds(150,50,80,30);
        add(t1);
        t2.setBounds(150,100,80,30);
        add(t2);
        t3.setBounds(150,150,80,30);
        add(t3);
        b1.setBounds(30,200,50,30);
        add(b1);
        b2.setBounds(80,200,50,30);
        add(b2);
        b3.setBounds(130,200,50,30);
        add(b3);
```

```java
            b4.setBounds(180,200,50,30);
            add(b4);
            addWindowListener((WindowListener)this);
            b1.addMouseListener(this);
            b2.addMouseListener(this);
            b3.addMouseListener(this);
            b4.addMouseListener(this);
        }
    public void mouseClicked(MouseEvent me){
            int num1=Integer.parseInt(t1.getText());
            int num2=Integer.parseInt(t2.getText());
            if(me.getSource()==b1){
                t3.setText((num1+num2)+"");
            }
            else if(me.getSource()==b2){
                t3.setText((num1-num2)+"");
            }
            else if(me.getSource()==b3){
                t3.setText((num1*num2)+"");
            }
            else if(me.getSource()==b4){
                t3.setText((num1/num2)+"");
            }
        }
    public void mousePressed(MouseEvent me){}
    public void mouseReleased(MouseEvent me){}
    public void mouseEntered(MouseEvent me){}
    public void mouseExited(MouseEvent me){}
}
class j73{
    public static void main(String[] args) {
        Myframe f=new Myframe();
        f.setVisible(true);
    }
}
```
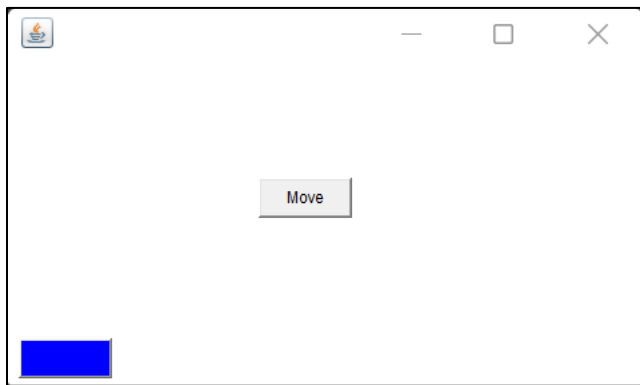
74. Program to show the example of visibility

```java
import java.awt.*;
import java.awt.event.*;

class visibility extends Frame implements MouseListener{
    Button b1=new Button("click");
    Button b2=new Button("click here");
    visibility(){
        this.setLayout(null);
        this.setSize(500,500);
        b1.setBounds(30,200,50,30);
        add(b1);
        b2.setBounds(80,200,50,30);
        add(b2);
        b1.addMouseListener(this);
        b2.addMouseListener(this);
    }
    public void mouseClicked(MouseEvent me){
        if(me.getSource()==b1){
            b1.setVisible(false);
            b2.setVisible(true);
        }
        else if(me.getSource()==b2){
            b2.setVisible(false);
            b1.setVisible(true);
        }
    }
    public void mousePressed(MouseEvent me){}
    public void mouseReleased(MouseEvent me){}
    public void mouseEntered(MouseEvent me){}
    public void mouseExited(MouseEvent me){}
}
class j74{
    public static void main(String[] args) {
        visibility v = new visibility();
        v.setVisible(true);
    }
}
```

75. Program to show the example of box move every corner

```java
import java.awt.*;

import java.awt.event.MouseEvent;

class boxmove extends Frame implements Runnable{
    Button movb=new Button("Move");
    Button boxb=new Button();
    int xPos=20, yPos=250;
    int x=0,y=0;
    Thread t1;
    int bun=1,run=0;
    boxmove(){
        setSize(500,300);
        setLayout(null);
        movb.setBounds(200,130, 70, 30);
        add(movb);
        boxb.setBounds(xPos,yPos, 70, 30);
        boxb.setBackground(Color.blue);
        add(boxb);
        setVisible(true);
        t1=new Thread(this);
        movb.addMouseListener(new java.awt.event.MouseAdapter(){
                public void mouseClicked(java.awt.event.MouseEvent me){
                    t1.start();
                }
            });
    }

    public void run(){
        while(true){
            if(boxb.getX()>this.getX()&&boxb.getX()<this.getWidth()-100&&bun==1){
                run=2;
                xPos=xPos+11;
                boxb.setBounds(xPos,boxb.getY(),70,30);
                try{Thread.sleep(100);}catch(Exception e){}
            }
            else
if(boxb.getY()>this.getY()+50&&boxb.getY()<this.getHeight()&&run==2){
                bun=3;
                yPos=yPos-11;
                boxb.setBounds(boxb.getX(),yPos,70,30);
                try{Thread.sleep(100);}catch(Exception e){}
            }
```

```java
            else
if(boxb.getX()>this.getX()+20&&boxb.getX()<this.getWidth()&&bun==3){
                run=4;
                xPos=xPos-11;
                boxb.setBounds(xPos,boxb.getY(),70,30);
                try{Thread.sleep(100);}catch(Exception e){}
            }
            else if(boxb.getY()>this.getY()&&boxb.getY()<this.getHeight()-
50&&run==4){
                bun=0;
                yPos=yPos+11;
                boxb.setBounds(boxb.getX(),yPos,70,30);
                try{Thread.sleep(100);}catch(Exception e){}
            }
        }
    }
}
class j75{
    public static void main(String[] args){
        boxmove b=new boxmove();
    }
}
```
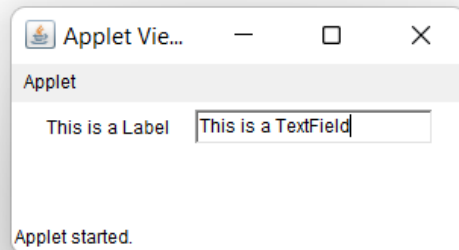
C:\Users\Asus\Desktop\Chirag\JavaPractical\76>javac j76.java && appletviewer j76.java
 ⬚

Applet Vie... — ▢ ✕

Applet

This is a Label   This is a TextField|

Applet started.

76. Program to show the example of textfield and label

```java
import java.applet.Applet;
import java.awt.Graphics;
import java.awt.Label;
import java.awt.TextField;

public class j76 extends Applet{
    Label lbl =new Label ();
    TextField txt = new TextField("This is a TextField");

    public void init(){
        add(lbl);
        add(txt);
        lbl.setText("This is a Label");
    }
}

/*<applet code="j76.class" width="300" height="300"></applet> */
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\77>javac j77.java && appletviewer j77.java
```

This is a Default FONT

This is a Arial FONT

Applet started.

77. Program to show the example of font property change

```java
import java.applet.Applet;
import java.awt.*;

public class j77 extends Applet{
    Label lbl1 = new Label ();
    Label lbl2 = new Label ();

    public void init(){
        add(lbl1);
        add(lbl2);

        lbl1.setText("This is a Default FONT");

        lbl2.setFont(new Font("Arial", Font.BOLD, 19));
        lbl2.setText("This is a Arial FONT");

    }
}

/*<applet code="j77.class" width="300" height="300"></applet> */
```
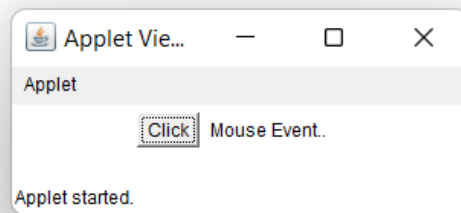
```
C:\Users\Asus\Desktop\Chirag\JavaPractical\78>javac j78.java && appletviewer j78.java
```

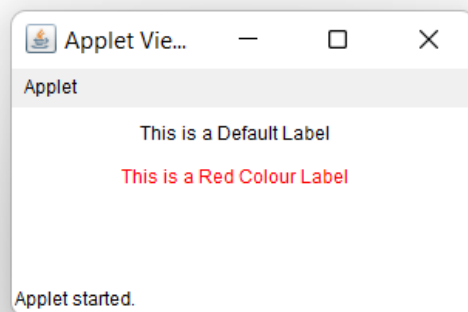**78. Program to show the example of mouse position on status bar**

```java
import java.applet.Applet;
import java.awt.*;
import java.awt.event.*;

public class j78 extends Applet implements MouseListener{
    Button btn = new Button("Click");
    Label lbl = new Label("Mouse Event..");

    public void init(){
        btn.addMouseListener(this);
        add(btn);
        add(lbl);
    }
    public void paint(Graphics g){}
    public void mouseClicked(java.awt.event.MouseEvent me){
        lbl.setText("MouseClicked");
    }
    public void mousePressed(java.awt.event.MouseEvent me){
        lbl.setText("MousePressed");
    }
    public void mouseReleased(java.awt.event.MouseEvent me){
        lbl.setText("MouseReleased");
    }
    public void mouseEntered(java.awt.event.MouseEvent me){
        lbl.setText("MouseEntered");
    }
    public void mouseExited(java.awt.event.MouseEvent me){
        lbl.setText("MouseExited");
    }
}

/*<applet code="j78.class" height="300" width="300"></applet> */
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\79>javac j79.java && appletviewer j79.java
```

79. Write a program to show the example of changing text color

```java
import java.applet.Applet;
import java.awt.Graphics;
import java.awt.Label;
import java.awt.Color;

public class j79 extends Applet{
    Label lbl1 = new Label ();
    Label lbl2 = new Label ();

    public void init(){
        add(lbl1);
        add(lbl2);

        lbl1.setText("This is a Default Label");

        lbl2.setForeground(Color.red);
        lbl2.setText("This is a Red Colour Label");

    }
}

/*<applet code="j79.class" width="300" height="300"></applet> */
```
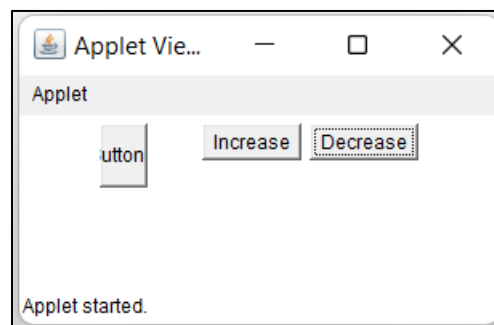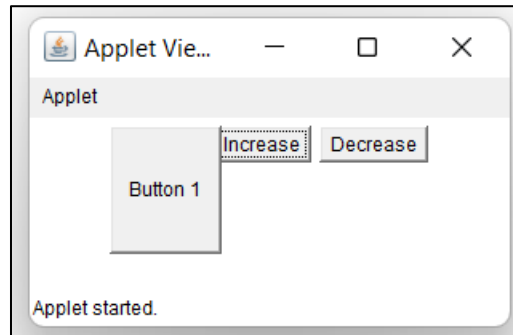
80. Write a program to show the example of button size increase or decrease

```java
import java.applet.Applet;
import java.awt.*;
import java.awt.event.*;

public class j80 extends Applet implements ActionListener {
    int btn_x = 20;
    int btn_y = 30;

    public void init() {

        button1 = new Button("Button 1");
        add(button1);
        button1.setSize(btn_x, btn_y);
        button1.addActionListener(this);

        button2 = new Button("Increase");
        add(button2);
        button2.addActionListener(this);

        button3 = new Button("Decrease");
        add(button3);
        button3.addActionListener(this);
    }

    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == button2) {
            btn_x = btn_x + 10;
            btn_y = btn_y + 10;
            button1.setSize(btn_x, btn_y);
        }
        else if(e.getSource() == button3){
            btn_x = btn_x - 10;
            btn_y = btn_y - 10;
            button1.setSize(btn_x, btn_y);
        }
    }

    Button button1, button2, button3;
}

/*<applet code="j80.class" width="300" height="300"></applet> */
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\81>javac 81.java && java j81
Thread is Started...
```

81. Write a program to show the example of creating thread through runnable interface

```java
class j81 implements Runnable{
    public void run(){
        System.out.println("Thread is Started...");
    }

    public static void main(String []args){
        j81 obj = new j81();
        Thread t = new Thread(obj);
        t.start();
     }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\82>javac 82.java && java j82
Thread Started :
```

82. Write a Write a program to show the example of creating thread through thread class

```java
class j82 extends Thread{
    public void run(){
        System.out.println("Thread Started :");
    }

    public static void main(String args[]){
        j82 obj=new j82();
        obj.start();

     }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\83>javac 83.java && java j83
Thread started :
0
1
2
3
4
Thread ended :
Thread started :
0
1
2
3
4
Thread ended :
```

83. Write a program to show the example of synchronized method and statement

```java
class sync{
    synchronized void run(){
        System.out.println("Thread started :");

        for(int i=0; i<5; i++)
                System.out.println(i);

        System.out.println("Thread ended :");
    }
}
class MyThread extends Thread{
    sync f;
    MyThread(sync obj){
        f=obj;
    }
    public void run() {
        f.run();
    }
}
class j83{
    public static void main(String[] args) {
        sync f=new sync();
        MyThread t1= new MyThread(f);
        MyThread t2= new MyThread(f);
        t1.start();
        t2.start();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\84>javac 84.java && java j84
Priority of t1 : 5
Priority of t2 : 5
Priority of t3 : 5

Priority of t1 : 6
Priority of t2 : 3
Priority of t3 : 9
Currently Executing The Thread : main
Priority of the main thread is : 5
Priority of the main thread is : 10
```

84. Write a program to show the example of priority

```java
class j84 extends Thread{
    public void run(){
        System.out.println("Inside the run() method");
    }

    public static void main(String args[]){
        j84 t1 = new j84();
        j84 t2 = new j84();
        j84 t3 = new j84();

        System.out.println("Priority of t1 : " + t1.getPriority());

        System.out.println("Priority of t2 : " + t2.getPriority());

        System.out.println("Priority of t3 : " + t3.getPriority() + "\n");

        t1.setPriority(6);
        t2.setPriority(3);
        t3.setPriority(9);

        System.out.println("Priority of t1 : " + t1.getPriority());

        System.out.println("Priority of t2 : " + t2.getPriority());

        System.out.println("Priority of t3 : " + t3.getPriority());

        System.out.println("Currently Executing The Thread : " +
Thread.currentThread().getName());

        System.out.println("Priority of the main thread is : " +
Thread.currentThread().getPriority());

        Thread.currentThread().setPriority(10);

        System.out.println("Priority of the main thread is : " +
Thread.currentThread().getPriority());
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\85>javac 85.java && java j85
Note: 85.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
Thread-0
Thread-2
0
Thread-1
0
0
Thread-1
Thread-2
1
Thread-0
1
1
Thread-1
Thread-2
Thread-0
2
2
2
Thread-2
3
Thread-1
Thread-0
3
3
Thread-0
4
Thread-1
Thread-2
4
4
```

85. Write a program to show the example of suspend() and resume() method

```java
class j85 extends Thread{
    public void run(){
        for(int i=0; i<5; i++){
            try{
                sleep(500);
                System.out.println(Thread.currentThread().getName());
            }
            catch(InterruptedException e){ System.out.println(e); }
            System.out.println(i);
        }
    }
    public static void main(String []args)
    {
        j85 t1=new j85();
        j85 t2=new j85();
        j85 t3=new j85();

        t1.start();
        t2.start();

        t2.suspend();

        t3.start();
        t2.resume();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\86>javac 86.java && java j86
Inside start() method
Inside join() method
Waiting for the peer thread to finish.
Inside run() method
Peer thread finished.
```

86. Write a program to show the example of wait(), notify(), notifyAll() method

```java
class j86 {
    private static final long SLEEP_INTERVAL = 3000;
    private boolean running = true;
    private Thread thread;

    public void start() {
        print("Inside start() method");
        thread = new Thread(new Runnable() {
            public void run() {
                print("Inside run() method");
                try {
                    Thread.sleep(SLEEP_INTERVAL);
                } catch(InterruptedException e) {
                    Thread.currentThread().interrupt();
                }
                synchronized(j86.this) {
                    running = false;
                    j86.this.notify();
                }
            }
        });
        thread.start();
    }
    public void join() throws InterruptedException {
        print("Inside join() method");
        synchronized(this) {
            while(running) {
                print("Waiting for the peer thread to finish.");
                wait(); //waiting, not running
            }
            print("Peer thread finished.");
        }
    }
    private void print(String s) {
        System.out.println(s);
    }
    public static void main(String[] args) throws InterruptedException {
        j86 test = new j86();
        test.start();
        test.join();
    }
}
```

```
C:\Users\Asus\Desktop\Chirag\JavaPractical\87>javac 87.java && java j87
0
1
2
3
4
```

87. Write a program to show the example of sleep() method

```java
import java.lang.Thread;

class j87{
    public static void main(String []args){
        try {
            for (int i=0; i<5; i++){
                Thread.sleep(1000);

                System.out.println(i);
                }
        }
        catch (Exception e){
            System.out.println(e);
        }
    }
}
```