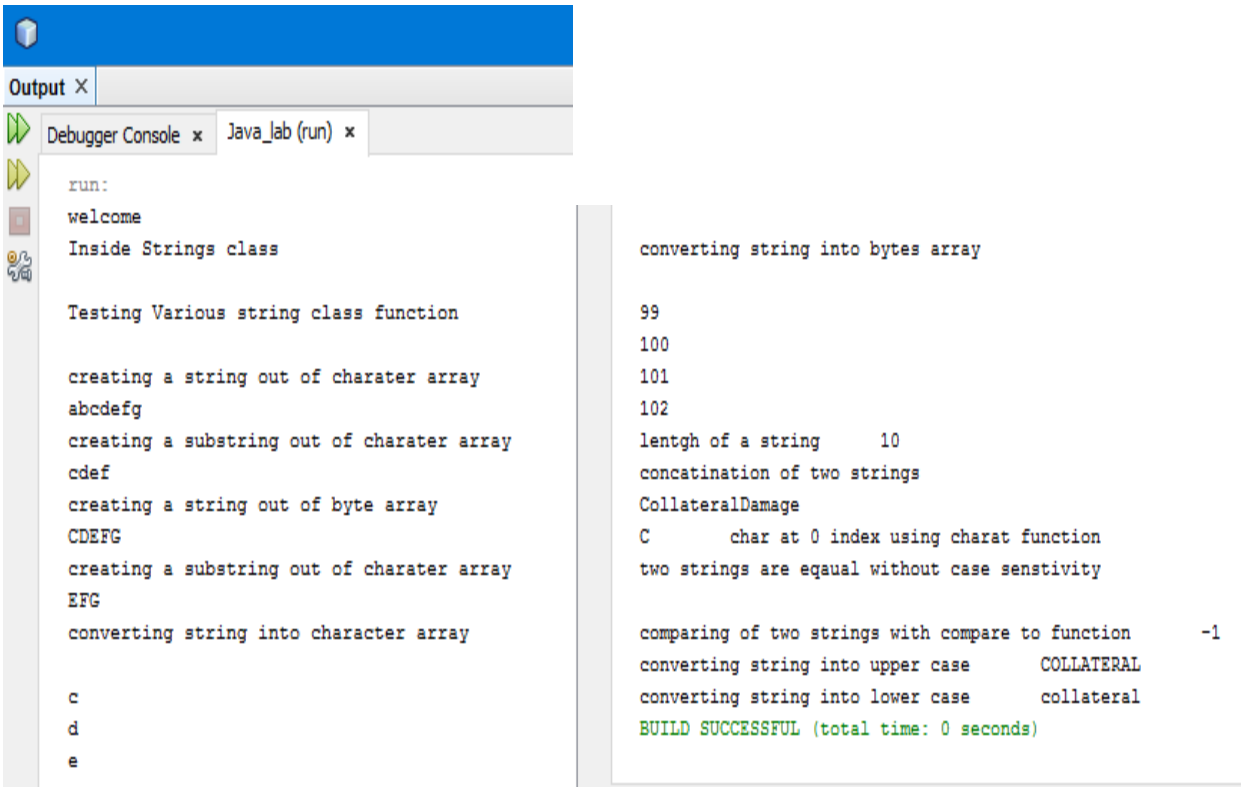
Q-WAP to show different String Functions in java?

```
package java_lab;

public class Java_lab {

   public static void main(String[] args) {

      System.out.println("welcome");

      Strings_class s1=new Strings_class()

   }

}

public class Strings_class {

   Strings_class(){

      System.out.println("Inside Strings class \n");

      System.out.println("Testing Various string class function\n");


      char ch1[]={'a','b','c','d','e','f','g'};

      String s1=new String(ch1);

      System.out.println("creating a string out of charater array");

      System.out.println(s1);


      String s2=new String(ch1,2,4);

      System.out.println("creating a substring out of charater array");

      System.out.println(s2);


      byte b1[]={67,68,69,70,71};

      String s3=new String(b1);
```

```
System.out.println("creating a string out of byte array\n"+s3);



String s4=new String(b1,2,3);
System.out.println("creating a substring out of charater array\n"+s4);

char ch2[]=new char[s2.length()];
byte b2[]=new byte[s2.length()];
s2.getChars(0, 3, ch2, 0);
b2=s2.getBytes();
System.out.println("converting string into character array\n");
for(int i=0;i<ch2.length;i++)
{
   System.out.println(ch2[i]);
}

System.out.println("converting string into bytes array\n");
for(int i=0;i<b2.length;i++)
{
   System.out.println(b2[i]);
}

String l1="Collateral";
String l2="Damage";
String l3="damage";
```

```
        System.out.println("lentgh of a string \t"+l1.length());
        System.out.println("concatination of two strings\n"+l1+l2);
        System.out.println(l1.charAt(0)+"\t char at 0 index using charat function");
        if(l2.equals(l3))
        {
           System.out.println("two strings are eqaual with case senstivity\n");
        }
        else if(l2.equalsIgnoreCase(l3))
        {
           System.out.println("two strings are eqaual without case senstivity\n");
        }

        else
        {
           System.out.println("two strings are not equal");
        }

        System.out.println("comparing of two strings with compare to function \t"+l1.compareTo(l2));
        System.out.println("converting string into upper case \t"+l1.toUpperCase());
        System.out.println("converting string into lower case \t"+l1.toLowerCase());
    }
}
```

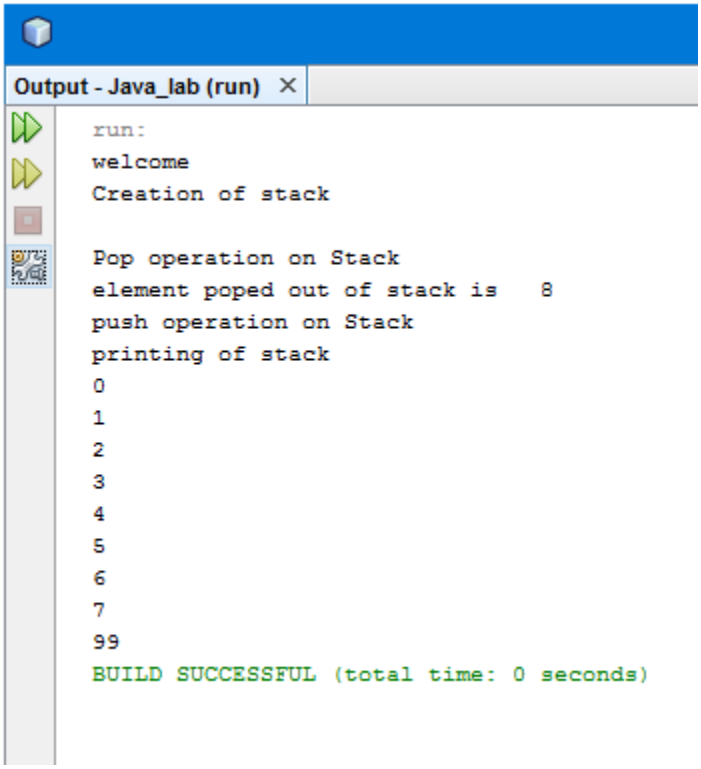

Output
Debugger Console
Java_lab (run)
run:
welcome
Inside Strings class
Testing Various string class function
creating a string out of charater array
abcdefg
creating a substring out of charater array
cdef
creating a string out of byte array
CDEFG
creating a substring out of charater array
EFG
converting string into character array
c
d
e
converting string into bytes array
99
100
101
102
lentgh of a string 10
concatination of two strings
CollateralDamage
C char at 0 index using charat function
two strings are eqaual without case senstivity
comparing of two strings with compare to function -1
converting string into upper case COLLATERAL
converting string into lower case collateral
BUILD SUCCESSFUL (total time: 0 seconds)

Q-WAP to show Stack Operation in Java?

```
package java_lab;

public class Java_lab {

    public static void main(String[] args) {

        System.out.println("welcome");

        Stack_class st1=new Stack_class();

        st1.create_stack();

        st1.pop_stack();

        st1.push_stack(99);

        st1.print_stack();

    }

}

public class Stack_class {

    int top;

    int[] stack=new int[10];


    Stack_class(){

        top=-1;

    }


    void create_stack(){

        System.out.println("Creation of stack\n");

        for(int i=0; i<stack.length-1; i++)

        {
```

```
        stack[i]=i;
        ++top;
    }
}

void pop_stack(){
    System.out.println("Pop operation on Stack");
    if(top<=-1){
        System.out.println("underflow\n");
    }
    else{
    int del=stack[top];
    System.out.println("element poped out of stack is   "+del);
    --top;
    }
}

void push_stack(int ele){
    System.out.println("push operation on Stack");
    if(top>stack.length){
        System.out.println("overflow\n");
    }
    else{
        ++top;
```

```
            stack[top]=ele;
        }
    }

    void print_stack(){
        System.out.println("printing of stack");
        for(int i=0; i<=top; i++){
            System.out.println(stack[i]);
        }
    }
}
```



Q-WAP to show inheritance from same and different package from in Java?

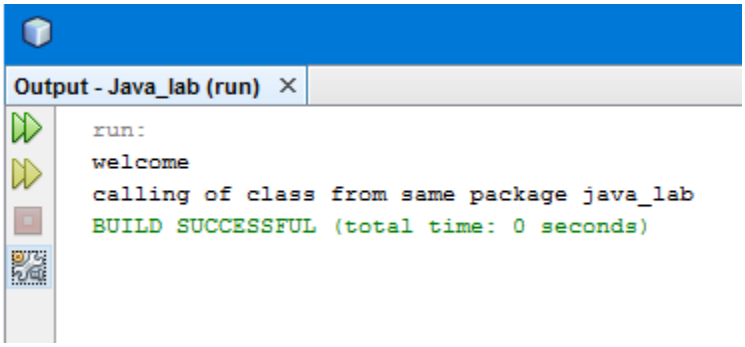
```
package java_lab;

public class Java_lab {

  public static void main(String[] args) {

      System.out.println("welcome");

Call_class alpha=new Call_class();

Call_class beta=new Call_class();

   }

}
```

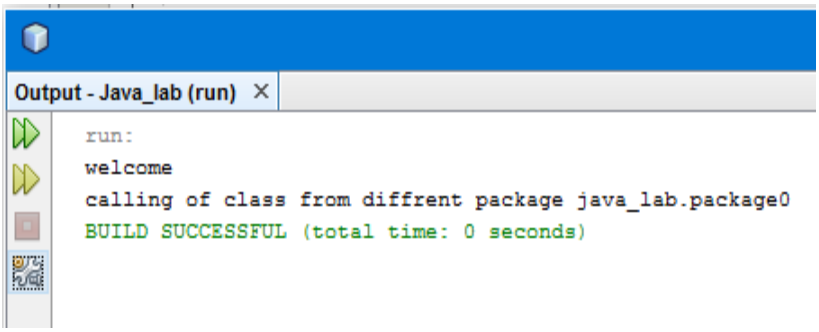
```
package java_lab;

public class Alpha_class {

public Alpha_class(){

      System.out.println("calling of class from same package java_lab");

   }

}
```

```
package java_lab.package0;

public class Beta_class {

   public Beta_class(){

      System.out.println("calling of class from diffrent package java_lab.package0");

   }

}
```

```
package java_lab;

public class Call_class extends Alpha_class {

   Call_class(){

      super();

   }

}
```

```
public class Call_class extends java_lab.package0.Beta_class{

   Call_class(){

      super();  }}
```

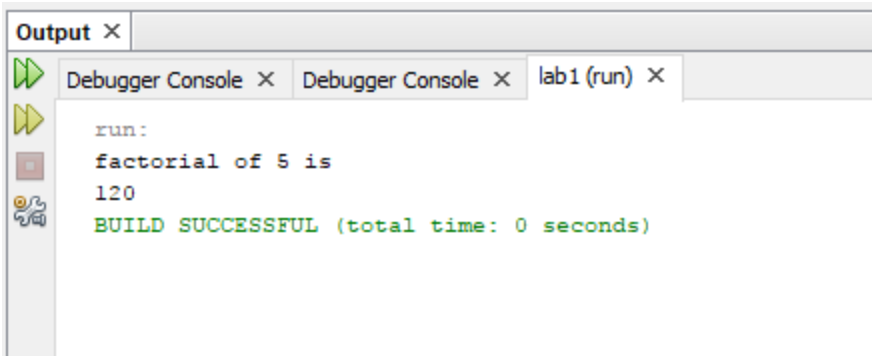




Q-wap in java to show factorial of a no. using recursion?

Ans:-

```
package lab1;

public class Lab1 {

   public static void main(String[] args) {


      // TODO code application logic here

      Factorial_class f1= new Factorial_class();

      int result=f1.fact(5);

      System.out.println("factorial of 5 is\n"+result);

   }

}

package lab1;

public class Factorial_class {

   int fact(int   n)

   {

      if(n==1 || n==0)

      {

         return 1;

      }

      return( n * fact(n-1));


   }}
```

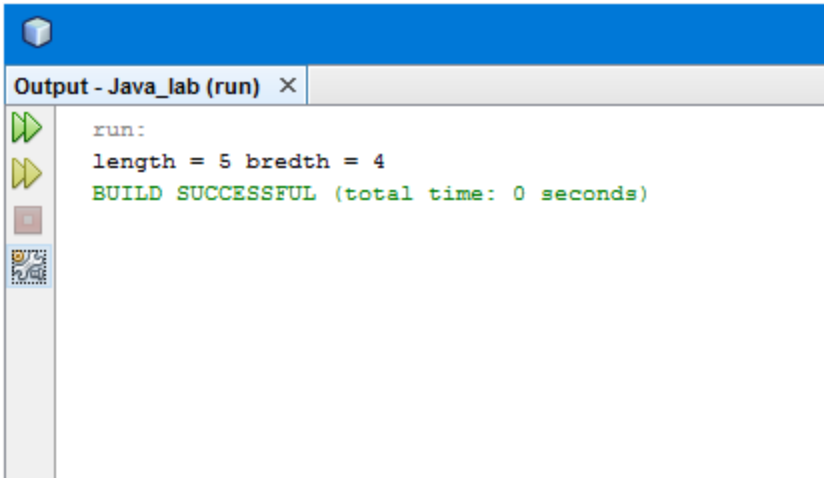

Output
Debugger Console
Debugger Console
lab1 (run)
run:
factorial of 5 is
120
BUILD SUCCESSFUL (total time: 0 seconds)

Q-wap in java to override ToString() function in java?

ANS-

```
package java_lab;

public class Java_lab {

   public static void main(String[] args) {

      Box_Tostring b1=new Box_Tostring(5,4);

      System.out.println(b1);

   }

}

package java_lab;

public class Box_Tostring {

   int length;

   int breadth;

   Box_Tostring(int l,int b){

      length=l;

      breadth=b;

   }

   /**

    *

    * @return

    */

   @Override

   public String toString(){
```

```
        return String.format("length = " + this.length + " bredth = "+ this.breadth);
    }
}
```

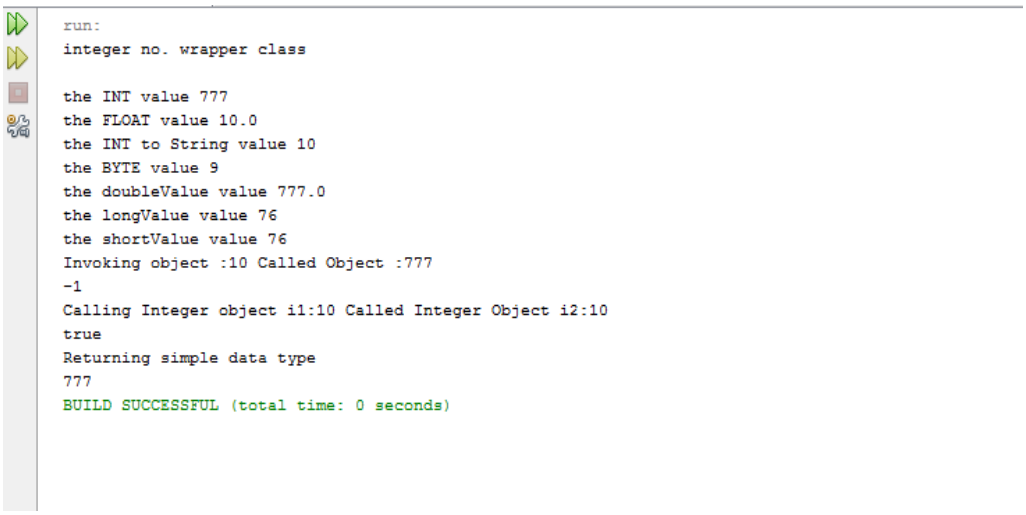


Q-wap in java to show Integer number wrapper class?

Ans-

```
package java_lab;
/**
 *
 * @author monks_mojo
 */
public class Java_lab {
    public static void main(String[] args) {
        double b=3.145763;
        char c='A';
        int a=10;
        String str1="777";
        String str2="hello";
        Wrapper_class w1=new Wrapper_class(a,str1);
    }
}
package java_lab;

public class Wrapper_class {
    Wrapper_class(int i, String str)
    {
        System.out.println("integer no. wrapper class \n");
```

```
        Integer i1=new Integer(i);
        Integer i2=new Integer(str);
        Integer i3=Integer.valueOf("76");

        System.out.println("the INT value "+i2.intValue());
        System.out.println("the FLOAT value "+i1.floatValue());
        System.out.println("the INT to String value "+i1.toString());
        System.out.println("the BYTE value "+i2.byteValue());
        System.out.println("the doubleValue value "+i2.doubleValue());
        System.out.println("the longValue value "+i3.longValue());
        System.out.println("the shortValue value "+i3.shortValue());
         System.out.println("Invoking object :"+i1+" Called Object :"+i2);
        System.out.println(i1.compareTo(i2));
        System.out.println("Calling Integer object i1:"+i1+" Called Integer Object i2:"+i1);
        System.out.println(i1.equals(i1));
        System.out.println("Returning simple data type");
        System.out.println(Integer.parseInt(str));
    }
}
```



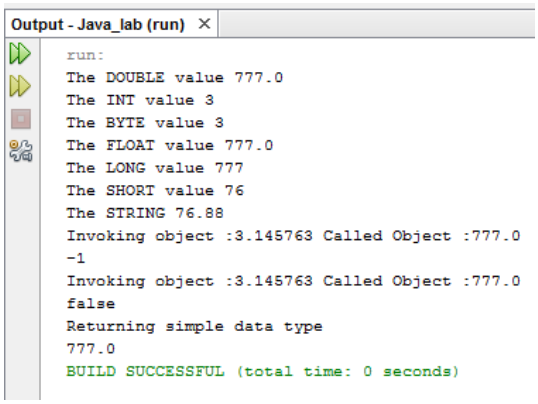
```
run:
integer no. wrapper class

the INT value 777
the FLOAT value 10.0
the INT to String value 10
the BYTE value 9
the doubleValue value 777.0
the longValue value 76
the shortValue value 76
Invoking object :10 Called Object :777
-1
Calling Integer object i1:10 Called Integer Object i2:10
true
Returning simple data type
777
BUILD SUCCESSFUL (total time: 0 seconds)
```

Q-wap in java to show Double number wrapper class?

Ans-

```
package java_lab;
/**
 *
 * @author monks_mojo
 */
public class Java_lab {
    public static void main(String[] args) {
        double b=3.145763;
        char c='A';
        int a=10;
        String str1="777";
        String str2="hello";
        Wrapper_class w1=new Wrapper_class(b,str1);
    }
}
package java_lab;
public class Wrapper_class {
    Wrapper_class(double d, String str){
        Double d1=new Double(d);
        Double d2=new Double(str);
        Double d3=Double.valueOf("76.88");
```

```
        System.out.println("The DOUBLE value "+d2.doubleValue());
        System.out.println("The INT value "+d1.intValue());
        System.out.println("The BYTE value "+d1.byteValue());
        System.out.println("The FLOAT value "+d2.floatValue());
        System.out.println("The LONG value "+d2.longValue());
        System.out.println("The SHORT value "+d3.shortValue());
        System.out.println("The STRING "+d3.toString());
        System.out.println("Invoking object :"+d1+" Called Object :"+d2);
        System.out.println(d1.compareTo(d2));
        System.out.println("Invoking object :"+d1+" Called Object :"+d2);
        System.out.println(d1.equals(d2));
        System.out.println("Returning simple data type");
        System.out.println(Double.parseDouble(str));


    }
}
```



Q-wap in java to show Character wrapper class?

Ans-

```
package java_lab;
/**
 *
 * @author monks_mojo
 */
public class Java_lab {
   public static void main(String[] args) {
       double b=3.145763;
       char c='A';
       int a=10;
       String str1="777";
       String str2="hello";
       Wrapper_class w1=new Wrapper_class(b,str1);
   }
}
package java_lab;


       Wrapper_class(char ch, String str){
       Character ch1=new Character(ch);
       char[] ch2= str.toCharArray();
       System.out.println("Is it a letter"+Character.isLetter(ch1));
```

```
        System.out.println(ch2);
        System.out.println("Is it a Digit"+Character.isDigit(ch1));
        System.out.println("Is it a uppercase"+Character.isUpperCase(ch1));
        System.out.println("Is it a lowercase"+Character.isLowerCase(ch1));
        System.out.println("To uppercase"+Character.toUpperCase(ch1));
        System.out.println("To lowercase"+Character.toLowerCase(ch1));
    }


}
```

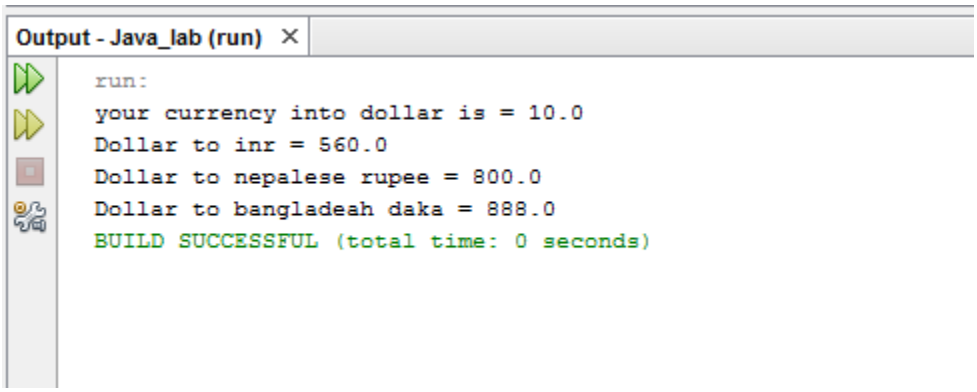
Q-wap in java to implement a MoneyChanger Interface which converts your currency into dollars and vice-versa?

```
package java_lab;

public class Java_lab {

   public static void main(String[] args) {


       MoneyConvertor i2d=new MoneyConvertor(700);

       i2d.To_dollar();

       MoneyConvertor d2=new MoneyConvertor(8);

       d2.Dollar_to();

  }

}
```

```
package java_lab;

public interface MoneyChanger {

   void To_dollar();

   void Dollar_to();

}
```

```
package java_lab;

public class MoneyConvertor implements MoneyChanger {

   float Currency;

   MoneyConvertor( int c){

       Currency=c;

   }
```

```
    @Override
    public void To_dollar(){
        System.out.println("your currency into dollar is = "+Currency/70);
    }
    @Override
    public void Dollar_to(){
        System.out.println("Dollar to inr = "+Currency*70);
        System.out.println("Dollar to nepalese rupee = "+Currency*100);
        System.out.println("Dollar to bangladeah daka = "+Currency*111);
    }
}
```



Q-wap in java to implement a Stack Interface which shows stack push and pop operation using static and dynamic array?

```
package java_lab;

public class Java_lab {

   public static void main(String[] args) {

DynamicArray da=new DynamicArray(4);

      da.push(10);

      da.push(20);

      da.push(30);

      da.push(40);

      da.push(50);

      da.pop();

      da.pop();

      da.stack_print();


          FixedArray f1=new FixedArray(5);

      f1.push(10);

      f1.push(20);

      f1.push(30);

      f1.push(40);

      f1.push(50);

      f1.pop();

      f1.pop();
```

```
        f1.stack_print();


    }
}
package java_lab;
public interface StackInterface {
    void push(int ele);
    void pop();
}
package java_lab;
public class FixedArray implements StackInterface{
    int[] st;
    int top;
    int size=0;

    FixedArray(int s){
        size=s;
        top=-1;
        st= new int[size];
    }

    @Override
    public void push(int ele) {
```

```
    if(top >= size){
        System.out.println("OVERFLOW");
        st= new int[size*2];
    }
    else{
        System.out.println("element pushed into stack"+ele);
        ++top;
        st[top] = ele;
    }
}

@Override
public void pop() {
    if(top<=-1){
        System.out.println("UNDERFLOW");
    }
    else{
        System.out.println("element poped out of stack is "+st[top]);
        --top;

    }
}
```

```
    void stack_print(){
        System.out.println("Printing of stack");
        for(int i=0; i <= top;i++){
            System.out.println(st[i]);
        }
    }

}
package java_lab;
public class DynamicArray {
    int[] st;
    int top;
    int size=0;

    DynamicArray(int s){
        size=s;
        top=-1;
        st= new int[size];
    }

    public void push(int ele) {
        if(top >= (size-1) ){
            System.out.println("OVERFLOW");
```

```
        System.out.println("INCREASING THE SIZE OF ARRAY");
        int temp[];
        temp = new int[size*2];
        for(int i=0; i <= top; i++)
        {
           temp[i]=st[i];
        }
        st=temp;
        ++top;
        st[top]=ele;
        System.out.println("element pushed into stack"+ele);

    }

    else{
        ++top;
        st[top] = ele;
        System.out.println("element pushed into stack"+ele);
    }
}

public void pop() {
    if(top<=-1){
```

```
            System.out.println("UNDERFLOW");
        }
        else{
            System.out.println("element poped out of stack is "+st[top]);
            --top;

        }
    }

    void stack_print(){
        for(int i=0; i<= top;i++){
            System.out.println(st[i]);
        }
    }
}
```

```
element pushed into stack10
element pushed into stack20
element pushed into stack30
element pushed into stack40
element pushed into stack50
element poped out of stack is 50
element poped out of stack is 40
Printing of stack
10
20
30
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output - Java_lab (run)

```
run:
element pushed into stack10
element pushed into stack20
element pushed into stack30
element pushed into stack40
OVERFLOW
INCREASING THE SIZE OF ARRAY
element pushed into stack50
element poped out of stack is 50
element poped out of stack is 40
10
20
30
```

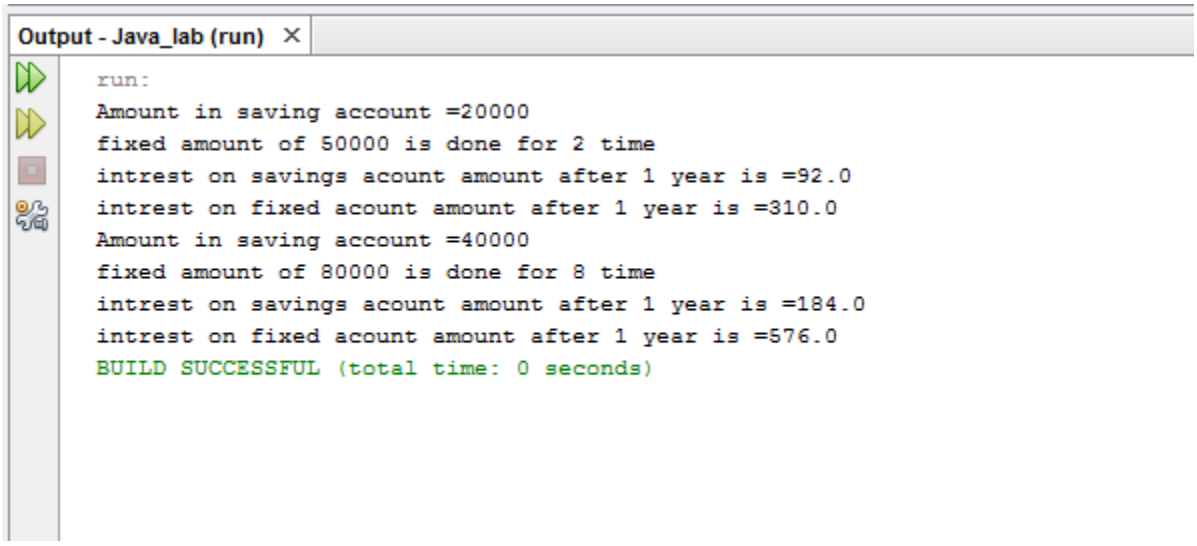
Q-wap in java to implement a IntrestRate Interface which different interest rate on savings and fixed deposit amount and return interest after 1 year?

```
package java_lab;

public class Java_lab {

    public static void main(String[] args) {


        MyAccount a1=new MyAccount(20000,50000,2);

        a1.passbook();

        a1.calculate_amnt();

        MyAccount a2=new MyAccount(40000,80000,8);

        a2.passbook();

        a2.calculate_amnt();

        }

}
```

```
package java_lab;

public interface IntrestRate {

   final static double SBR = 0.46;

   final static double  FDR1 = 0.62;

   final static double FDR2 = 0.72;

    void calculate_amnt();

}
```

```
package java_lab;
public class MyAccount implements IntrestRate {
   int sa_amount;
   int time;
   int fd_amount;
   float si_sa;
   float si_fda;
   MyAccount(int sa,int fda, int t){
      sa_amount=sa;
      time=t;
     fd_amount=fda;
   }

   void passbook(){
      System.out.println("Amount in saving account ="+sa_amount);
      System.out.println("fixed amount of "+fd_amount+" is done for "+time+" time");
   }

   @Override
   public void calculate_amnt() {
      si_sa=(float) ((sa_amount*SBR*1)/100);
      System.out.println("intrest on savings acount amount after 1 year is ="+si_sa);
      if(time >= 5){
```

```
        si_fda=(float) ((fd_amount*FDR2*1)/100);
        System.out.println("intrest on fixed acount amount after 1 year is ="+si_fda);
        }
        else{
         si_fda=(float) ((fd_amount*FDR1*1)/100);
         System.out.println("intrest on fixed acount amount after 1 year is ="+si_fda);
        }

    }

}
```



Q-WAP to Exception Handling in java?

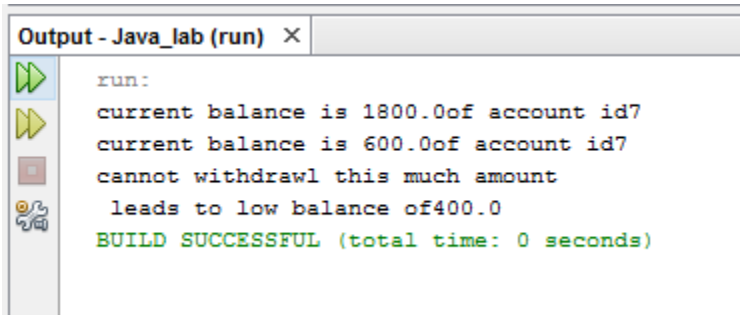
Ans-

```
package java_lab;

public class Java_lab {

   public static void main(String[] args) {

            try {Passbook p1=new Passbook(800,7);

      p1.deposit(1000);

      System.out.println(p1);

      p1.withdrawl(1200);

      System.out.println(p1);

      p1.withdrawl(200);

      }

      catch(PassbookException pe){

         System.out.println(pe);

      }


}

package java_lab;

/**

 *

 * @author monks_mojo

 */

public class Passbook {

   double acc_bal;

   final double min_bal=500;
```

```
int acc_id;

Passbook(double bal, int id){
  acc_bal=bal;
  acc_id=id;
}

void deposit(double d_amount ){
   acc_bal+=d_amount;
}

void withdrawl(double w_amount)throws PassbookException {
  double temp_bal=acc_bal- w_amount;
  if(temp_bal<=min_bal){
     throw new PassbookException(temp_bal);
  }
  else{
     acc_bal-=w_amount;
  }

}

/**
 *
 * @return
```

```
     */
    @Override
    public String toString(){
        return String.format("current balance is "+this.acc_bal+"of account id"+this.acc_id);
    }
}
package java_lab;


/**
 *
 * @author monks_mojo
 */
public class PassbookException extends Exception {
    double low_bal;
    PassbookException(double a){
        low_bal=a;
    }


    /**
     *
     * @return
     */
    @Override
    public String toString(){
        return String.format("cannot withdrawl this much amount\n leads to low balance of"+low_bal);
```

```
    }
}
```


Output - Java_lab (run)
run:
current balance is 1800.0of account id7
current balance is 600.0of account id7
cannot withdrawl this much amount
 leads to low balance of400.0
BUILD SUCCESSFUL (total time: 0 seconds)

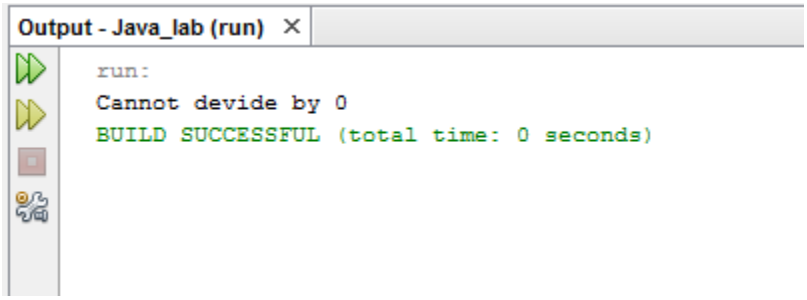
Q-WAP to show Nested Exception Handling in java?

Ans-

case-1 : outer try throw exception

```
package java_lab;


@author monks_mojo


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


        int a=8,b=0;
        int arr[]={10,8,7,6};
        double result;


        try{
            result=a/b;
            System.out.println("Devision Result="+result);
            try{
                System.out.println("Array element"+arr[4]);
            }finally{


                System.out.println("nested try dosen't have its catch so going for outer try catch");
            }
        }
```

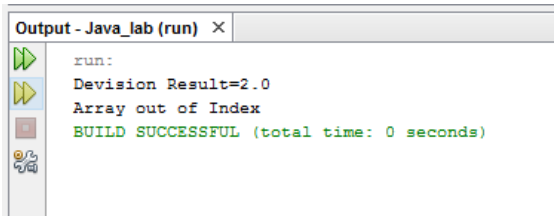
```
        catch(ArithmeticException ae){
              System.out.println("Cannot devide by 0");
           }
        catch(Exception e){
           System.out.println("Array out of index or no. is devided by zero");
        }
}
```



case-2 : inner try throw exception with appropriate catch

```
package java_lab;


* @author monks_mojo

public class Java_lab {


   /**
    * @param args the command line arguments
    */
   public static void main(String[] args) {


      int a=8,b=0;
```

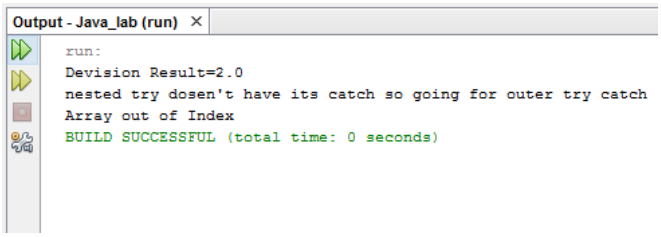
```
    int arr[]={10,8,7,6};
    double result;

    try{
       result=a/b;
       System.out.println("Devision Result="+result);
       try{
          System.out.println("Array element"+arr[4]);
       }
          catch(ArrayIndexOutOfBoundsException ae){
       System.out.println("Array out of Index");
    }



    }
    catch(ArithmeticException ae){
          System.out.println("Cannot devide by 0");
       }
    catch(Exception e){
       System.out.println("Array out of index or no. is devided by zero");
    }
}
```



case-3 : inner try throw exception witjout catch defined with inner try

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package java_lab;


/**
 *
 * @author monks_mojo
 */
public class Java_lab {


   /**
    * @param args the command line arguments
    */
   public static void main(String[] args) {


      int a=8,b=0;
      int arr[]={10,8,7,6};
      double result;


      try{
         result=a/b;
```

```
        System.out.println("Devision Result="+result);
        try{
            System.out.println("Array element"+arr[4]);
        }finally{

            System.out.println("nested try dosen't have its catch so going for outer try catch");
        }
    }
    catch(ArrayIndexOutOfBoundsException ae){
        System.out.println("Array out of Index");
    }
    catch(ArithmeticException ae){
            System.out.println("Cannot devide by 0");
        }
    catch(Exception e){
        System.out.println("Array out of index or no. is devided by zero");
    }
}
```



Q-WAP to show Custom Exception Handling in java?

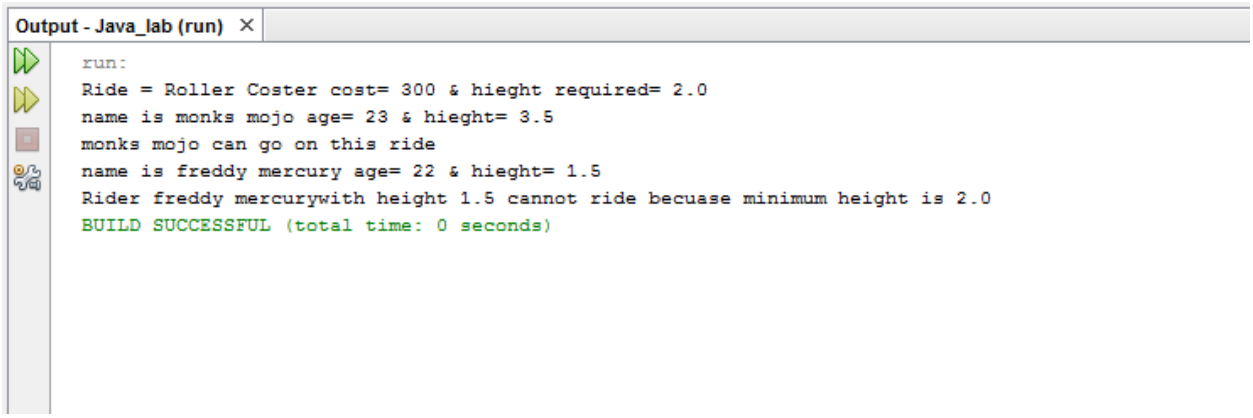
Ans-

```
package java_lab;

* @author monks_mojo

public class Java_lab {

    public static void main(String[] args) {

        try{

            Ride r1=new Ride("Roller Coster",300,2.0);

            System.out.println(r1);

            Person p1=new Person(23,"monks mojo",3.5);

            System.out.println(p1);

            r1.check_height(p1);

            Person p2=new Person(22,"freddy mercury",1.5);

            System.out.println(p2);

            r1.check_height(p2);

        }catch(Height_exception he){

         System.out.println(he);

        }

  }

package java_lab;

public class Person {

    int age;

    String name;

    double height;


    Person(int a,String n, double h){
```

```
        age=a;
        name=n;
        height=h;
    }
    public double get_height(){
        return height;
    }

    public String get_name(){
        return name;
    }
    @Override
    public String toString(){
        return String.format("name is "+name+" age= "+age+" & hieght= "+height);
    }}\
package java_lab;
class Height_exception extends Exception {
    String rider_name;
    double rider_height;
    double min_height;

 Height_exception(Person p0,double temp_height,double height_required ){
     rider_name=p0.get_name();
     rider_height=temp_height;
     min_height=height_required;
```

```
 }
    public String toString(){
      return String.format("Rider "+rider_name+"with height "+rider_height+" cannot ride becuase minimum height is "+min_height);
   }
}
package java_lab;


public class Ride {
   String ride_name;
   int cost;
   double height_required;


   Ride(String rn,int c,double hr){
     ride_name=rn;
     cost=c;
     height_required=hr;
   }
   void check_height(Person p0) throws Height_exception{
      double temp_height=p0.get_height();
      if(temp_height<height_required){
         throw new Height_exception(p0,temp_height,height_required);
      }
      else{
         System.out.println(p0.get_name()+" can go on this ride");
      }
```

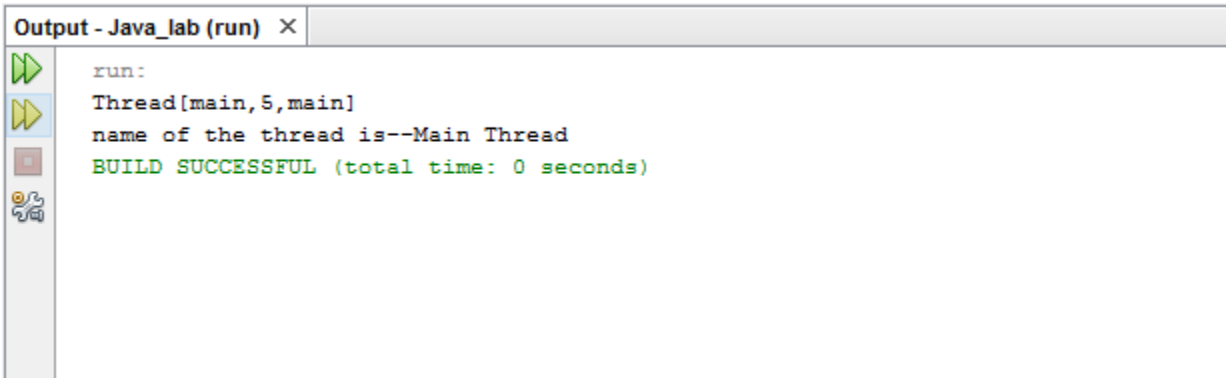
```
    }

    @Override
    public String toString(){
        return String.format("Ride = "+ride_name +" cost= "+cost+" & hieght required= "+height_required);
    }
}
```



Q-WAP to show main thread in java by implementing runnable class?

Ans-

```
package java_lab;

* @author monks_mojo

 public class Java_lab {

    public static void main(String[] args) {


        Thread t1=Thread.currentThread();

        System.out.println(t1);

        t1.setName("Main Thread");

        System.out.println("name of the thread is--"+t1.getName());

}
```

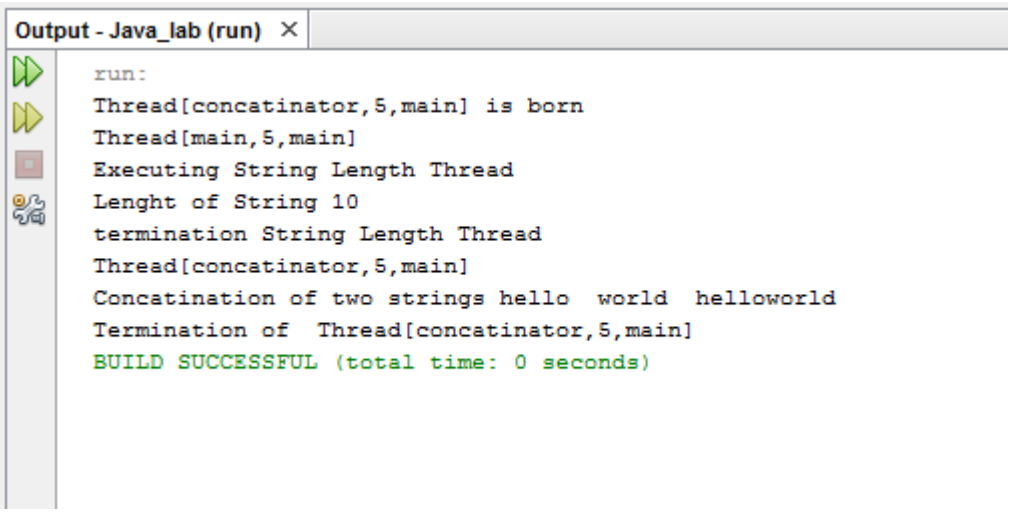


Q-WAP to show main thread and a child thread in java by implementing runnable class?

Ans-

```
package java_lab;

* @author monks_mojo

public class Java_lab {

    * @param args the command line arguments

   public static void main(String[] args) {

     One_Thread ot1 = new One_Thread();

       Thread t1=Thread.currentThread();

       System.out.println(t1);

       t1.setName("String Length Thread");

       String r=ot1.return_string();

       System.out.println("Executing "+t1.getName());

       System.out.println("Lenght of String "+r.length());

       System.out.println("termination "+t1.getName());

}

package java_lab;

* @author monks_mojo

 */

public class One_Thread implements Runnable  {

   String a="hello";

   String b="world";

   One_Thread(){
```

```
    Thread t1= new Thread(this,"concatinator");
    System.out.println(t1+" is born");
    t1.start();
}

String return_string(){
    String c;
    c=a+b;
    return c;
}

@Override
public void run() {
    System.out.println(Thread.currentThread());
    String c=a+b;
    System.out.println("Concatination of two strings "+ a +"  "+ b+"  " +c);
    System.out.println("Termination of  "+Thread.currentThread());
```




```
}
```

Q-WAP to show main thread and a multi child thread in java by implementing runnable class?

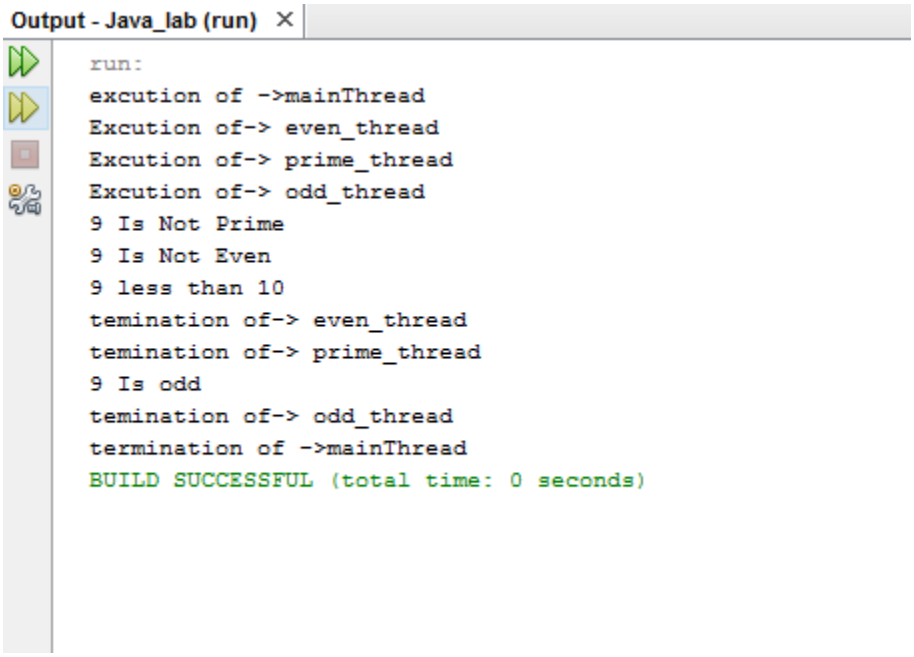
Ans-

```
package java_lab;

public class Three_Thread implements Runnable {
  int no=9;
  Three_Thread(){
     Thread tt1=new Thread(this,"even_thread");
     Thread tt2=new Thread(this,"odd_thread");
     Thread tt3=new Thread(this,"prime_thread");
     tt1.start();
     tt2.start();
     tt3.start();
  }

  public int return_no(){
     return no;
  }

   @Override
   public void run() {
      Thread tt0=Thread.currentThread();
      String tn=tt0.getName();
      if(tn.equals("even_thread")) {
         System.out.println("Excution of-> "+tn);
```

```
    if(no%2==0){
     System.out.println(no+" Is Even");
    }
    else{
       System.out.println(no+" Is Not Even");
    }
    System.out.println("temination of-> "+tn);
}



else if(tn.equals("odd_thread")){
    System.out.println("Excution of-> "+tn);
    if(no%2!=0){
     System.out.println(no+" Is odd");
    }
    else{
       System.out.println(no+" Is Not odd");
    }
    System.out.println("temination of-> "+tn);
}

else{
    int flag=0;
    System.out.println("Excution of-> "+tn);
    for(int i=2; i<no; i++){
```

```
            if(no%i == 0){
            flag=1;
            }
        }
        if(flag==1){
            System.out.println(no+" Is Not Prime");
        }
        else{
            System.out.println(no+" Is Prime");
        }


        System.out.println("temination of-> "+tn);
      }

     }
   }
package java_lab;
* @author monks_mojo
 public class Java_lab {
    public static void main(String[] args) {

     Three_Thread obj1=new Three_Thread();

      Thread mt=new Thread();
```

```
mt.setName("mainThread");
String mt_name=mt.getName();
System.out.println("excution of ->"+mt_name);
int no=obj1.return_no();
if(no>=10){
   System.out.println(no+" Greater than 10");

}
else{
   System.out.println(no+" less than 10");
}
System.out.println("termination of ->"+mt_name);
}
```



Q-WAP to show multi child thread in java by extending thread class?

Ans-

```
package java_lab;

 * @author monks_mojo

 public class Java_lab {

    public static void main(String[] args) {

        T_threechild tc1=new T_threechild("even_thread");

        T_threechild tc2=new T_threechild("odd_thread");

        T_threechild tc3=new T_threechild("prime_thread");

        }
```

```
package java_lab;

public class T_threechild extends Thread{

    int no=6;

    T_threechild(String name){

     super(name);

     System.out.println("Creation of thread child by extending thread class");

     start();

    }

    @Override

    public void run(){

        Thread tt0=Thread.currentThread();

        String tn=tt0.getName();

        if(tn.equals("even_thread")) {

            System.out.println("Excution of-> "+tn);

            if(no%2==0){

              System.out.println(no+" Is Even");
```

```
    }
    else{
        System.out.println(no+" Is Not Even");
    }
    System.out.println("temination of-> "+tn);
}



else if(tn.equals("odd_thread")){
    System.out.println("Excution of-> "+tn);
    if(no%2!=0){
      System.out.println(no+" Is odd");
    }
    else{
        System.out.println(no+" Is Not odd");
    }
    System.out.println("temination of-> "+tn);
}

else{
    int flag=0;
    System.out.println("Excution of-> "+tn);
    for(int i=2; i<no; i++){
        if(no%i == 0){
        flag=1;
```

```
        }
      }
      if(flag==1){
        System.out.println(no+" Is Not Prime");
      }
      else{
        System.out.println(no+" Is Prime");
     }
      System.out.println("temination of-> "+tn);
   }


  }
}
```

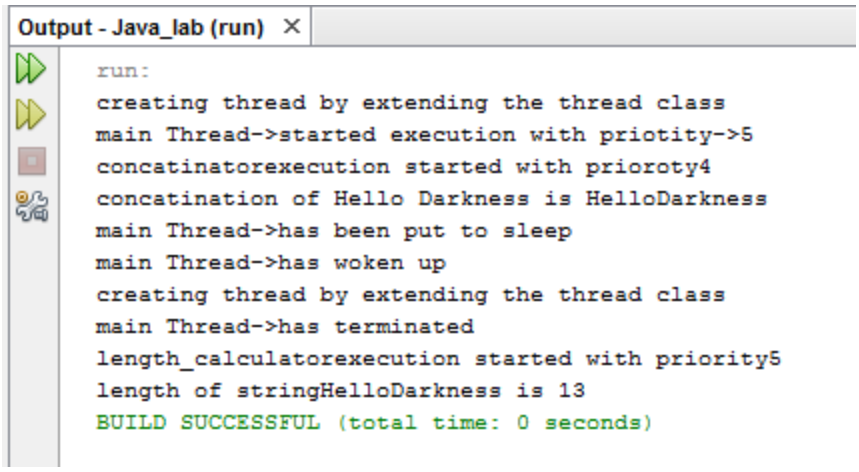
```
run:
Creation of thread child by extending thread class
Creation of thread child by extending thread class
Creation of thread child by extending thread class
Excution of-> even_thread
6 Is Even
temination of-> even_thread
Excution of-> odd_thread
Excution of-> prime_thread
6 Is Not Prime
temination of-> prime_thread
6 Is Not odd
temination of-> odd_thread
BUILD SUCCESSFUL (total time: 0 seconds)
```

Q-WAP to show setPriority and thread.sleep thread class function in java by extending thread class?

Ans-

```
package java_lab;

* @author monks_mojo

public class FN_thread1 extends Thread {
   String s1="Hello";
   String s2="Darkness";
   static int p=3;
   public Thread t1;
   FN_thread1(String name){
      super(name);
      System.out.println("creating thread by extending the thread class");
      start();
   }
   @Override
   public void run(){
      t1=Thread.currentThread();
      String to_name=t1.getName();
      if(to_name.equals("concatinator")){
         t1.setPriority(++p);
         System.out.println(to_name+"execution started with prioroty"+ p);
         String s3=s1+s2;
         System.out.println("concatination of "+ s1+" "+s2+" is "+s3);
      }
```

```
        else{
            t1.setPriority(++p);
            System.out.println(to_name+"execution started with priority"+ p);
            String s3=s1+s2;
            System.out.println("length of string"+ s3+" is "+s3.length());

        }
    }}
package java_lab;
* @author monks_mojo
public class Java_lab {
    public static void main(String[] args) {
    Thread mt=Thread.currentThread();
        mt.setName("main Thread");
        FN_thread1 fn1=new FN_thread1("concatinator");
        try{
            System.out.println(mt.getName()+"->started execution with priotity->"+mt.getPriority());
            Thread.sleep(200);
            System.out.println(mt.getName()+"->has been put to sleep");
        }catch(InterruptedException e1){
            System.out.println("Cant put main thread to sleep ");
        }
        System.out.println(mt.getName()+"->has woken up");
        FN_thread1 fn2=new FN_thread1("length_calculator");
        System.out.println(mt.getName()+"->has terminated");
```


Output - Java_lab (run)
run:
creating thread by extending the thread class
main Thread->started execution with priotity->5
concatinatorexecution started with prioroty4
concatination of Hello Darkness is HelloDarkness
main Thread->has been put to sleep
main Thread->has woken up
creating thread by extending the thread class
main Thread->has terminated
length_calculatorexecution started with priority5
length of stringHelloDarkness is 13
BUILD SUCCESSFUL (total time: 0 seconds)

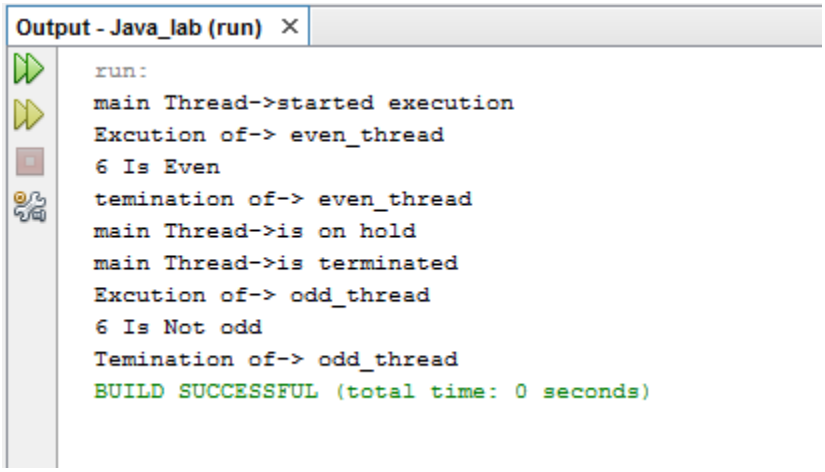
Q-WAP to show join thread class function in java by extending thread class?

Ans-

```
package java_lab;
* @author  monks_mojo
public class FN_thread2 implements Runnable {
   int no=6;
   public Thread tf;

   FN_thread2(String name){
      tf=new Thread(this,name);
      tf.start();
   }
   @Override
   public void run() {
      String tf_name=tf.getName();
      if(tf_name.equals("odd_thread")) {
         System.out.println("Excution of-> "+tf_name);
         if(no%2!=0){
            System.out.println(no+" Is odd");
         }
         else{
            System.out.println(no+" Is Not odd");
```

```
            }
            System.out.println("Temination of-> "+tf_name);
        }



        if(tf_name.equals("even_thread")) {
            System.out.println("Excution of-> "+tf_name);
            if(no%2==0){
                System.out.println(no+" Is Even");
            }
            else{
                System.out.println(no+" Is Not Even");
            }
            System.out.println("temination of-> "+tf_name);
        }
        }
  }
package java_lab;
* @author monks_mojo
public class Java_lab {
     * @param args the command line arguments
    public static void main(String[] args) {
        Thread mt=Thread.currentThread();
        mt.setName("main Thread");
        System.out.println(mt.getName()+"->started execution ");
```

```
FN_thread2 fn2=new FN_thread2("even_thread");
String tf_name = fn2.tf.getName();
if(tf_name.equals("even_thread")){
   try{
    fn2.tf.join();
    System.out.println(mt.getName()+"->is on hold ");
   }catch(InterruptedException e1){
      System.out.println("Cant put main thread to wait");
   }
   FN_thread2 fn22=new FN_thread2("odd_thread");
   System.out.println(mt.getName()+"->is terminated");
}
```



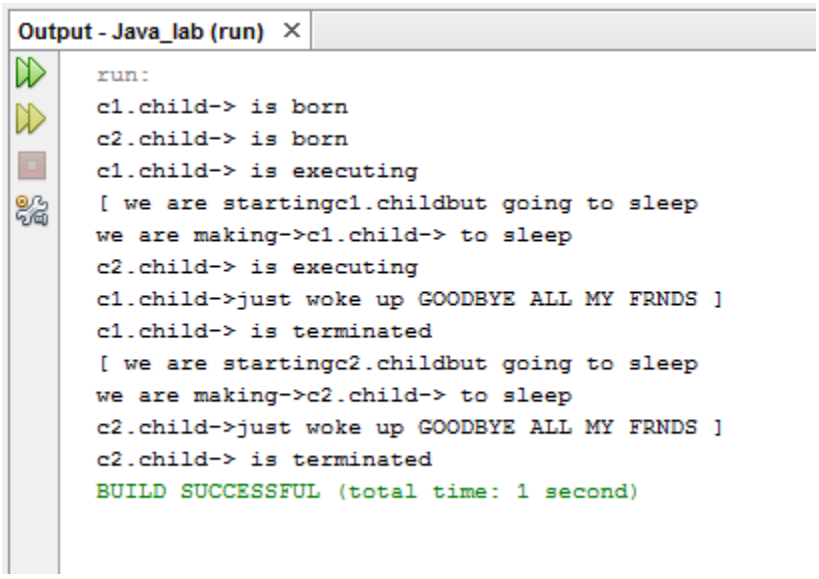
Q-WAP to show synchronized public void method by implementing Runnable class in java by extending thread class?

Ans-

```
package java_lab;

* @author  monks_mojo

public class Call_me {

   synchronized public void call(String name){

   System.out.println("[ we are starting"+name +"but going to sleep");

   try{

      Thread t1=Thread.currentThread();

      System.out.println("we are making->"+t1.getName()+"-> to sleep");

      Thread.sleep(500);

   }catch(InterruptedException e1){

      Thread t1=Thread.currentThread();

      System.out.println(t1.getName()+"-> cant go to sleep");

   }

   System.out.println(name +"->just woke up GOODBYE ALL MY FRNDS ]");

}


}

package java_lab;


public class Caller implements Runnable {

   Call_me target;

   String name;

   Thread t1;
```

```
Caller(Call_me t,String n){
        target=t;
        name=n;
        t1=new Thread(this,name);
        System.out.println(t1.getName()+"-> is born");
        t1.start();
    }

    @Override
    public void run() {
        System.out.println(t1.getName()+"-> is executing");
        target.call(name);
        System.out.println(t1.getName()+"-> is terminated");
    }

}
package java_lab;

/**
 *
 * @author monks_mojo
 */
public class Java_lab {

    /**
```

```
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        Call_me target=new Call_me();
        Caller c1=new Caller(target,"c1.child");
        Caller c2=new Caller(target,"c2.child");
}
```



Q-WAP to show booking and cancellation of tickets simultaneously?

Ans-

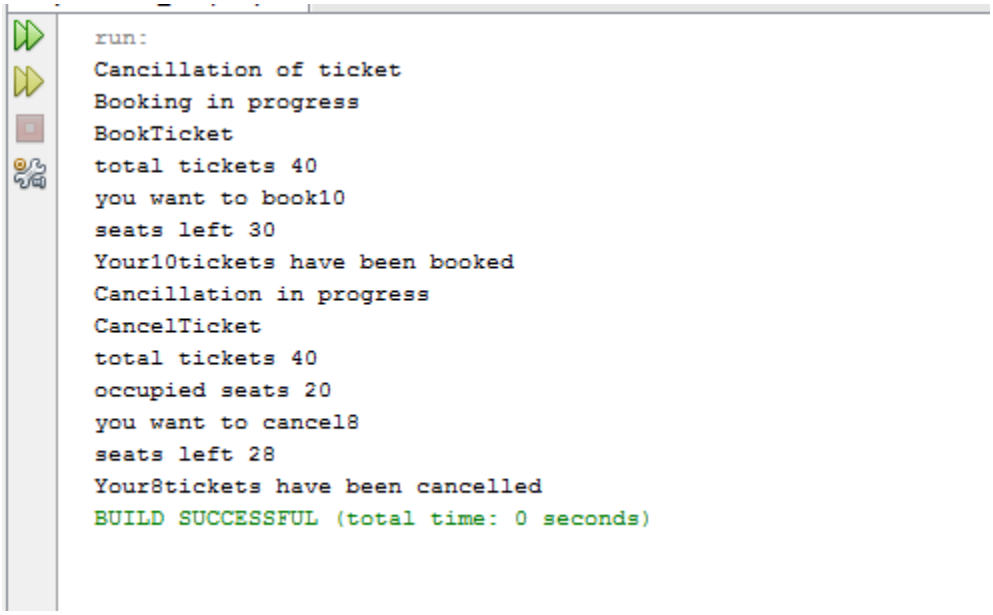
```
package java_lab;
* @author  monks_mojo
public class Train {
final int total_ticket=40;
   static int occupied=10;
   synchronized public int check(int ticket){
      String thread_name=Thread.currentThread().getName();
      System.out.println(thread_name);
      if(thread_name.equals("BookTicket")){
         System.out.println("total tickets "+total_ticket);
         System.out.println("you want to book"+ticket);
            if(ticket+occupied<=total_ticket){
               System.out.println("seats left "+(total_ticket-occupied));
               occupied+=ticket;
               return 1;
            }
      }

      else if(thread_name.equals("CancelTicket")){
         System.out.println("total tickets "+total_ticket);
         System.out.println("occupied seats "+occupied);
         System.out.println("you want to cancel"+ticket);
         if(ticket <= occupied){
```

```
            occupied-=ticket;
            System.out.println("seats left "+(total_ticket-occupied));
            return 1;
        }
        }
          return 0;
    }
}
package java_lab;
public class Booking implements Runnable {
String p_name;
    int age;
    int bticket=0;
    int cticket=0;
    Train seat;
    Booking(String pn, int a){
        p_name=pn;
        age=a;
        seat=new Train();

    }


@Override
    public String toString(){
```

```
    return String.format("Passenger name = " + this.p_name + " age= "+ this.age +" has
booked"+bticket+" tickets and has cancelled "+ cticket+" tickets");
  }

  void book_seat(int pess){
    bticket=pess;
    Thread bt= new Thread(this,"BookTicket");
    bt.start();
  }

  void cancel_seats(int pess){
    System.out.println("Cancillation of ticket");
    cticket=pess;
    Thread ct= new Thread(this,"CancelTicket");
    ct.start();

  }

  @Override
  public void run() {
    Thread current=Thread.currentThread();
    String ct_name=current.getName();

    if(ct_name.equals("BookTicket")){
      System.out.println("Booking in progress");
      int res = seat.check(bticket);
```

```
        if(res==1){
            System.out.println("Your"+bticket+"tickets have been booked" );
        }
        else{
            System.out.println("Your"+bticket+"cannot be booked");
            System.out.println("no vacant seats available");
        }
    }

    else{
        System.out.println("Cancillation in progress");
        if(cticket < bticket){
         int res=seat.check(cticket);
         if(res==1){
             System.out.println("Your"+cticket+"tickets have been cancelled" );
         }
        }
        else{
            System.out.println("Your"+cticket+"cannot be cancelled");
            System.out.println("cancillation more than booking seats");
        }
    }
  }

package java_lab;
```

```
 * @author monks_mojo
public class Java_lab {
    public static void main(String[] args) {

        Booking gratel=new Booking("gratel",55);
        gratel.book_seat(10);
        gratel.cancel_seats(8);

}
```



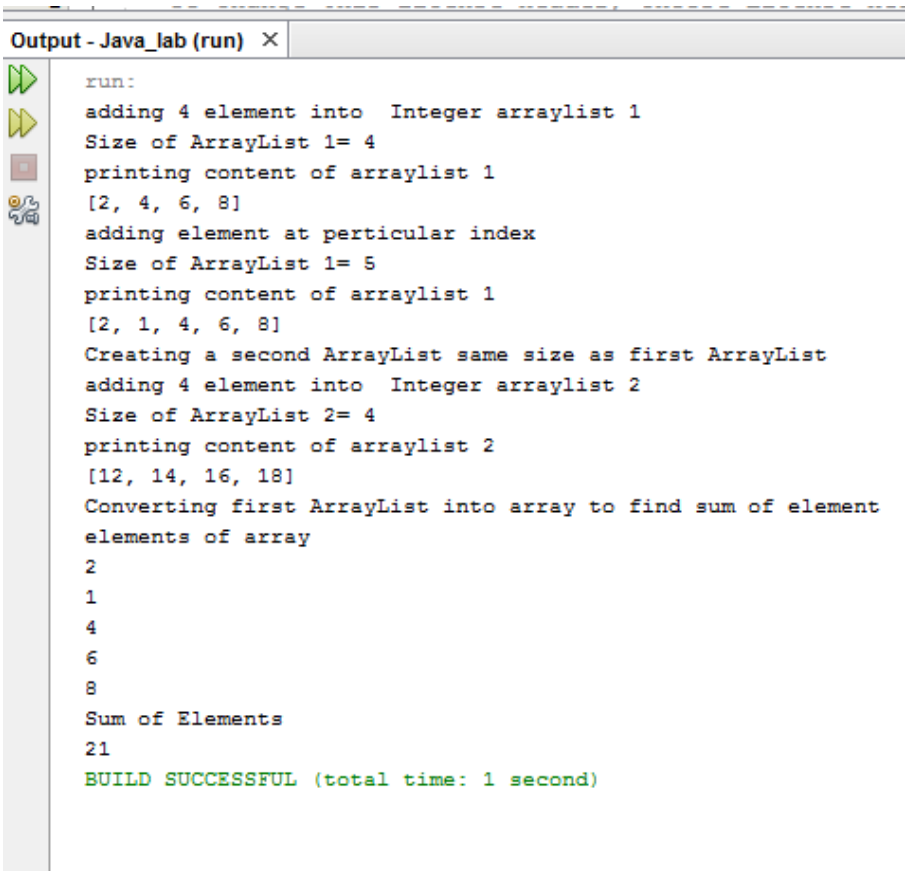
Q-WAP to show Integer Arraylist collection class in java?

Ans-

```
package java_lab;

 * @author monks_mojo

public class Java_lab {

    public static void main(String[] args) {

        Collection_classes cc=new Collection_classes();

        cc.Integer_ArrayList();

}

package java_lab;

import java.util.ArrayList;

import java.util.HashSet;

import java.util.Iterator;

import java.util.LinkedList;

import java.util.TreeSet;

public class Collection_classes {

          ArrayList <String> al1 = new ArrayList();


    void Integer_ArrayList(){

        ArrayList <Integer> ai1 = new ArrayList();

        System.out.println("adding 4 element into  Integer arraylist 1");

        ai1.add(2);

        ai1.add(4);

        ai1.add(6);

        ai1.add(8);

        System.out.println("Size of ArrayList 1= "+ai1.size());
```

```
System.out.println("printing content of arraylist 1");
System.out.println(ai1);
System.out.println("adding element at perticular index");
ai1.add(1,1);
System.out.println("Size of ArrayList 1= "+ai1.size());
System.out.println("printing content of arraylist 1");
System.out.println(ai1);
System.out.println("Creating a second ArrayList same size as first ArrayList");
ArrayList <Integer> ai2 = new ArrayList(ai1.size());
System.out.println("adding 4 element into  Integer arraylist 2");
ai2.add(12);
ai2.add(14);
ai2.add(16);
ai2.add(18);
System.out.println("Size of ArrayList 2= "+ai2.size());
System.out.println("printing content of arraylist 2");
System.out.println(ai2);
System.out.println("Converting first ArrayList into array to find sum of element");
Integer[] arr= new Integer[ai1.size()];
arr=ai1.toArray(arr);
int sum=0;
System.out.println("elements of array");
for (Integer arr1 : arr) {
   System.out.println(arr1);
   sum += arr1;
```

```
    }
        System.out.println("Sum of Elements");
        System.out.println(sum);
    }
}
```



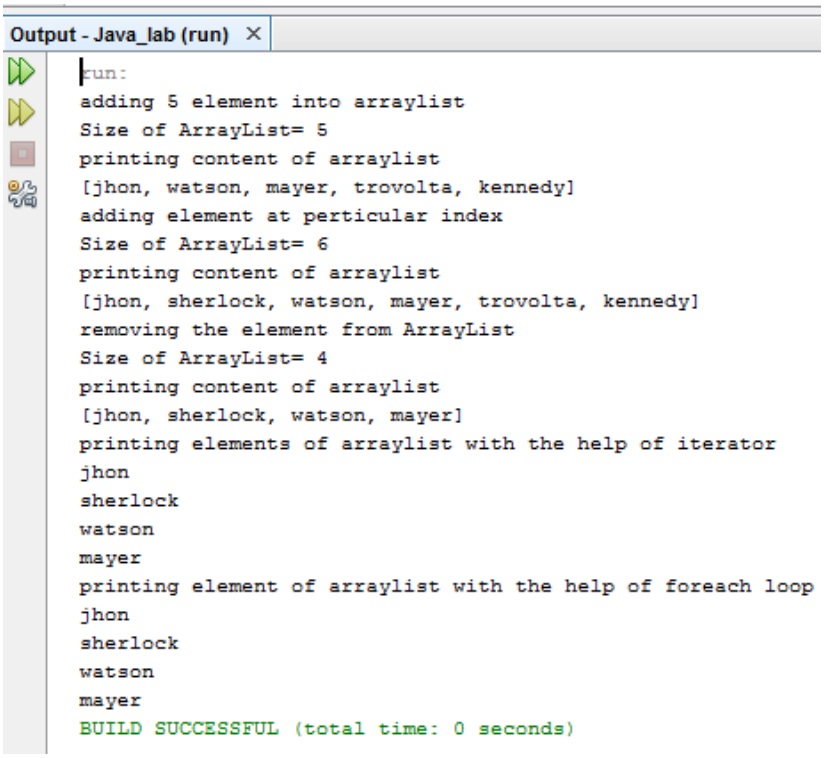
Q-WAP to show String Arraylist collection class in java and print element using iterator and for each loop?

Ans-

```
package java_lab;

* @author monks_mojo

public class Java_lab {

    public static void main(String[] args) {

       Collection_classes cc=new Collection_classes();

       cc.String_ArrayList();

       cc.iterator_print();

      cc.foreach_print();

}

package java_lab;

import java.util.ArrayList;

import java.util.HashSet;

import java.util.Iterator;

import java.util.LinkedList;

import java.util.TreeSet;

public class Collection_classes {

     ArrayList <String> al1 = new ArrayList();

  void String_ArrayList(){

System.out.println("adding 5 element into arraylist");

        al1.add("jhon");

        al1.add("watson");

        al1.add("mayer");

        al1.add("trovolta");
```

```
    al1.add("kennedy");
    System.out.println("Size of ArrayList= "+al1.size());
    System.out.println("printing content of arraylist");
    System.out.println(al1);
    System.out.println("adding element at perticular index");
    al1.add(1,"sherlock");
    System.out.println("Size of ArrayList= "+al1.size());
    System.out.println("printing content of arraylist");
    System.out.println(al1);
    System.out.println("removing the element from ArrayList");
    al1.remove("kennedy");
    al1.remove("trovolta");
    System.out.println("Size of ArrayList= "+al1.size());
    System.out.println("printing content of arraylist");
    System.out.println(al1);

}

void iterator_print(){
    Iterator it=al1.iterator();
    System.out.println("printing elements of arraylist with the help of iterator");
    while(it.hasNext()!=false){
        System.out.println(it.next());
    }
}
```

```
void foreach_print(){
    System.out.println("printing element of arraylist with the help of foreach loop");
    for(String o: al1){
        System.out.println(o);
    }
}
```



Q-WAP to show Likedlist, Hashset & Treeset collection class in java ?

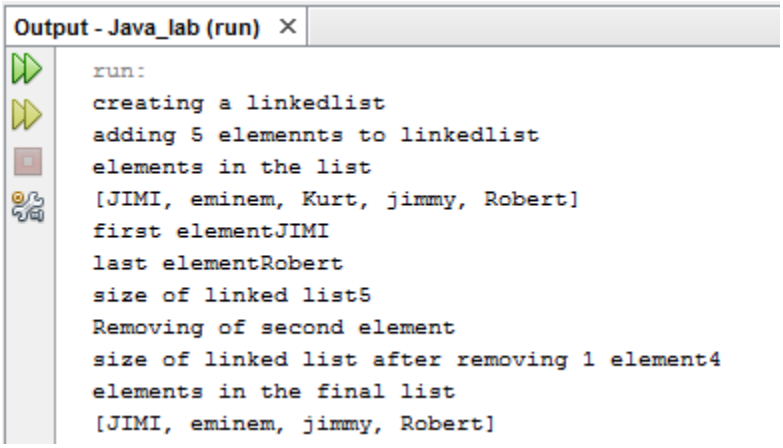
Ans-

```
void String_LinkedList(){

      System.out.println("creating a linkedlist");

      LinkedList <String> ll1=new LinkedList();

      System.out.println("adding 5 elemennts to linkedlist");

      ll1.addFirst("Kurt");

      ll1.push("eminem");

      ll1.add("jimmy");

      ll1.add(0,"JIMI");

      ll1.addLast("Robert");

      System.out.println("elements in the list");

      System.out.println(ll1);

      System.out.println("first element"+ ll1.getFirst());

      System.out.println("last element"+ll1.getLast());

      System.out.println("size of linked list"+ll1.size());

      System.out.println("Removing of second element");

      ll1.remove(2);

      System.out.println("size of linked list after removing 1 element"+ll1.size());

      System.out.println("elements in the final list");

      System.out.println(ll1);

   }
```

```
 void Integer_Hashset(){
    HashSet<Integer> hs= new HashSet();
    System.out.println("A HashSet");
    System.out.println("inserting 5 elements");
    hs.add(2);
    hs.add(4);
    hs.add(6);
    hs.add(8);
    hs.add(10);
    System.out.println("printing value of hashset");
    System.out.println(hs);
    System.out.println("Floor function");
}


 void Integer_Treeset(){
    TreeSet<Integer> ts= new TreeSet();
    System.out.println("A treeSet");
    System.out.println("inserting 5 elements");
    ts.add(1);
    ts.add(3);
    ts.add(5);
    ts.add(7);
```

```
      ts.add(9);
      System.out.println("printing value of Treeset");
      System.out.println(ts);
      System.out.println("Floor function  "+ ts.floor(8));
      System.out.println("higher function  "+ ts.higher(8));
      System.out.println("lower function  "+ ts.lower(8));
      System.out.println("Pollfirst function  "+ ts.pollFirst());
      System.out.println("Polllast function  "+ ts.pollLast());
      System.out.println("printing value of Treeset after functions");
      System.out.println(ts);
   }
}
package java_lab;

/**
 *
 * @author monks_mojo
 */
public class Java_lab {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
      Collection_classes cc=new Collection_classes();
```

```
        cc.String_LinkedList();

        cc.Integer_Hashset();

        cc.Integer_Treeset();
}
```



```
Output - Java_lab (run)
run:
creating a linkedlist
adding 5 elemennts to linkedlist
elements in the list
[JIMI, eminem, Kurt, jimmy, Robert]
first elementJIMI
last elementRobert
size of linked list5
Removing of second element
size of linked list after removing 1 element4
elements in the final list
[JIMI, eminem, jimmy, Robert]
```

```
A HashSet
inserting 5 elements
printing value of hashset
[2, 4, 6, 8, 10]
```

```
A treeSet
inserting 5 elements
printing value of Treeset
[1, 3, 5, 7, 9]
Floor function  7
higher function  9
lower function  7
Pollfirst function  1
Polllast function  9
printing value of Treeset after functions
[3, 5, 7]
BUILD SUCCESSFUL (total time: 0 seconds)
```

Q-WAP to show Hashmap, Treemap & Hashtable collection class in java ?

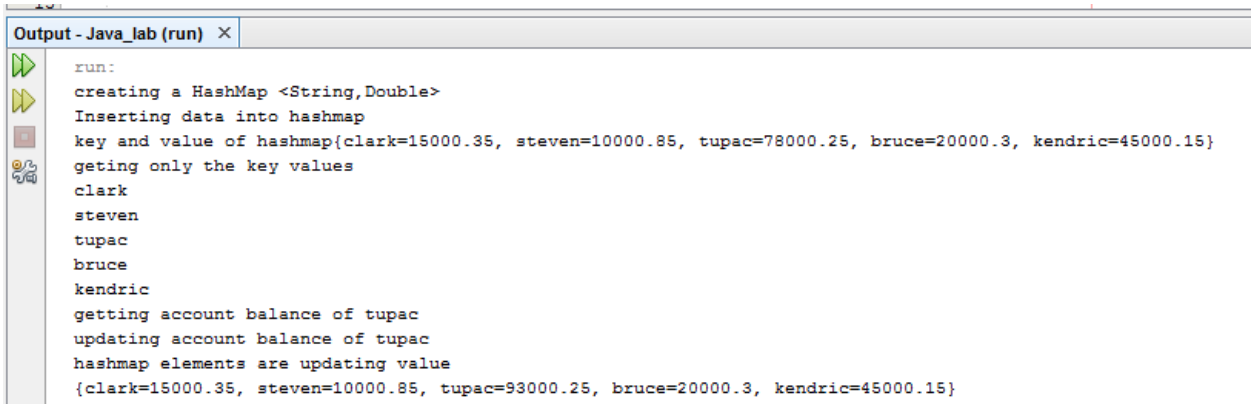
Ans-

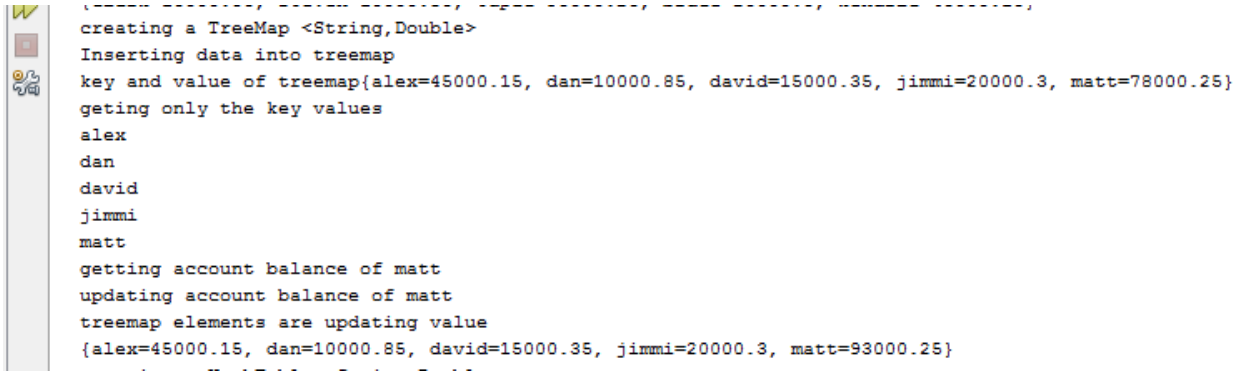
```
package java_lab;

import java.util.*;

* @author monks_mojo

public class Collection_classes {

      void String_Hashmap(){

       System.out.println("creating a HashMap <String,Double> ");

       HashMap hm =new HashMap();

       System.out.println("Inserting data into hashmap");

       hm.put("clark",15000.35);

       hm.put("bruce",20000.30);

       hm.put("steven",10000.85);

       hm.put("kendric",45000.15);

       hm.put("tupac",78000.25);

       System.out.println("key and value of hashmap"+hm);

       System.out.println("geting only the key values");

       Set <String> se1=hm.keySet();

       for(String s: se1){

       System.out.println(s);

       }

       System.out.println("getting account balance of tupac");

       double bal=(double) hm.get("tupac");
```

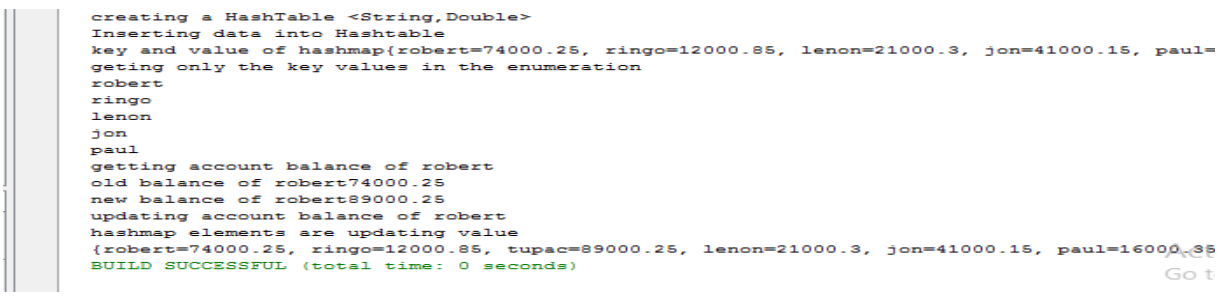
```
    bal+=15000;
    System.out.println("updating account balance of tupac");
    hm.put("tupac", bal);
    System.out.println("hashmap elements are updating value");
    System.out.println(hm);
}

void String_Treemap(){
    System.out.println("creating a TreeMap <String,Double> ");
    TreeMap tm =new TreeMap();
    System.out.println("Inserting data into treemap");
    tm.put("david",15000.35);
    tm.put("jimmi",20000.30);
    tm.put("dan",10000.85);
    tm.put("alex",45000.15);
    tm.put("matt",78000.25);
    System.out.println("key and value of treemap"+tm);
    System.out.println("geting only the key values");
    Set <String> s2=tm.keySet();
    for(String s: s2){
    System.out.println(s);
    }
    System.out.println("getting account balance of matt");
    double bal=(double) tm.get("matt");
    bal+=15000;
```

```
    System.out.println("updating account balance of matt");
    tm.put("matt", bal);
    System.out.println("treemap elements are updating value");
    System.out.println(tm);
}

void String_Hashtable(){
    System.out.println("creating a HashTable <String,Double> ");
    Hashtable ht =new Hashtable();
    System.out.println("Inserting data into Hashtable ");
    ht.put("paul",16000.35);
    ht.put("lenon",21000.30);
    ht.put("ringo",12000.85);
    ht.put("jon",41000.15);
    ht.put("robert",74000.25);
    System.out.println("key and value of hashmap"+ht);
    System.out.println("geting only the key values in the enumeration");
    Enumeration <String> en=ht.keys();
    while(en.hasMoreElements()){
       System.out.println(en.nextElement());
    }
    System.out.println("getting account balance of robert");
    double bal;
    bal = (double) ht.get("robert");
    System.out.println("old balance of robert"+bal);
```

```
        bal+=15000;
        System.out.println("new balance of robert"+bal);
        System.out.println("updating account balance of robert");
        ht.put("tupac", bal);
        System.out.println("hashmap elements are updating value");
        System.out.println(ht);
    }
    }
}
```



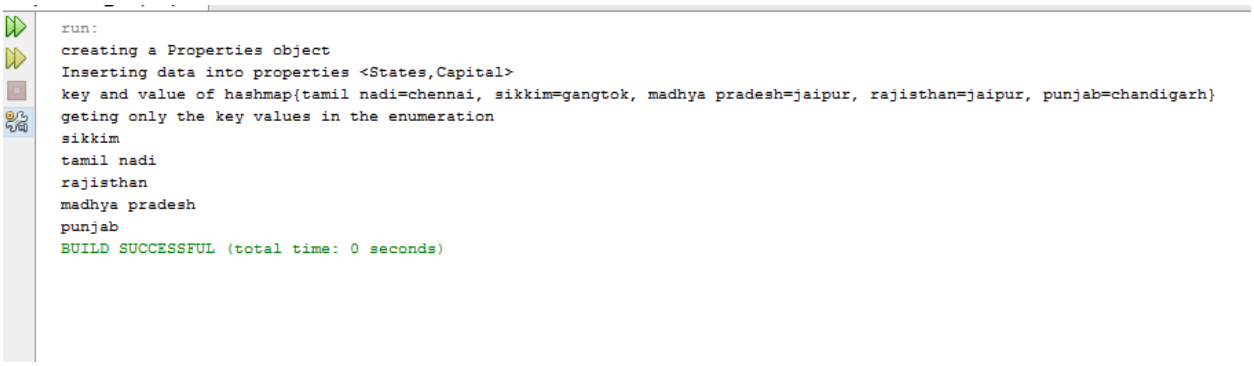




Q-WAP to show Properties class in java ?

Ans-

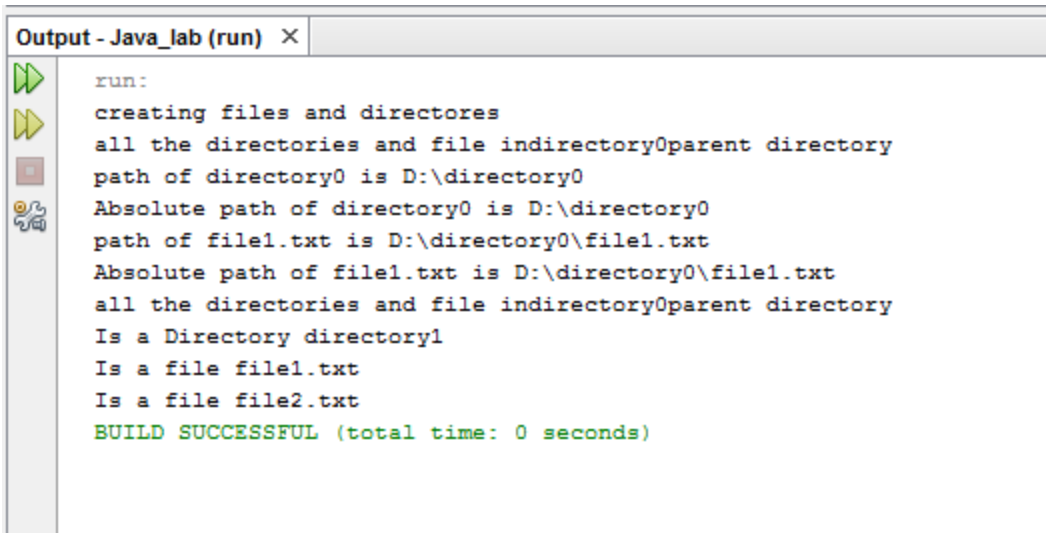
```
public class Java_lab {

public static void main(String[] args) {

Collection_classes cc=new Collection_classes();

cc.state_property();

}

package java_lab;

import java.util.*;

@author monks_mojo

public class Collection_classes {

 void state_property(){

        Properties pr = new Properties();

        System.out.println("creating a Properties object");

        System.out.println("Inserting data into properties <States,Capital> ");

        pr.put("punjab","chandigarh");

        pr.put("rajisthan","jaipur");

        pr.put("madhya pradesh","jaipur");

        pr.put("sikkim","gangtok");

        pr.put("tamil nadi","chennai");

        System.out.println("key and value of hashmap"+pr);

        System.out.println("geting only the key values in the enumeration");

        Enumeration en=pr.propertyNames();

        while(en.hasMoreElements()){

           System.out.println(en.nextElement());

        }   }}
```


run:
creating a Properties object
Inserting data into properties <States,Capital>
key and value of hashmap{tamil nadi=chennai, sikkim=gangtok, madhya pradesh=jaipur, rajisthan=jaipur, punjab=chandigarh}
geting only the key values in the enumeration
sikkim
tamil nadi
rajisthan
madhya pradesh
punjab
BUILD SUCCESSFUL (total time: 0 seconds)

Q-WAP to show File and Directory list in a Directory in java ?

Ans-

```
package java_lab;


import java.io.File;

public class File_Creation {

public void filecreation(){

   System.out.println("creating files and directores");

   File f1 = new File("D:\\directory0");

   File f2=new File(f1.getPath(),"file1.txt");

   File f3=new File(f1.getPath(),"file2.txt");

   File f4=new File(f1.getPath(),"/directory1");

   System.out.println("all the directories and file in"+ f1.getName()+"parent directory");

   System.out.println("path of "+ f1.getName()+ " is "+f1.getPath());

   System.out.println("Absolute path of "+ f1.getName()+ " is "+f1.getAbsolutePath());

   System.out.println("path of "+ f2.getName()+ " is "+f2.getPath());

   System.out.println("Absolute path of "+ f2.getName()+ " is "+f2.getAbsolutePath());

   System.out.println("all the directories and file in"+ f1.getName()+"parent directory");

      File[] filesList = f1.listFiles();

      for(File f : filesList){

         if(f.isDirectory())

            System.out.println("Is a Directory "+f.getName());

         if(f.isFile()){

            System.out.println("Is a file "+f.getName());

         }

      }}
```


Output - Java_lab (run)
run:
creating files and directores
all the directories and file indirectory0parent directory
path of directory0 is D:\directory0
Absolute path of directory0 is D:\directory0
path of file1.txt is D:\directory0\file1.txt
Absolute path of file1.txt is D:\directory0\file1.txt
all the directories and file indirectory0parent directory
Is a Directory directory1
Is a file file1.txt
Is a file file2.txt
BUILD SUCCESSFUL (total time: 0 seconds)

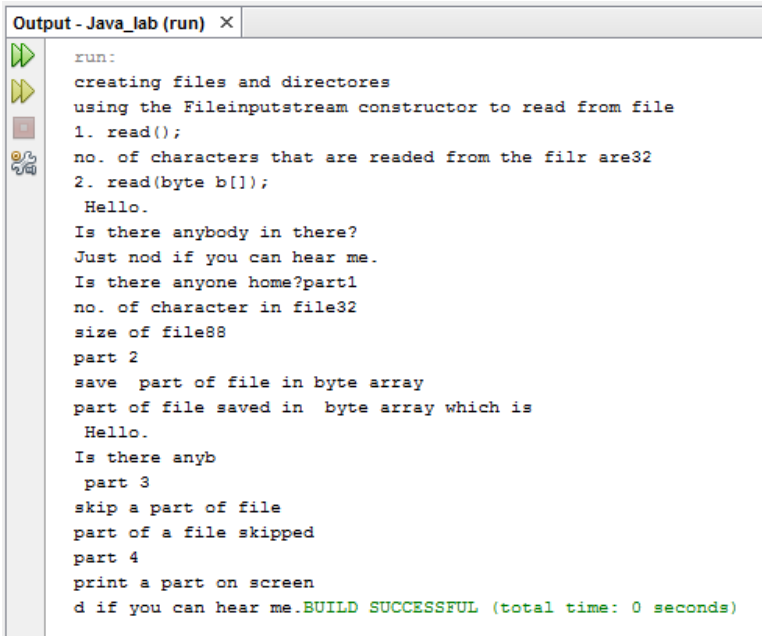
Q-WAP to show FileInputStream Functions in java ?

Ans-

```
package java_lab;

mport java.io.File;

import java.io.FileInputStream;

import java.io.FileNotFoundException;

import java.io.FileOutputStream;

import java.io.IOException;

public class Filefunction {

   void fis_function0() throws FileNotFoundException{

   System.out.println("creating files and directores");

   try{

   File f1 = new File("D:\\directory0\\file1.txt");

   FileInputStream fis=new FileInputStream("D:\\directory0\\file1.txt");

   System.out.println("using the Fileinputstream constructor to read from file");

   System.out.println("1. read();");

   int read0=fis.read();

   System.out.println("no. of characters that are readed from the filr are"+read0);

   System.out.println("2. read(byte b[]);");

   int nobyte=fis.available();

   byte[] text=new byte[nobyte];

   int read1 = fis.read(text);


   for(byte b: text){

      System.out.print((char)b);

   }
```

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



}

void fis_function1() throws FileNotFoundException, IOException{
File f1 = new File("D:\\directory0\\file1.txt");
FileInputStream fis=new FileInputStream("D:\\directory0\\file1.txt");
int no=fis.read();
int size=fis.available();
System.out.println("part1");
System.out.println("no. of character in file"+no);
System.out.println("size of file"+size);



System.out.println("part 2");
System.out.println("save  part of file in byte array");
int part=size/4;
byte[] text0=new byte[part];
int r=fis.read(text0);
System.out.println("part of file saved in  byte array which is");
   for(byte b : text0){
```

```
    System.out.print((char)b);
}

System.out.println("\n part 3");
System.out.println("skip a part of file");
fis.skip(part);
System.out.println("part of a file skipped");

System.out.println("part 4");
System.out.println("print a part on screen");
byte[] text1=new byte[part];
int r1=fis.read(text1);
for(byte b : text1){
    System.out.print((char)b);    }}
```

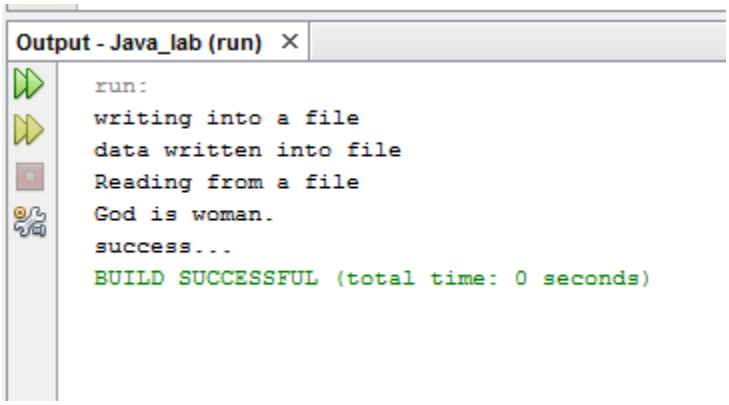


Q-WAP to write and read from a file in java?

Ans-

```
package java_lab;


import java.io.File;

import java.io.FileInputStream;

import java.io.FileNotFoundException;

import java.io.FileOutputStream;

import java.io.IOException;

   void file_copy() throws FileNotFoundException, IOException{


      try(FileOutputStream fos = new FileOutputStream("D:\\directory0\\\\file2.txt")) {

         System.out.println("writing into a file");

          String s="God is woman.";

          byte text1[]=s.getBytes();

          fos.write(text1);

          fos.flush();

          fos.close();

         System.out.println("data written into file");


          FileInputStream fis=new FileInputStream("D:\\directory0\\file2.txt");

          System.out.println("Reading from a file");

          int size=fis.available();

          byte[] text2=new byte[size+5];

          fis.read(text2);

          for(byte b: text2){
```

```
            System.out.print((char)b);
        }

    }catch(Exception e){
        System.out.println(e);
    }
    System.out.println("\nsuccess...");
 }
}
```

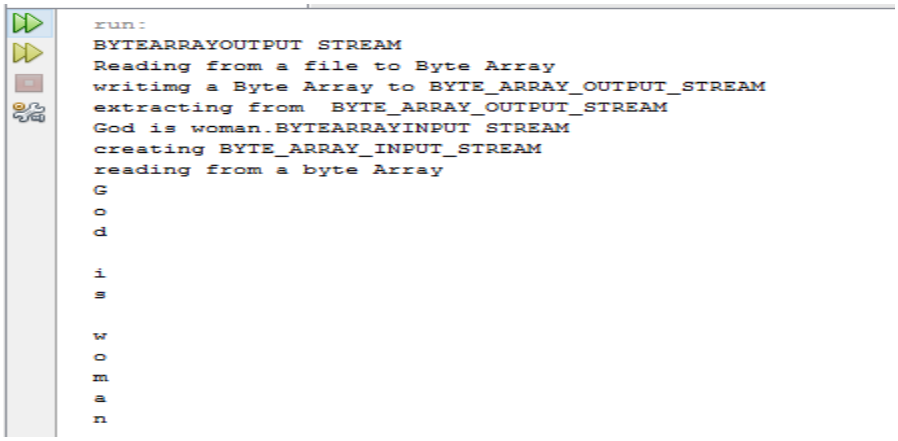


Q-WAP to read from a file to a byte array and write the byte array to another file using ByteArrayOutputStream.

Ans-

```
package java_lab;


import java.io.ByteArrayInputStream;

import java.io.ByteArrayOutputStream;

import java.io.File;

   void ByteArrayStream() throws IOException{

      System.out.println("BYTEARRAYOUTPUT STREAM");

      FileInputStream fis=new FileInputStream("D:\\directory0\\file2.txt");

      System.out.println("Reading from a file to Byte Array");

      int size=fis.available();

      byte[] bs0=new byte[size+5];

      fis.read(bs0);

      ByteArrayOutputStream BAOS=new ByteArrayOutputStream();

      System.out.println("writimg a Byte Array to BYTE_ARRAY_OUTPUT_STREAM");

      BAOS.write(bs0);

      System.out.println("extracting from  BYTE_ARRAY_OUTPUT_STREAM");

      byte[] ba=BAOS.toByteArray();

      for(byte b :ba){

         System.out.print((char)b);

      }


      System.out.println("BYTEARRAYINPUT STREAM");

      System.out.println("creating BYTE_ARRAY_INPUT_STREAM");
```

```
        int c;
        System.out.println("reading from a byte Array");
        ByteArrayInputStream BAIS=new ByteArrayInputStream(bs0);
        while((c=BAIS.read())!=-1){
           System.out.println((char)c);
        }
    }
}
package java_lab;
import java.io.FileNotFoundException;
import java.io.IOException;
* @author monks_mojo
public class Java_lab {
    public static void main(String[] args) throws FileNotFoundException, IOException {
        Filefunction ff1=new Filefunction();
        ff1.ByteArrayStream();
}
}
```

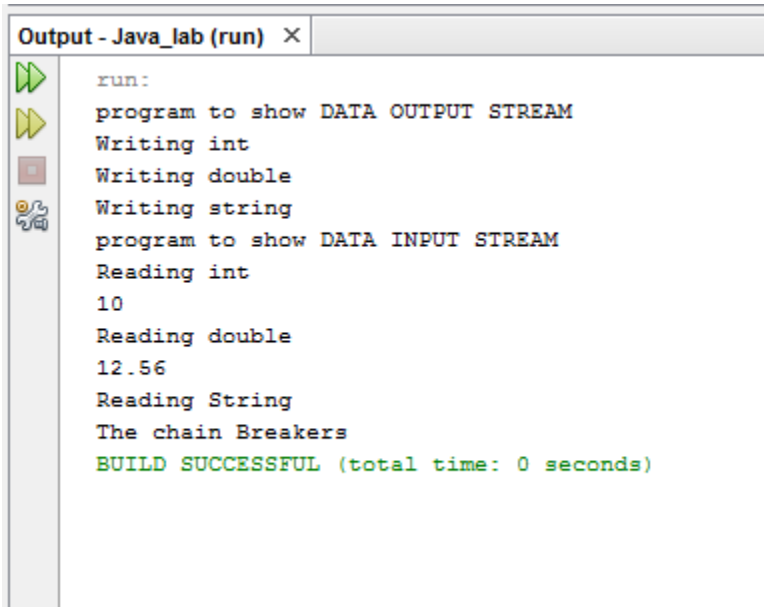


Q-WAP to write and read using DataInputStream and DataOutputStream.

Ans-

```
package java_lab;

import java.io.DataInputStream;

import java.io.DataOutputStream;

import java.io.File;

import java.io.IOException;

import java.io.Serializable;

   void DataStream() throws IOException{

      System.out.println("program to show DATA OUTPUT STREAM");

      DataOutputStream DOS=new DataOutputStream(new
FileOutputStream("D:\\directory0\\file1.txt"));

      System.out.println("Writing int");

      DOS.writeInt(10);

      System.out.println("Writing double");

      DOS.writeDouble(12.56);

      System.out.println("Writing string");

      DOS.writeUTF("The chain Breakers");

      DOS.close();

      System.out.println("program to show DATA INPUT STREAM");

      DataInputStream DIS=new DataInputStream(new FileInputStream("D:\\directory0\\file1.txt"));

      System.out.println("Reading int");

      System.out.println(DIS.readInt());

      System.out.println("Reading double");

      System.out.println(DIS.readDouble());
```

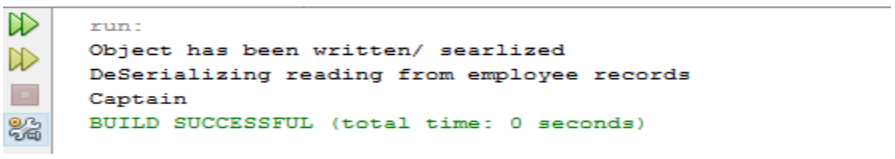
```
        System.out.println("Reading String");
        System.out.println(DIS.readUTF());
        DIS.close();
    }
package java_lab;
import java.io.FileNotFoundException;
import java.io.IOException;
* @author monks_mojo
public class Java_lab {
    public static void main(String[] args) throws FileNotFoundException, IOException {
        Filefunction ff1=new Filefunction();
        ff1.DataStream();
}
}
```



Q-WAP to searialize and deserialize Object using Serialzable Interface.

```
package java_lab;

mport java.io.File;

import java.io.FileInputStream;

import java.io.FileNotFoundException;

import java.io.IOException;

import java.io.ObjectInputStream;

import java.io.ObjectOutputStream;

import java.io.Serializable;

class Employee implements Serializable {

   public String ename;

   public int eno;

   public String edesignation;

   Employee(String ename, int eno,String edesignation){

      this.ename=ename;

      this.eno=eno;

      this.edesignation=edesignation;

   }

   @Override

   public String toString(){

      return String.format("employee name"+ename+"employee designation"+eno+"employee
designation"+edesignation);

   }

}

  void ObjectStream() throws IOException, ClassNotFoundException{
```

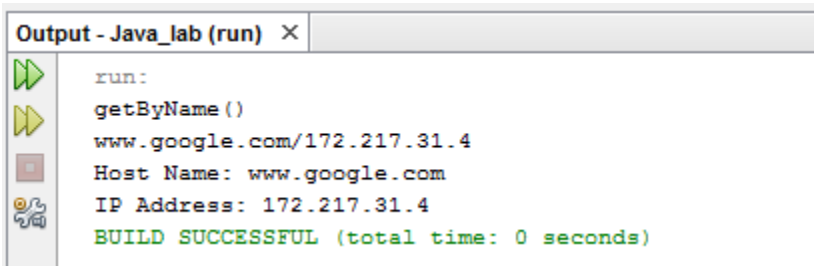
```
        ObjectOutputStream oos=new ObjectOutputStream(new
FileOutputStream("D:\\directory0\\file3.txt"));
        Employee akshita=new Employee("akshita",001,"Captain");
        oos.writeObject(akshita);
        System.out.println("Object has been written/ searlized");
        ObjectInputStream ois=new ObjectInputStream(new FileInputStream("D:\\directory0\\file3.txt"));
        Employee ak=null;
        System.out.println("DeSerializing reading from employee records");
        ak=(Employee)ois.readObject();
        System.out.println(ak);
    }
}
package java_lab;
import java.io.FileNotFoundException;
import java.io.IOException;
* @author monks_mojo
public class Java_lab {

    public static void main(String[] args) throws FileNotFoundException, IOException,
ClassNotFoundException {
        Filefunction ff1=new Filefunction();
        ff1.ObjectStream();
}
}
```



Q-WAP to retrive the Ineternet Address of a website and get all the addresses associated with the host name?

Ans-

```
package java_lab;

import java.net.InetAddress;

import java.net.UnknownHostException;

* @author monks_mojo

public class Java_lab {

   public static void main(String[] args) throws UnknownHostException {

      try{

      System.out.println("getByName()");

      InetAddress ina = InetAddress.getByName("www.google.com");

      System.out.println(ina);

      System.out.println("Host Name: "+ina.getHostName());

      System.out.println("IP Address: "+ina.getHostAddress());

}catch(UnknownHostException ue){

         System.out.println(ue);

      }

      }
```

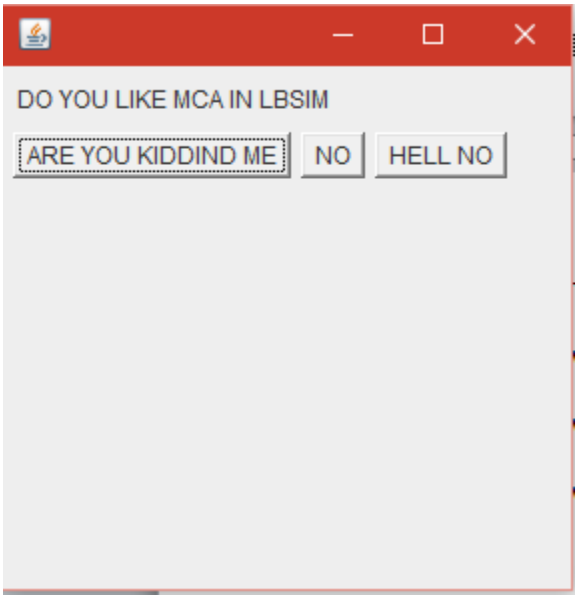


Q-WAP to add button to a frame and set the layout to FlowLayout.

Ans-

```
package java_lab;

import javax.swing.*;

import java.awt.*;

@author xenos martin

public class Java_Awt {

   public static void button_frames(){

      Frame f1=new JFrame();

      Label l1=new Label("DO YOU LIKE MCA IN LBSIM");

      f1.add(l1);

      f1.setLayout(new FlowLayout(FlowLayout.LEADING));

      Button b1=new Button("ARE YOU KIDDIND ME");

      Button b2=new Button("NO");

      Button b3=new Button("HELL NO");


      f1.add(b1);

      f1.add(b2);

      f1.add(b3);

      f1.setLayout(new FlowLayout(FlowLayout.LEFT));

      f1.setSize(300,300);

      f1.setVisible(true);

   }
```

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

Java_Awt.button_frames()

}

}

}
```

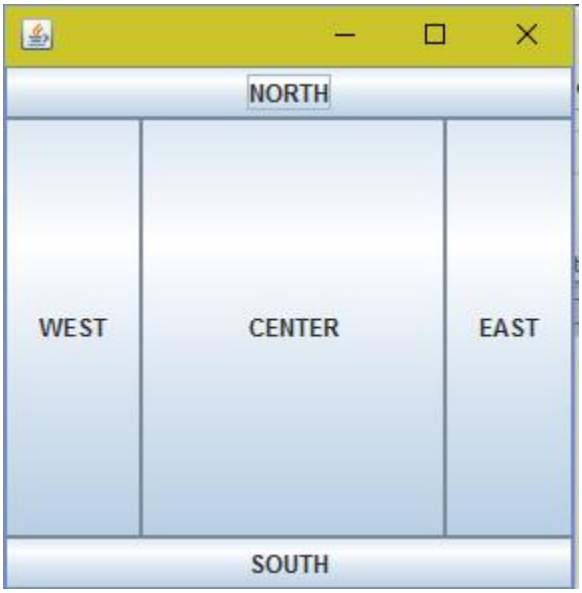


Q-WAP to add button to a frame and set the layout to Borderlayout.

Ans-

```
package java_lab;

import javax.swing.*;

import java.awt.*;

public class Java_Awt {

   public static void button_frames2(){

      JFrame f2=new JFrame();

      JLabel jl1=new JLabel("BorderLayout");

      JButton jb1=new JButton("NORTH");

      JButton jb2=new JButton("SOUTH");

      JButton jb3=new JButton("EAST");

      JButton jb4=new JButton("WEST");

      JButton jb5=new JButton("CENTER");


      f2.add(jl1);

      f2.add(jb1,BorderLayout.NORTH);

      f2.add(jb2,BorderLayout.SOUTH);

      f2.add(jb3,BorderLayout.EAST);

      f2.add(jb4,BorderLayout.WEST);

      f2.add(jb5,BorderLayout.CENTER);


      f2.setSize(300,300);

      f2.setVisible(true);

   }

   }
```

```
package java_lab;

* @author monks_mojo

public class Java_lab {

 public static void main(String[] args) {

       Java_Awt.button_frames2();

}
```

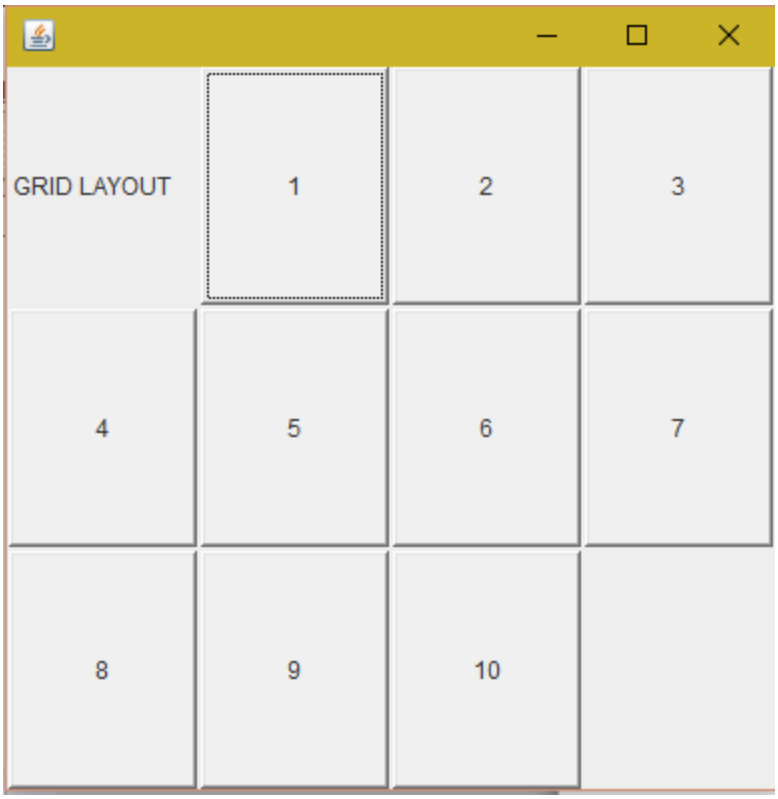


Q-WAP to add button to a frame and set the layout to GridLayout.

Ans-

```
package java_lab;

* @author monks_mojo

public class Java_lab {

    public static void main(String[] args) {

       Java_Awt.button_freames3();

}

}
```

```
package java_lab;

import javax.swing.*;

import java.awt.*;

public class Java_Awt {

 public static void button_freames3(){

        JFrame jf3=new JFrame();

        Label l3=new Label("GRID LAYOUT");

        String name;

        jf3.add(l3);

        for(int i=0; i<10; i++){

            name=String.format("%d",i+1);

            jf3.add(new Button(name));

        }

        jf3.setLayout(new GridLayout(3,5,2,2));

        jf3.setSize(400,400);

        jf3.setVisible(true);

    }}
```


GRID LAYOUT
1
2
3
4
5
6
7
8
9
10

Q-WAP to checkbox function in jawa AWT.

Ans-

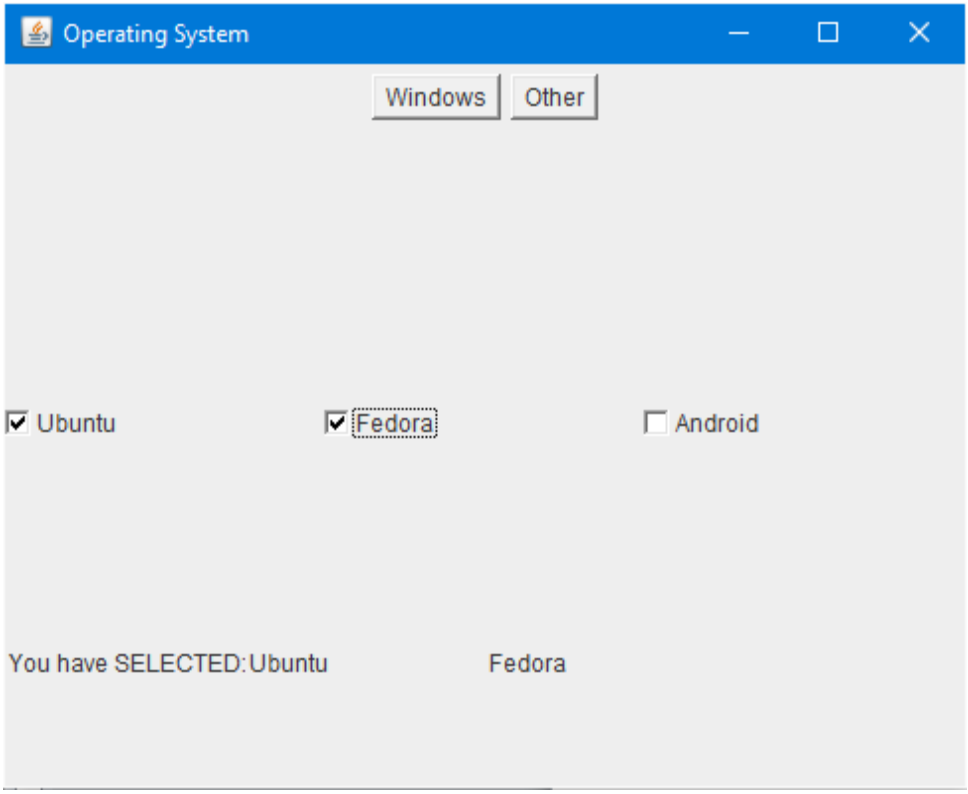
```
package java_lab;

import static com.sun.java.accessibility.util.AWTEventMonitor.addItemListener;

import javax.swing.*;

import java.awt.*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.awt.event.ItemEvent;

import java.awt.event.ItemListener;

* @author xenos martin

public class Java_Awt implements ActionListener,ItemListener {

        JFrame f4;

        Checkbox c1,c2,c3,c4,c5,c6;

        Button b1,b2;

        Panel p1,p2,p3,p4,p5;

        Label l1,l2,l3,l4;

        CardLayout c= new CardLayout();

        String msg="";

    public void Card_action(){

        f4=new JFrame("Operating System");

        f4.setLayout(new GridLayout(3,1));

        p1=new Panel(new FlowLayout());

        f4.add(p1);

        b1=new Button("Windows");

        b2=new Button("Other");
```

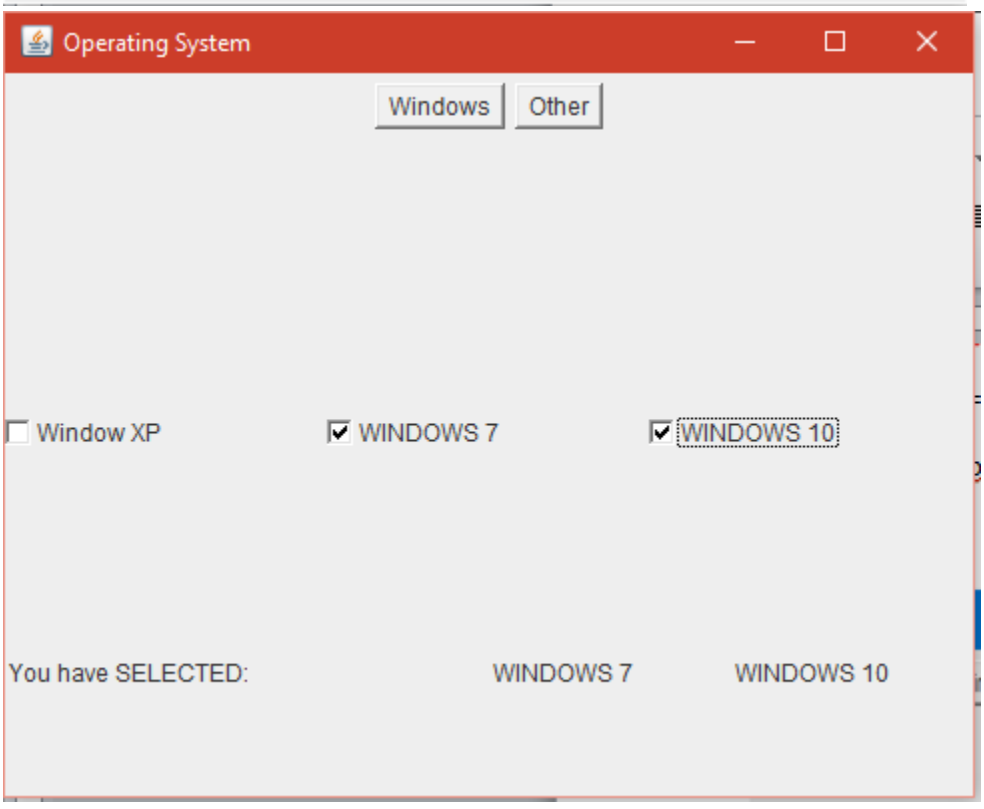
```
b1.addActionListener(this);
b2.addActionListener(this);
p1.add(b1,Component.CENTER_ALIGNMENT);
p1.add(b2,Component.CENTER_ALIGNMENT);

p2=new Panel(new GridLayout());
c1=new Checkbox("Window XP",true);
c2=new Checkbox("WINDOWS 7");
c3=new Checkbox("WINDOWS 10");
c1.addItemListener(this);
c2.addItemListener(this);
c3.addItemListener(this);
p2.add(c1);
p2.add(c2);
p2.add(c3);

p3=new Panel(new GridLayout());

c4=new Checkbox("Ubuntu",true);
c5=new Checkbox("Fedora");
c6=new Checkbox("Android");
c4.addItemListener(this);
c5.addItemListener(this);
c6.addItemListener(this);
p3.add(c4);
```

```
        p3.add(c5);
        p3.add(c6);

        p4=new Panel(c);
        p4.add(p3);
        p4.add(p2);
        f4.add(p4);
        l1 = new Label("You have SELECTED: ");
        l2 = new Label("");
        l3 = new Label("");
        l4 = new Label(" ");

        p5 = new Panel(new GridLayout(1,2));
        p5.add(l1,Component.LEFT_ALIGNMENT);
        p5.add(l2,Component.LEFT_ALIGNMENT);
        p5.add(l3,Component.LEFT_ALIGNMENT);
        p5.add(l4,Component.CENTER_ALIGNMENT);
        f4.add(p5);
        f4.setVisible(true);
        f4.setSize(500,400);
    }

     @Override
     public void actionPerformed(ActionEvent ae) {
        c.next(p4);
```

```
    msg=" ";
    l2.setText(msg);

}

@Override
public void itemStateChanged(ItemEvent i) {
Checkbox c = (Checkbox)i.getSource();
    if(c==c1||c==c4){
        l2.setText(" ");
        if(i.getStateChange()==1){
            l2.setText(((Checkbox) i.getSource()).getLabel());
        }else if(i.getStateChange()==0){
            l2.setText(" ");
        }
    }
    if(c==c2||c==c5){
        l3.setText(" ");
        if(i.getStateChange()==1){
            l3.setText(((Checkbox) i.getSource()).getLabel());
        }else if(i.getStateChange()==0){
            l3.setText(" ");
        }
    }
    if(c==c3||c==c6){
```

```
        l4.setText(" ");
        if(i.getStateChange()==1){
           l4.setText(((Checkbox) i.getSource()).getLabel());
        }else if(i.getStateChange()==0){
           l4.setText(" ");
        } } } }

    public static void main(String[] args) throws UnknownHostException,FileNotFoundException,
IOException, ClassNotFoundException {
        Java_Awt jw=new Java_Awt();
        jw.Card_action();
```


Operating System
Windows
Other
Ubuntu
Fedora
Android
You have SELECTED:Ubuntu
Fedora


Operating System
Windows
Other
Window XP
WINDOWS 7
WINDOWS 10
You have SELECTED:
WINDOWS 7
WINDOWS 10

Q-client server tcp/ip programme?

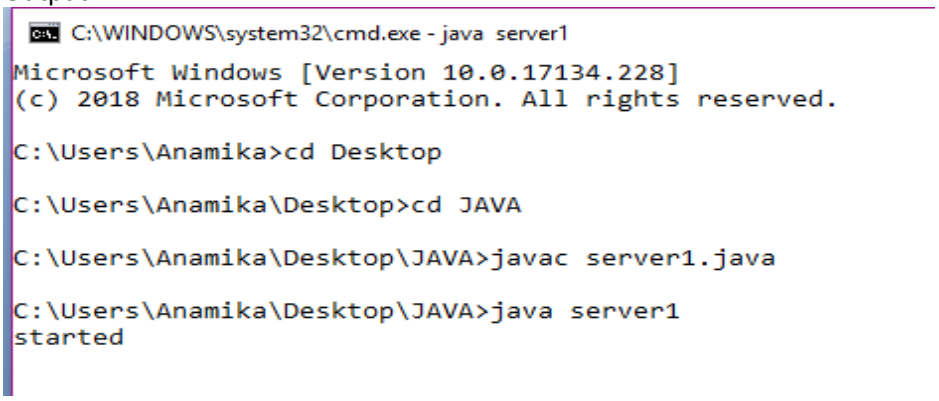
Server program:

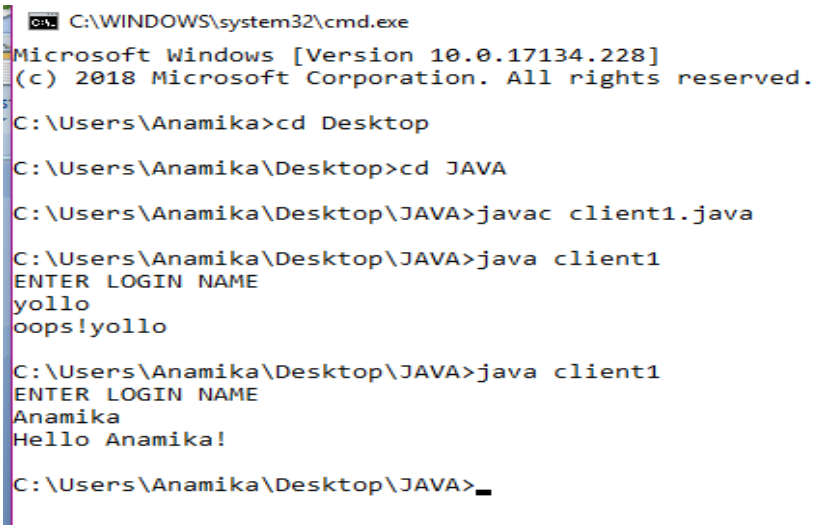
```
import java.io.IOException;
import java.io.PrintStream;
import java.net.ServerSocket;
import java.net.Socket;
import java.util.Scanner;

public class server1 {

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

		try(ServerSocket ss = new ServerSocket(90);) {
			System.out.println("started");
			String loginName , temp;
			while(true)
			{
				Socket s1 = ss.accept();
				Scanner sc = new Scanner(s1.getInputStream());
				loginName = sc.nextLine();
				PrintStream p = new PrintStream(s1.getOutputStream());
				if(loginName.equals("yollo"))
				{
					temp = "oops!"+loginName;
					p.println(temp);
				}else
				{
					temp = "Hello "+loginName+"!";
					p.println(temp);
				}

			}

		} catch (IOException e) {

			e.printStackTrace();
		}

	}

}
```

Client program:

```
import java.io.IOException;
import java.io.PrintStream;
import java.net.Socket;
import java.net.UnknownHostException;
import java.util.Scanner;

public class client1 {
	public static void main(String args[]) throws UnknownHostException, IOException
	{
		String loginName,temp;
		Scanner sc = new Scanner(System.in);
		Socket s = new Socket("127.0.0.1",90);//127.0.0.1 is local host ip address.
		Scanner sc1 = new Scanner (s.getInputStream());//connected to server for response
		System.out.println("ENTER LOGIN NAME");
		loginName =sc.nextLine();
		PrintStream p = new PrintStream(s.getOutputStream());//connected to server for
sending requests
		p.println(loginName);
		temp = sc1.nextLine();
		System.out.println(temp);

	}
}
```

Output:




C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\Anamika>cd Desktop
C:\Users\Anamika\Desktop>cd JAVA
C:\Users\Anamika\Desktop\JAVA>javac client1.java
C:\Users\Anamika\Desktop\JAVA>java client1
ENTER LOGIN NAME
yollo
oops!yollo
C:\Users\Anamika\Desktop\JAVA>java client1
ENTER LOGIN NAME
Anamika
Hello Anamika!
C:\Users\Anamika\Desktop\JAVA>