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## **Program for Calculator**

### **Application 1. Calc.idl:**

```
module WssCalculator

{
interface Calc
{
long calculate(in long operator,in long num1,in long num2);
oneway void shutdown();
};
};
```

### **2. CalcServer.java:**

```
//Importing all the packages and classes

//Import the package which contains the Server Skeleton
import WssCalculator.*;

//Import the below two packages to use the Naming Service
import org.omg.CosNaming.*;

import org.omg.CosNaming.NamingContextPackage.*;

//Import this package to run the CORBA Application
import org.omg.CORBA.*;

//Import the below to Classes for inheriting Portable Server
import org.omg.PortableServer.*;

import org.omg.PortableServer.POA;

//Initiate the ORB using the class Properties
```

---

```
import java.util.Properties;

//Perform the Input-Output functionalities
import java.io.*;

import java.util.*;

//Write the Servant class

//It inherits the general CORBA utilities generated by the
Compiler class Calcserverimpl extends CalcPOA
{

//orb variable is used to invoke the shutdown()

private ORB orb;

public void setORB(ORB orb_val)

{

orb =
orb_val; }

//Declaring and Implementing the required method

public int calculate(int a,int b,int c)

{
```

//ADDITION

if(a==43)

{

return (b+c);

}

//SUBTRACTION

else if(a==45)

{

return (b-c);

}

//MULTIPLICATION

else if(a==42)

{

return (b\*c);

}

//DIVISION

else if(a==47)

{

return (b/c);

}

```
//DEFAULT
```

```
else
```

```
{
```

```
return 0;
```

```
}
```

```
}
```

```
//Closing the server
```

```
public void shutdown()
```

```
{
```

```
orb.shutdown(false);
```

```
}
```

```
}//end of the servant class
```

```
public class CalcServer
```

```
{
```

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

```
{
```

```
try
```

```
{
```

```
//Create and Initialize the ORB object
```

```
//init() allows to set the properties at run time
```

```
ORB orb=ORB.init(args,null);

//Obtain the initial Naming Context

//Obtain an initial object reference to the name server

//orb retrieves the reference to the Root POA

//Activate the POA Manager

//activate() causes the POAs to process the client requests

POA rootpoa=POAHelper.narrow(orb.resolve_initial_references("RootPOA"));

rootpoa.the_POAManager().activate();

//The server instantiates the servant objects

//The servant performs the operations defined in the idlj interface

Calcserverimpl simpl=new Calcserverimpl();

simpl.setORB(orb);

//Get the object reference associated with the servant

//narrow() is used to cast CORBA obj ref to its proper type

org.omg.CORBA.Object ref = rootpoa.servant_to_reference(simpl);

Calc href=CalcHelper.narrow(ref);

//Obtain the initial Naming Context

//Obtain an object reference to the Name Server

org.omg.CORBA.Object objRef=orb.resolve_initial_references("NameService");
```

```
//Narrow the objref to its proper type

NamingContextExt ncRef=NamingContextExtHelper.narrow(objRef);

//Register the Servant with the Name Server

String name = "Calc";

//NameComponent array contains the path to Calc

NameComponent path[]=ncRef.to_name(name);

//Pass the path and the servant object to the Naming Service

//Bind the servant object to Calc

ncRef.rebind(path,href);

System.out.println("The SERVER is READY");

System.out.println("The SERVER is WAITING to receive the CLIENT
requests"); //run() is called by the main thread

//run() enables the ORB to perform work using the main thread

//the server waits until an invocation comes from the ORB

orb.run();

}

catch (Exception e)

{

System.err.println("ERROR: " + e);

e.printStackTrace(System.out);

}
```

```
//This statement is executed when the Client wishes to discontinue
```

```
System.out.println("The Server Exits");
```

```
}//end of main()
```

```
}//end of CalcServer()
```

3. CalcClient.java:

```
//Import all the important packages
```

```
//Import the package which contains the Client Stub
```

```
import WssCalculator.*;
```

```
//Import the below two packages to use the Naming Service
```

```
import org.omg.CosNaming.*;
```

```
import org.omg.CosNaming.NamingContextPackage.*;
```

```
//Import this package to run the CORBA Applicaion
```

```
import org.omg.CORBA.*;
```

```
//Import to perform Input-Output functionalities
```

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

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

```
public class CalcClient
```

```
{
```

```
static Calc cimpl;
```

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

```
{  
  
try  
  
{  
  
//Declaring and initializing the variables  
  
int dec=1;  
  
int i=0;  
  
int j=0;  
  
int k=0;  
  
int result=0;  
  
int x=1;  
  
char c='x';  
  
char d='y';  
  
char f='z';  
  
String abc="vas";  
  
//Create and Initialize the ORB object  
  
//init() allows to set properties at run time  
  
ORB orb=ORB.init(args,null);  
  
//ORB helps the Client to locate the actual services which it needs  
  
//COS Naming Service helps the client to do so  
  
//Obtain the initial Naming Context  
  
//Obtain an object reference to the name server
```



```
org.omg.CORBA.Object objRef=orb.resolve_initial_references("NameService");

//Narrow the objref to its proper type

NamingContextExt ncRef=NamingContextExtHelper.narrow(objRef);

//Identify a String to refer the Naming Service to Calc object

String name="Calc";

//Get a reference to the CalcServer and Narrow it to Calc object

cimpl=CalcHelper.narrow(ncRef.resolve_str(name));

System.out.println("Obtained a handle on the server object");

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

while(x==1)

{

System.out.println("Enter the string:");

abc=br.readLine();

//Separate the input string into separate characters

c=abc.charAt(0);

d=abc.charAt(1);

f=abc.charAt(2);

//Get the ASCII value of the Operator

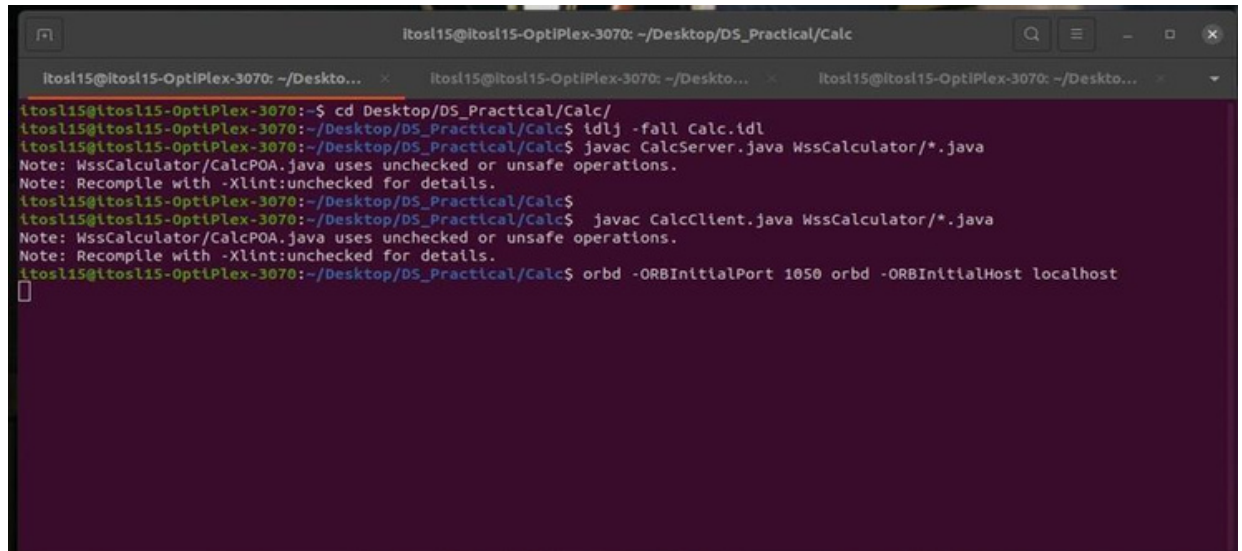
i=(int)c;

//Get the Integer values of the other two characters

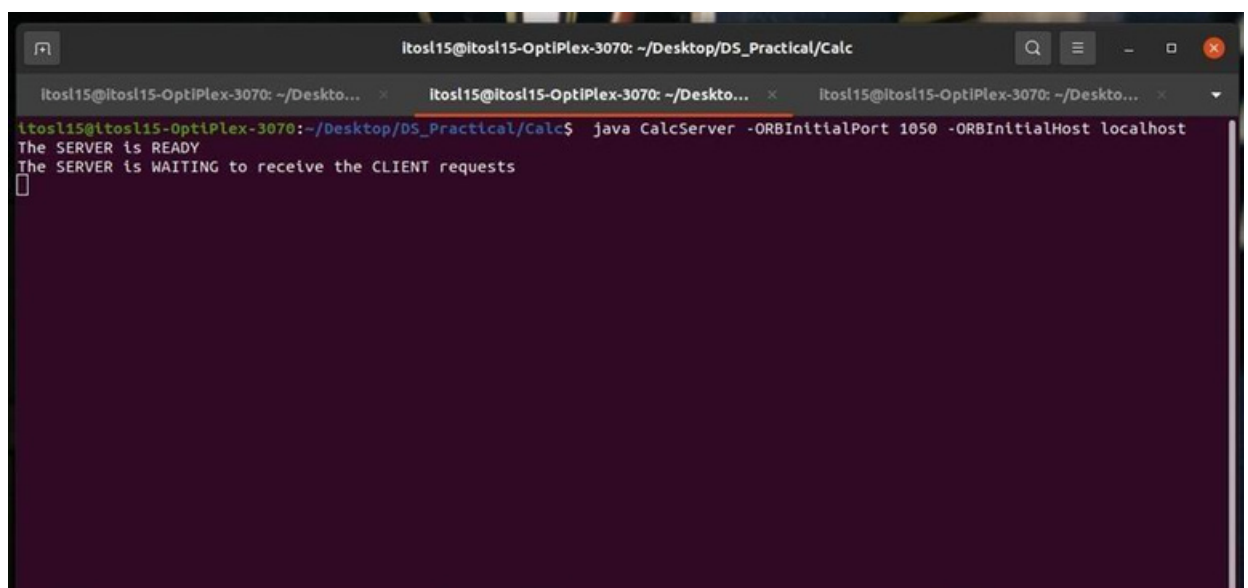
j=Character.getNumericValue(d);
```



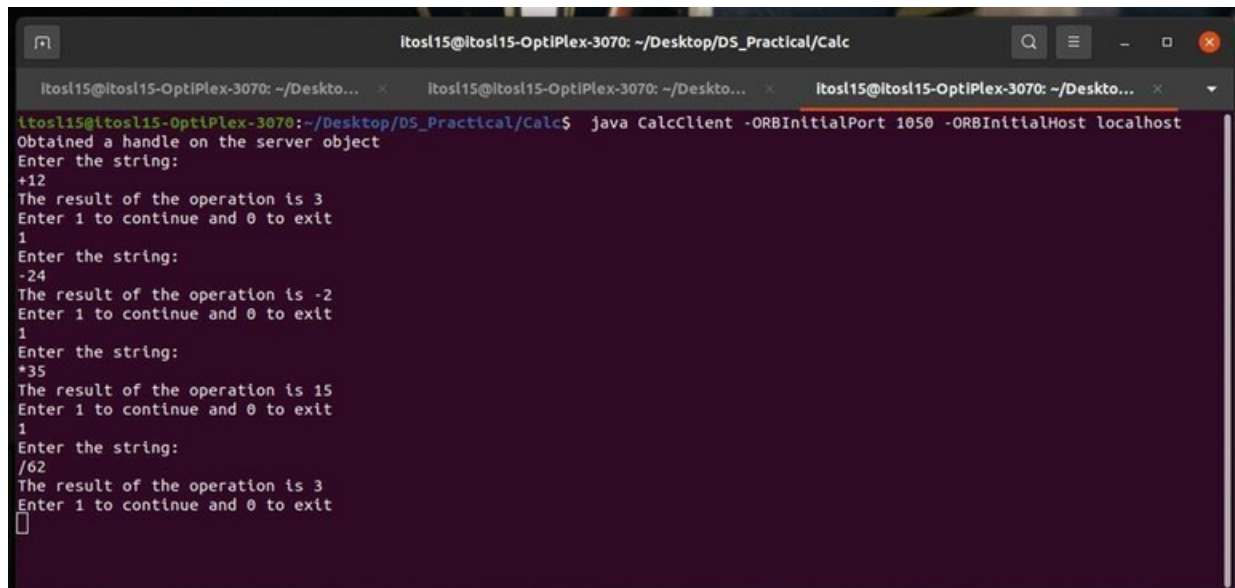
Output:



```
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ idlj -fall Calc.idl
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ javac CalcServer.java WssCalculator/*.java
Note: WssCalculator/CalcPOA.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ javac CalcClient.java WssCalculator/*.java
Note: WssCalculator/CalcPOA.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ orbd -ORBInitialPort 1050 orbd -ORBInitialHost localhost
```



```
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ java CalcServer -ORBInitialPort 1050 -ORBInitialHost localhost
The SERVER is READY
The SERVER is WAITING to receive the CLIENT requests
```



```
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc
Itosl15@Itosl15-OptiPlex-3070: ~/Desktop/DS_Practical/Calc$ java CalcClient -ORBInitialPort 1050 -ORBInitialHost localhost
Obtained a handle on the server object
Enter the string:
+12
The result of the operation is 3
Enter 1 to continue and 0 to exit
1
Enter the string:
-24
The result of the operation is -2
Enter 1 to continue and 0 to exit
1
Enter the string:
*35
The result of the operation is 15
Enter 1 to continue and 0 to exit
1
Enter the string:
/62
The result of the operation is 3
Enter 1 to continue and 0 to exit
0
```

**Result:**

Successfully Created CORBA system for Timestamp application.

<b>Date:</b>	
<b>Marks obtained:</b>	
<b>Sign of course coordinator:</b>	
<b>Name of course Coordinator :</b>	