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Assignment No. 3

CORBA & JAVA IDL

* **Problem statement :**

CORBA Bank Agent : The application has Bank.idl file which contains an Account interface ; provides a single method balance() for obtaining the current balance. The Account Mangen interFace creates an account for the user if one does not already exist. The client class implements the client application which obtains the current balance of a bank account. Server.java file implements the server class for the server side of the banking application.

* **Objectives :**

To learn to implement any distributed applications based on CORBA

Software and Tools

Java 8 with IDLJ compiler.

Theory

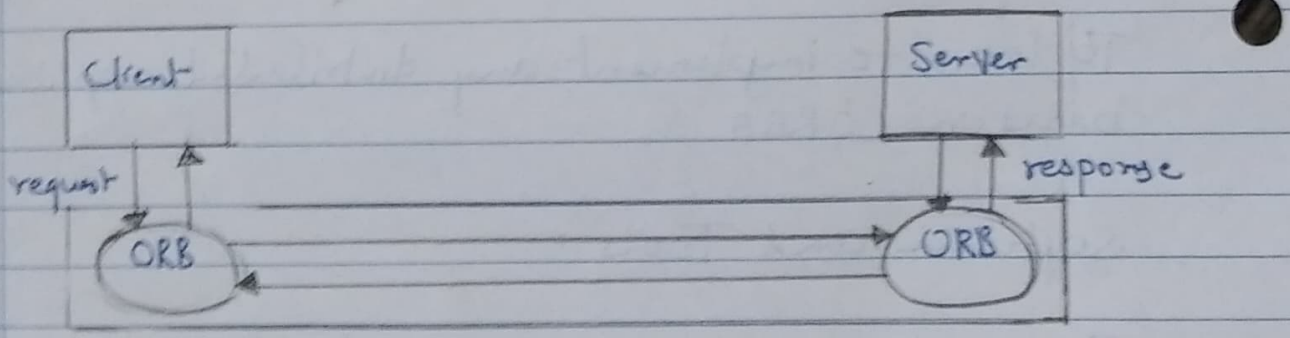
CORBA (Common Object Request Broker Architecture

Its a specification for creating distributed Objects

and not a programming language. It promotes design of applications as a set of co-operating objects. Clients are isolated from servers by interface. CORBA runs on any platform, can be located anywhere on network and can be written in any language that has IDL mapping. CORBA application is developed using IDL (Interface Definition Language). IDL is used to define interfaces & the JAVA IDL compiler generates selection code. It is an integral part of JAVA platform. It consists of object Request Broker (ORB), API's for the RMI programming model and & IDL programming model.

ORB in CORBA

ORB is an object manager in CORBA. It is present on client as well as server side.



- Client side ORB is responsible for

1) Accepting requests for a remote object
2) Finding implementation of object.
3) Accepting client side references to the remote object
4) Routing client method calls through the object ref to

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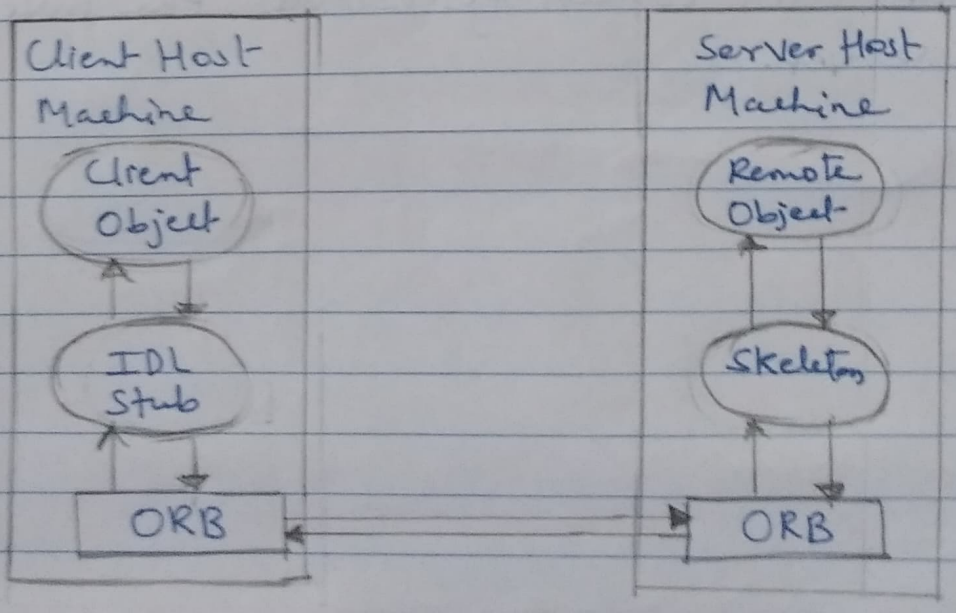
object implement

Server side of ORB

1) Lets objects servers register new objects
2) Recieves requests from client ORB
3) Use objects skeleton interface to invoke objects activation method.
4) Creates a reference for a new object & sends it back to a client.
5) Between the ORB's, Internet, inter-ORB protocol is used for communication

IDL (Interface Defination Language)

IDL defines protocol to access objects stub lives on client and pretends to be a remote object. skeleton lives on the server recieves requests from stub, talks to the true remote object and delivers the response to stub.



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How to use CORBA with JAVA?

Java IDL is a technology for distributed objects, i.e. objects interacting on different platforms accross a network. It translates IDL concepts to Java language constructs. It enables objects to interact regardless of whether they are written in Java, C or C++. This is possible because Java IDL is based on CORBA. Each language that has CORBA has its own IDL mapping & Java IDL supports the mapping for JAVA. TO support interation between objects in separate programmes, Java IDL provides an ORB. ORB is a class library that enables low-level communication between Java IDL applications and other CORBA complaint applications. On the client side application includes an interface for the remote object. The object reference has a stub method which is a stand in for the method being called remotely. The stub is actually wired into the ORB so that calling it invokes the ORB's connection capabilities which forwards the invocation to the server.

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* Conclusion :

A distributed application using CORBA using Java IDL was successfully created.