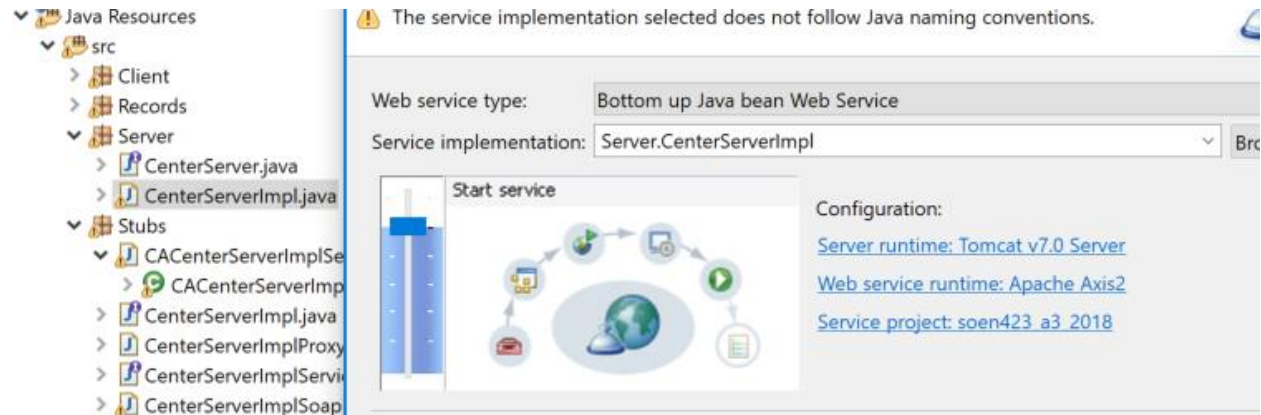


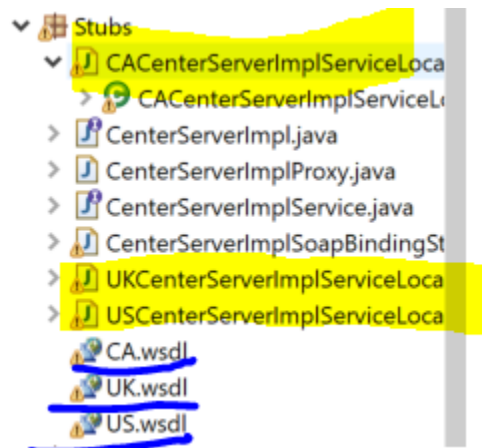
Distributed Employee Management System (DEMS) with Web Services Design Documentation.

Instructions:

Start a dynamic web project with Target runtime as: Apache Tomcat server, and the web service as default Apache Axis. Right Click on the Center Server Interface Implementation class and select create a Web Service.



After creating our web service, we will have a wsdl file. Continue by making 3 total wsdl files.



From these wsdl files, we will create Web Service Clients, which will generate the files in this stubs package. What we are interested in are the Service Locators highlighted above. After looking through those files we can edit the Center Service Impl Address. In this case I choose:

["http://localhost:8888/CenterServerImpl/CA?wsdl"](http://localhost:8888/CenterServerImpl/CA?wsdl)

["http://localhost:8888/CenterServerImpl/US?wsdl"](http://localhost:8888/CenterServerImpl/US?wsdl)

["http://localhost:8888/CenterServerImpl/UK?wsdl"](http://localhost:8888/CenterServerImpl/UK?wsdl)

- Note, I have chosen a different port number other than 8080, because otherwise it will prompt port in use cannot bind exception.

Back to our server launcher, we will set our Endpoints.

```
public static void main(String args[]) throws Exception {
    // Change server ID here
    final Config.Server_ID CAserverID = Config.Server_ID.CA;
    final Config.Server_ID USserverID = Config.Server_ID.US;
    final Config.Server_ID UKserverID = Config.Server_ID.UK;

    CenterServerImpl serverCA = new CenterServerImpl(CAserverID);
    CenterServerImpl serverUS = new CenterServerImpl(USserverID);
    CenterServerImpl serverUK = new CenterServerImpl(UKserverID);

    try {
        Endpoint endpointCA = Endpoint.publish("http://localhost:8888/CenterServerImpl/CA", serverCA);
        System.out.println("Server " + CAserverID + " is published " + endpointCA.isPublished() + " is running ...");
        Endpoint endpointUS = Endpoint.publish("http://localhost:8888/CenterServerImpl/US", serverUS);
        System.out.println("Server " + USserverID + " is published " + endpointUS.isPublished() + " is running ...");
        Endpoint endpointUK = Endpoint.publish("http://localhost:8888/CenterServerImpl/UK", serverUK);
        System.out.println("Server " + UKserverID + " is published " + endpointUK.isPublished() + " is running ...");
    } catch (Exception e) {
        System.out.println("ERROR: " + e);
        e.printStackTrace(System.out);
    }
}
```

In the Manager Client, we will set up our server connection.

```
private static CenterServer connectToServer(Config.Server_ID serverID) throws Exception {
    switch (serverID) {
        case CA: {
            Stubs.CACenterServerImplServiceLocator locator = new Stubs.CACenterServerImplServiceLocator();


            URL url = new URL(locator.getCenterServerImplAddress());
            QName qName = new QName("http://Server/", "CenterServerImplService");
            Service service = Service.create(url, qName);
            return service.getPort(CenterServer.class);
        }
        case US: {
            Stubs.USCenterServerImplServiceLocator locator = new Stubs.USCenterServerImplServiceLocator();

            URL url = new URL(locator.getCenterServerImplAddress());
            QName qName = new QName("http://Server/", "CenterServerImplService");
            Service service = Service.create(url, qName);
            return service.getPort(CenterServer.class);
        }
        case UK: {
            Stubs.UKCenterServerImplServiceLocator locator = new Stubs.UKCenterServerImplServiceLocator();

            URL url = new URL(locator.getCenterServerImplAddress());
            QName qName = new QName("http://Server/", "CenterServerImplService");
            Service service = Service.create(url, qName);
            return service.getPort(CenterServer.class);
        }
    }
    return null;
}
```

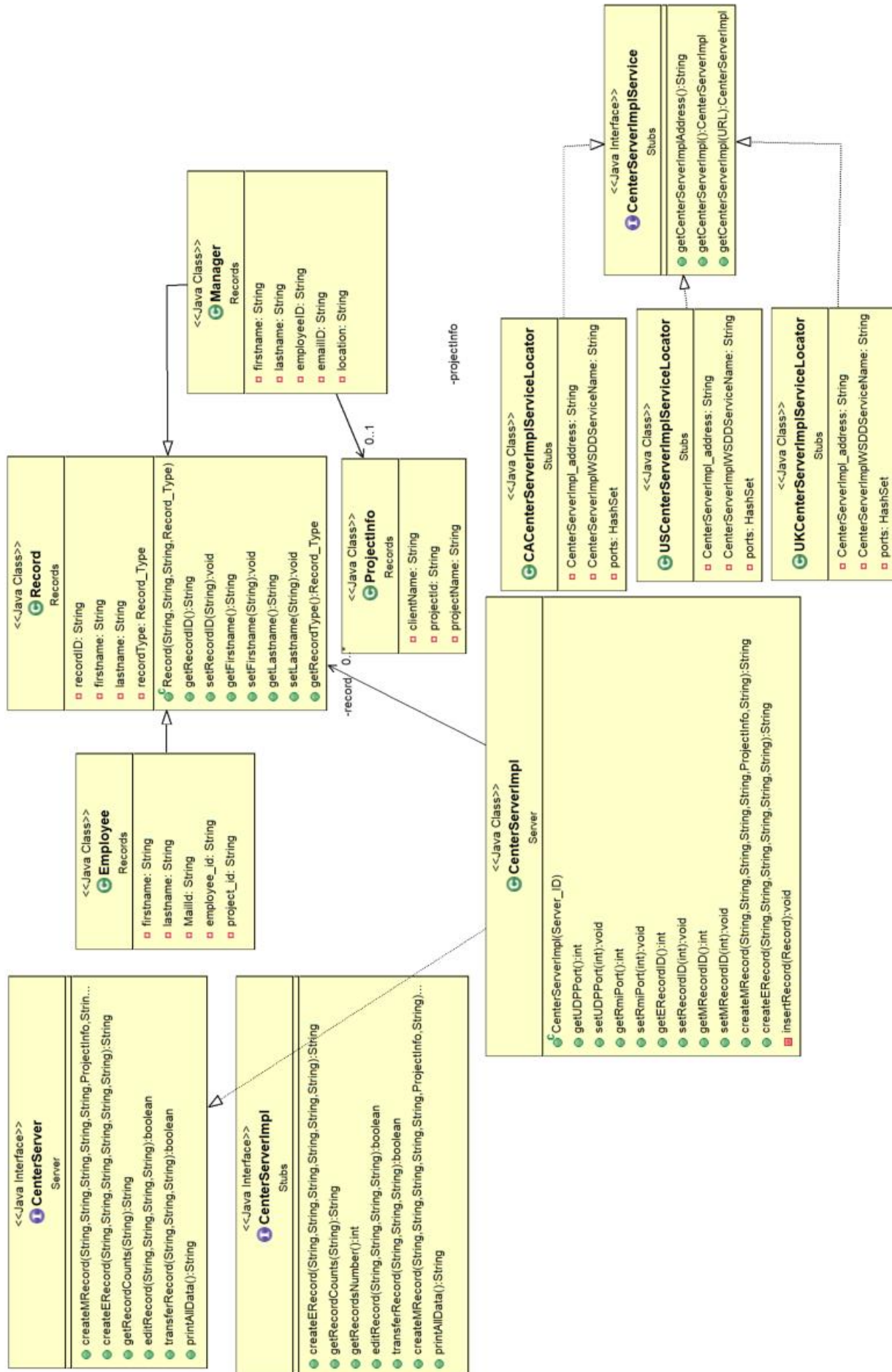
To run the application

1) Start Server Tomcat v7.0 or any other version

>  Tomcat v7.0 Server at localhost [Stopped, Synchronized]

2) Start CenterServerImpl.java as a java application

3) Start ManagerClient.java as a java application



Notice that when we created a web service client, our CenterServerImpl class turned into an Interface. We will use the functionalities of the new interface to access web services.

```
1 package Server;
2
3 import java.rmi.Remote;
4
11
12 @WebService
13 @SOAPBinding(style=Style.RPC)
14 public interface CenterServer extends Remote{
15     @WebMethod
16     public String createMRecord (String managerID, String firstName,
17     @WebMethod
18     public String createERecord (String managerID, String firstName,
19     @WebMethod
20     public String getRecordCounts (String managerID);
21     @WebMethod
22     public boolean editRecord (String managerID, String recordID, St
23     @WebMethod
24     public boolean transferRecord (String managerID, String recordID
25     @WebMethod
26     public String printAllData ();
27     @WebMethod
28     public String printRecord (String managerID, String recordID);
29 }
30
```

VS.

```
package Stubs;

public interface CenterServerImpl extends java.rmi.Remote {
    public java.lang.String createERecord(java.lang.String managerID, java.lang.String firstname, java.
    public java.lang.String getRecordCounts(java.lang.String managerID) throws java.rmi.RemoteException
    public int getRecordsNumber() throws java.rmi.RemoteException;
    public boolean editRecord(java.lang.String managerID, java.lang.String recordID, java.lang.String f
    public boolean transferRecord(java.lang.String managerID, java.lang.String recordID, java.lang.Stri
    public java.lang.String createMRecord(java.lang.String managerID, java.lang.String firstname, java.
    public java.lang.String printAllData ()throws java.rmi.RemoteException;;
}
```

Note we have the same methods but the web service specifies that this is a java language.

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SOEN 423 Assignment 3

Concurrency Test: Using Multi User Interface Interaction (Perform multiple actions all at once)

(...) To be implemented soon.