Setting up Java EE 7 SDK

Developing SOAP Webservices with JAX-WS

Check Java Installation

C:\Users\YELLASWAMY>java -version

java version "1.7.0_79"

Java(TM) SE Runtime Environment (build 1.7.0_79-b15)

Java HotSpot(TM) 64-Bit Server VM (build 24.79-b02, mixed mode)

C:\Users\YELLASWAMY>echo %JAVA_HOME%

C:\Program Files\Java\jdk1.7.0_79

C:\Users\YELLASWAMY>echo %path%

C:\Program Files\Java\jdk1.7.0_79\bin;.;E:\csvn\bin\;E:\csvn\Python25\;C:\Progra

mData\Oracle\Java\javapath;C:\oraclexe\app\oracle\product\10.2.0\server\bin;C:\W

indows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsP

owerShell\v1.0\;C:\Program Files\Broadcom\Broadcom 802.11 Network Adapter\Driver

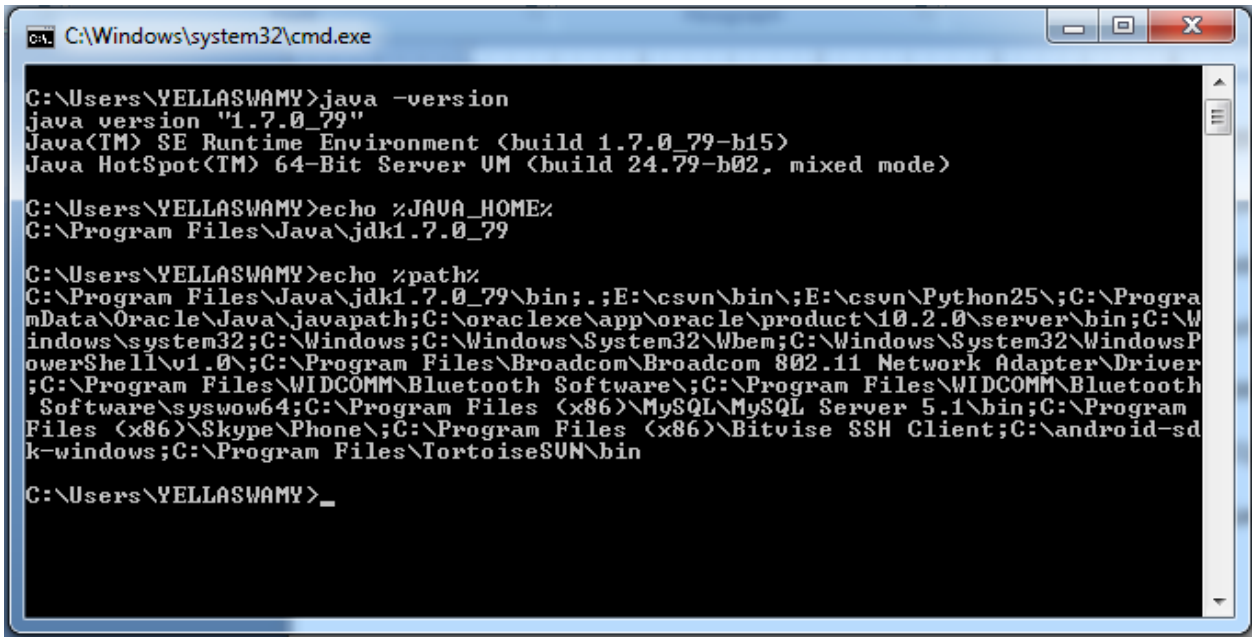
;C:\Program Files\WIDCOMM\Bluetooth Software\;C:\Program Files\WIDCOMM\Bluetooth

Software\syswow64;C:\Program Files (x86)\MySQL\MySQL Server 5.1\bin;C:\Program

Files (x86)\Skype\Phone\;C:\Program Files (x86)\Bitvise SSH Client;C:\android-sd

k-windows;C:\Program Files\TortoiseSVN\bin

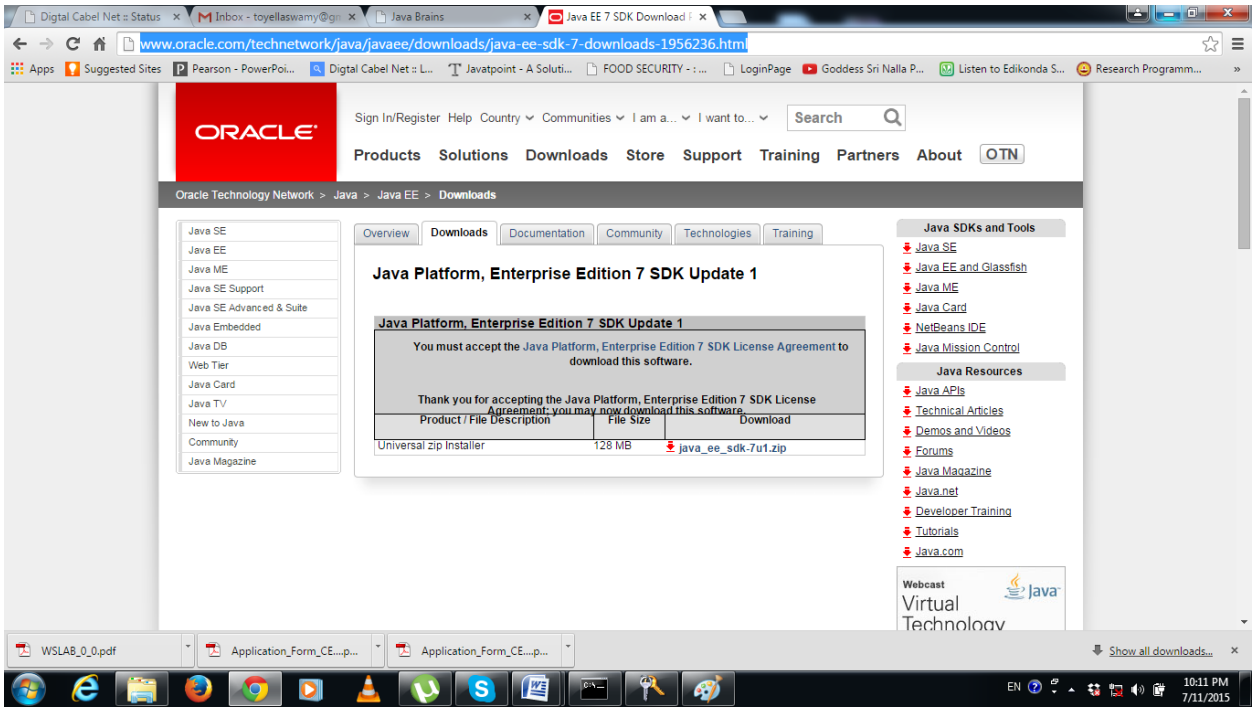
C:\Users\YELLASWAMY>



Go to the following URL and download JavaEE7 SDK update 1

http://www.oracle.com/technetwork/java/javaee/downloads/index-jsp-140710.html

http://www.oracle.com/technetwork/java/javaee/downloads/java-ee-sdk-7-downloads-1956236.html



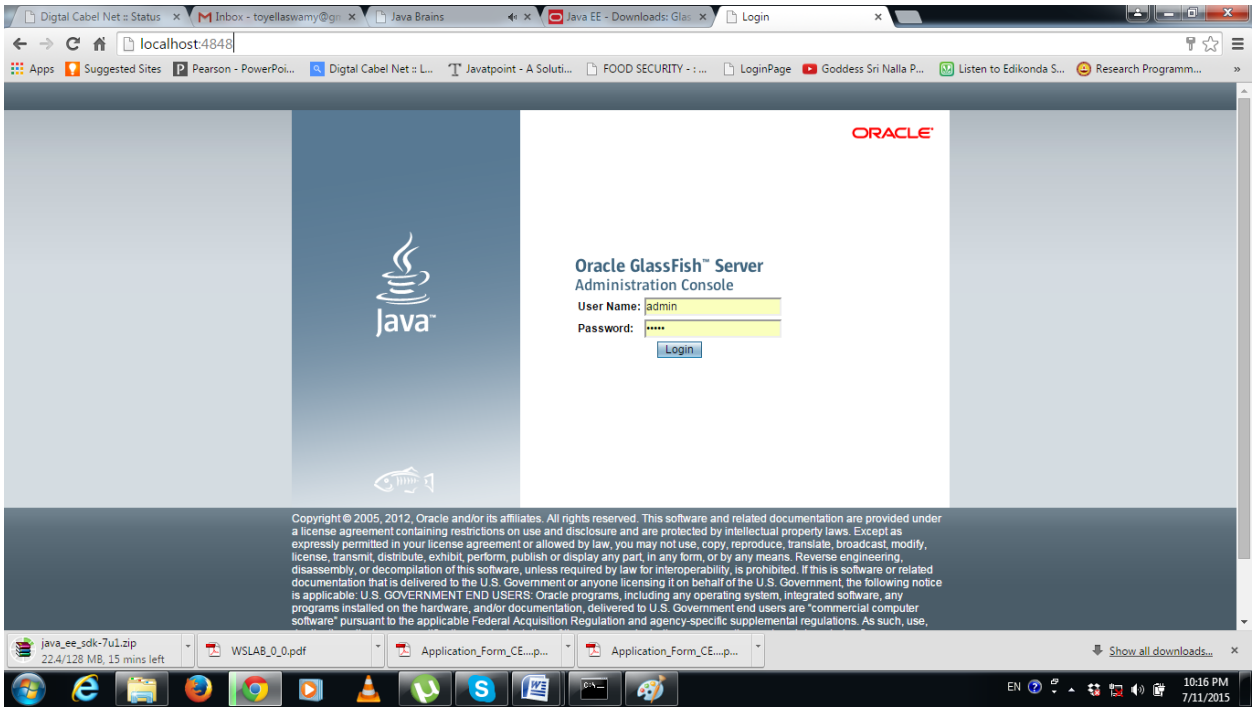
NOTE:TAKE SCREEN SHOTS FOR GLASS FISH INSTALLATION IN CLASS

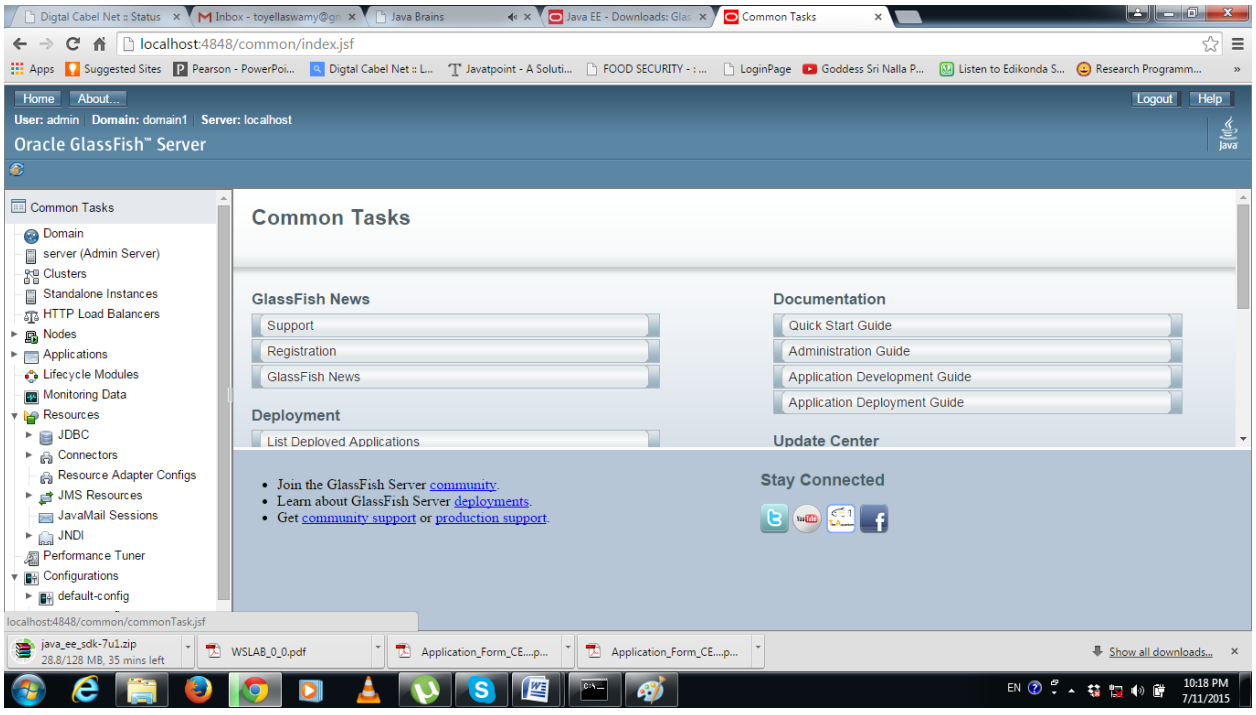
Check installation

http://localhost:4848/

username:admin

password:admin

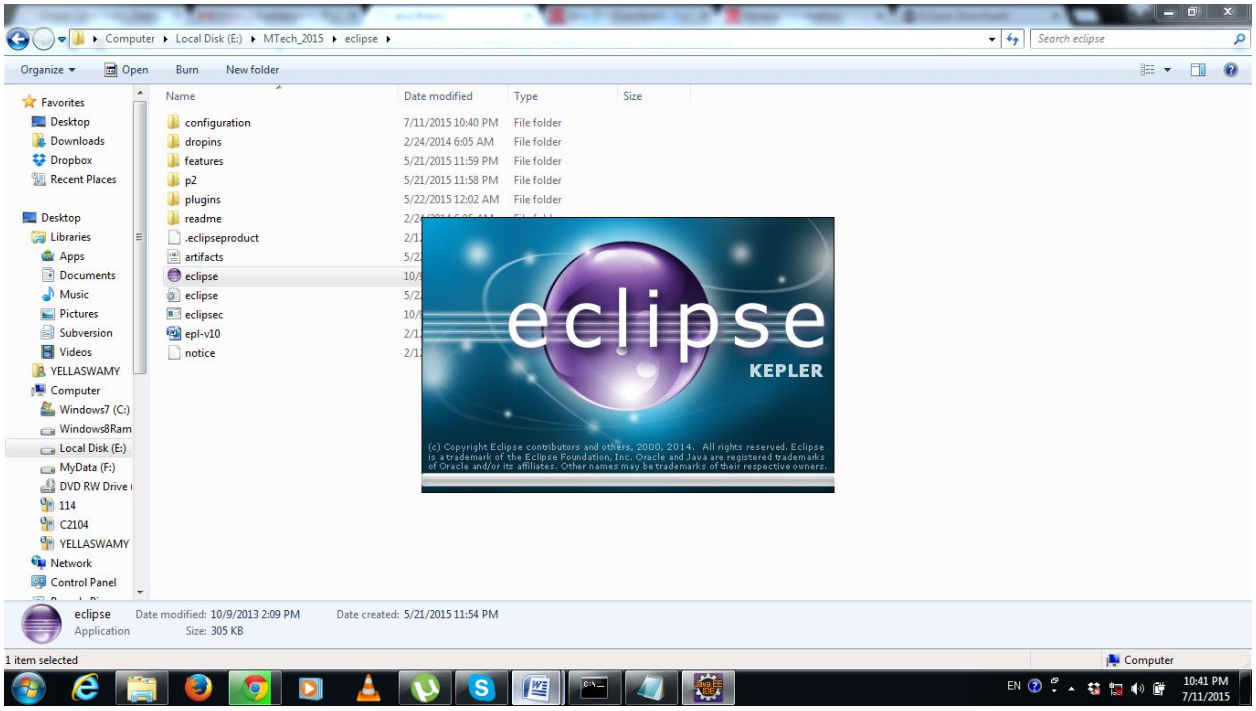

Login
localhost:4848
ORACLE
Java
Oracle GlassFish™ Server
Administration Console
User Name: admin
Password:
Login
Copyright © 2005, 2012, Oracle and/or its affiliates. All rights reserved. This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited. If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable: U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use,
java_ee_sdk-7u1.zip
22.4/128 MB, 15 mins left
WSLAB_0_0.pdf
Application_Form_CE....p...
Application_Form_CE....p...
Show all downloads...
10:16 PM
7/11/2015

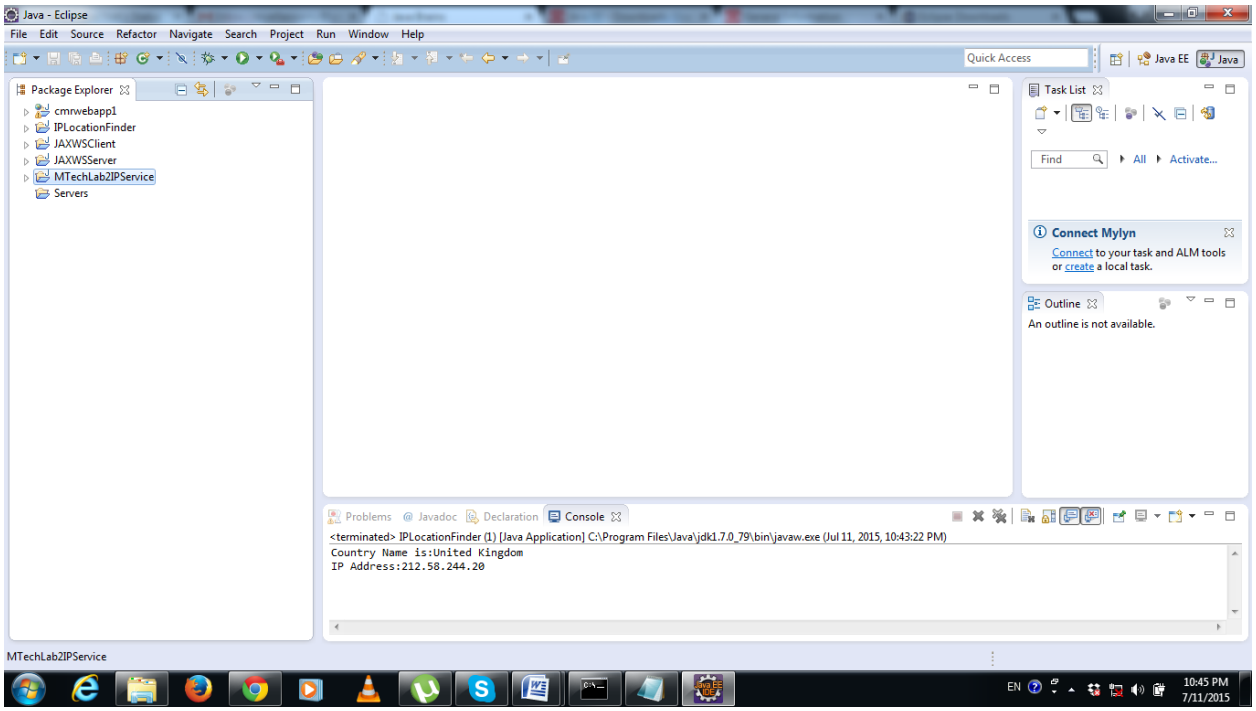

Common Tasks
localhost:4848/common/index.jsf
Home
About...
Logout
Help
User: admin | Domain: domain1 | Server: localhost
Oracle GlassFish™ Server
Common Tasks
Domain
server (Admin Server)
Clusters
Standalone Instances
HTTP Load Balancers
Nodes
Applications
Lifecycle Modules
Monitoring Data
Resources
JDBC
Connectors
Resource Adapter Configs
JMS Resources
JavaMail Sessions
JNDI
Performance Tuner
Configurations
default-config
GlassFish News
Support
Registration
GlassFish News
Deployment
List Deployed Applications
Documentation
Quick Start Guide
Administration Guide
Application Development Guide
Application Deployment Guide
Update Center
Stay Connected
Join the GlassFish Server community.
Learn about GlassFish Server deployments.
Get community support or production support.
localhost:4848/common/commonTask.jsf
java_ee_sdk-7u1.zip
28.8/128 MB, 35 mins left
WSLAB_0_0.pdf
Application_Form_CE....p...
Application_Form_CE....p...
Show all downloads...
10:18 PM
7/11/2015

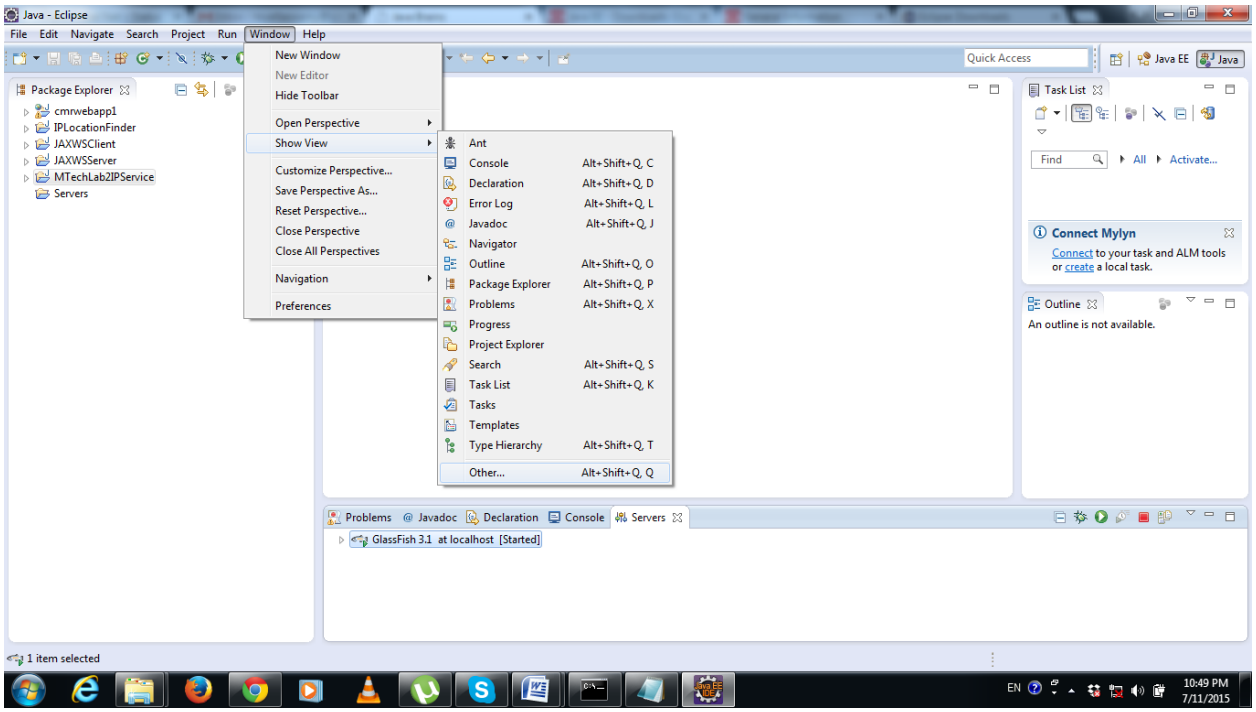
Writing a Web Service - Eclipse setup

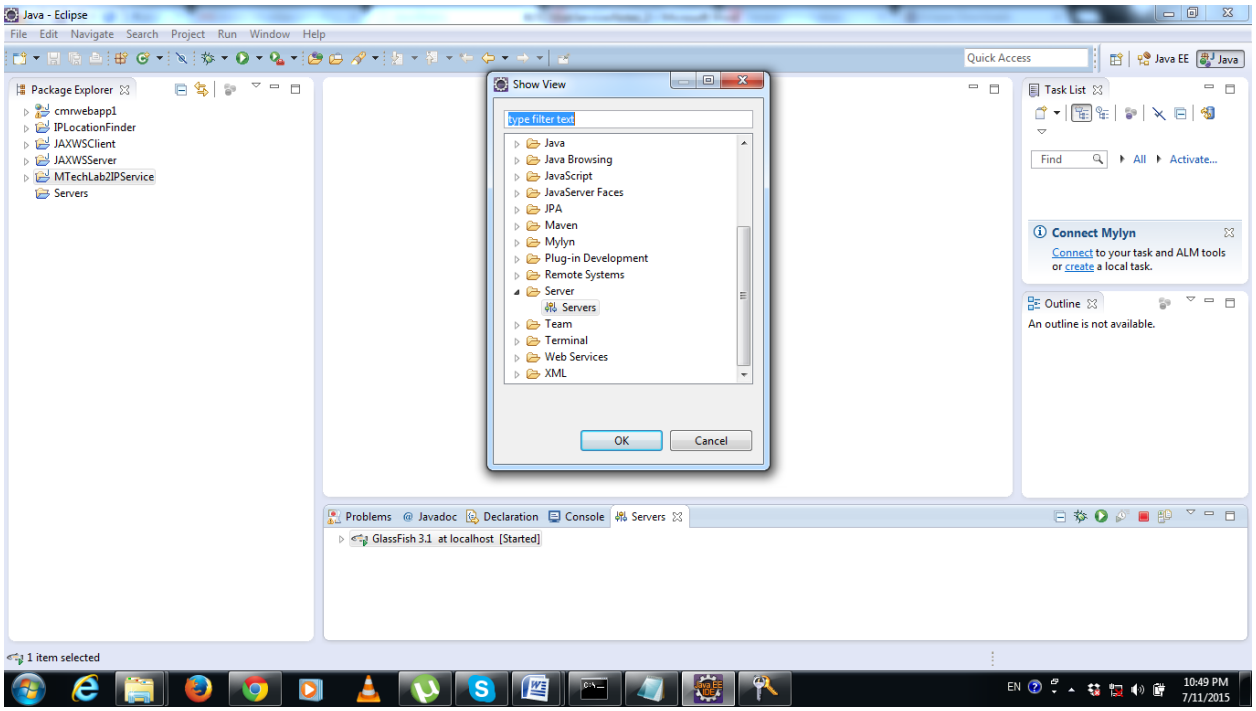
DEVELOPING SOAP WEB SERVICES WITH JAX-WS

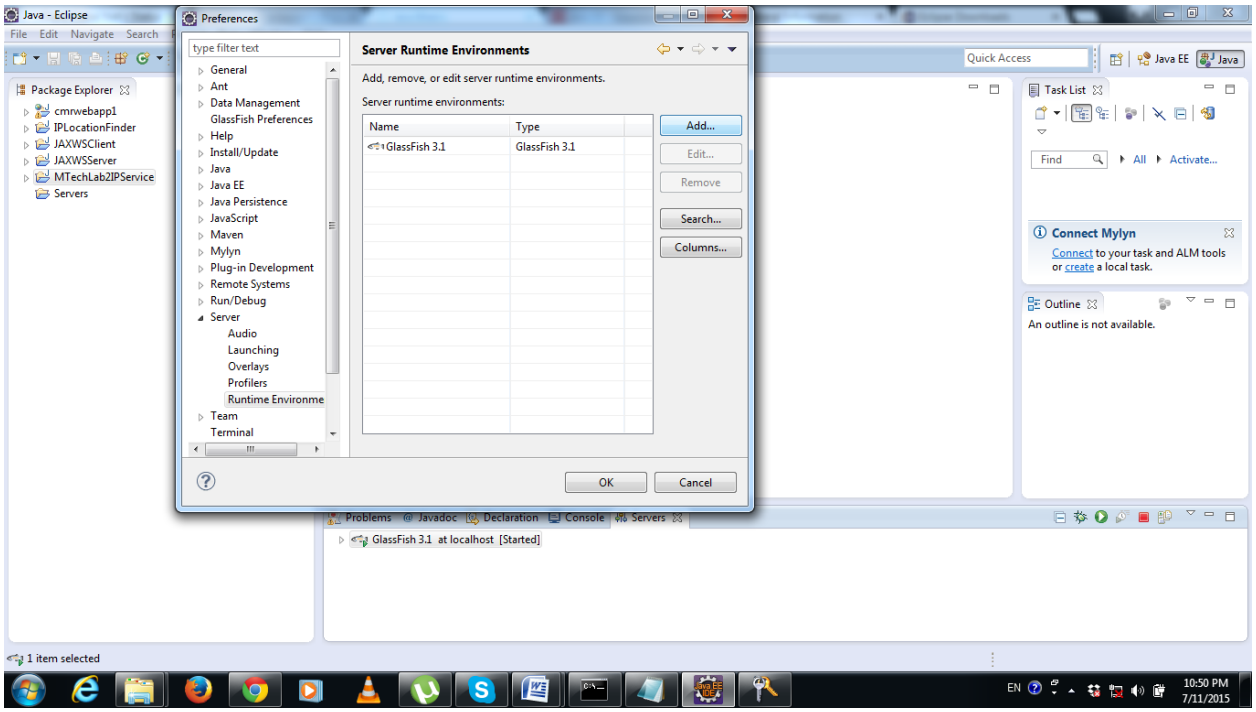
we'll setup the new Eclipse Kepler, configure Glassfish and start writing the web application with which we intend to create a web service.



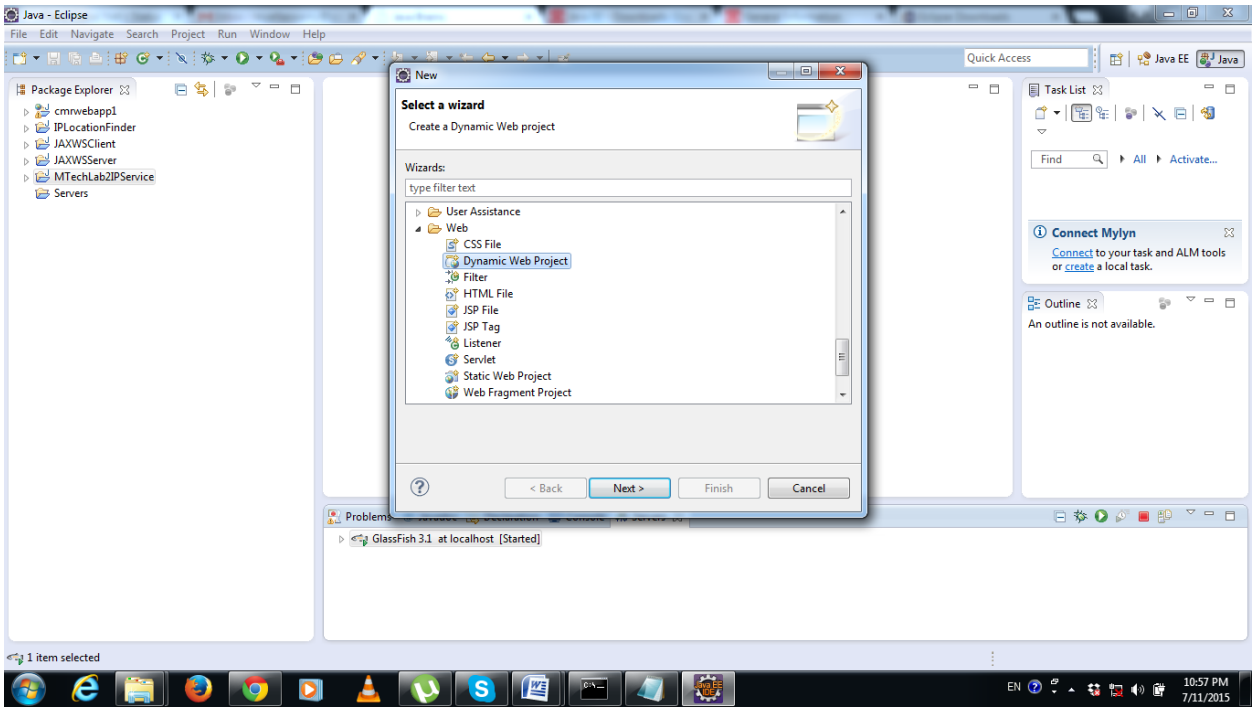

Java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Java EE
Java
Package Explorer
cmrwebapp1
IPLocationFinder
JAXWSClient
JAXWSServer
MTechLab2IPService
Servers
Task List
Find
All
Activate...
Connect Mylyn
Connect to your task and ALM tools or create a local task.
Outline
An outline is not available.
Problems
Javadoc
Declaration
Console
<terminated> IPLocationFinder (1) [Java Application] C:\Program Files\Java\jdk1.7.0_79\bin\javaw.exe (Jul 11, 2015, 10:43:22 PM)
Country Name is:United Kingdom
IP Address:212.58.244.20
MTechLab2IPService
EN
10:45 PM
7/11/2015

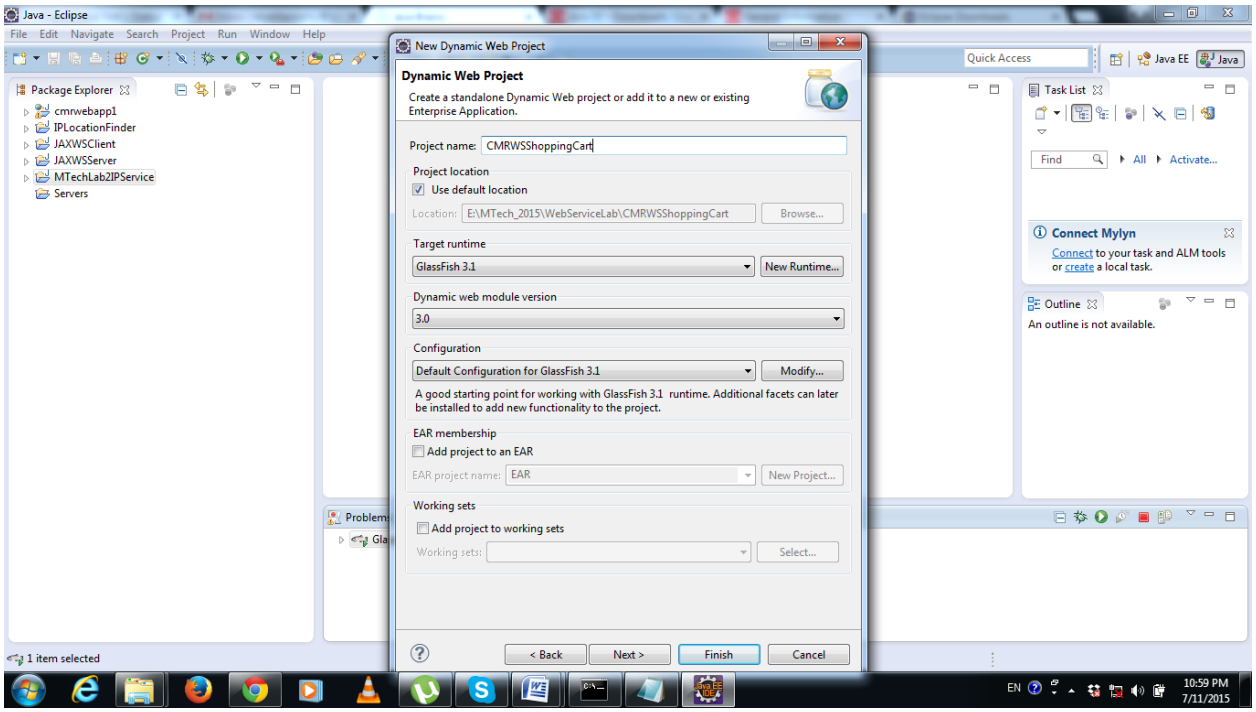

Java - Eclipse
File Edit Navigate Search Project Run Window Help
New Window
New Editor
Hide Toolbar
Open Perspective
Show View
Customize Perspective...
Save Perspective As...
Reset Perspective...
Close Perspective
Close All Perspectives
Navigation
Preferences
Ant
Console Alt+Shift+Q, C
Declaration Alt+Shift+Q, D
Error Log Alt+Shift+Q, L
Javadoc Alt+Shift+Q, J
Navigator
Outline Alt+Shift+Q, O
Package Explorer Alt+Shift+Q, P
Problems Alt+Shift+Q, X
Progress
Project Explorer
Search Alt+Shift+Q, S
Task List Alt+Shift+Q, K
Tasks
Templates
Type Hierarchy Alt+Shift+Q, T
Other... Alt+Shift+Q, Q
Servers
GlassFish 3.1 at localhost [Started]
1 item selected
EN
10:49 PM
7/11/2015



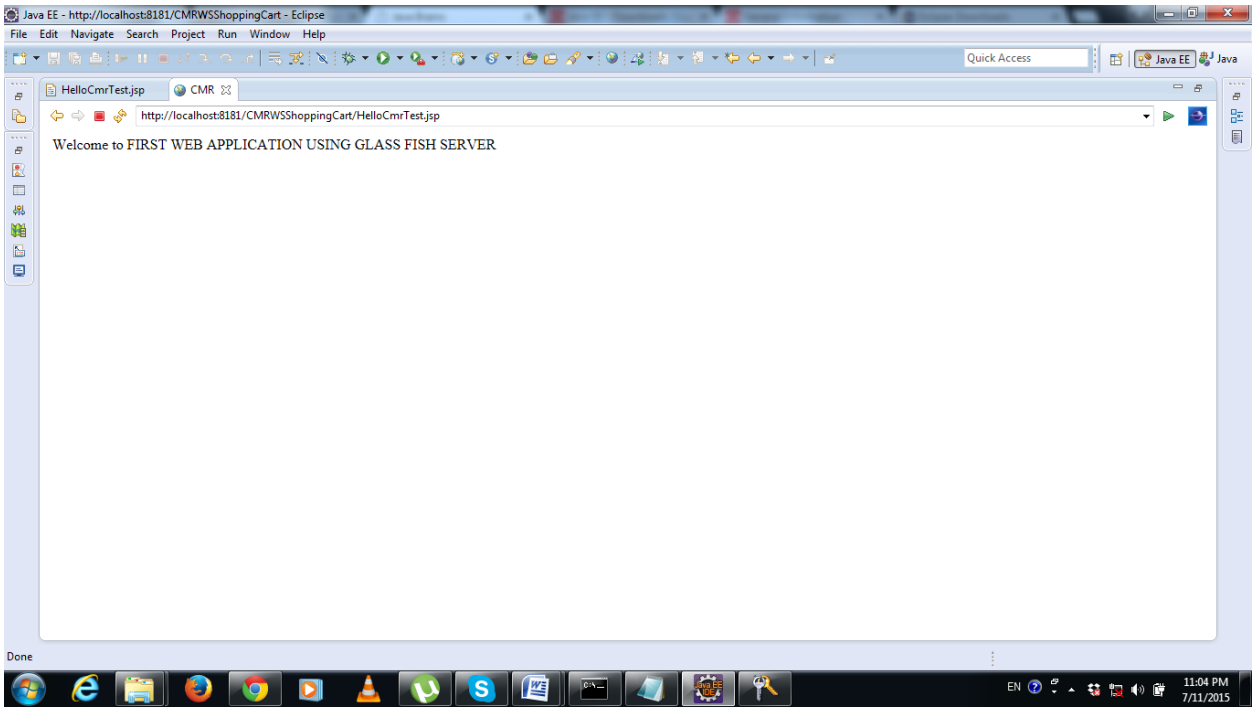


Create a Dynamic Web Project





http://localhost:8181/CMRWSShoppingCart/HelloCmrTest.jsp

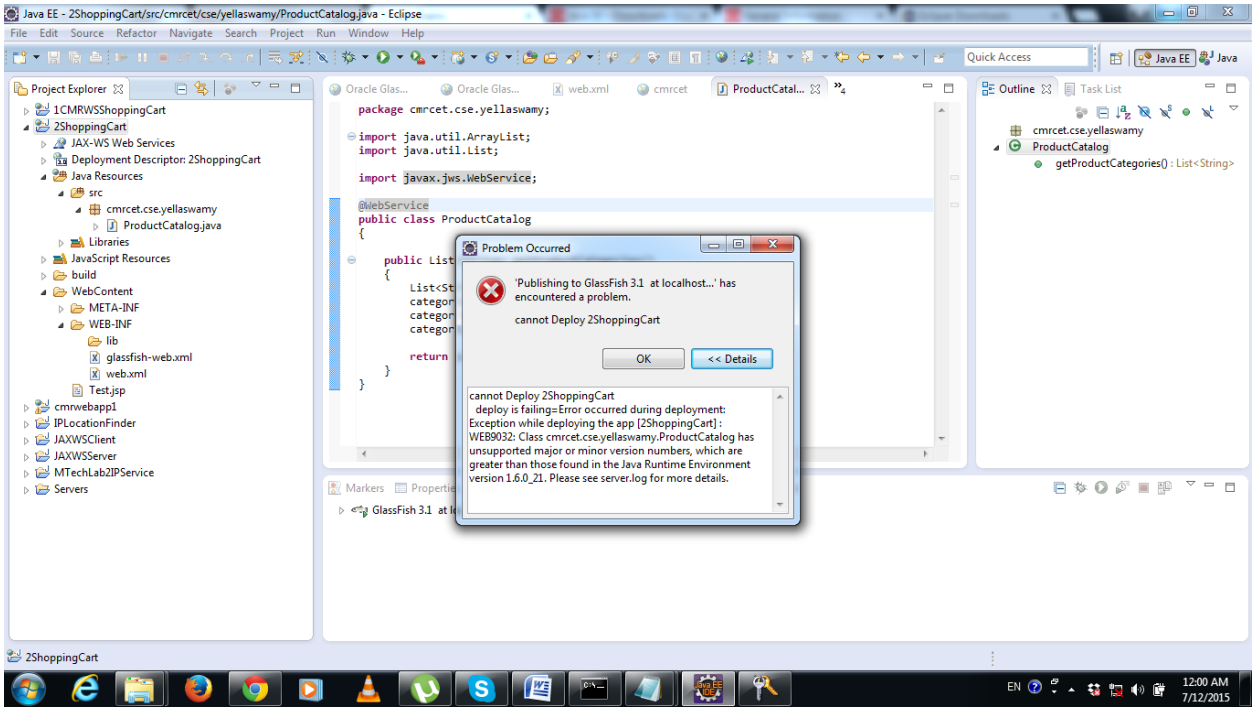



```java
package cmrcet.cse.yellaswamy;

import java.util.ArrayList;
import java.util.List;

public class ProductCatalog
{

	public List<String> getProdcutCategories()
	{
		List<String> categories=new ArrayList<>();
		categories.add("CSEBOOKS");
		categories.add("ECEBOOKS");
		categories.add("ITBOOKS");

		return categories;

	}
}
```

Writing a Web Service - Code and Deploy

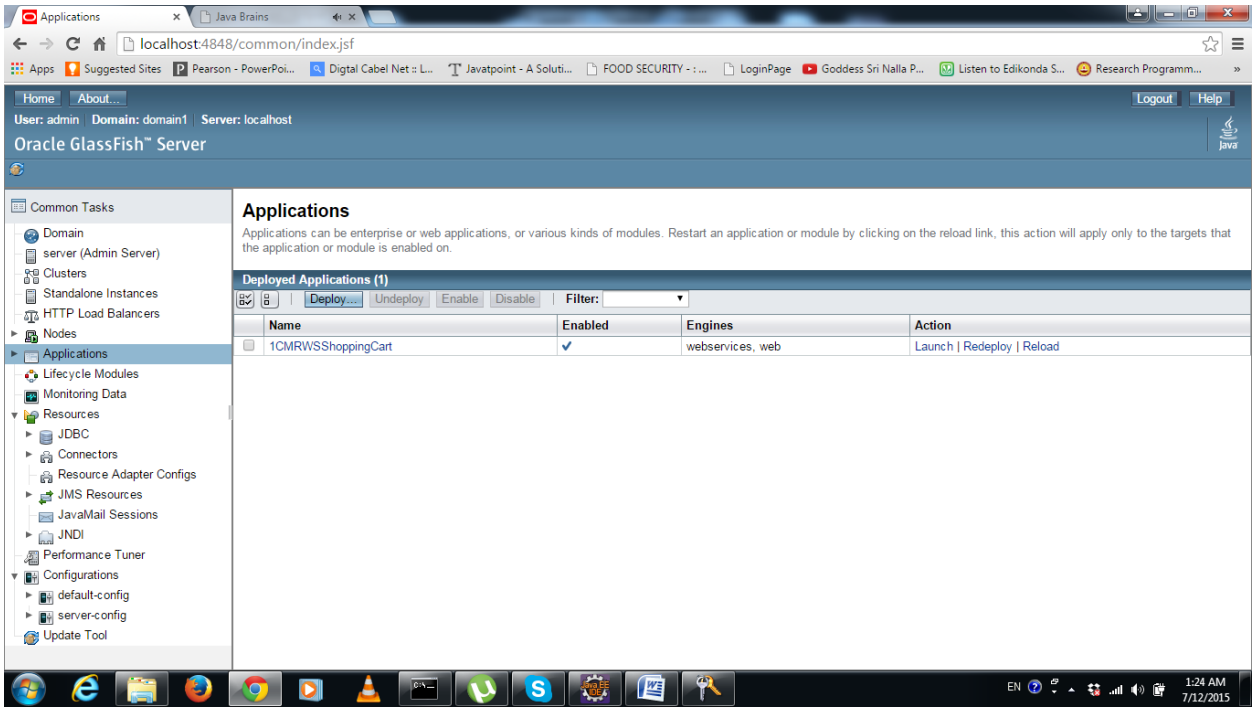
DEVELOPING SOAP WEB SERVICES WITH JAX-WS

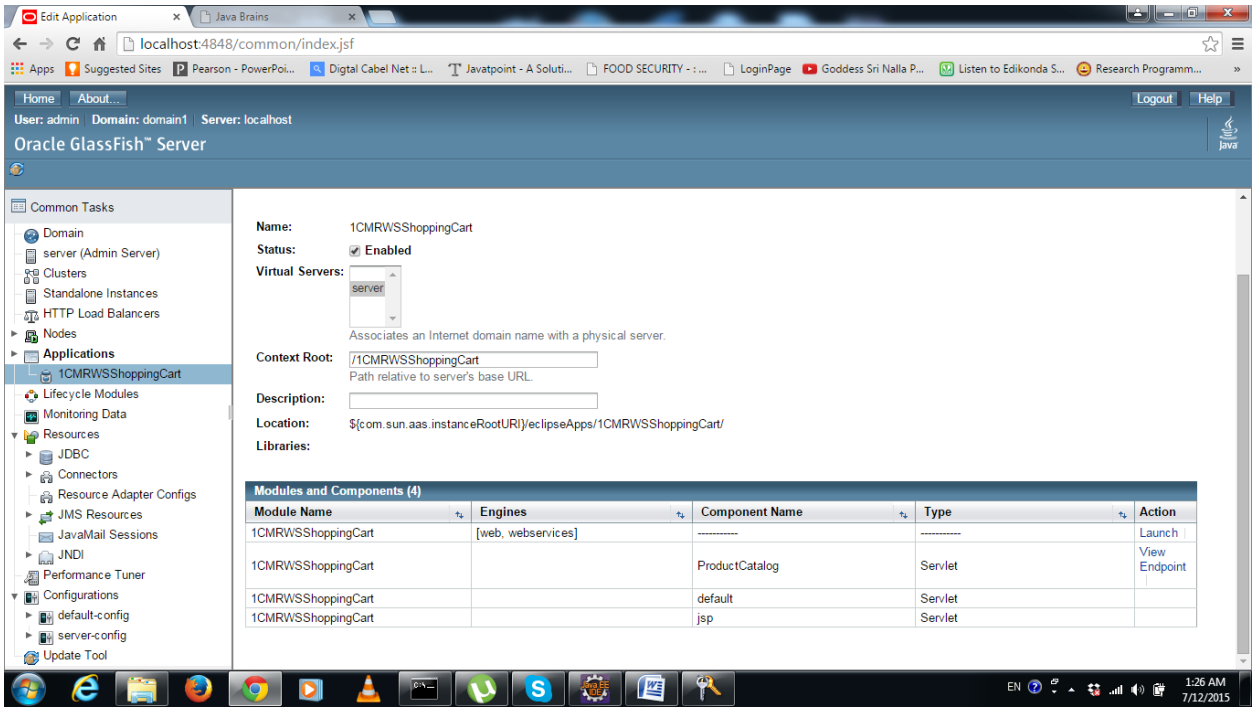
We'll now convert the simple Java class in the previous class into a web service, deploy it to Glassfish, and test it by submitting a SOAP request to get a SOAP response.

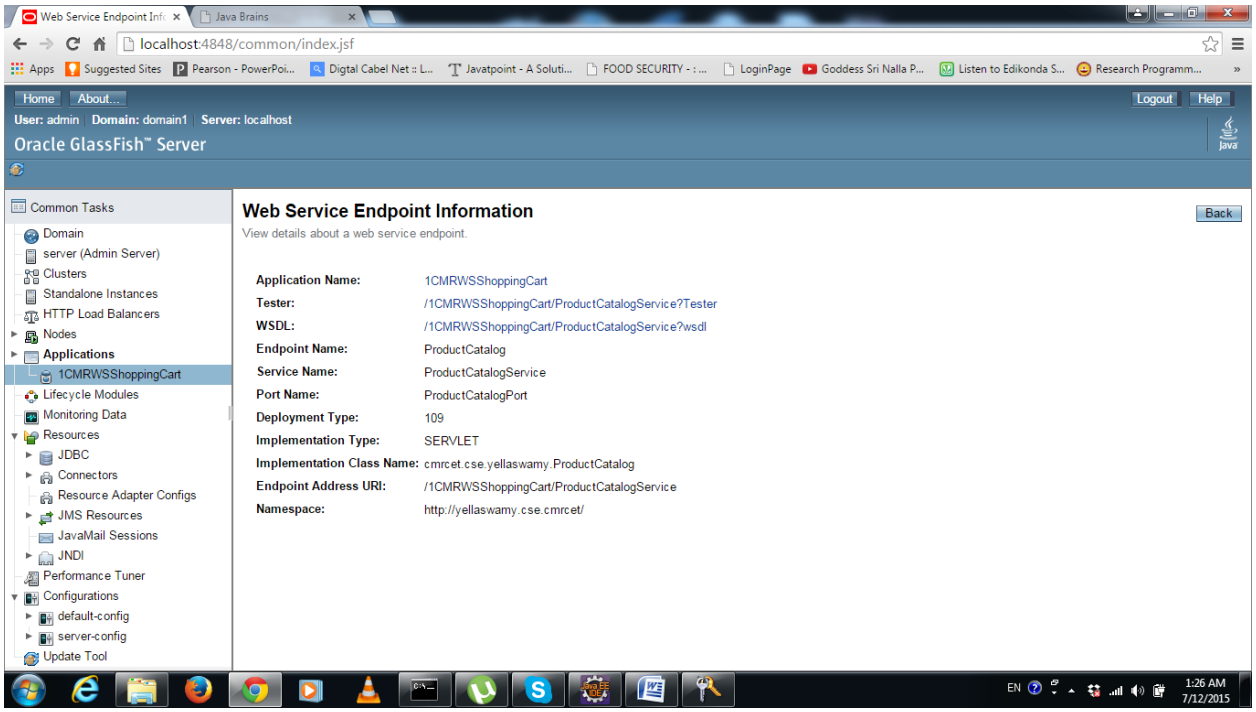


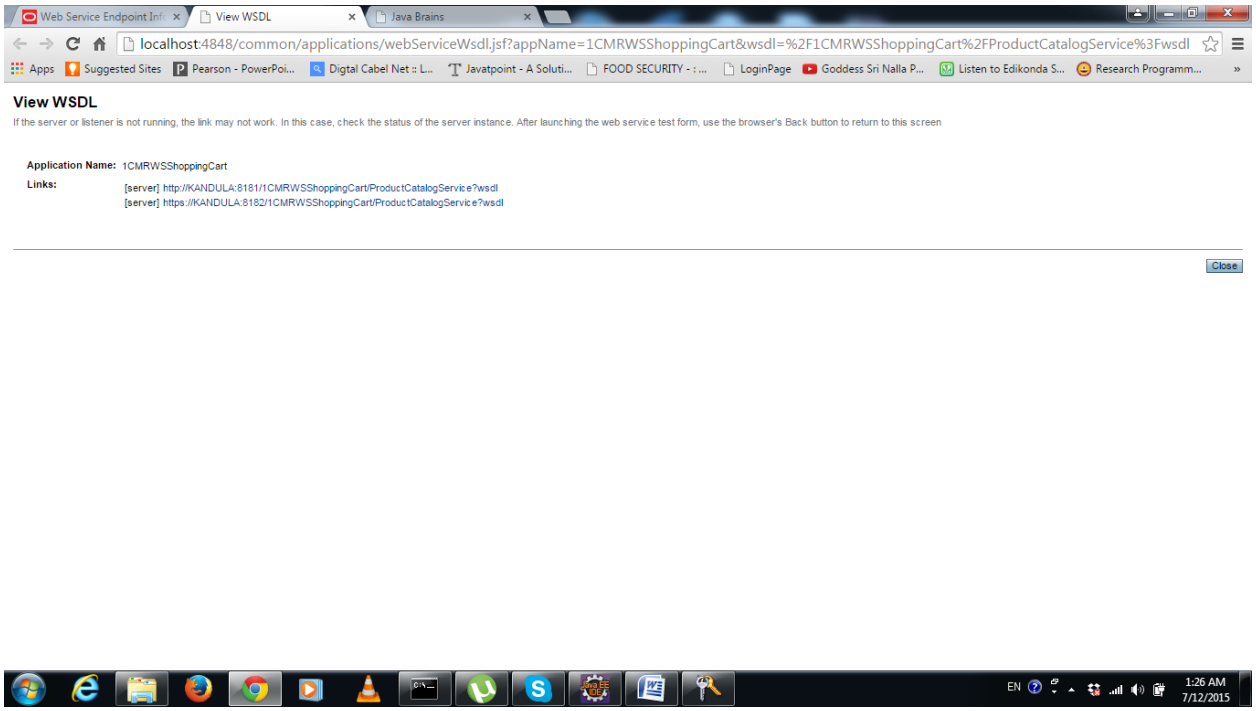
//Step1:create webservice annotation for class and redeploy in server and test

```
package cmrcet.cse.yellaswamy;

import java.util.ArrayList;
import java.util.List;

import javax.jws.WebService;

//step1
@WebService
public class ProductCatalog
{

	public List<String> getProdcutCategories()
	{
		List<String> categories=new ArrayList<>();
		categories.add("CSEBOOKS");
		categories.add("ECEBOOKS");
		categories.add("ITBOOKS");

		return categories;

	}
}
```




Edit Application
Java Brains
localhost:4848/common/index.jsf
Home
About...
Logout
Help
User: admin | Domain: domain1 | Server: localhost
Oracle GlassFish™ Server
Common Tasks
Domain
server (Admin Server)
Clusters
Standalone Instances
HTTP Load Balancers
Nodes
Applications
1CMRWSShoppingCart
Lifecycle Modules
Monitoring Data
Resources
JDBC
Connectors
Resource Adapter Configs
JMS Resources
JavaMail Sessions
JNDI
Performance Tuner
Configurations
default-config
server-config
Update Tool
Name: 1CMRWSShoppingCart
Status: Enabled
Virtual Servers: server
Associates an Internet domain name with a physical server.
Context Root: /1CMRWSShoppingCart
Path relative to server's base URL.
Description:
Location: ${com.sun.aas.instanceRootURI}/eclipseApps/1CMRWSShoppingCart/
Libraries:
Modules and Components (4)
Module Name | Engines | Component Name | Type | Action
1CMRWSShoppingCart | [web, webservices] | ---------- | ---------- | Launch
1CMRWSShoppingCart | | ProductCatalog | Servlet | View Endpoint
1CMRWSShoppingCart | | default | Servlet |
1CMRWSShoppingCart | | jsp | Servlet |
1:26 AM
7/12/2015


Web Service Endpoint Inf
Java Brains
localhost:4848/common/index.jsf
Home
About...
Logout
Help
User: admin | Domain: domain1 | Server: localhost
Oracle GlassFish™ Server
Common Tasks
Domain
server (Admin Server)
Clusters
Standalone Instances
HTTP Load Balancers
Nodes
Applications
1CMRWSShoppingCart
Lifecycle Modules
Monitoring Data
Resources
JDBC
Connectors
Resource Adapter Configs
JMS Resources
JavaMail Sessions
JNDI
Performance Tuner
Configurations
default-config
server-config
Update Tool
Web Service Endpoint Information
View details about a web service endpoint.
Back
Application Name: 1CMRWSShoppingCart
Tester: /1CMRWSShoppingCart/ProductCatalogService?Tester
WSDL: /1CMRWSShoppingCart/ProductCatalogService?wsdl
Endpoint Name: ProductCatalog
Service Name: ProductCatalogService
Port Name: ProductCatalogPort
Deployment Type: 109
Implementation Type: SERVLET
Implementation Class Name: cmrcet.cse.yellaswamy.ProductCatalog
Endpoint Address URI: /1CMRWSShoppingCart/ProductCatalogService
Namespace: http://yellaswamy.cse.cmrcet/
1:26 AM
7/12/2015

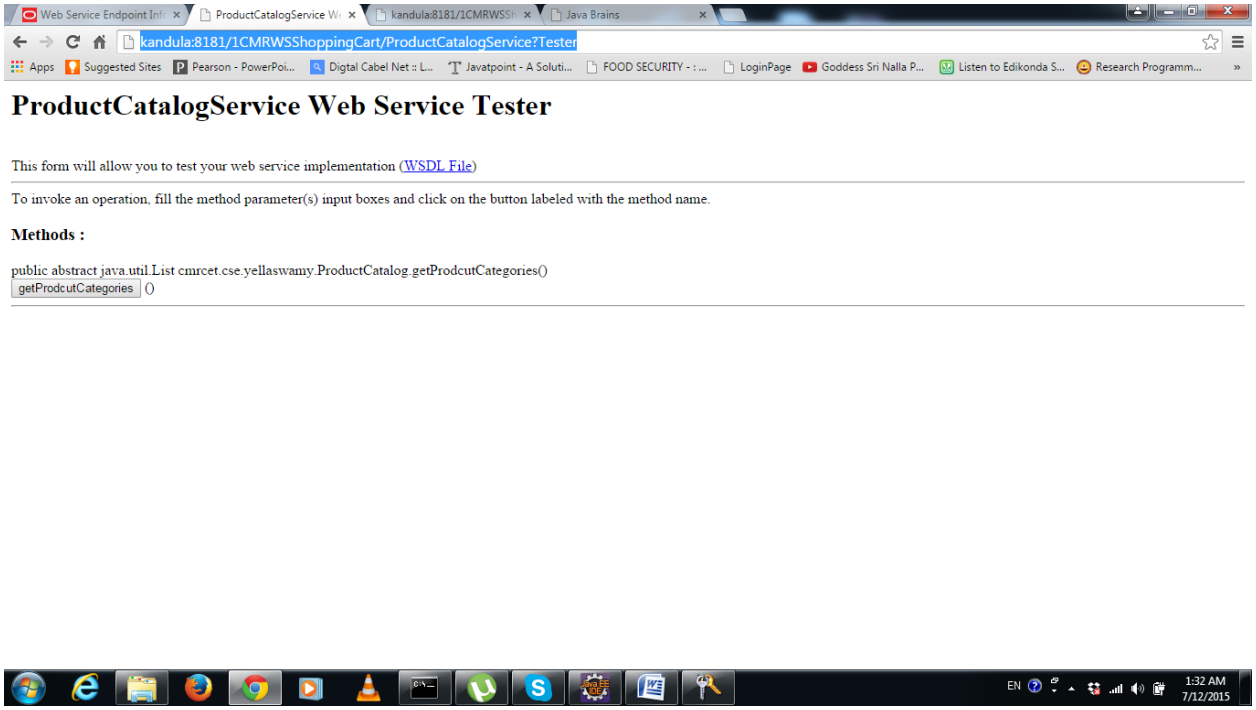


http://kandula:8181/1CMRWSShoppingCart/ProductCatalogService?wsdl

This XML file does not appear to have any style information associated with it. The document tree is shown below.

<!--
 Published by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is
Metro/2.2.0-1 (tags/2.2.0u1-7139; 2012-06-02T10:55:19+0000) JAXWS-RI/2.2.6-2
JAXWS/2.2 svn-revision#unknown.
-->
<!--
 Generated by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is
Metro/2.2.0-1 (tags/2.2.0u1-7139; 2012-06-02T10:55:19+0000) JAXWS-RI/2.2.6-2
JAXWS/2.2 svn-revision#unknown.
-->
<definitions xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-
wss-wssecurity-utility-1.0.xsd" xmlns:wsp="http://www.w3.org/ns/ws-
policy"xmlns:wsp1_2="http://schemas.xmlsoap.org/ws/2004/09/policy" xmlns:wsam
="http://www.w3.org/2007/05/addressing/metadata" xmlns:soap="http://schemas.x
mlsoap.org/wsdl/soap/"xmlns:tns="http://yellaswamy.cse.cmrcet/" xmlns:xsd="ht
tp://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/" targ
etNamespace="http://yellaswamy.cse.cmrcet/"name="ProductCatalogService">
<types>
<xsd:schema>
<xsd:import namespace="http://yellaswamy.cse.cmrcet/" schemaLocation="http://
kandula:8181/1CMRWSShoppingCart/ProductCatalogService?xsd=1"/>
</xsd:schema>
</types>
<message name="getProdcutCategories">
<part name="parameters" element="tns:getProdcutCategories"/>
</message>
<message name="getProdcutCategoriesResponse">
<part name="parameters" element="tns:getProdcutCategoriesResponse"/>
</message>
<portType name="ProductCatalog">
<operation name="getProdcutCategories">
<input wsam:Action="http://yellaswamy.cse.cmrcet/ProductCatalog/getProdcutCat
egoriesRequest" message="tns:getProdcutCategories"/>
<output wsam:Action="http://yellaswamy.cse.cmrcet/ProductCatalog/getProdcutCa
tegoriesResponse" message="tns:getProdcutCategoriesResponse"/>
</operation>
</portType>
<binding name="ProductCatalogPortBinding" type="tns:ProductCatalog">
<soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="documen
t"/>
<operation name="getProdcutCategories">
<soap:operation soapAction=""/>
<input>
<soap:body use="literal"/>
</input>
<output>
<soap:body use="literal"/>
</output>
</operation>
</binding>
<service name="ProductCatalogService">
<port name="ProductCatalogPort" binding="tns:ProductCatalogPortBinding">
<soap:address location="http://kandula:8181/1CMRWSShoppingCart/ProductCatalog
Service"/>
</port>
</service>
</definitions>

http://kandula:8181/1CMRWSShoppingCart/ProductCatalogService?Tester



getProdcutCategories Method invocation

Method parameter(s)

Type	Value

Method returned

java.util.List : "**[CSEBOOKS, ECEBOOKS, ITBOOKS]**"

SOAP Request

```
<?xml version="1.0" encoding="UTF-8"?><S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
    <S:Header/>
    <S:Body>
        <ns2:getProdcutCategories xmlns:ns2="http://yellaswamy.cse.cmrcet/"/>
    </S:Body>
</S:Envelope>
```

SOAP Response

```
<?xml version="1.0" encoding="UTF-8"?><S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
    <S:Body>
        <ns2:getProdcutCategoriesResponse
xmlns:ns2="http://yellaswamy.cse.cmrcet/">
            <return>CSEBOOKS</return>
            <return>ECEBOOKS</return>
            <return>ITBOOKS</return>
        </ns2:getProdcutCategoriesResponse>
    </S:Body>
</S:Envelope>
```

Adding Input Arguments

DEVELOPING SOAP WEB SERVICES WITH JAX-WS

We'll add an operation to our web service that takes input arguments to achieve both sending and receiving data from the web service.

Service First and Contract First Web Services

DEVELOPING SOAP WEB SERVICES WITH JAX-WS

we'll understand the two common methodologies for designing and writing web services - the service first (or code first) and the contract first (or WSDL first) approaches.

Understanding the WSDL

DEVELOPING SOAP WEB SERVICES WITH JAX-WS

Now it's time to understand what's going on in the WSDL. We'll simplify our web service code to just one method, generate the WSDL for it and understand the different elements that are generated.