

Liquidity Management Extensibility
Oracle Banking Liquidity Management

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1. Making an Application Customizable

1.1 Introduction

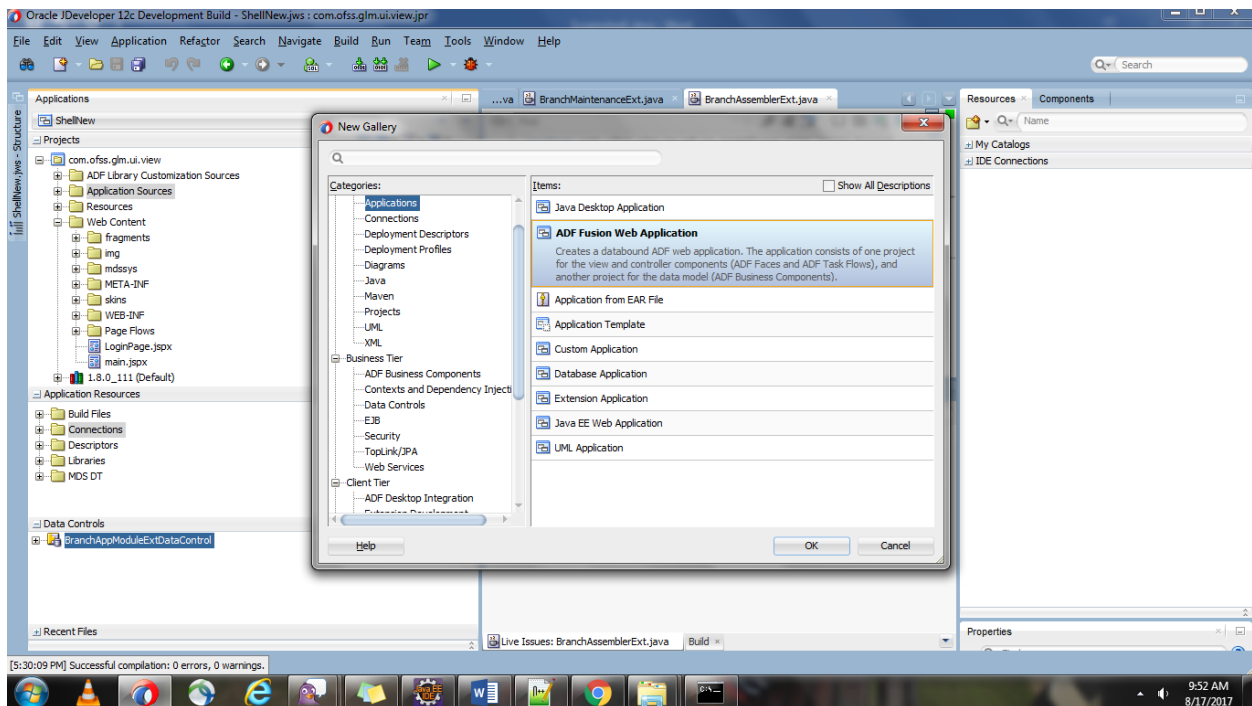
This customization functionality can be useful for companies, if you have two screens that work with the same data, but one of the screens must show more fields than the other, you can create one screen with all the fields and use customization to create another version of the same screen with fewer fields for other users.

ADF has customization features built-in, it's easy to perform the customization with minimal changes.

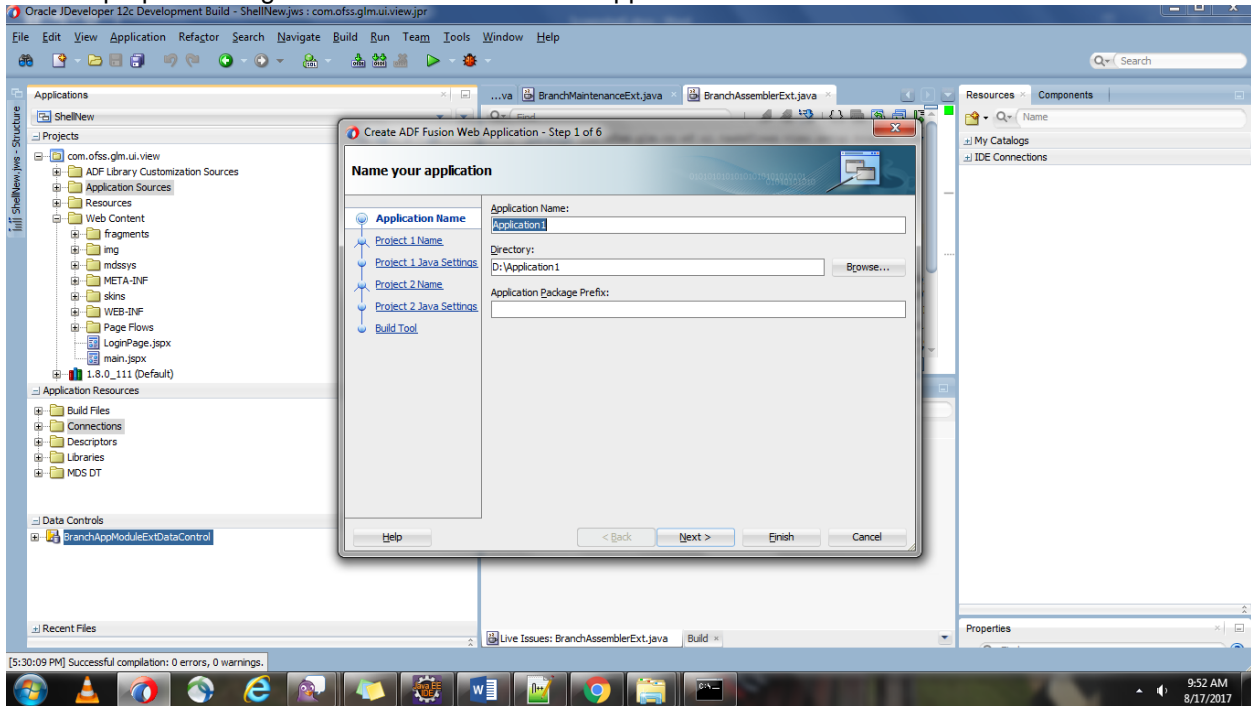
1.2 Developing the Customization Classes

For each layer of customization, you need to develop a customization class with a specific format technically, by extending the built-in abstract class `oracle.mds.cust.CustomizationClass`.

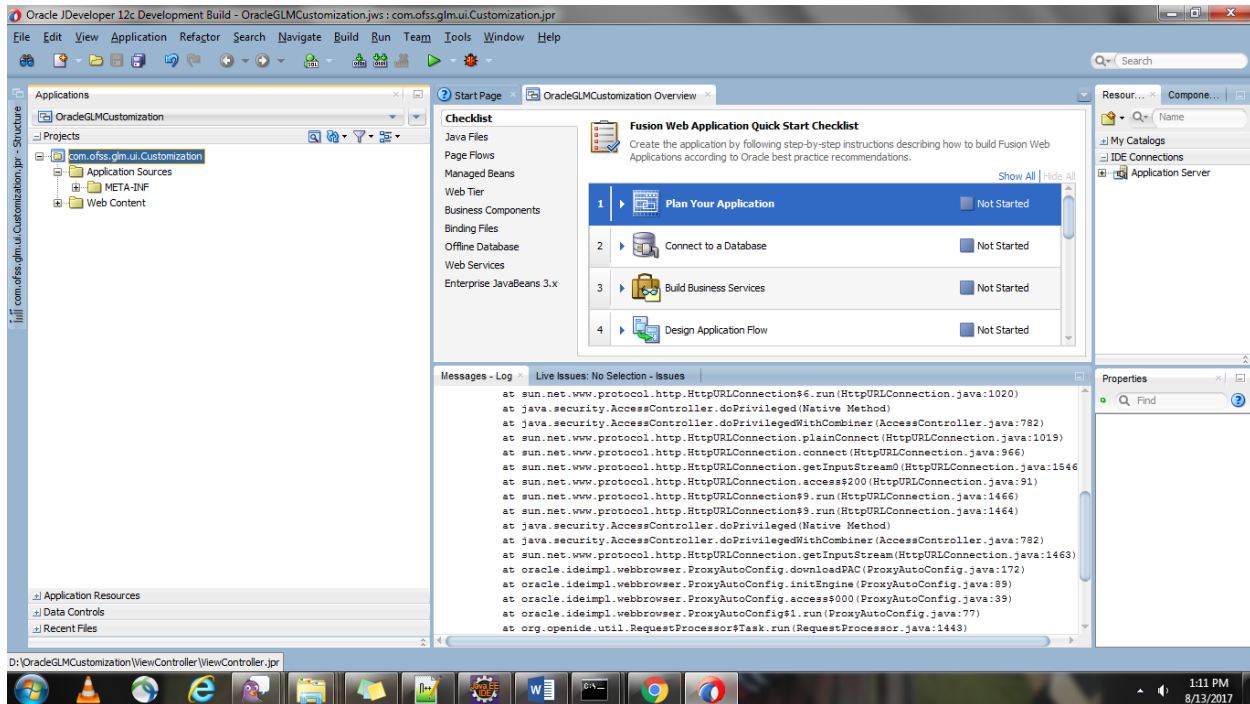
1. Create a new ADF application



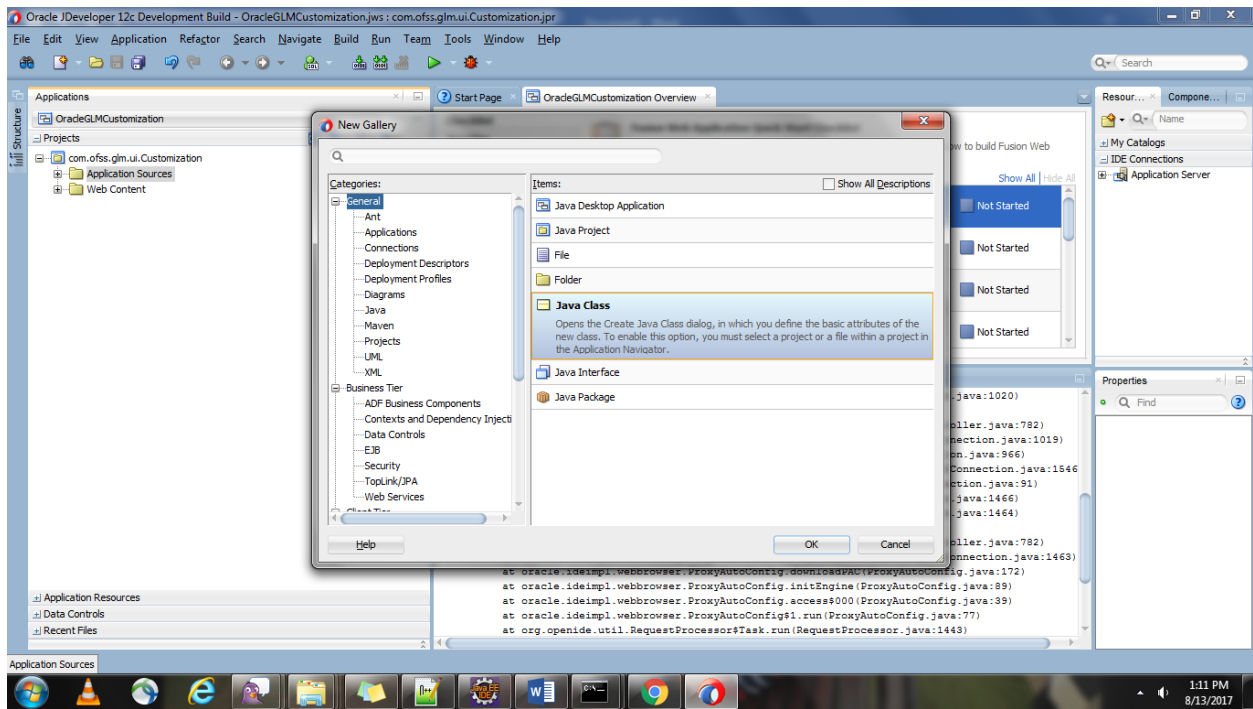
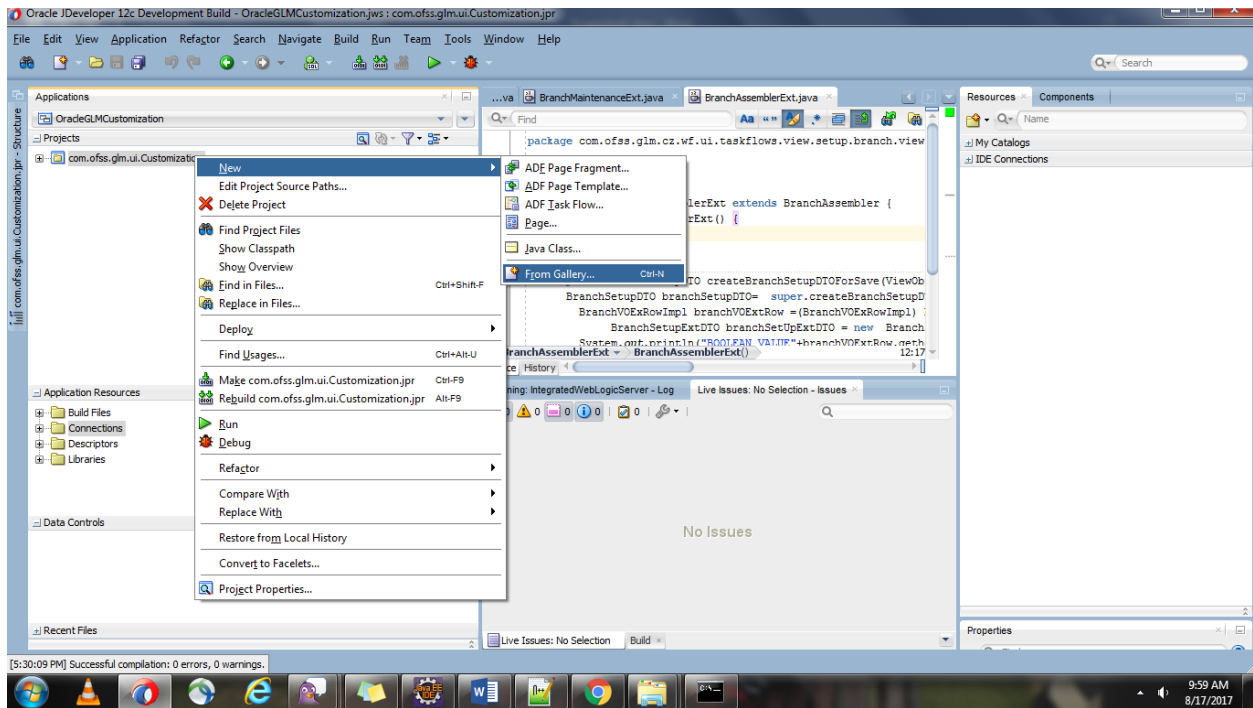
2. Provide proper naming conventions and finish the application creation



3. Once application creation is done, delete the model as we don't need to use that part. And view controller to be renamed (Ex: `com.ofss.glm.ui.customization`).

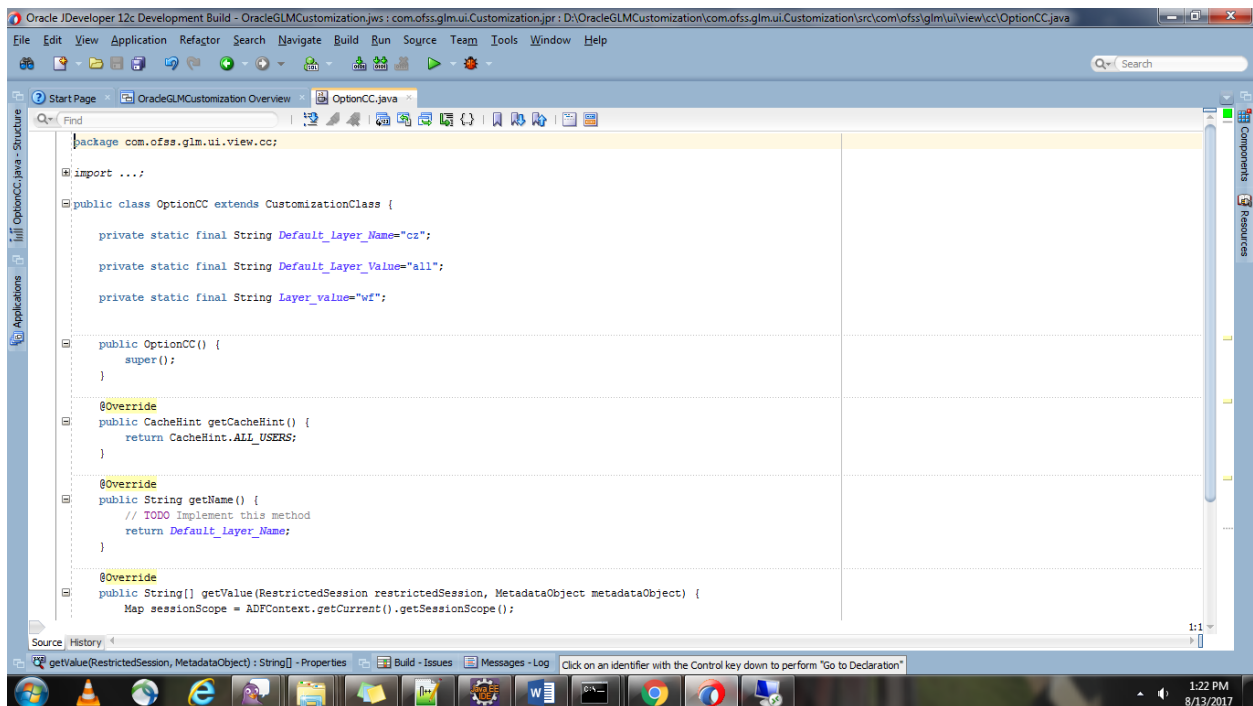
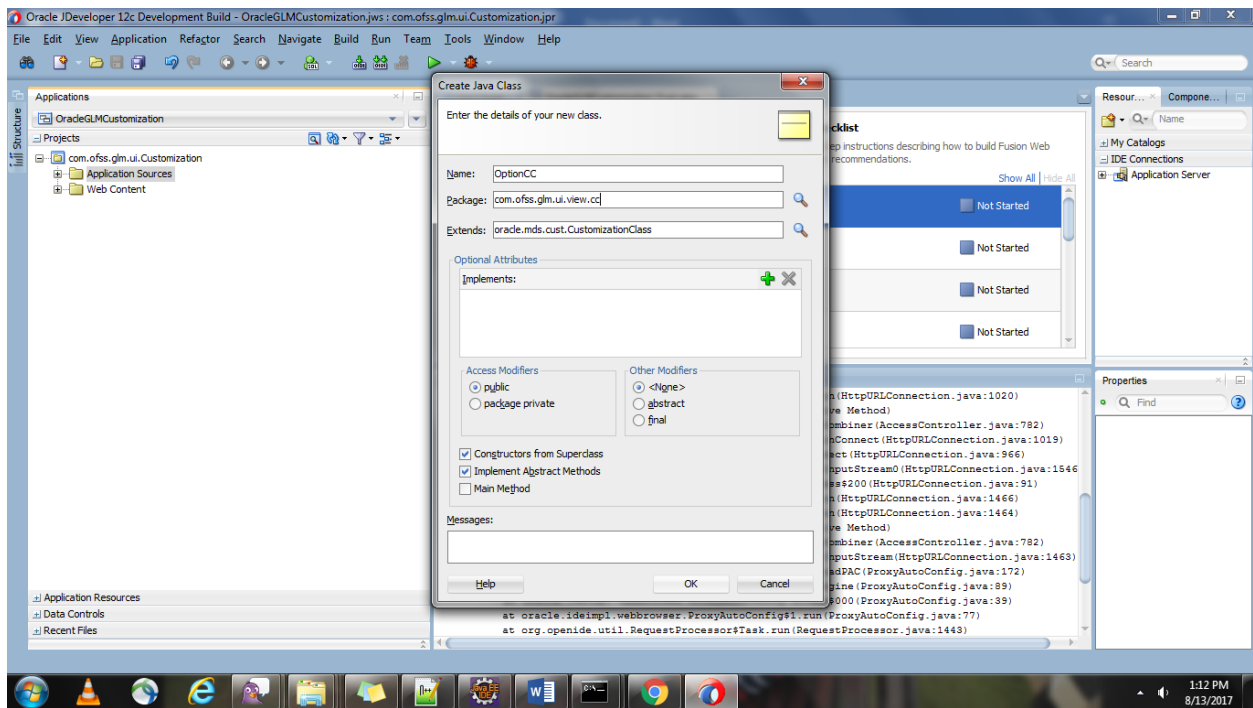


4. Create the Customization classes that can be used.



5. Name the Class as per naming conventions and package too.

In Extends click on Search and Type Customization Class, and try to select as shown in the screenshot (oracle.mds.cust.CustomizationClass)



6. getName () method defines the name of the customization layer.

getValue () defines the logic when the customizations should be shown.

```

private static final String Layer_value="wf";

public OptionCC() {
    super();
}

@Override
public CacheHint getCacheHint() {
    return CacheHint.ALL_USERS;
}

@Override
public String getName() {
    // TODO Implement this method
    return Default_Layer_Name;
}

@Override
public String[] getValue(RestrictedSession restrictedSession, MetadataObject metadataObject) {
    Map sessionScope = ADFContext.getCurrent().getSessionScope();
    String userId= (String) sessionScope.get("userName");
    if ("LM006".equals(userId) || "LM008".equals(userId) || "LM009".equals(userId) || "LM007".equals(userId) || "LM004".equals(userId) || "LM005".equals(userId) ) {
        return (new String[] { Layer_value});
    }else{
        return (new String[] {Default_Layer_Value});
    }
}
}

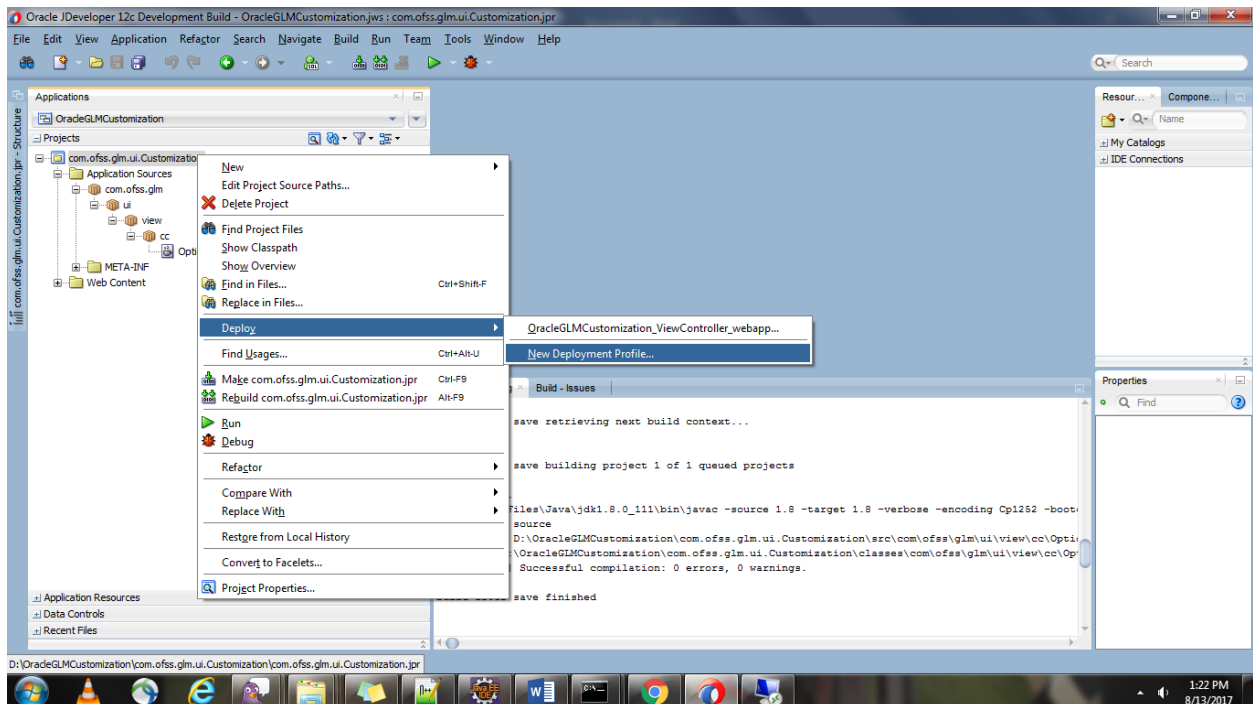
```

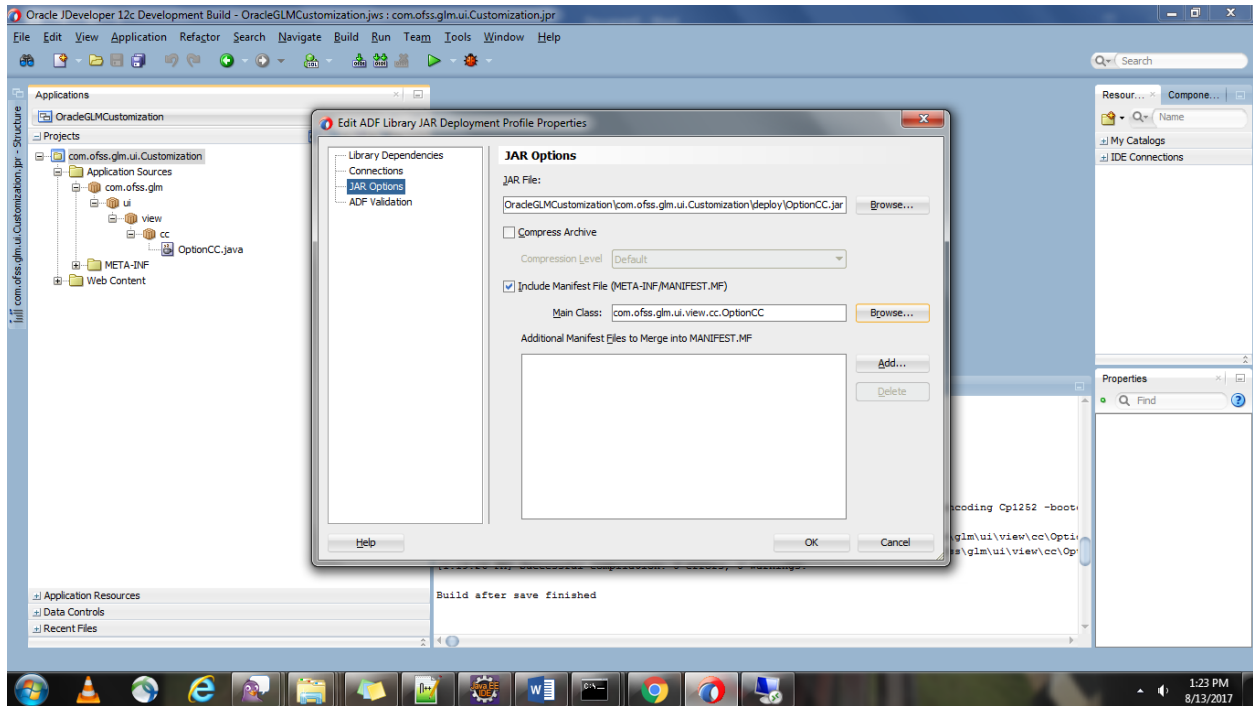
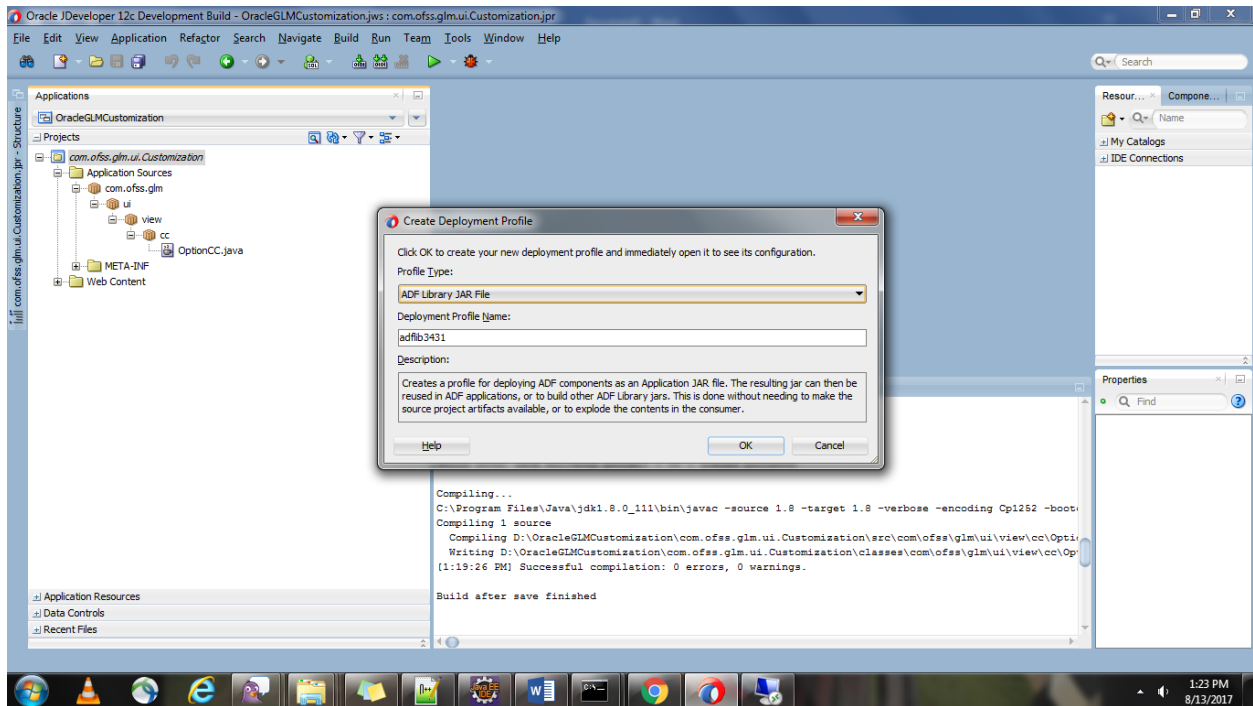
7. Based on the requirement of different customization layers, we can create customization classes. As of now we have one layer “CZ” with values “wf” and “all”(default).

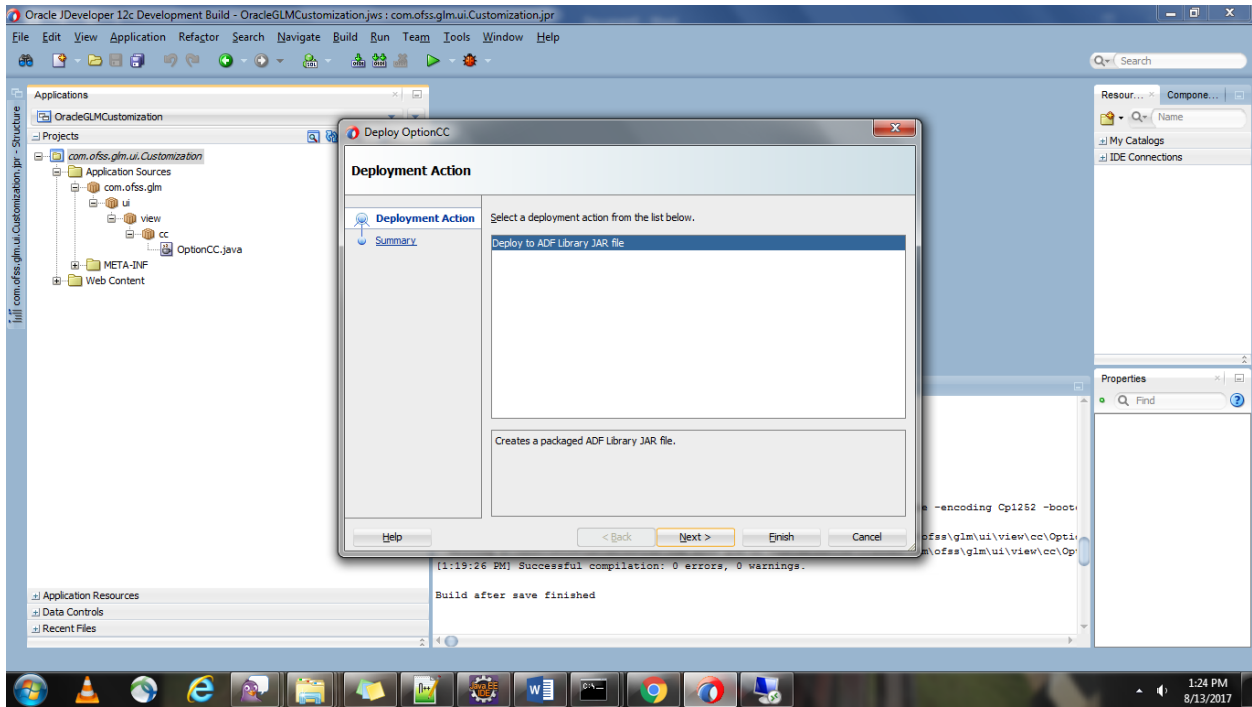
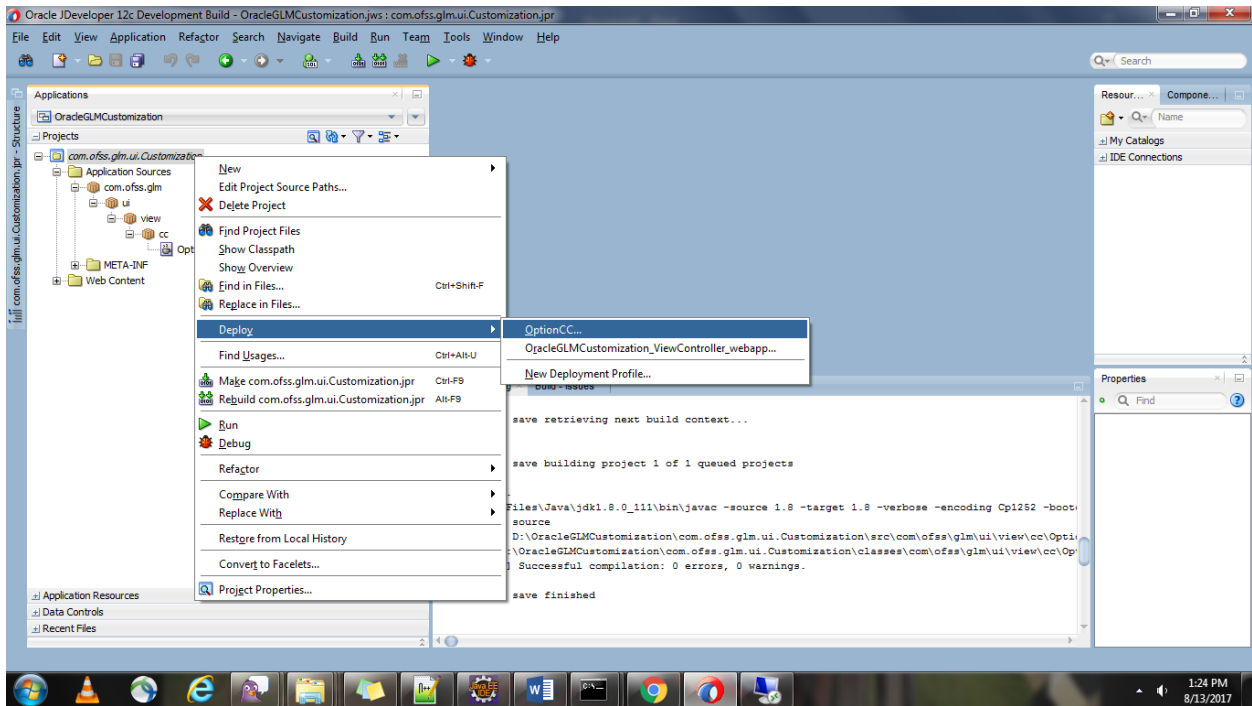
1.3 Deploying the customization classes

Because you place your customization class in the different project, you need to deploy the project to an ADF library to use it on customizable application.

Now deploy this project as a JAR File by creating a new deployment profile. (Follow the screenshots to do the same)

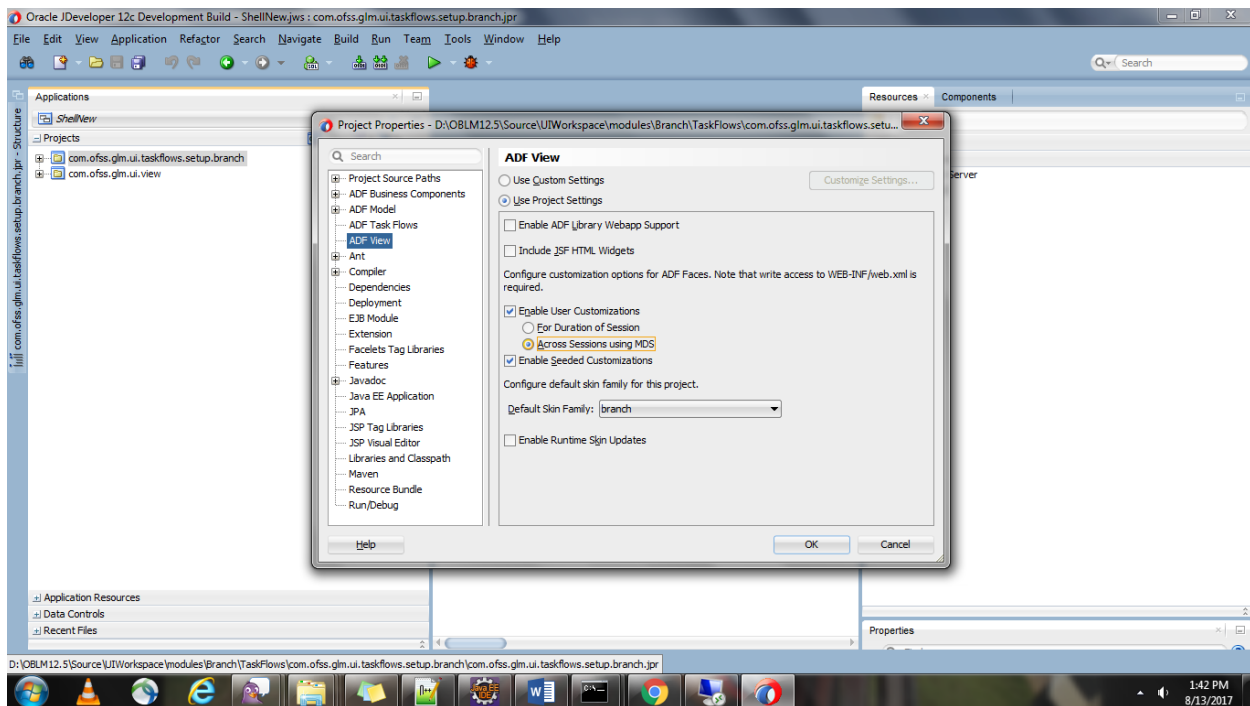






1.4 Enabling Seeded Customization

1. Verify that Seeded Customizations is enabled for the module/screen that you want to customize. This helps in customizing the jsff/taskflow etc. files in customization developer mode.



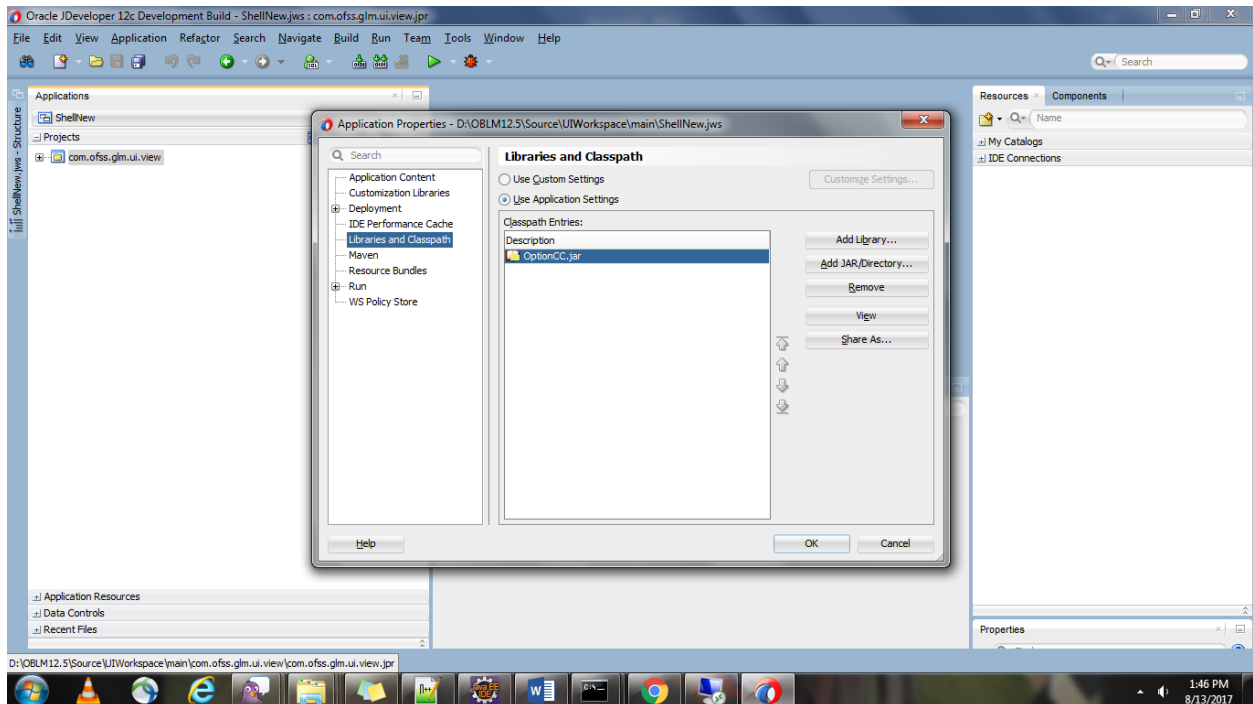
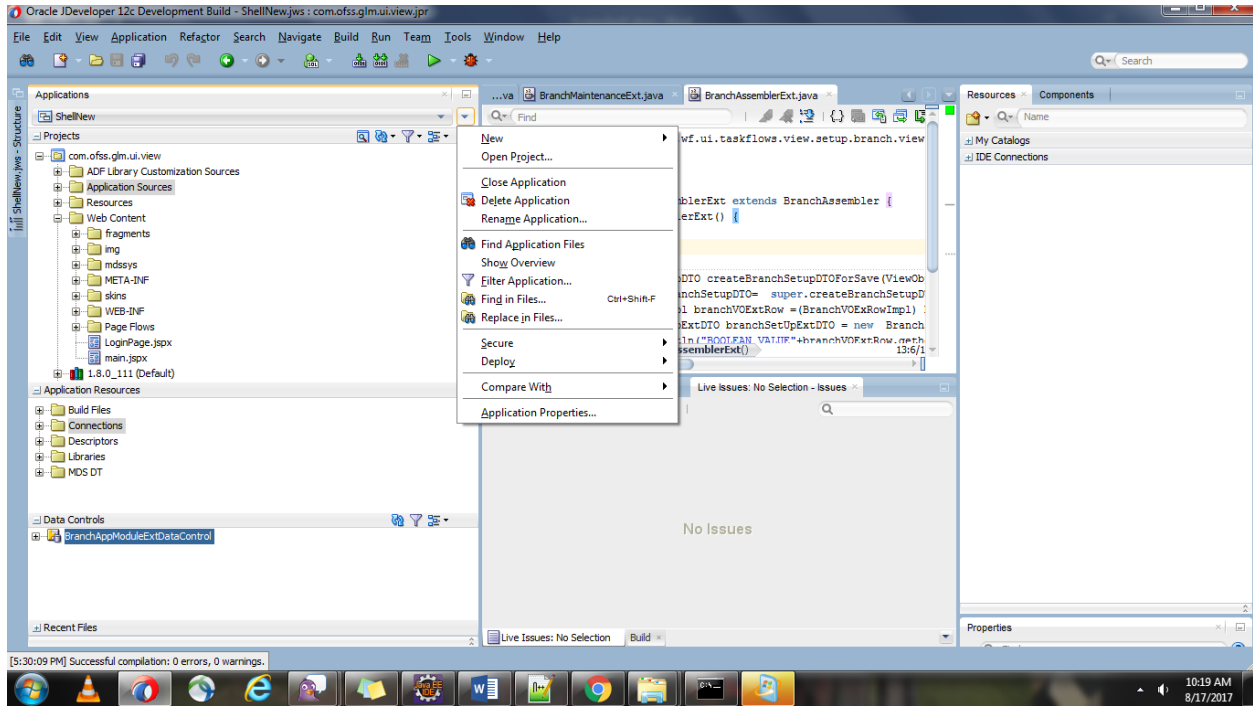
2. Open adfm.xml in project's META-INF project and add BusinessComponentProjectRegistry and BusinessComponentServiceRegistry tags. This helps to fetch the view objects from libraries.

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<MetadataDirectory xmlns="http://xmlns.oracle.com/adfm/metainf"
version="11.1.1.0.0">
<BusinessComponentProjectRegistry
path="com/ofss/glm/ui/taskflows/view/setup/branch/comOfssGlmUiTaskflowsSetupB
ranch.jpj"/>
<BusinessComponentServiceRegistry
path="com/ofss/glm/ui/taskflows/view/setup/branch/common/bc4j.xcfg"/>
<DataBindingRegistry
path="com/ofss/glm/ui/taskflows/view/setup/branch/DataBindings.cpx"/>
</MetadataDirectory>
```

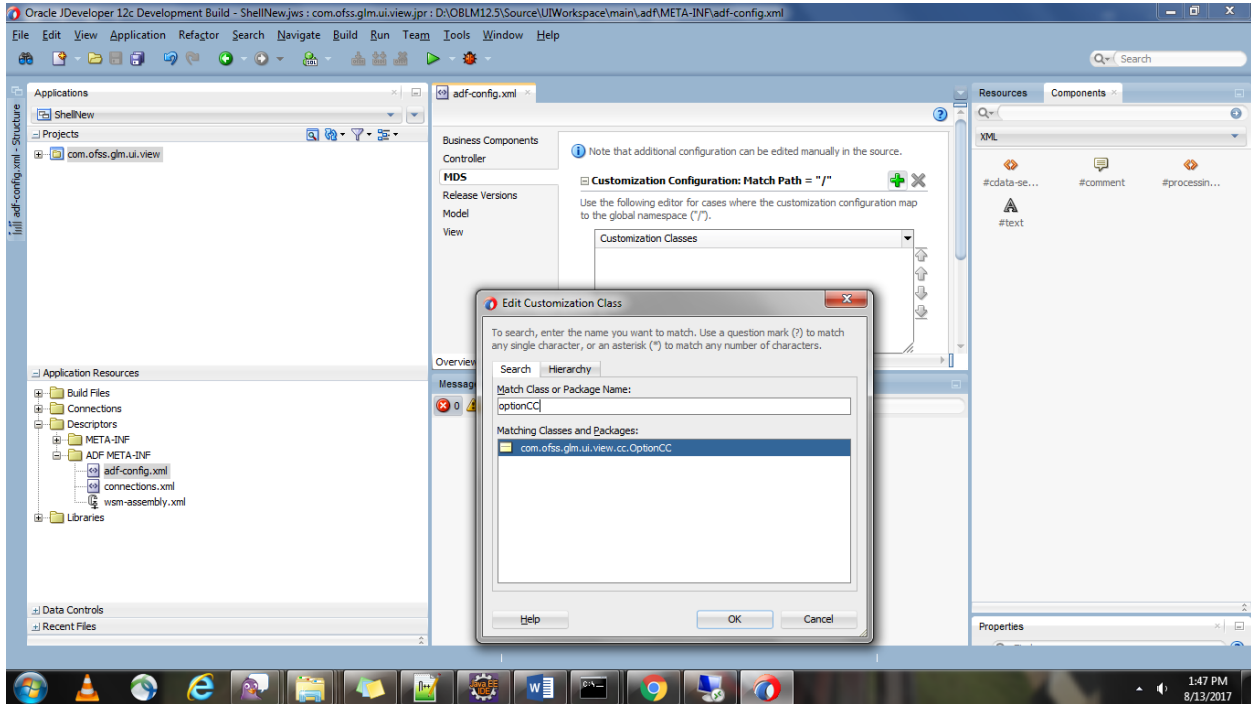
3. Now open the view project by removing all dependencies of modules.

Go to Application Properties and add the library (in Libraries and ClassPath By clicking on Add JAR) which was created earlier for customization layer specification.

1.5 Linking the customization class to the application

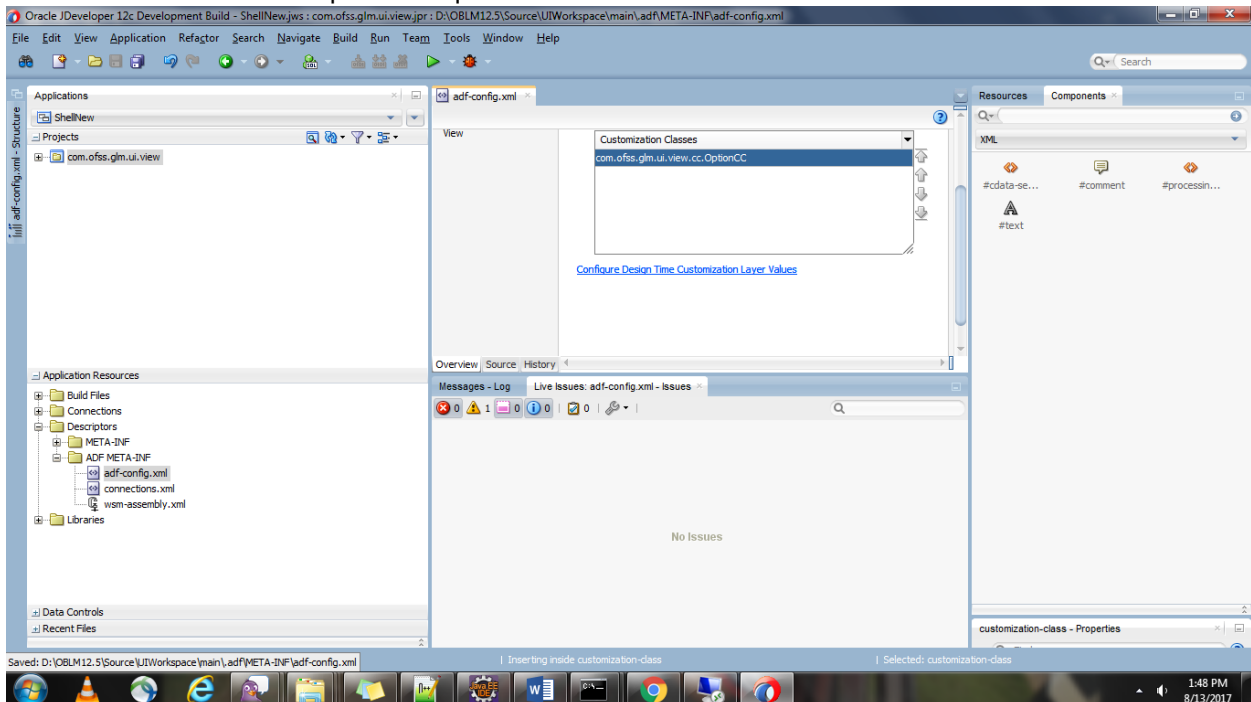


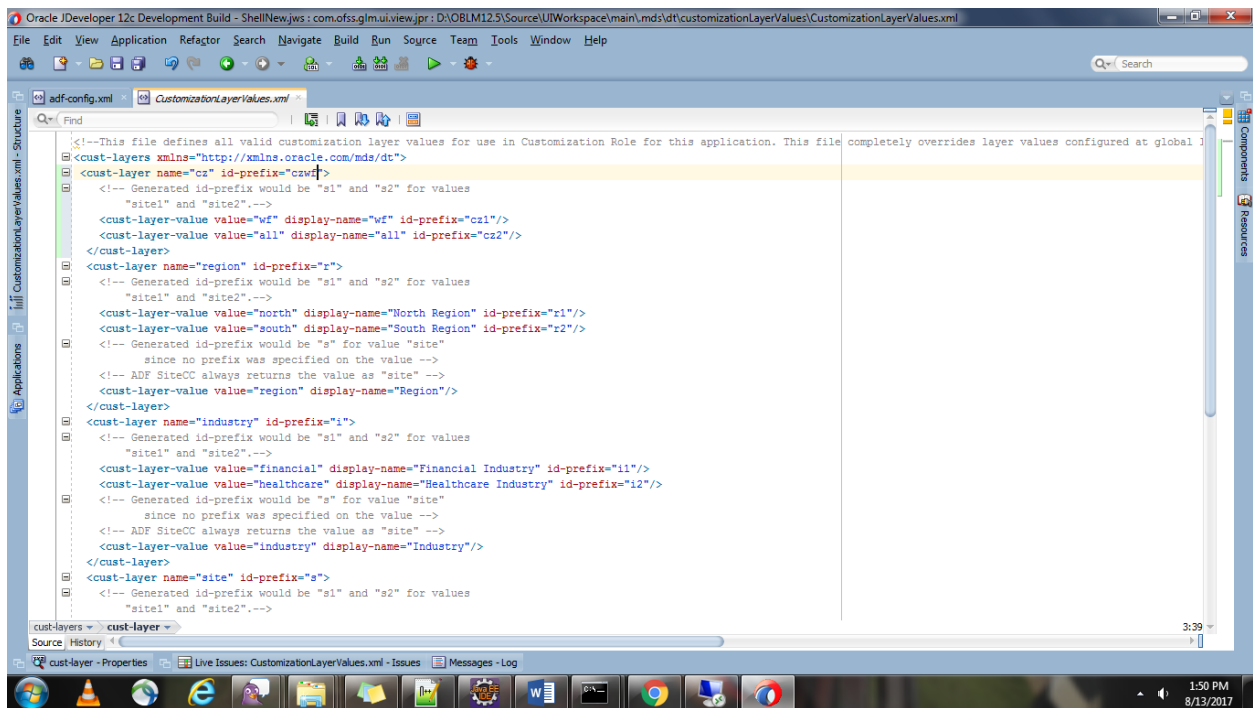
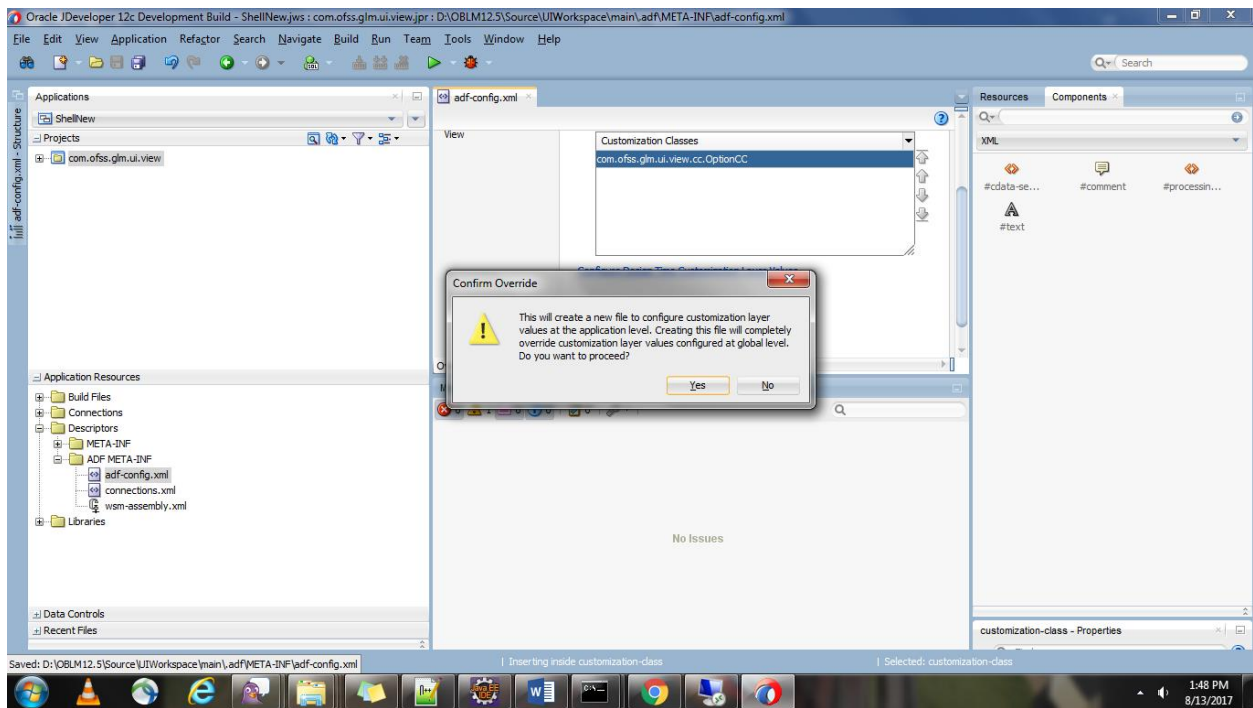
1. Now Open Application Resources tab -> Descriptors -> ADF-META-INF-> adf-config.xml
Click on MDS and then add the customization classes which is present in library.



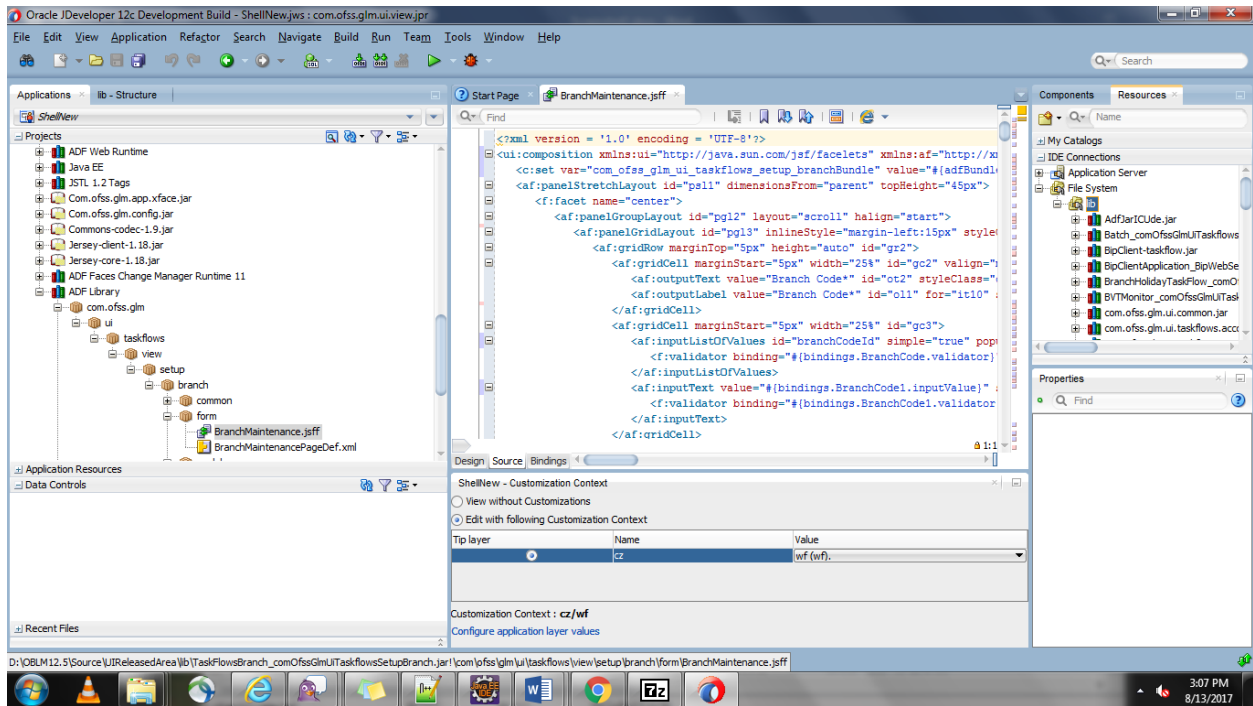
2. Once added click on "Configure Design time Customization Layer Values" link to generate customizationLayerValues.xml file.

3. Edit the Xml file as per our requirement.

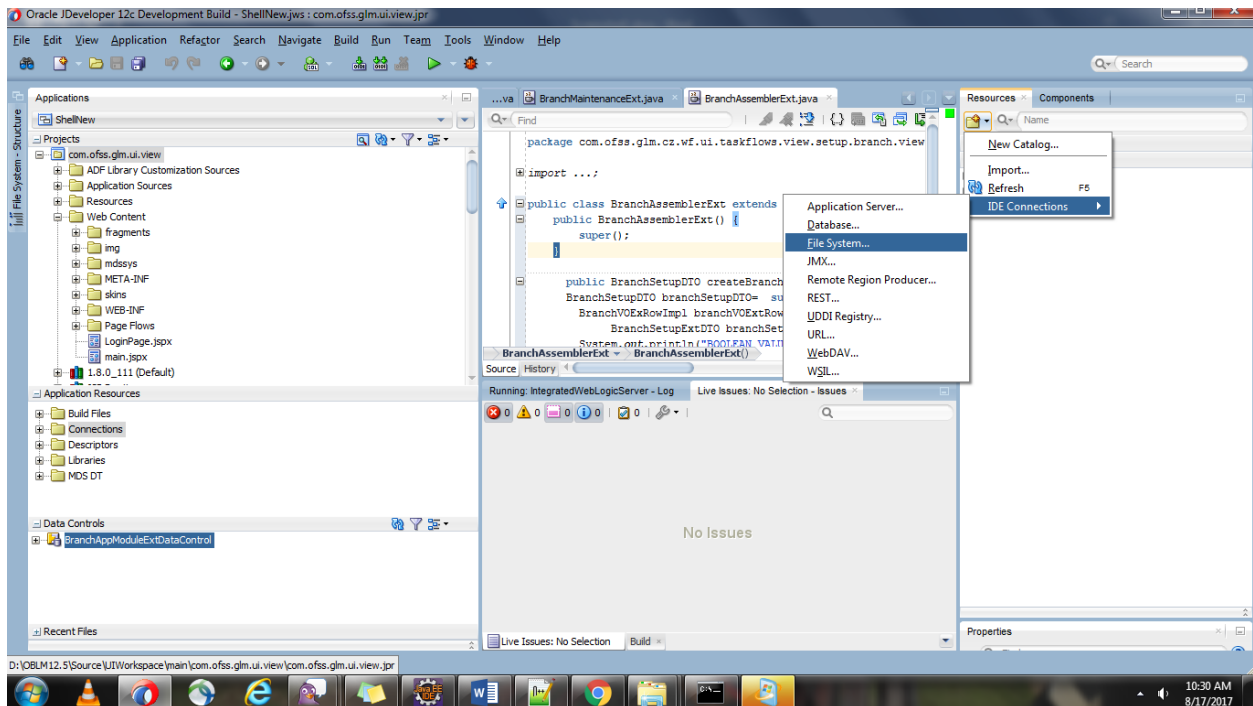


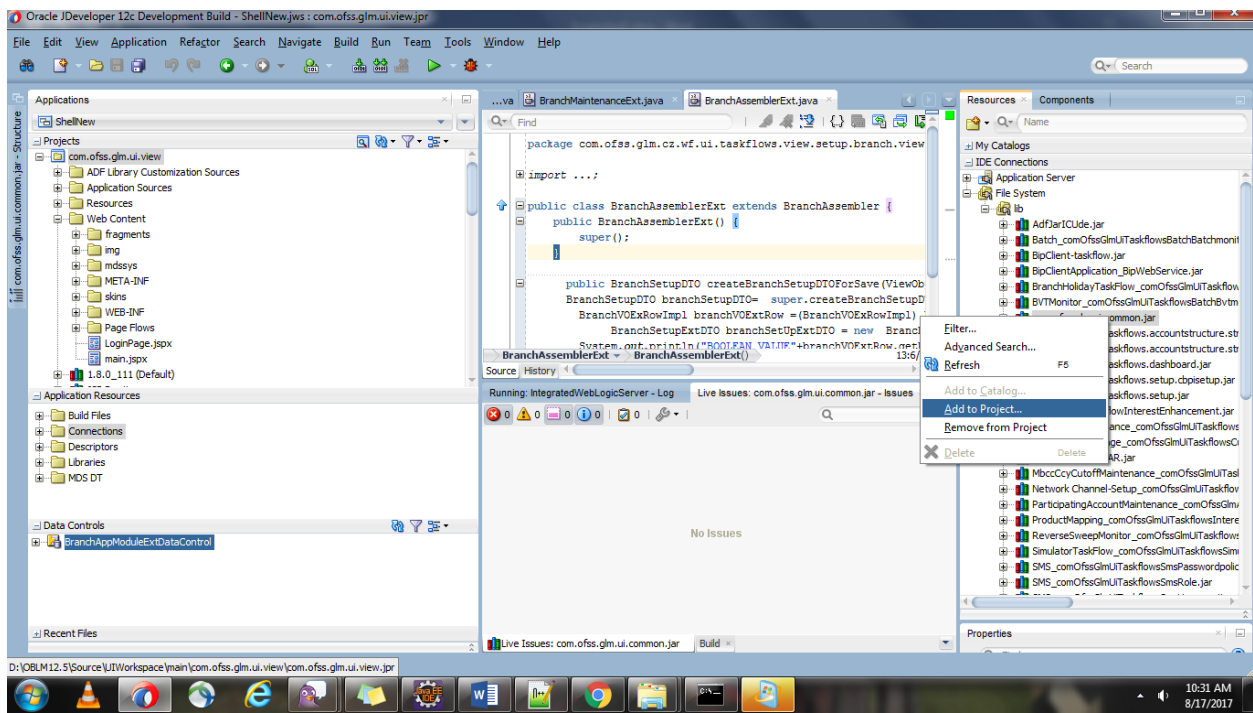
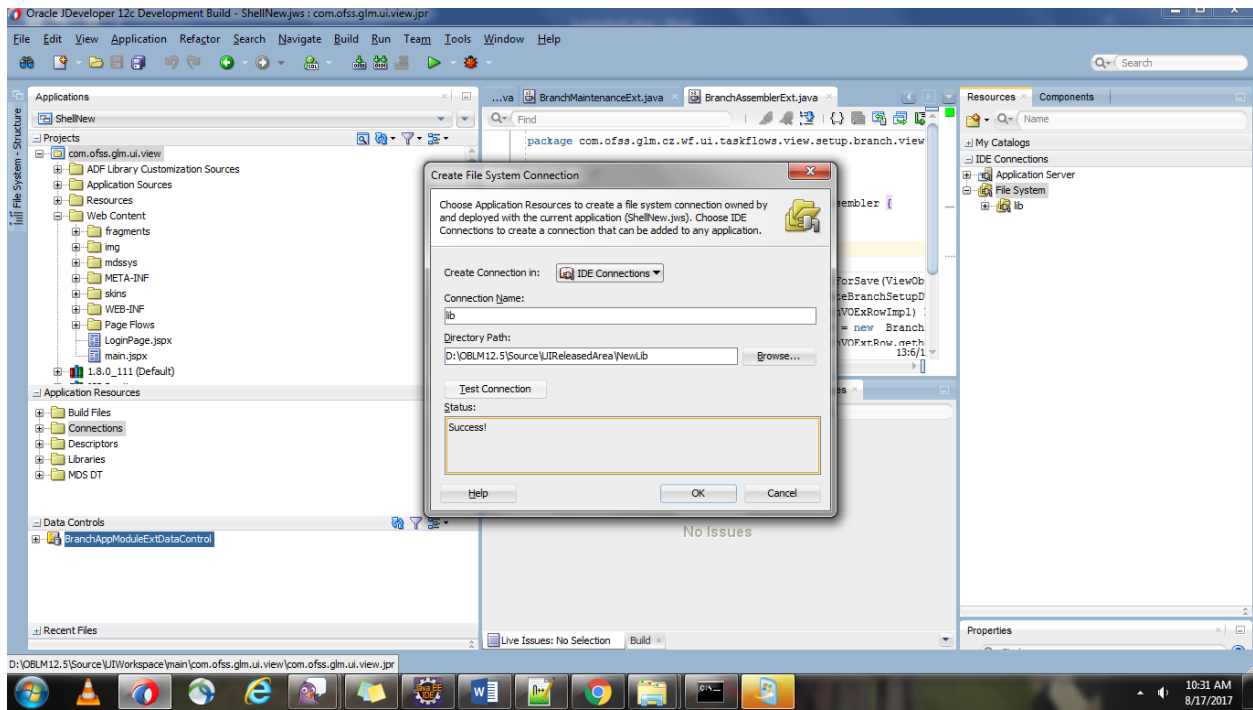


4. To verify the configuration for customization, Restart JDeveloper in Customization Developer Mode.
5. Verify the pre-defined customization layers in Customization Context tab.

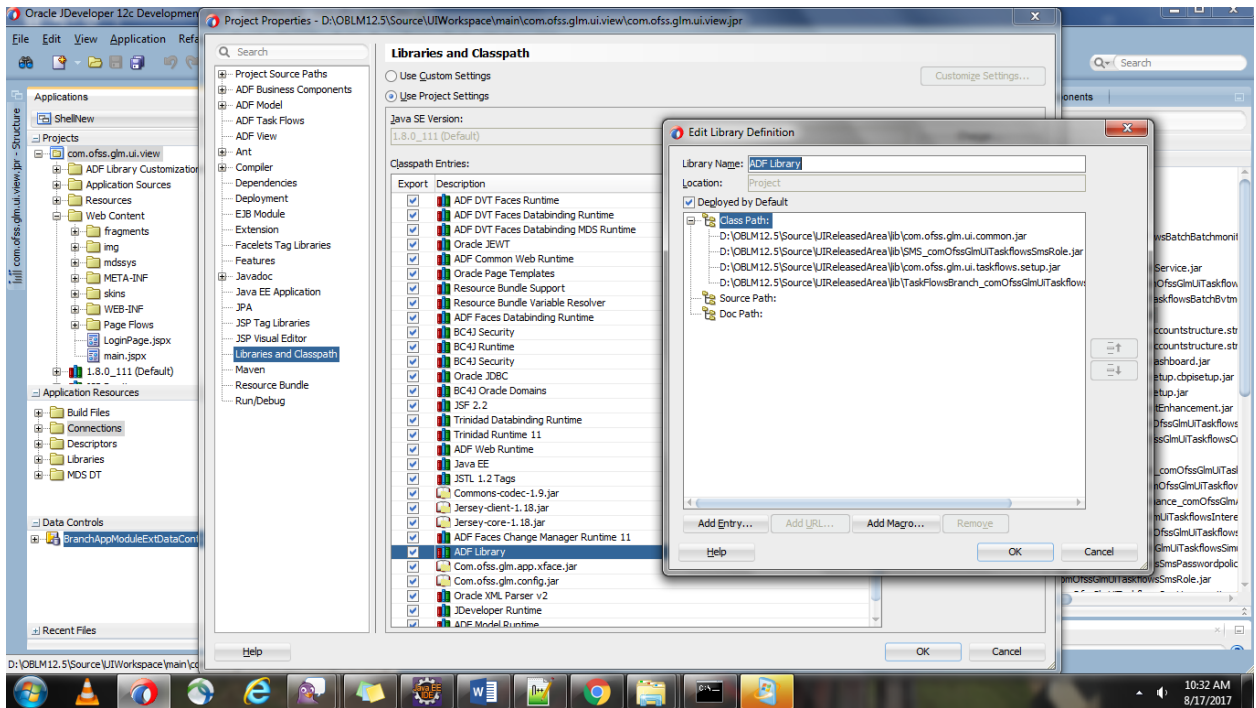


4. Switch back to developer mode by restarting JDeveloper and try to add the libraries to do customization.
5. Extract the libraries from ear and store in a folder.
6. Add these libraries to the file system as referred below:

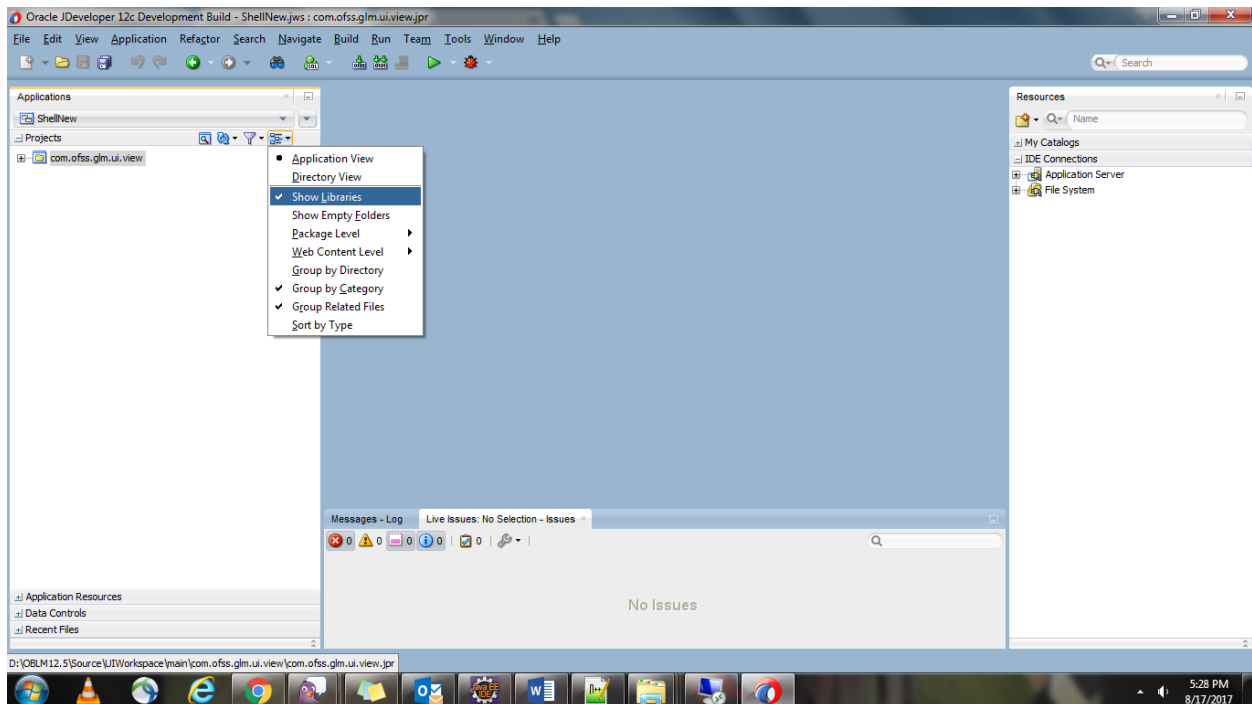




7. Once the required libraries are added to project, the same can be verified through Project Properties.



1 Switch back to Customization mode to modify the page(jssf).



1.6 Customizing View Object

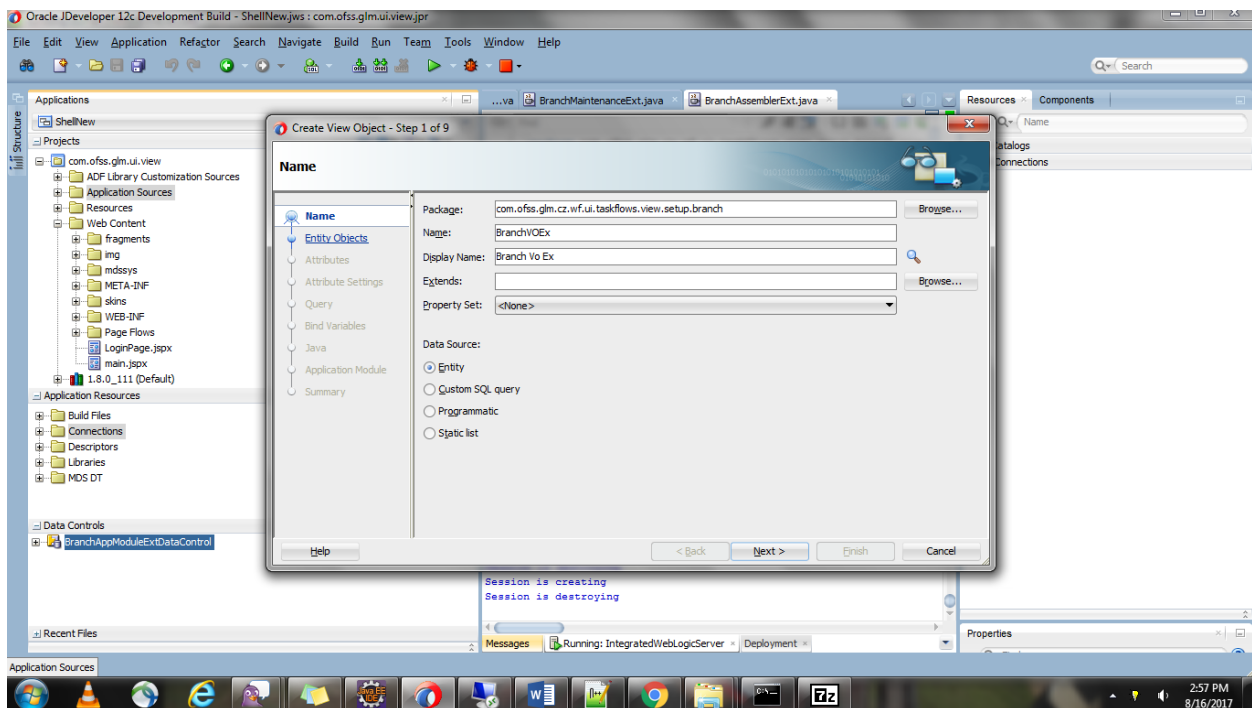
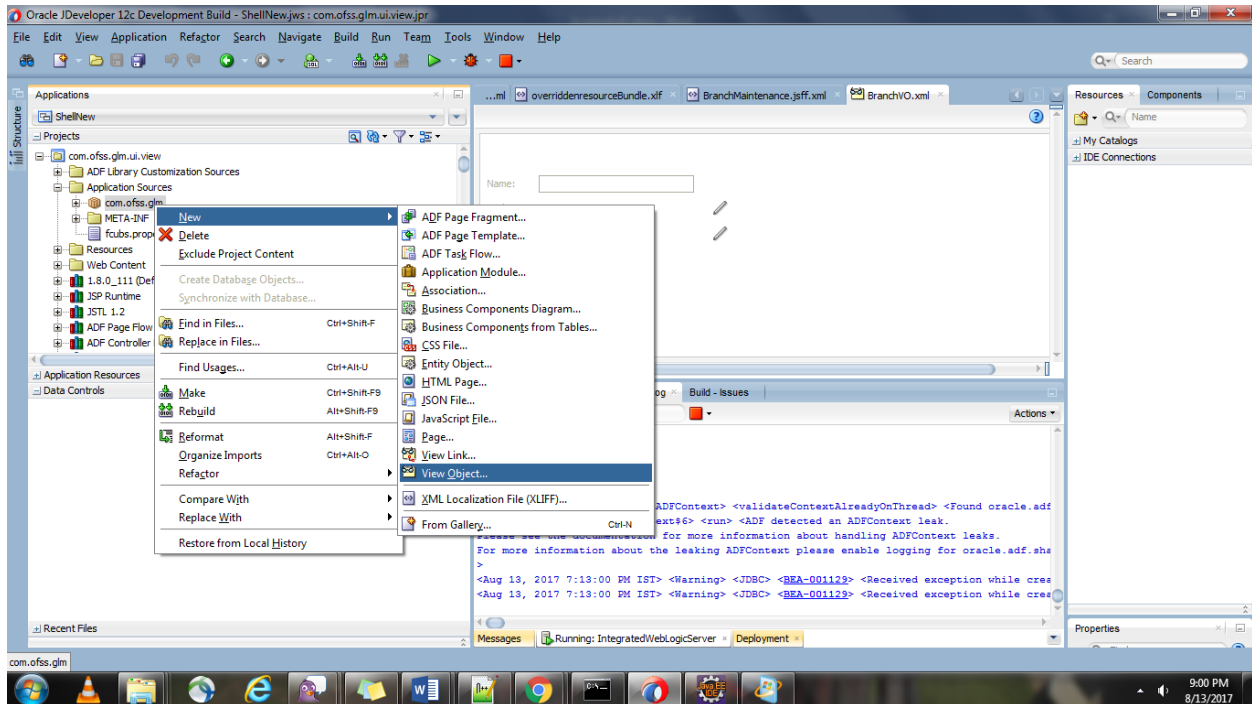
Create the same package structure as the existing view object was in with the layer values you need to customization with.

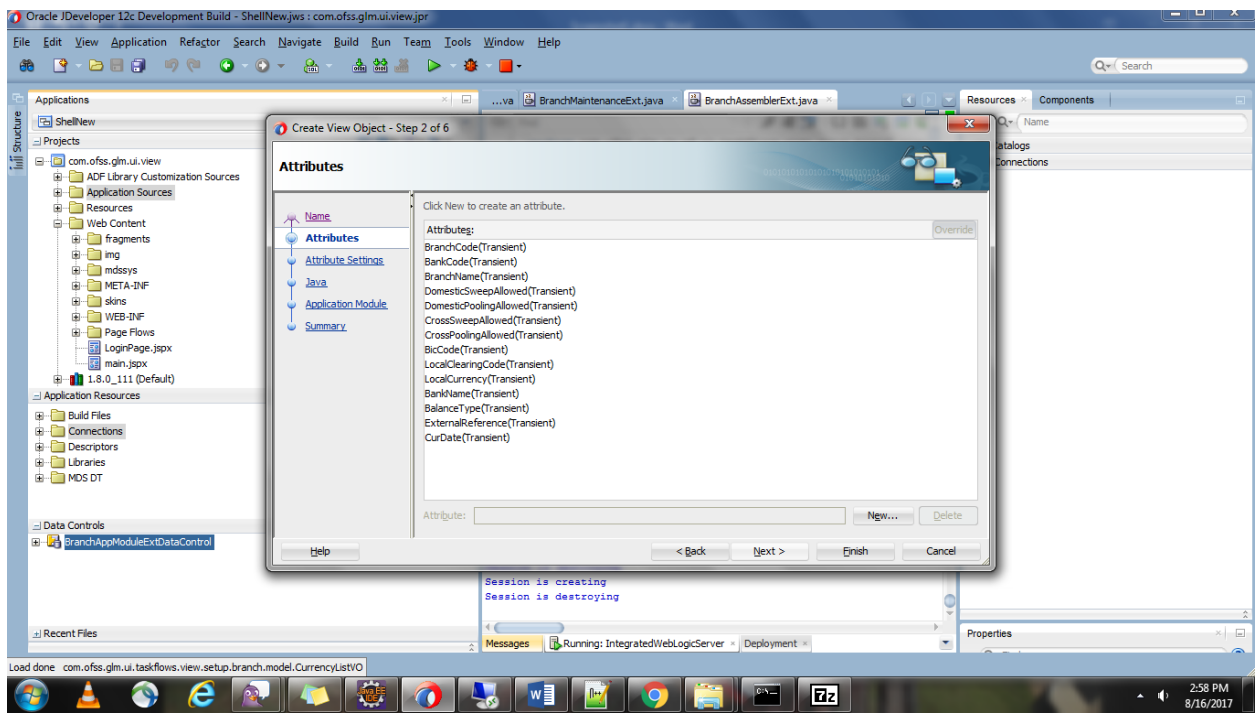
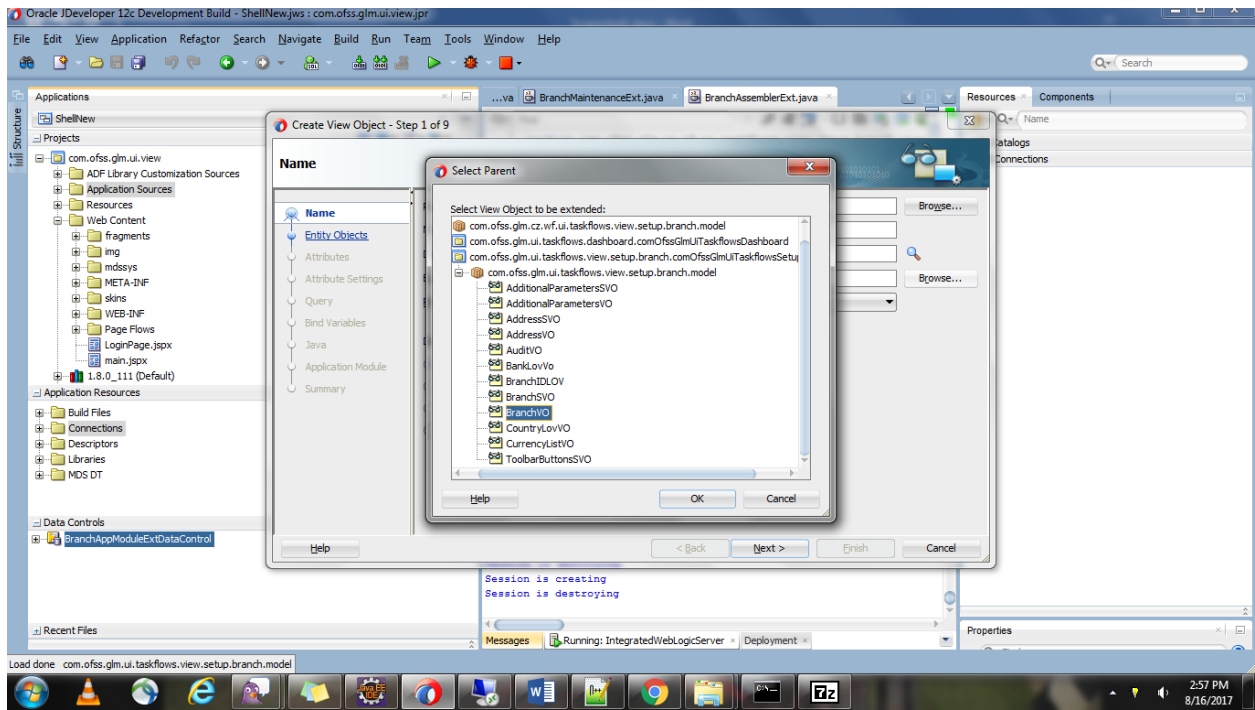
Existing package structure:

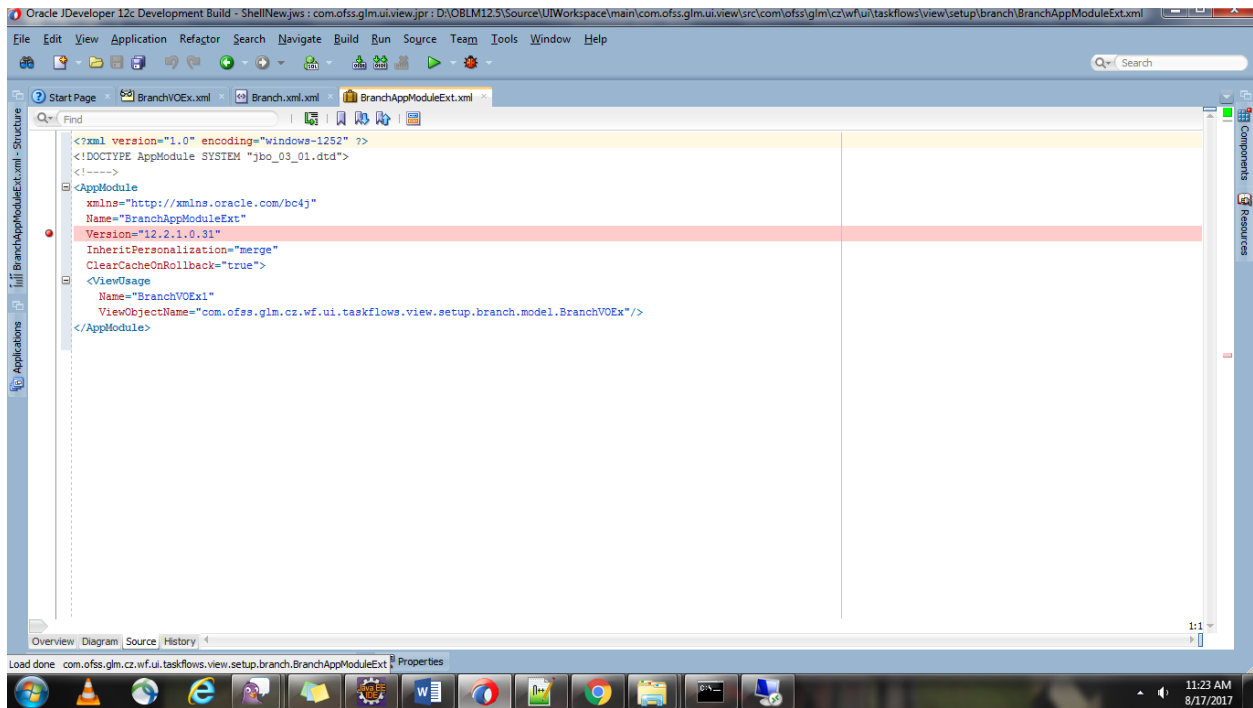
com.ofss.glm.ui.taskflows.view.setup.branch.model.BranchVO

New Package Structure with tip layer Name (cz) and value (wf):
com.ofss.glm.cz.wf.ui.taskflows.view.setup.branch.model.BranchVOEx.

Note: While creating AppModule, maintain the same package structure.

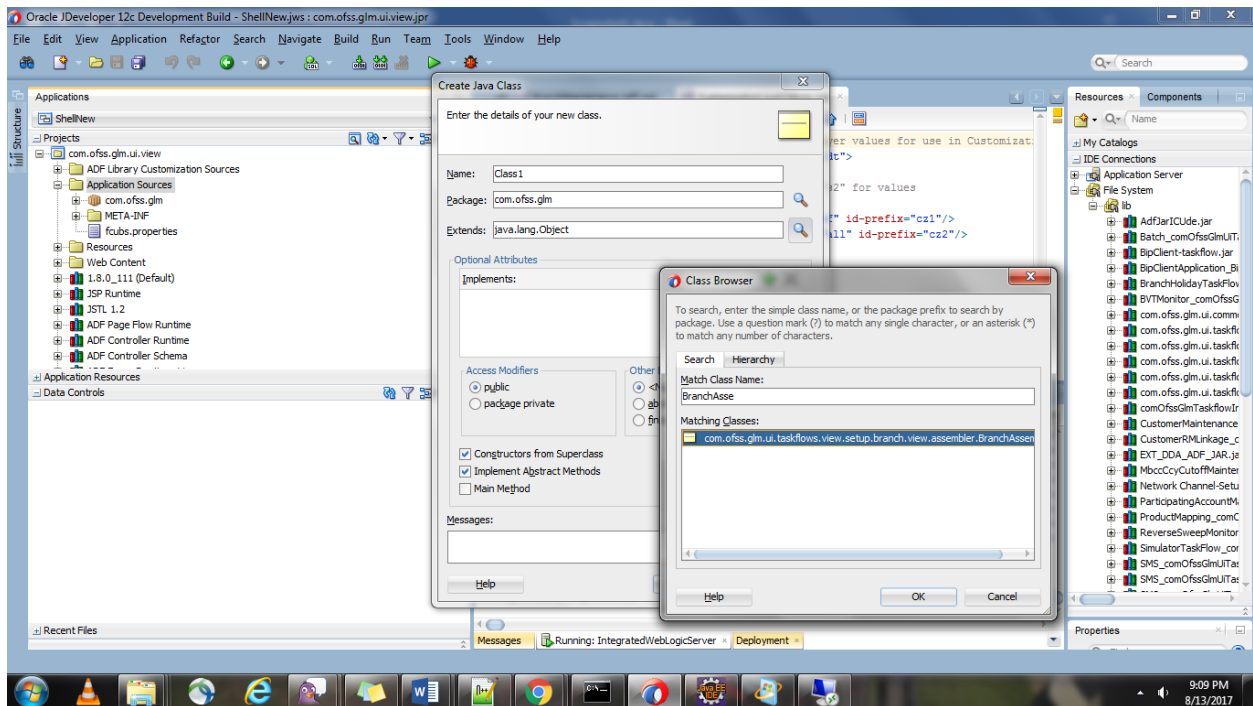


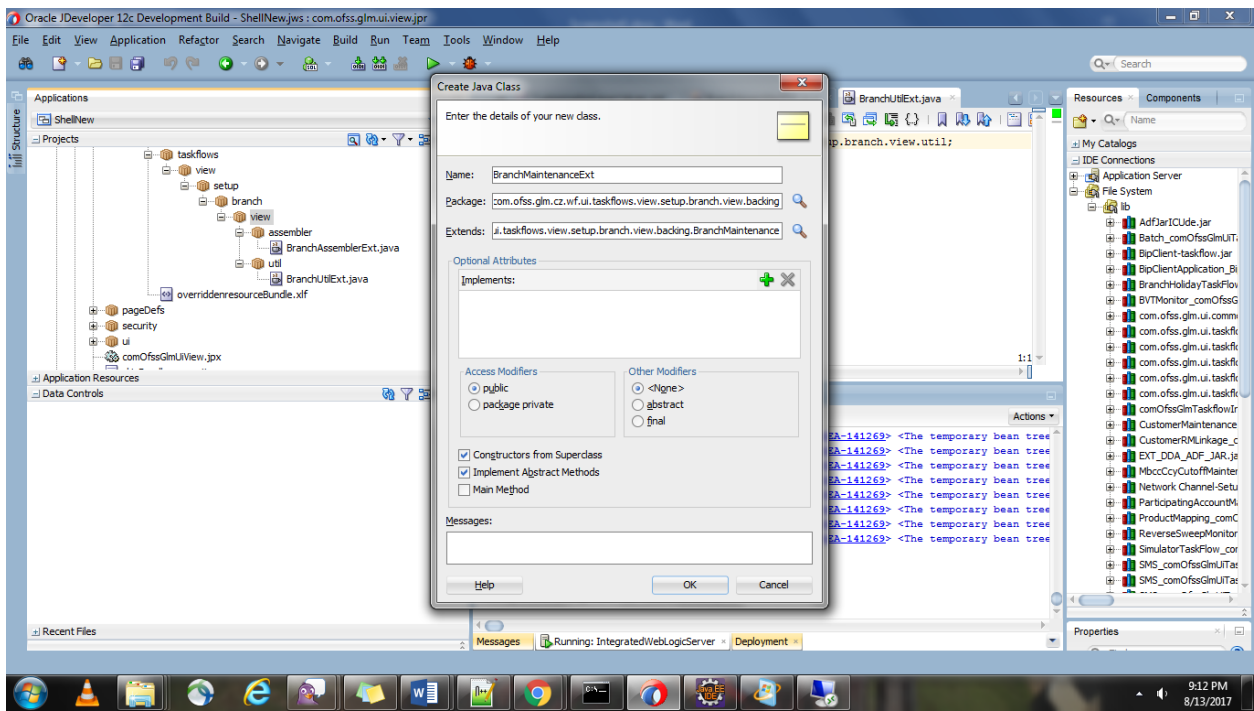
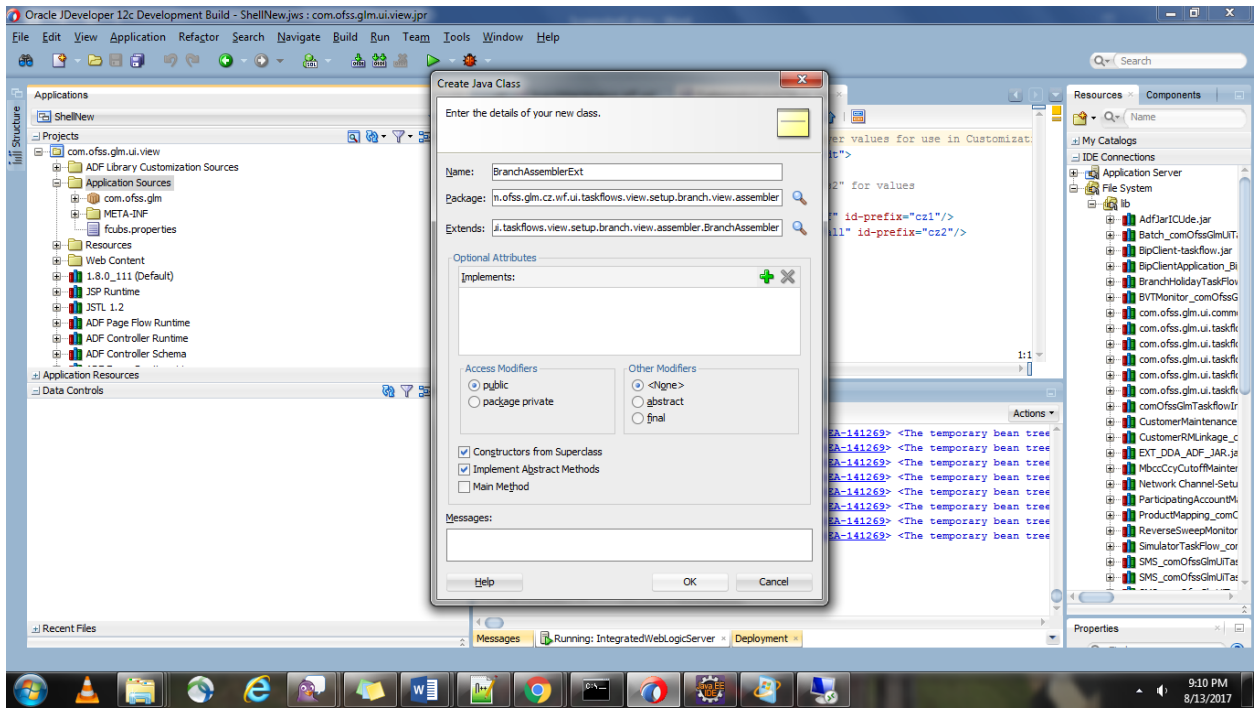


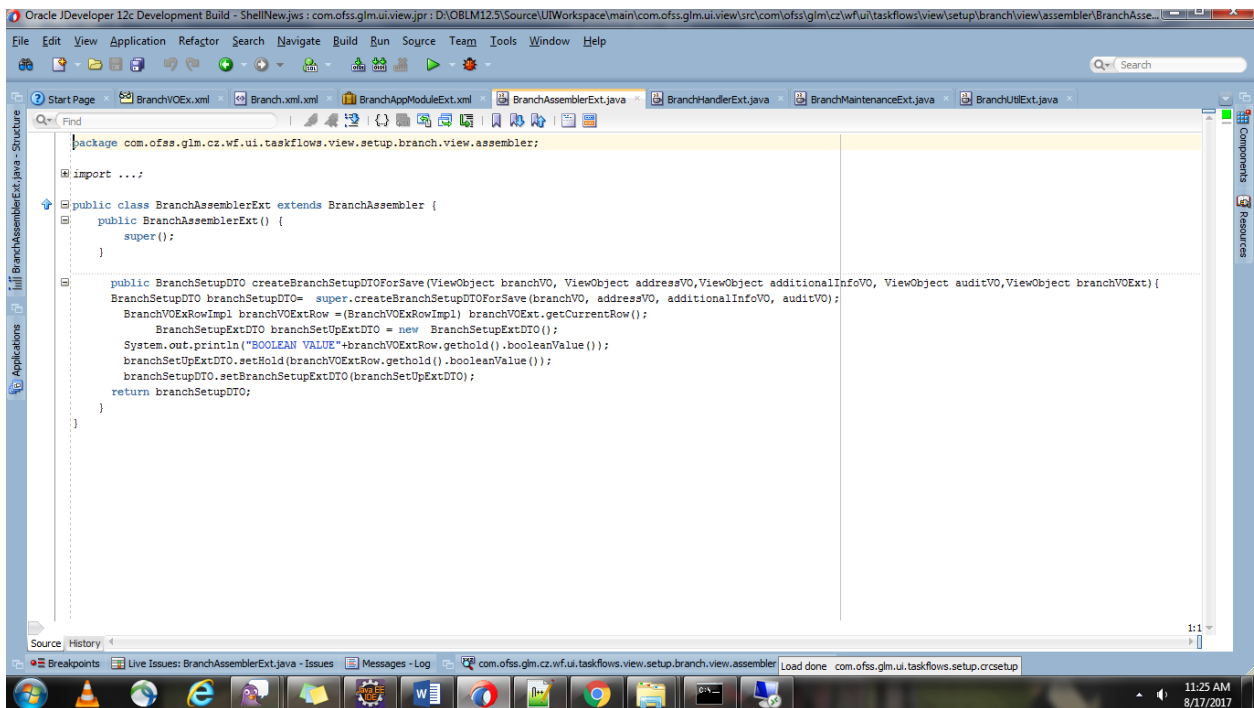
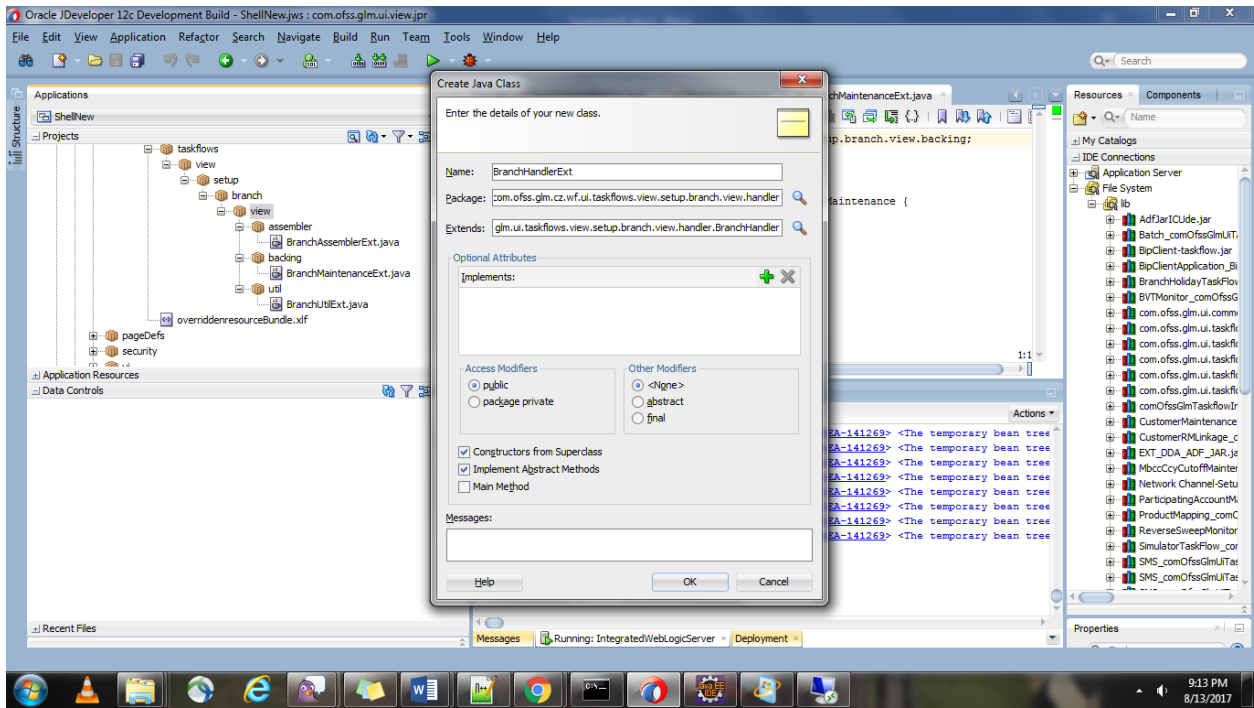


1.7 Customizing Java Classes

Similarly Extend Assembler, Handler, Bean and Util Classes to implement the new logic.

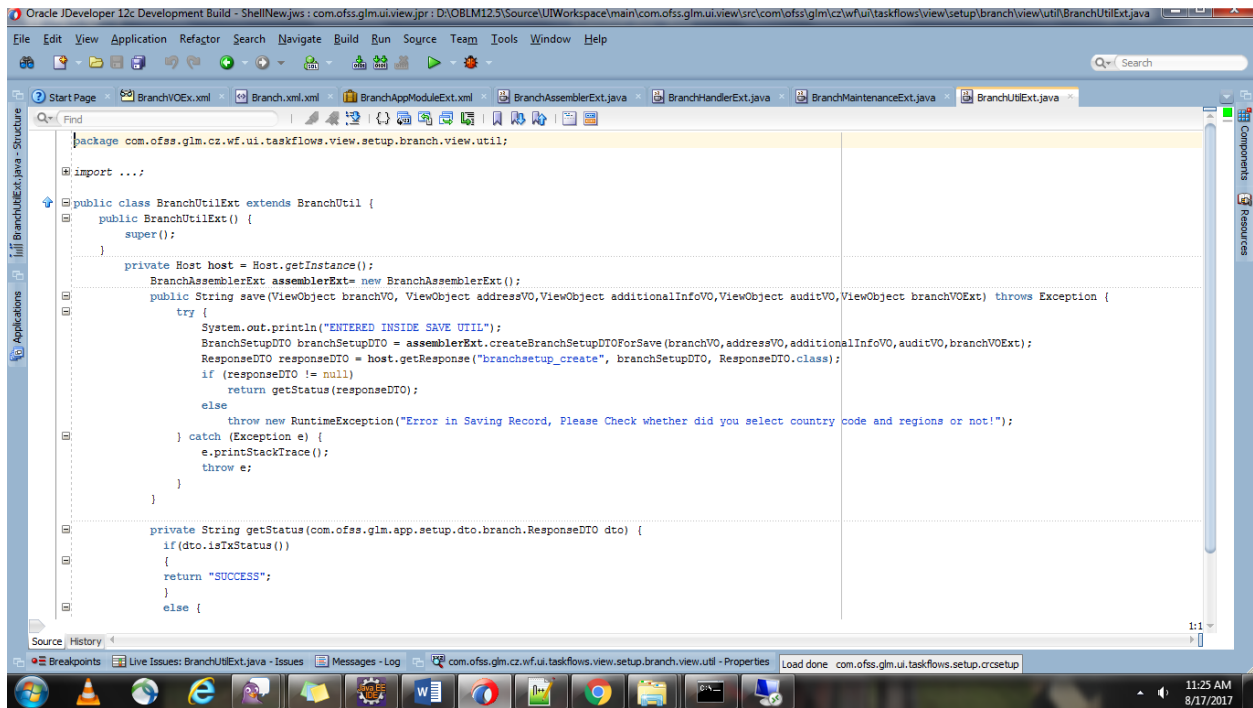






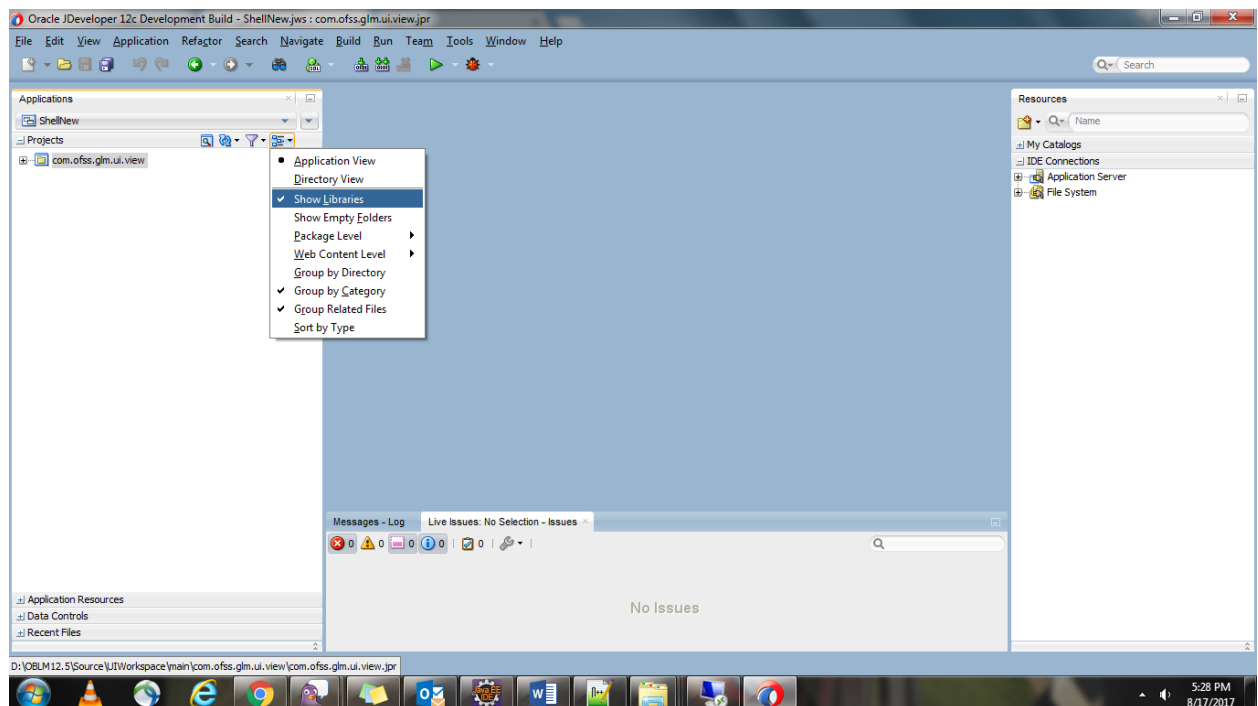
```
Oracle JDeveloper 12c Development Build - ShellNewJws : com.ofss.glm.ui.view.jpr : D:\OBLM12.5\Source\UIWorkspace\main\com.ofss.glm.ui.view\src\com\ofss\glm\cz\wf\ui\taskflows\view\setup\branch\view\handler\BranchHandle...
File Edit View Application Refactor Search Navigate Build Run Source Team Tools Window Help
Qw Search
Start Page BranchVOExt.xml Branch.xml.xml BranchAppModuleExt.xml BranchAssemblerExt.java BranchHandlerExt.java BranchMaintenanceExt.java BranchUIExt.java
Qw Find
package com.ofss.glm.cz.wf.ui.taskflows.view.setup.branch.view.handler;
import ...;
public class BranchHandlerExt extends BranchHandler {
    public BranchHandlerExt() {
        super();
    }
    BranchUtilExt utilExt = new BranchUtilExt();
    private ViewObject branchVOExt;
    public void setBranchVOExt(ViewObject branchVOExt) {
        this.branchVOExt = branchVOExt;
    }
    public ViewObject getBranchVOExt() {
        return getViewObj("BranchVOExtIterator");
    }
    public String save() throws Exception {
        try {
            System.out.println("ENTERED INSIDE SAVE HANDLER");
            String status =
                utilExt.save(this.getBranchVO(), this.getAddressVO(), this.getAdditionalParametersVO(), this.getAuditVO(), this.getBranchVOExt());
            if (status.equals("SUCCESS"))
                this.changeStateToDetails();
            return status;
        } catch (Exception e) {
            throw e;
        }
    }
}
Source History
Breakpoints Live Issues: BranchHandlerExt.java - Issues Messages - Log com.ofss.glm.cz.wf.ui.taskflows.view.setup.branch.view.handler - Proj Load done com.ofss.glm.ui.taskflows.setup.crsetup
11:25 AM 8/17/2017
```

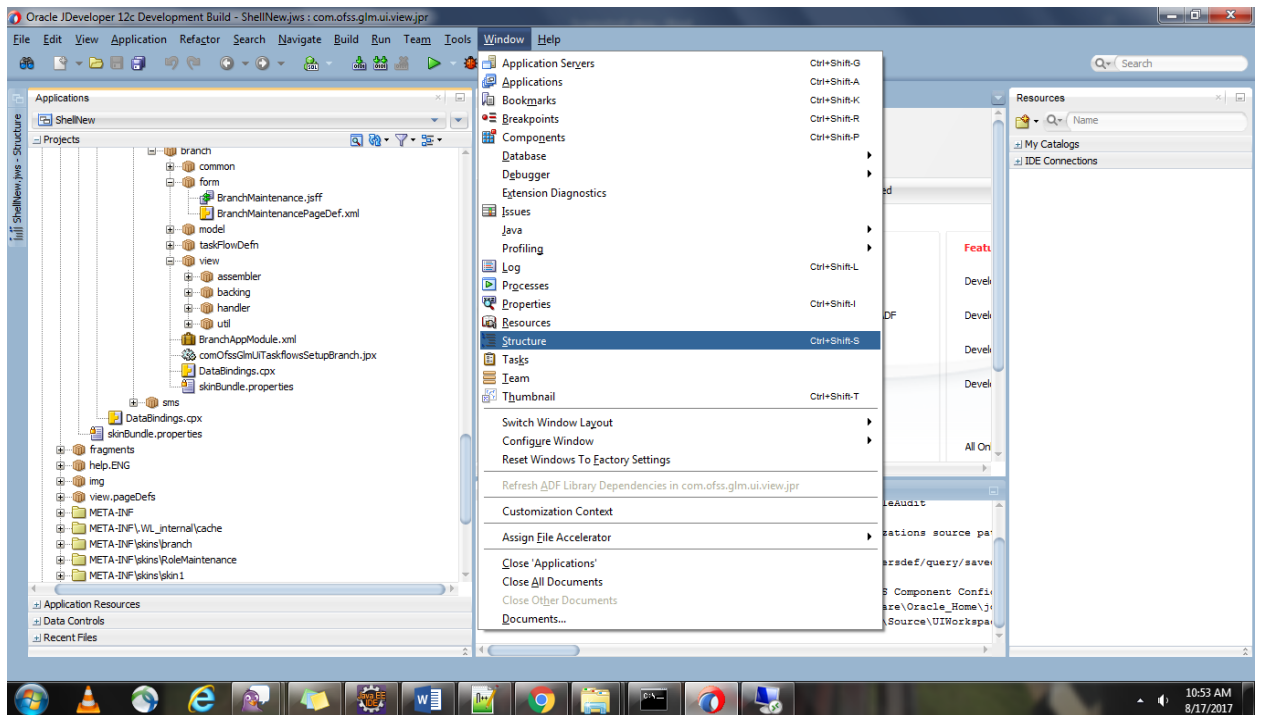
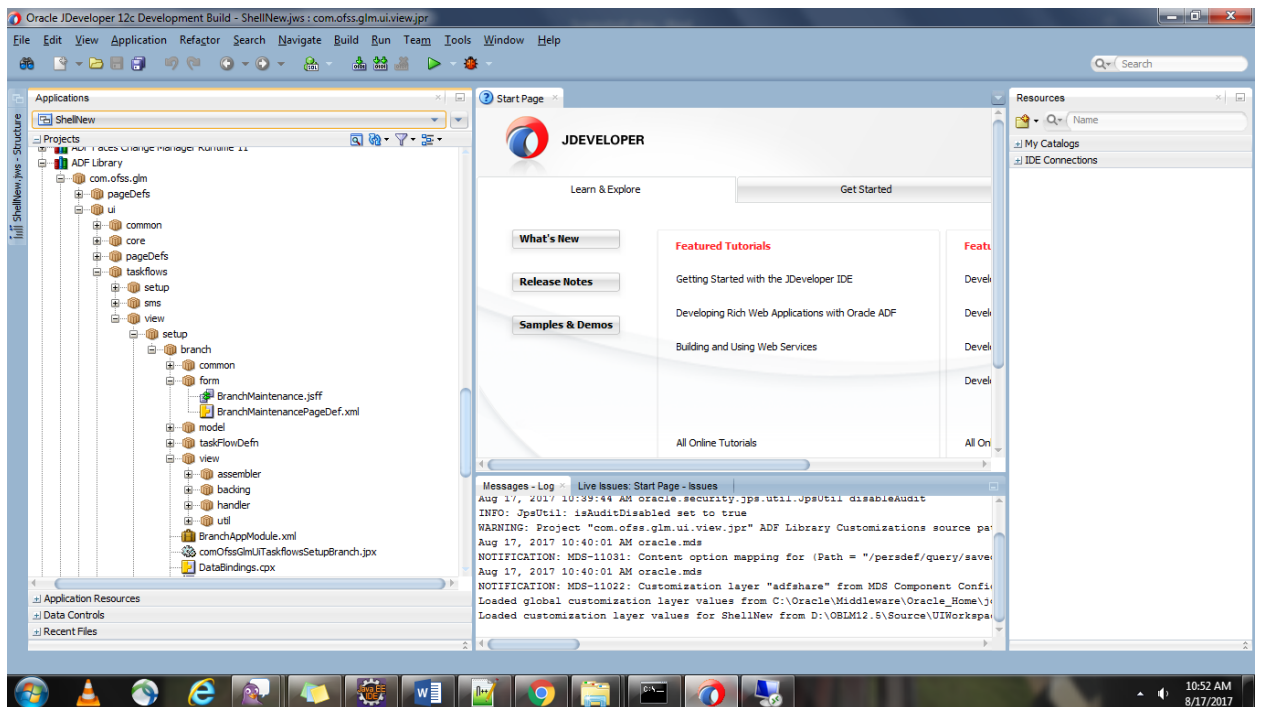
```
Oracle JDeveloper 12c Development Build - ShellNewJws : com.ofss.glm.ui.view.jpr : D:\OBLM12.5\Source\UIWorkspace\main\com.ofss.glm.ui.view\src\com\ofss\glm\cz\wf\ui\taskflows\view\setup\branch\view\backing\BranchMainte...
File Edit View Application Refactor Search Navigate Build Run Source Team Tools Window Help
Qw Search
Start Page BranchVOExt.xml Branch.xml.xml BranchAppModuleExt.xml BranchAssemblerExt.java BranchHandlerExt.java BranchMaintenanceExt.java BranchUIExt.java
Qw Find
public class BranchMaintenanceExt extends BranchMaintenance {
    public BranchMaintenanceExt() {
        super();
    }
    BranchHandlerExt handlerExt = new BranchHandlerExt();
    private RichSelectBooleanCheckbox selectBooleanCheckbox;
    public void setSelectBooleanCheckbox(RichSelectBooleanCheckbox selectBooleanCheckbox) {
        this.selectBooleanCheckbox = selectBooleanCheckbox;
    }
    public RichSelectBooleanCheckbox getSelectBooleanCheckbox() {
        return selectBooleanCheckbox;
    }
    public void save(ActionEvent actionEvent) {
        try{
            System.out.println("ENTERED INSIDE SAVE VALUE");
            String status = this.handlerExt.save();
            if (status.equals("SUCCESS")) {
                this.showMsg(FacesMessage.SEVERITY_INFO, "Record Saved Successfully!!!", "");
            } else {
                this.showMsg(FacesMessage.SEVERITY_ERROR, status, "");
            }
        } catch (Exception e) {
            this.showMsg(FacesMessage.SEVERITY_FATAL, e.getLocalizedMessage(), "");
        }
    }
}
Source History
Breakpoints Live Issues: BranchMaintenanceExt.java - Issues Messages - Log com.ofss.glm.cz.wf.ui.taskflows.view.setup.branch.view.backing Load done com.ofss.glm.ui.taskflows.setup.crsetup
11:25 AM 8/17/2017
```



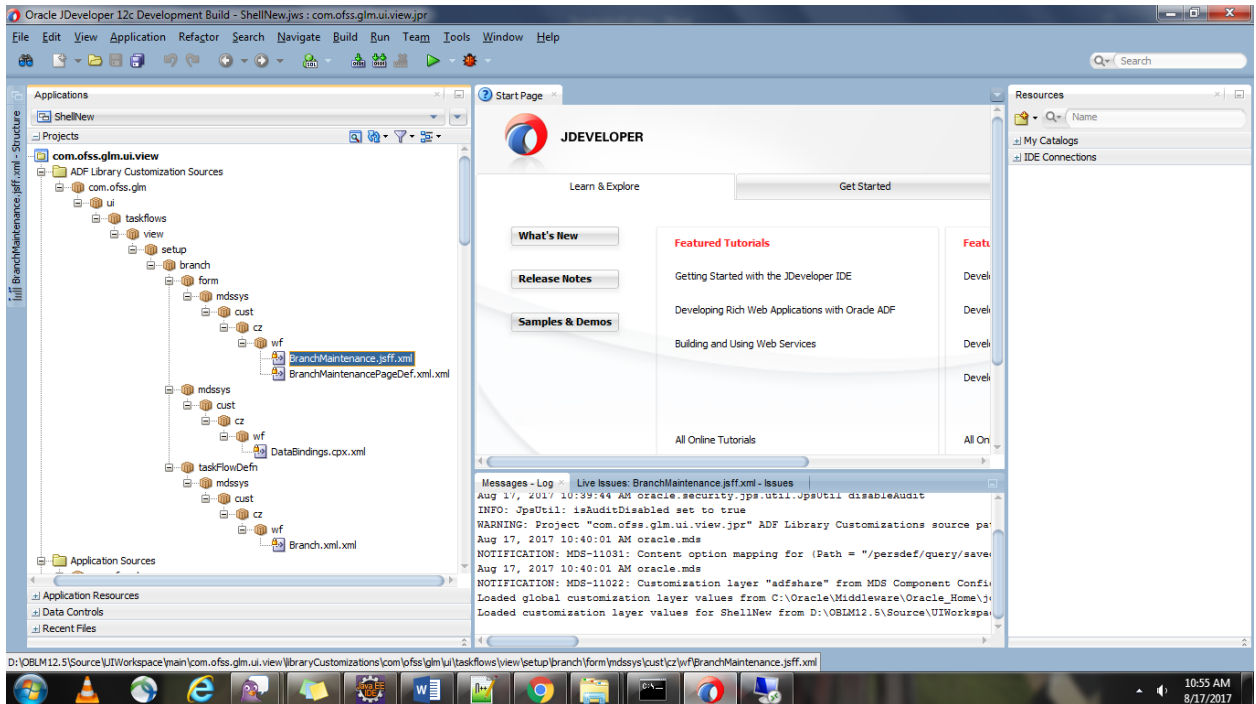
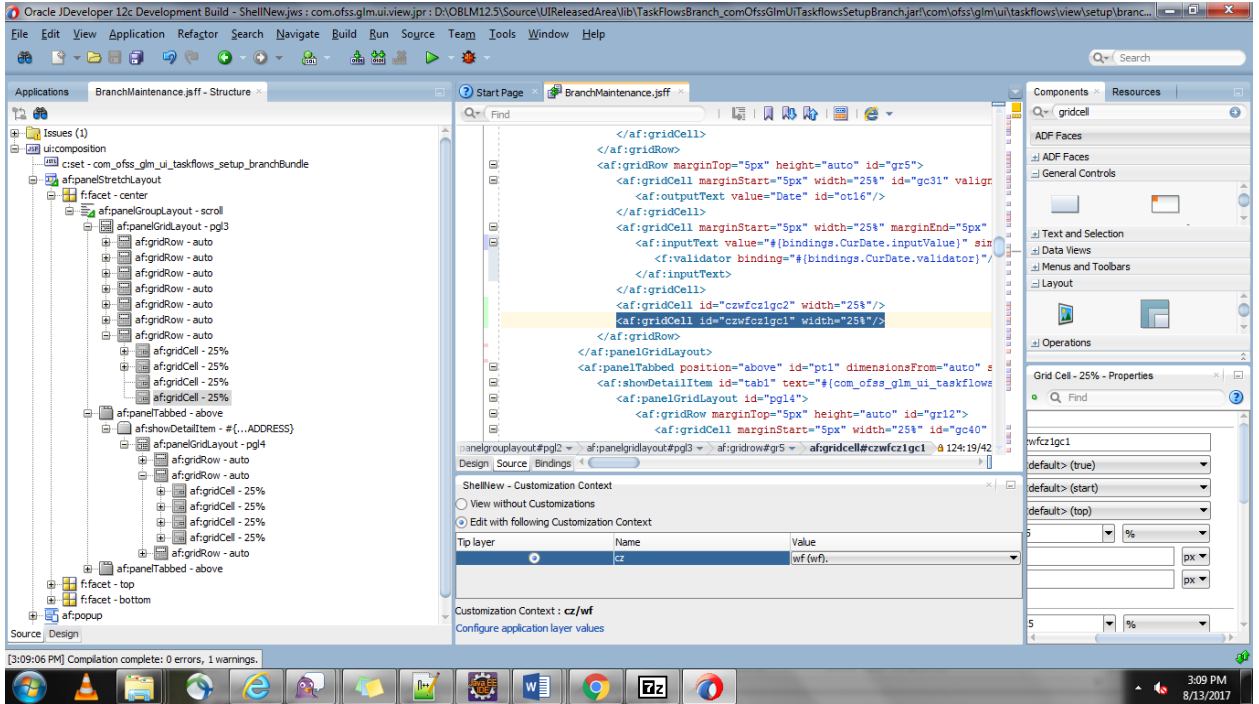
1.8 Customizing the pages

1. Once done with writing the logic switch to Customization Developer mode.
2. Enable *Show Libraries* to see all the libs added.
3. Select jsff file from lib and then select structure from windows menu.

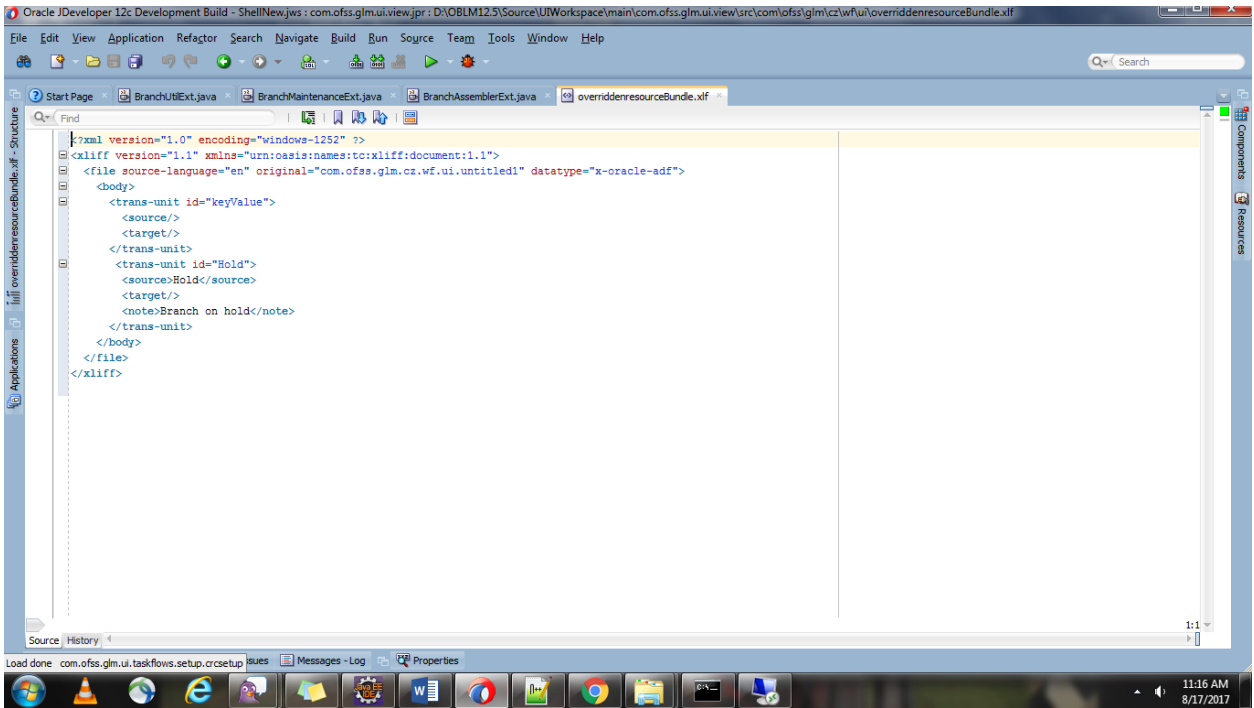
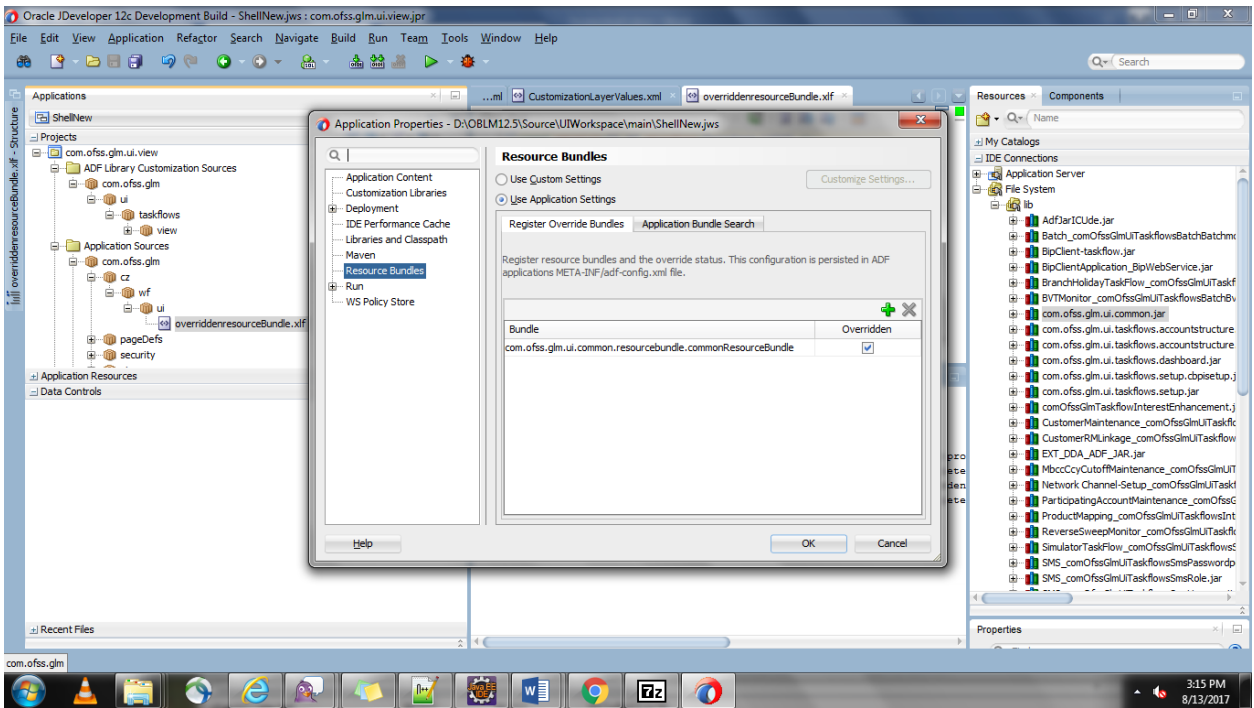


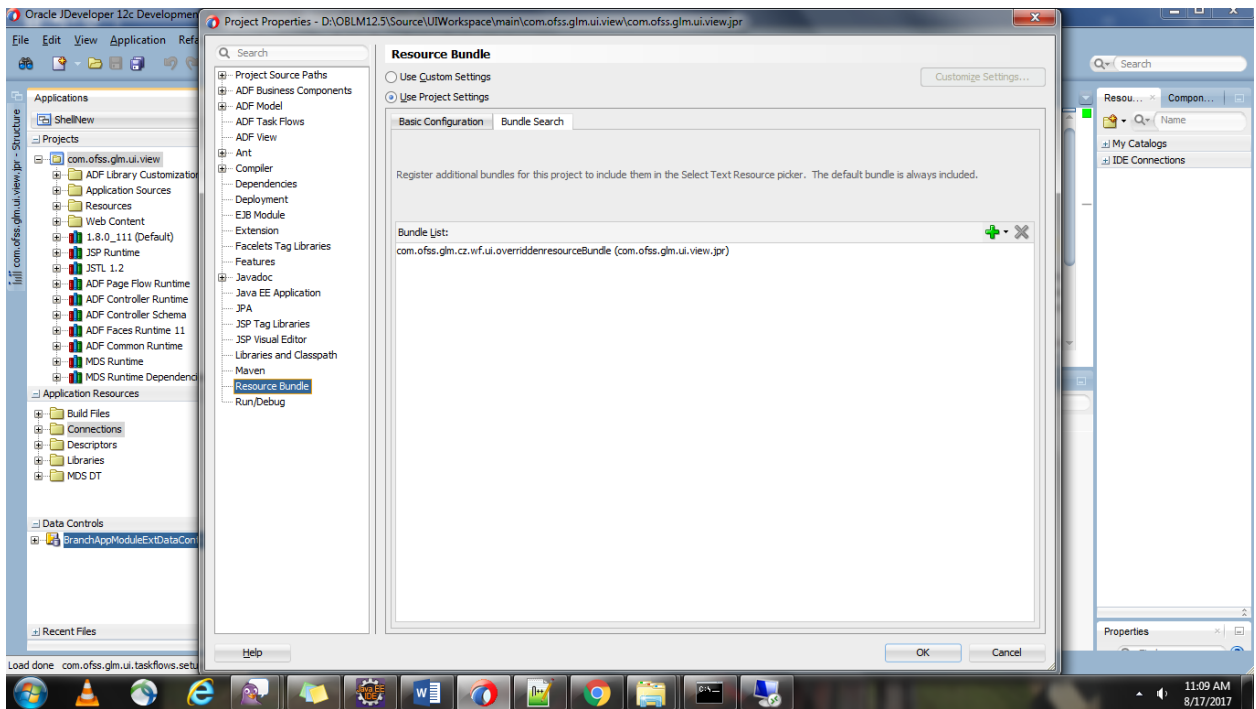
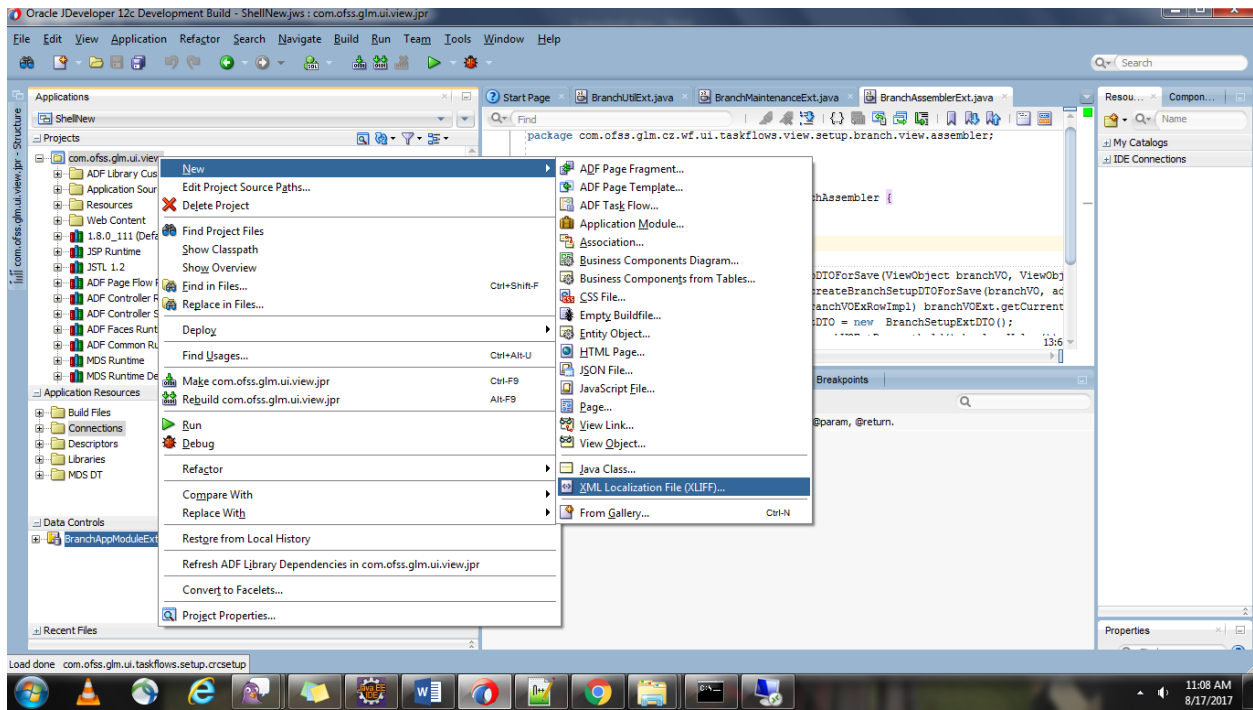


4. Drag and drop the required UI components in the structure which creates a *.jsff.xml (with the same name as the one you selected) file in Library Customizations and with the same package structure by adding the layer which was selected in Customizations Context tab.

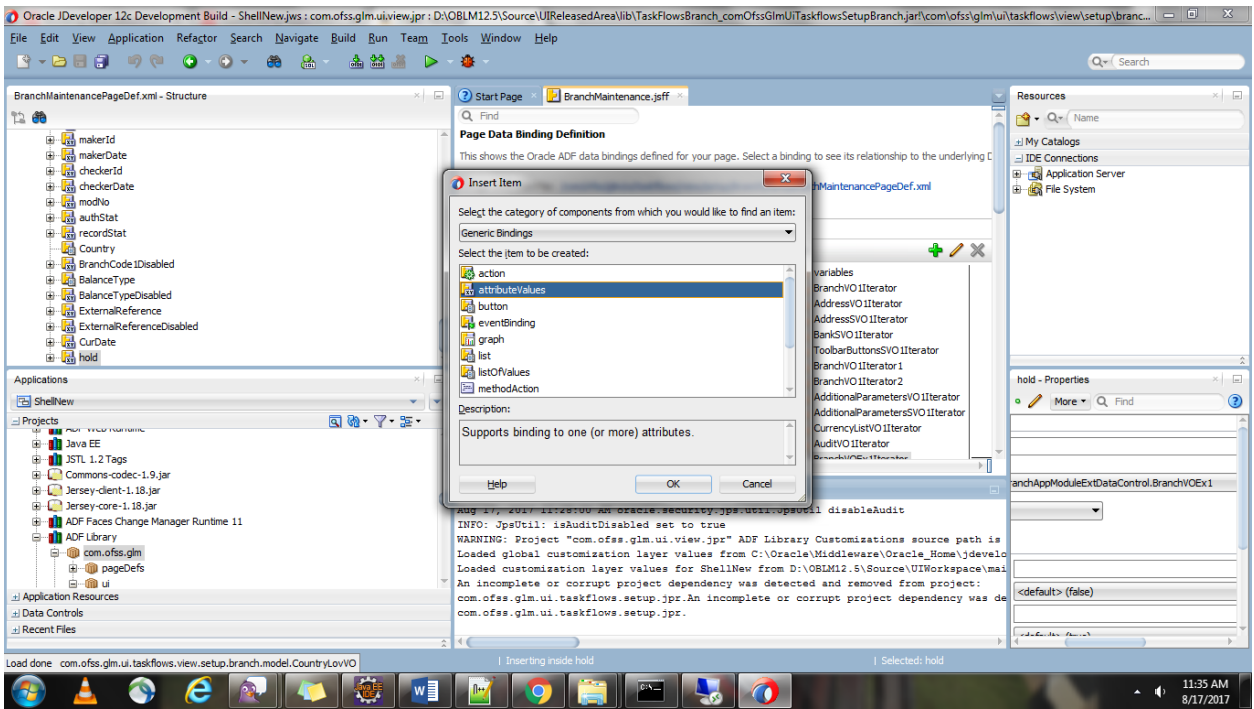
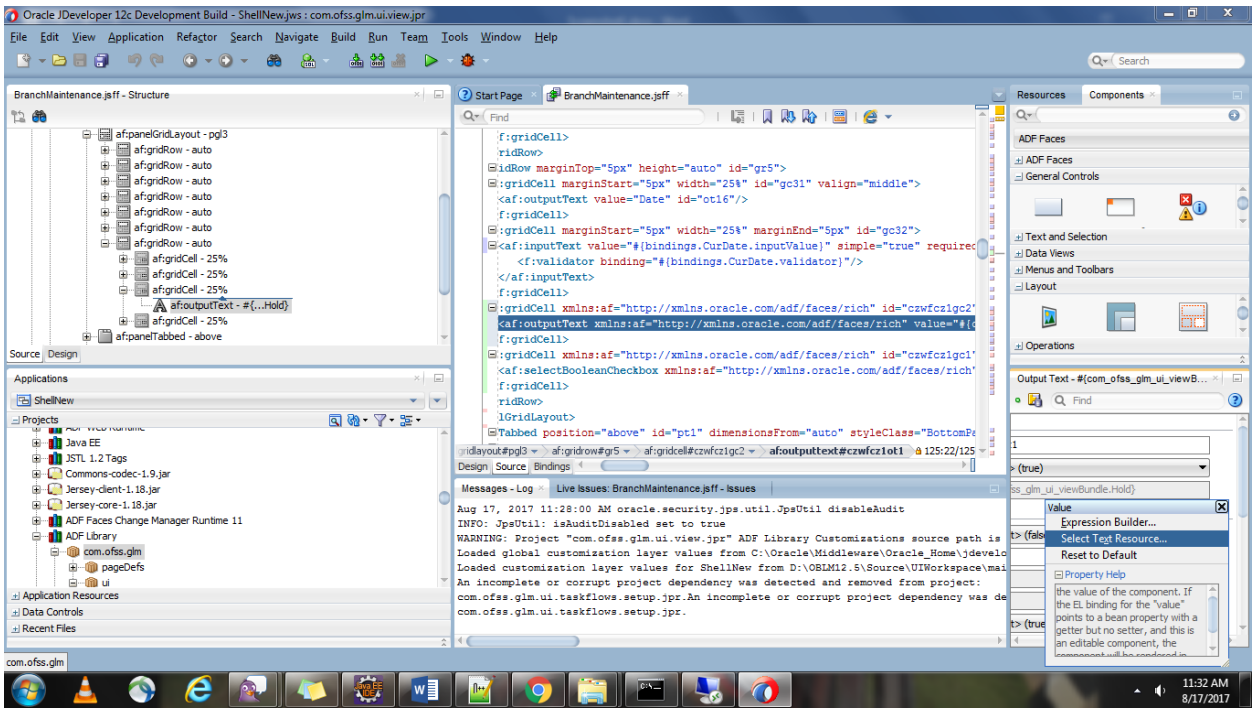


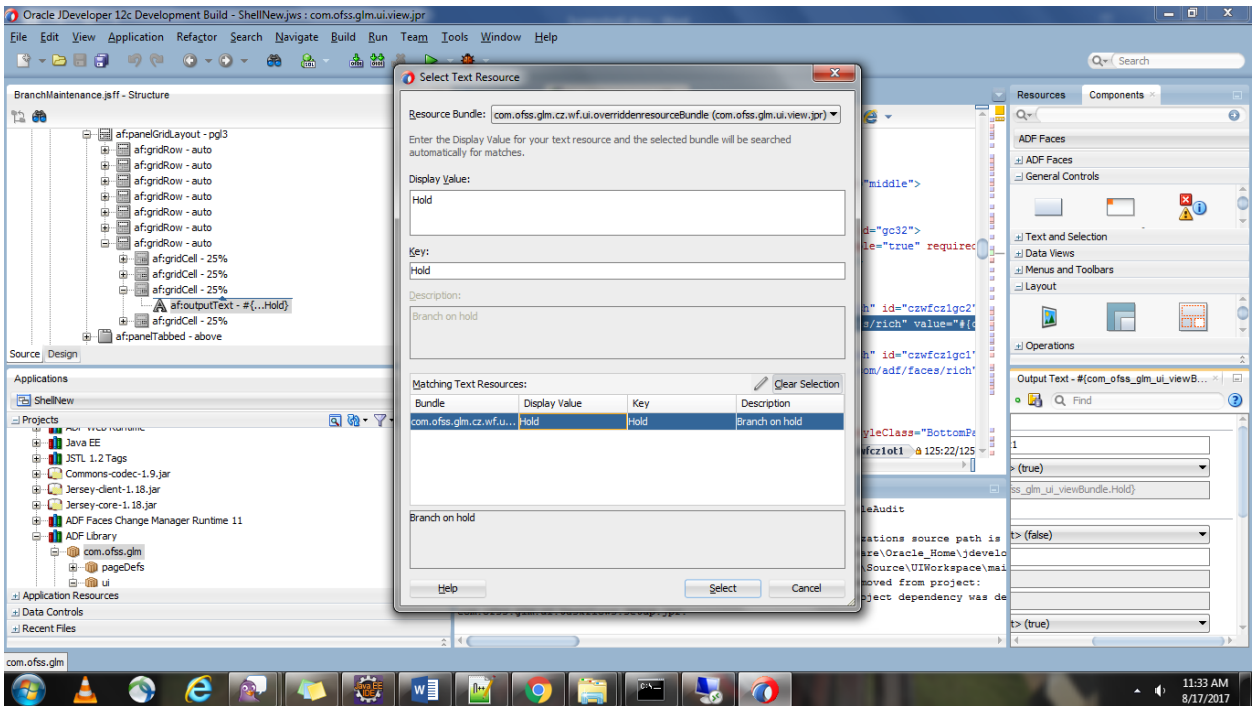
5. **Overriding Resource bundle:** (switch to Studio Developer mode)
6. Turn on Application Properties register the existing bundle of the application.



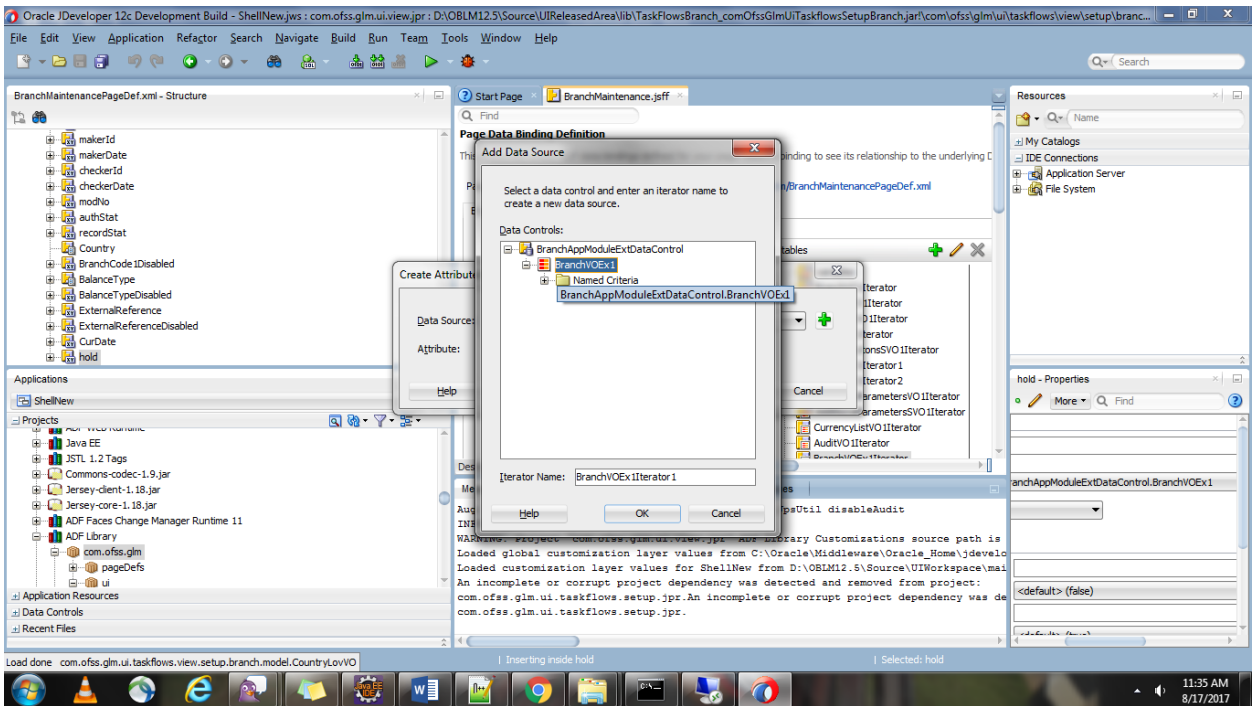


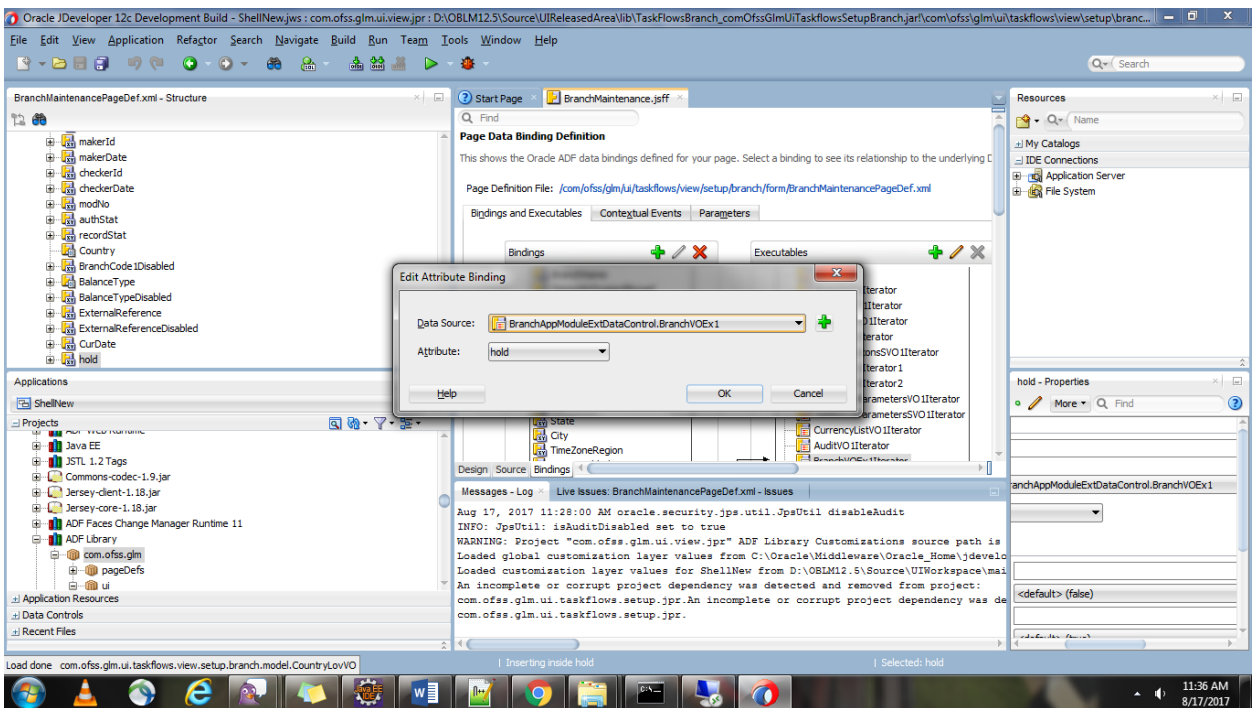
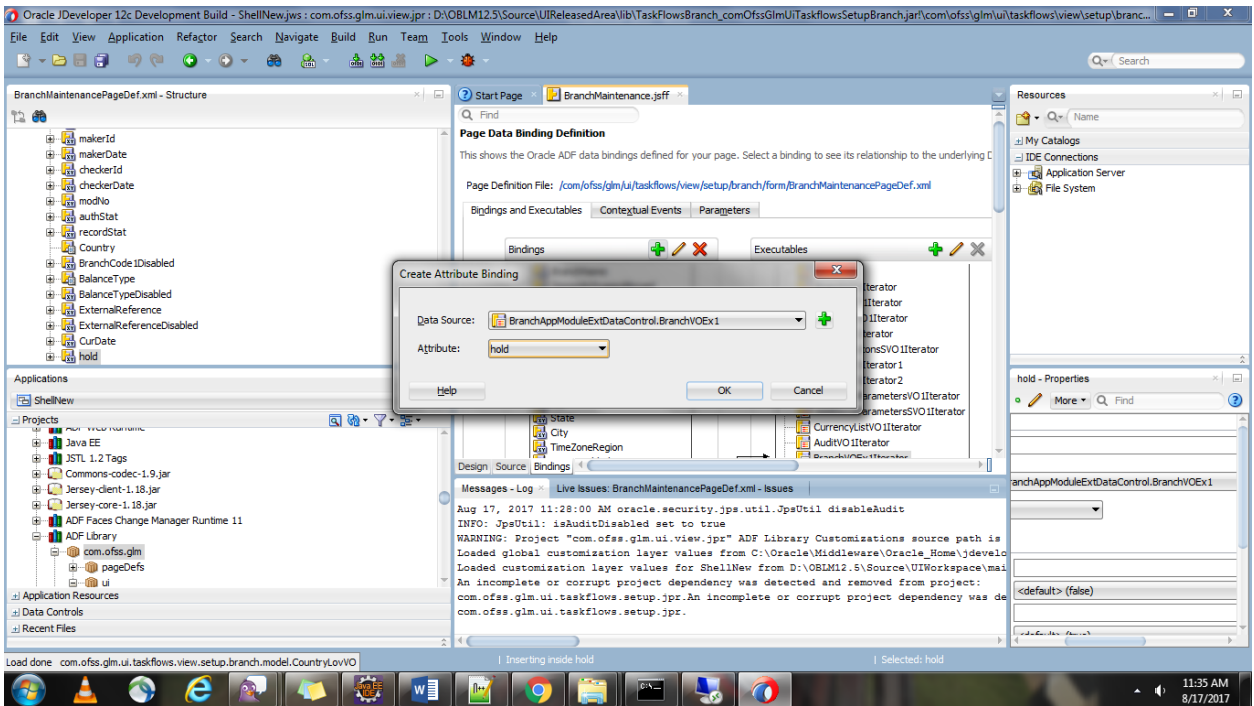
7. Select the label of a field from resource bundle.



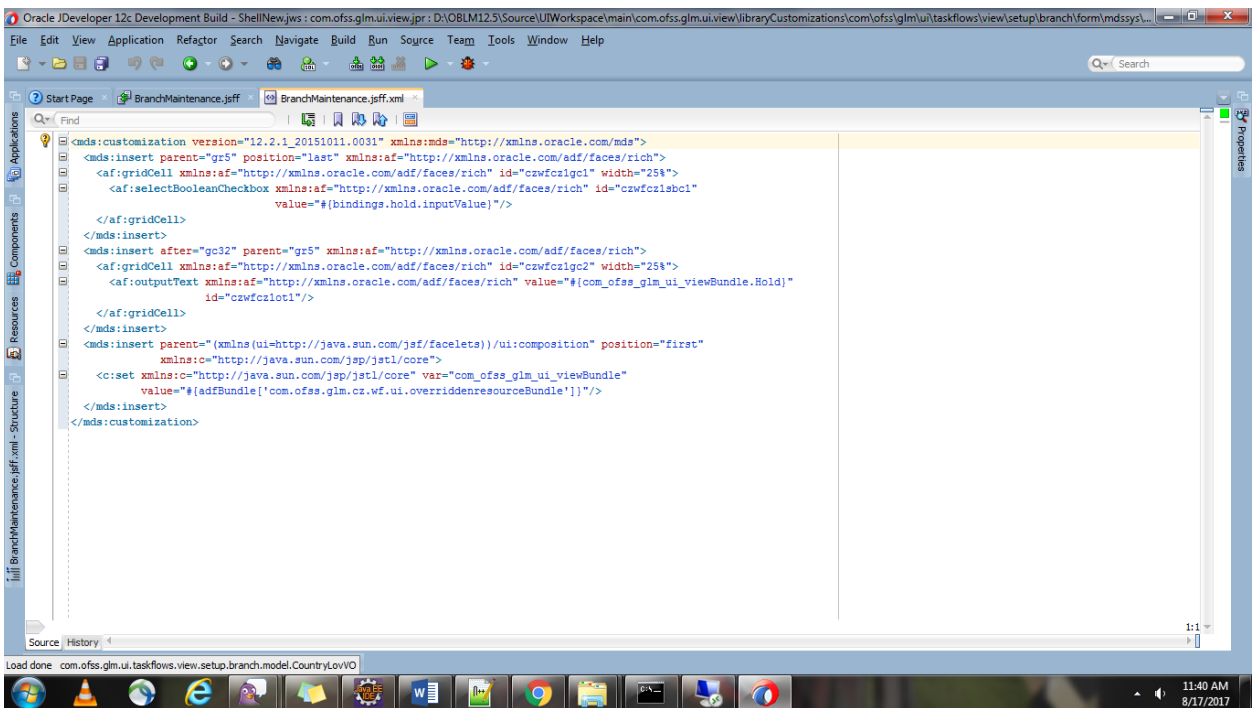
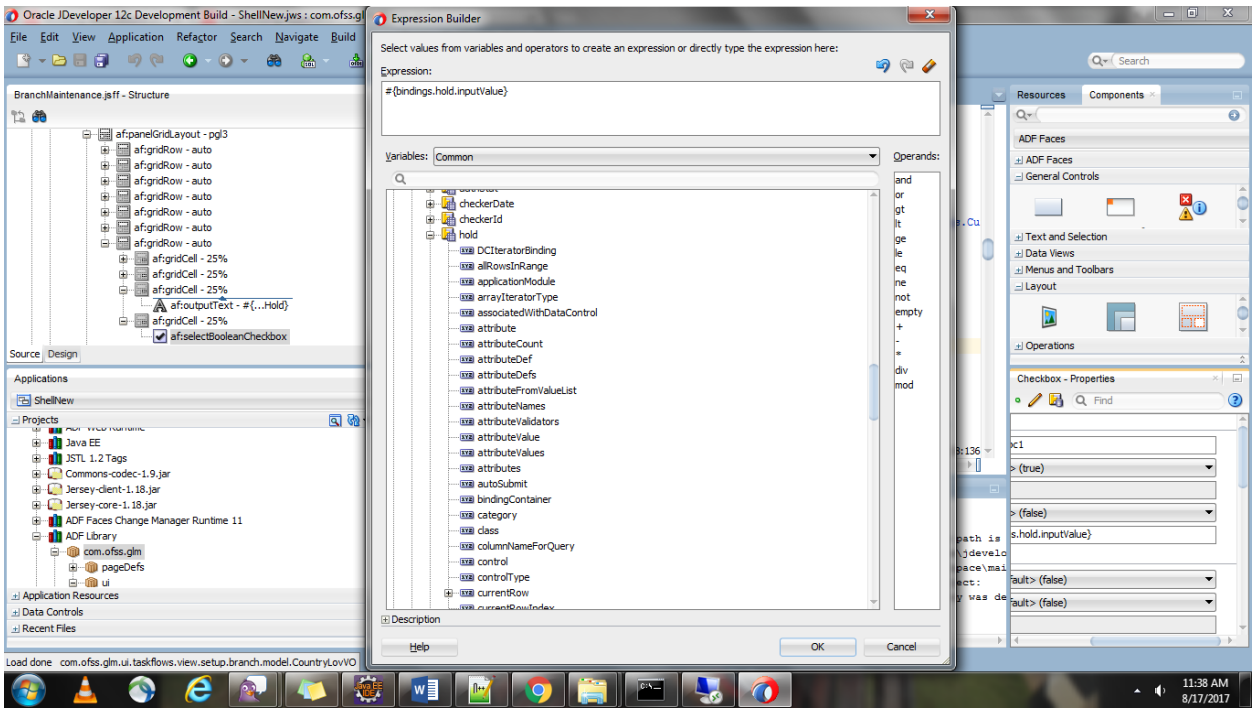


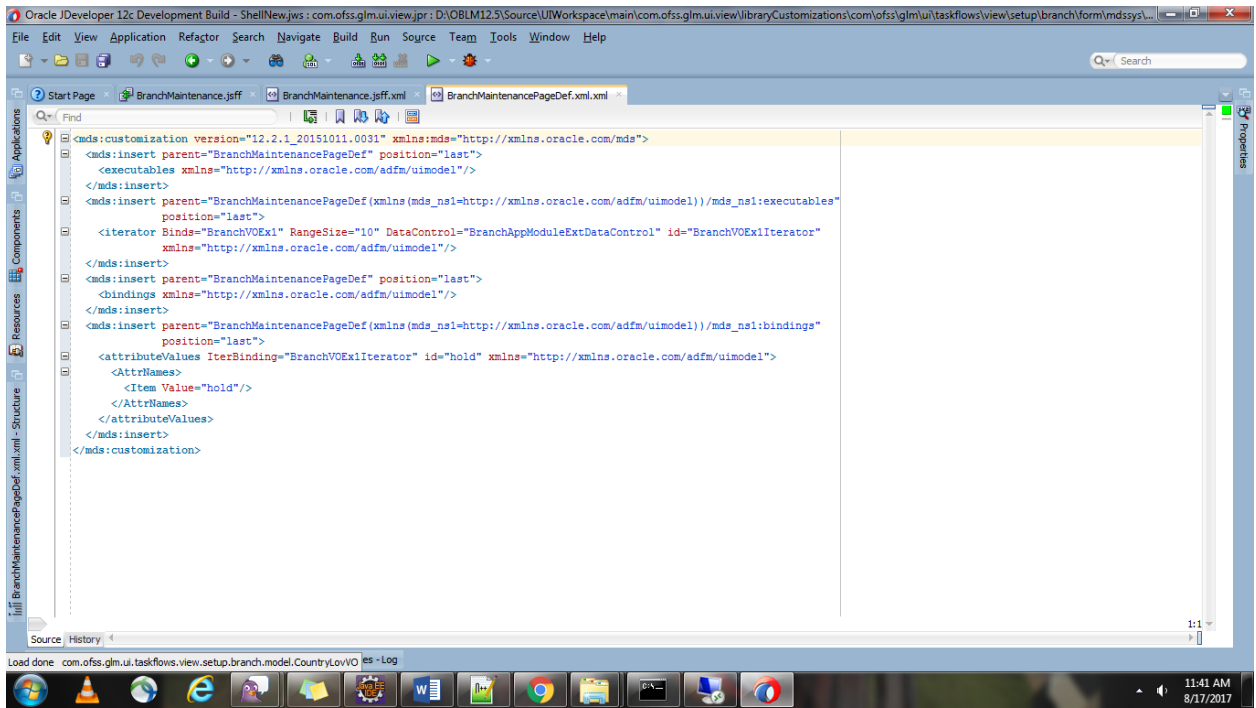
- Once done with resource bundle, add the bindings of new attribute through iterator and datacontrol to store the value entered from UI/show the value fetched from DB.



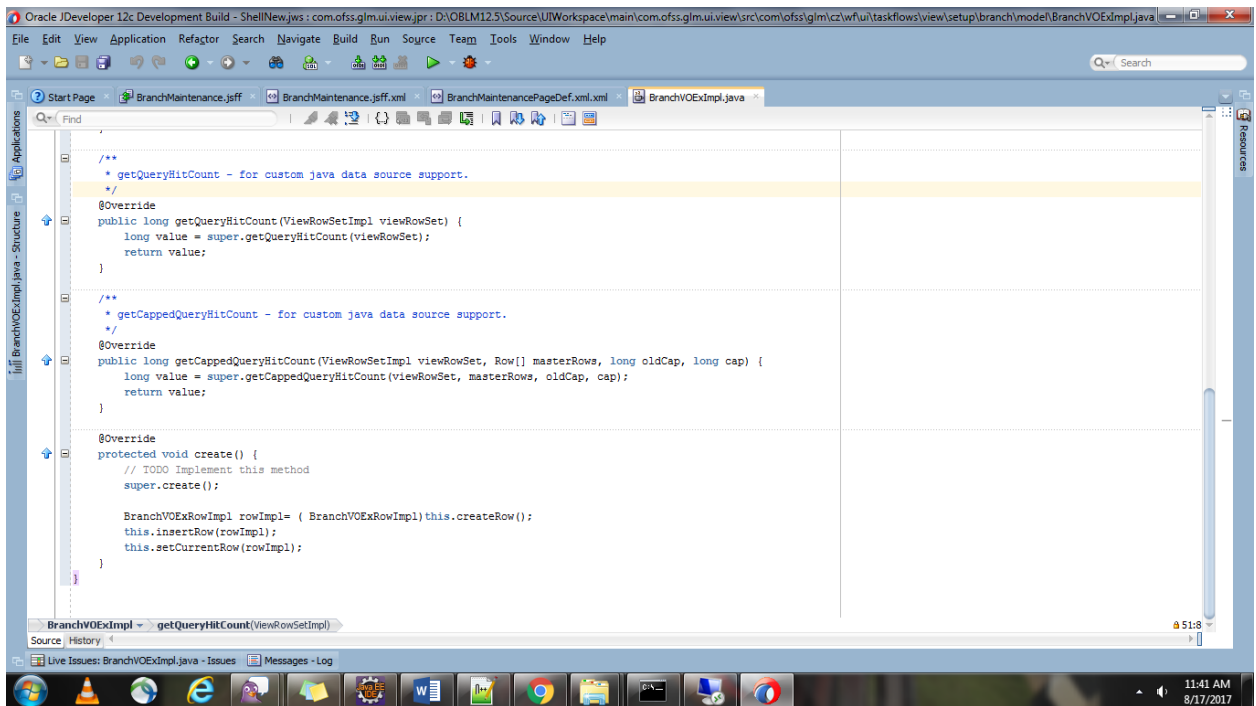


9. Once done add the binding to the value of a field.



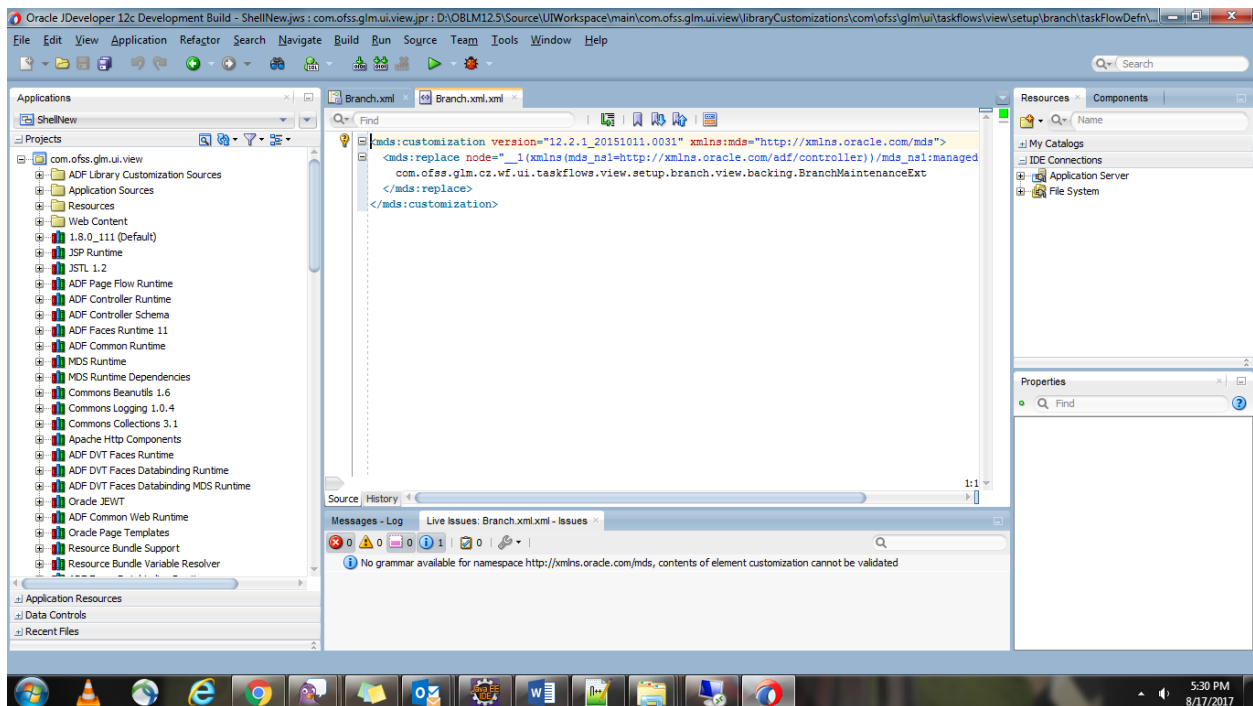
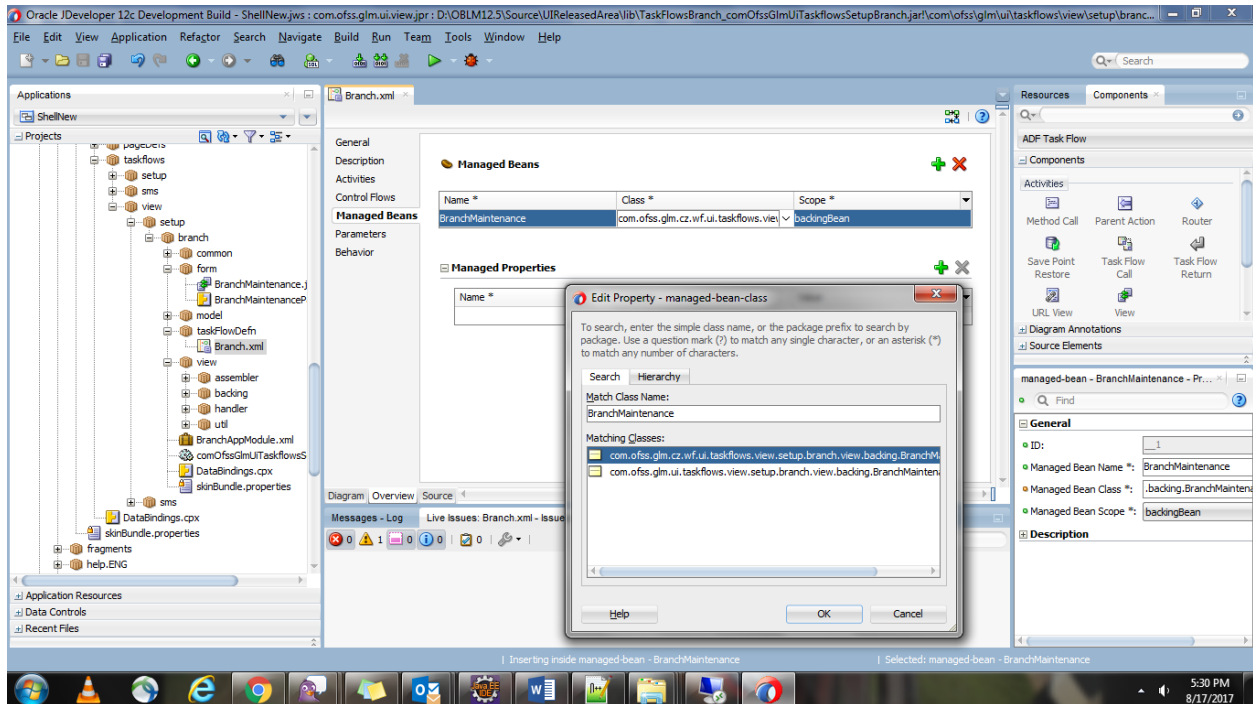


10. Add create method to set the current row to *VOImpl class newly created VO.



1.9 Customizing Task Flow

Modify the Managed Bean class in the Taskflow with the extended bean class.

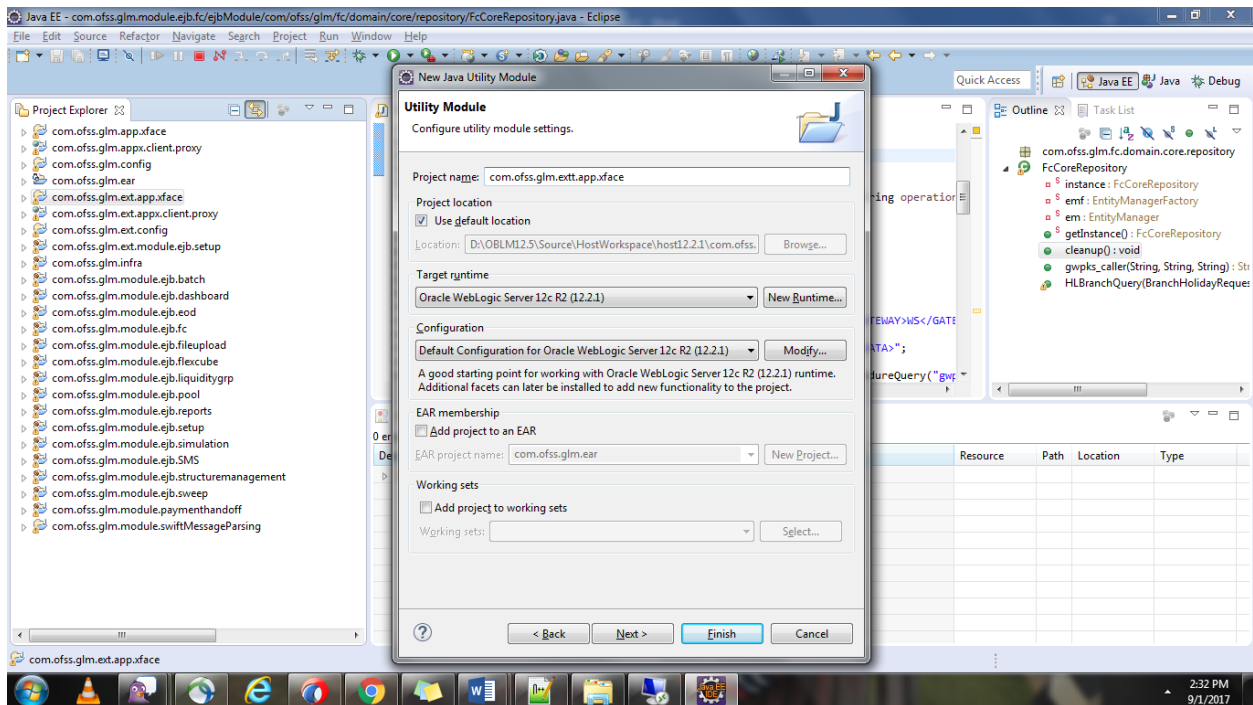
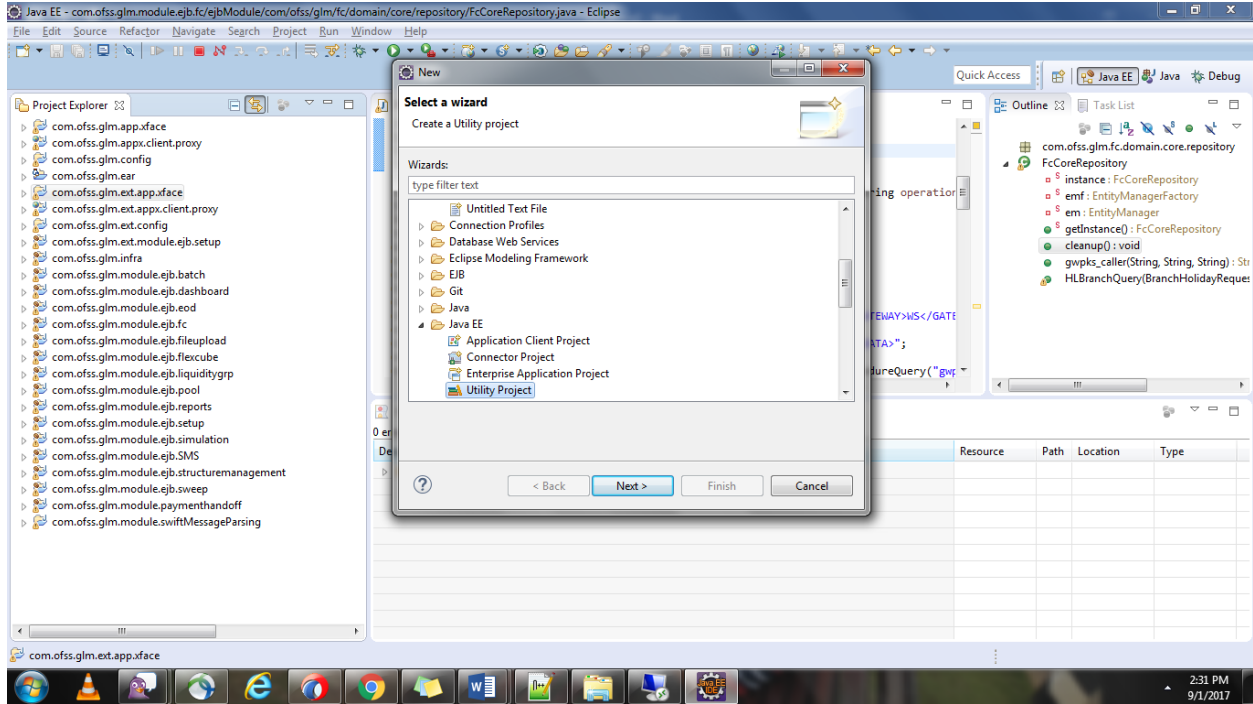


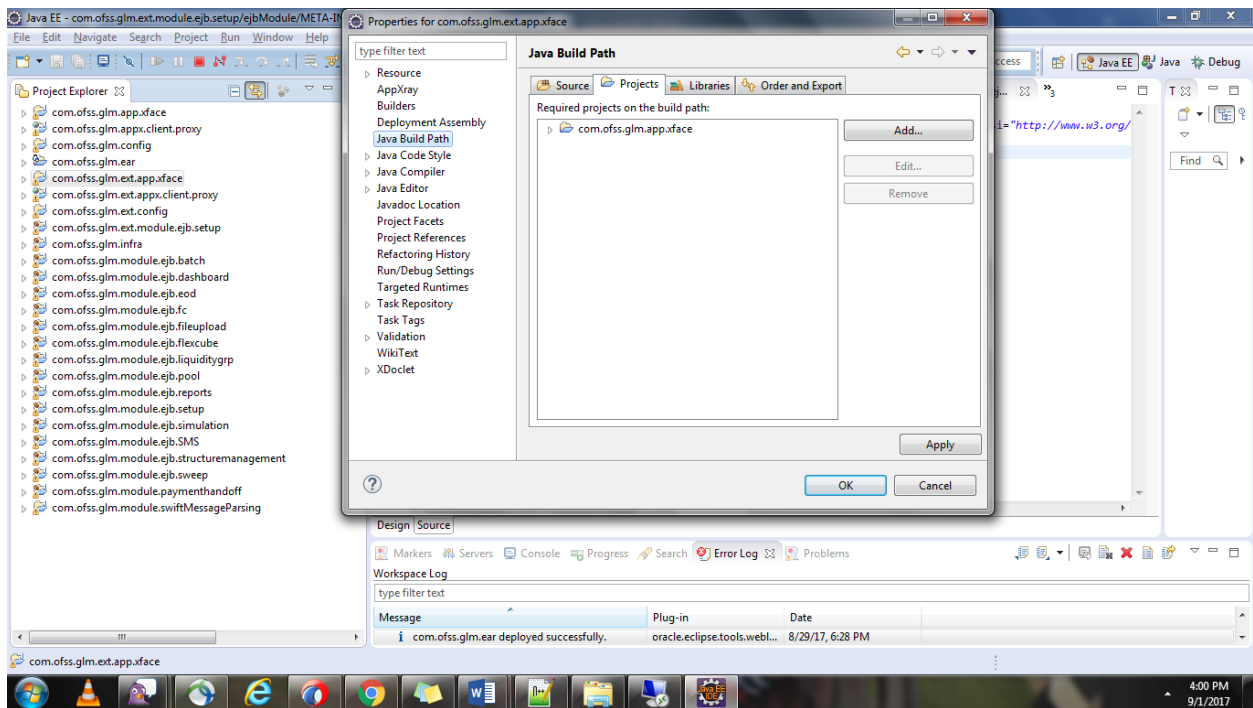
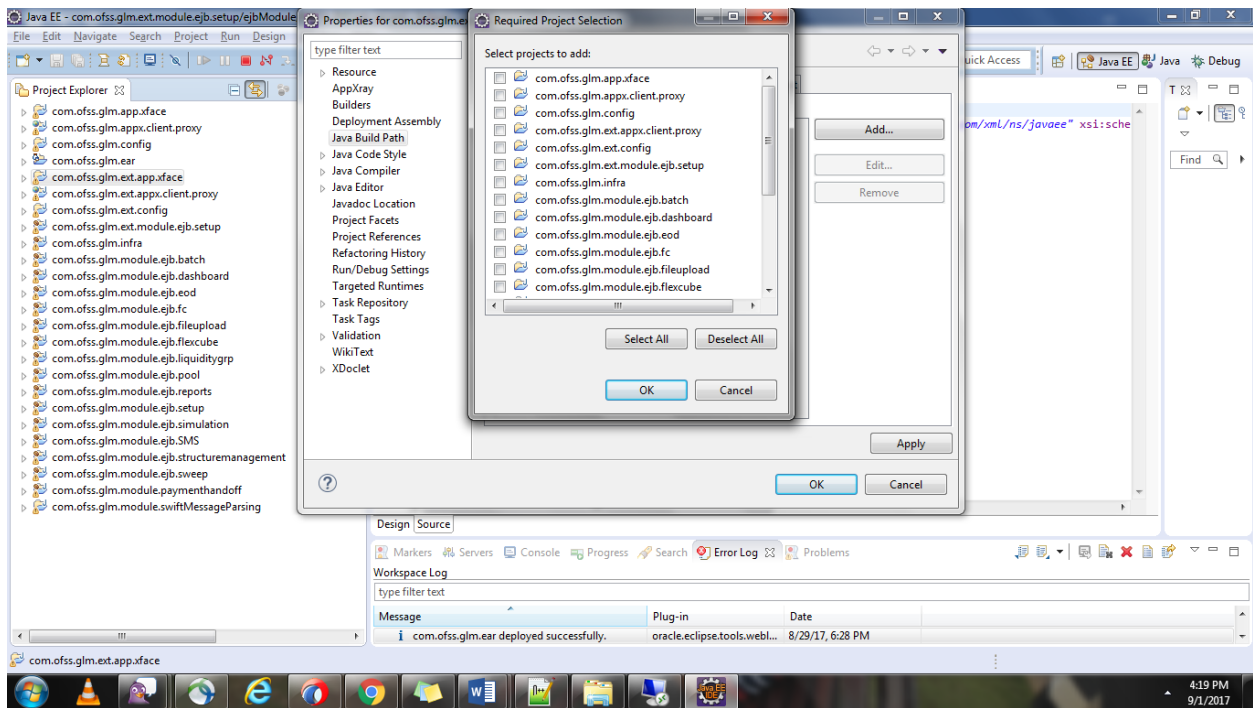
Once changes are done deploy the UI application.

2. Extending Host for Customization

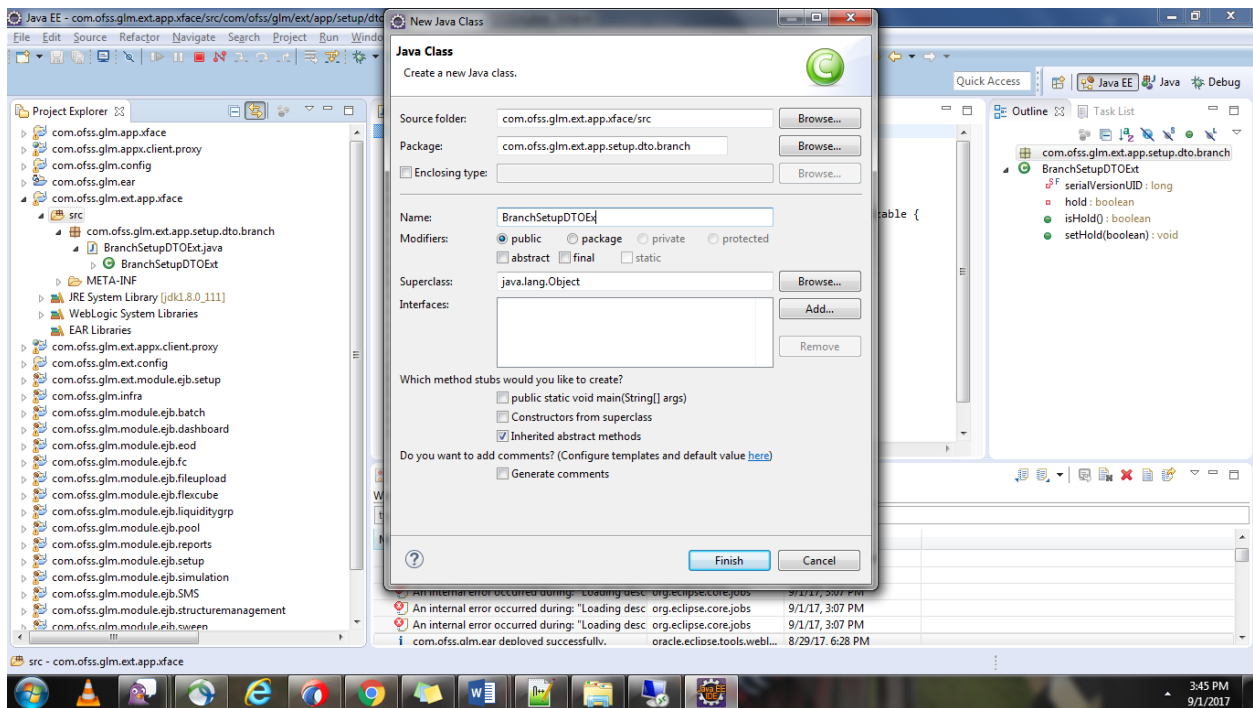
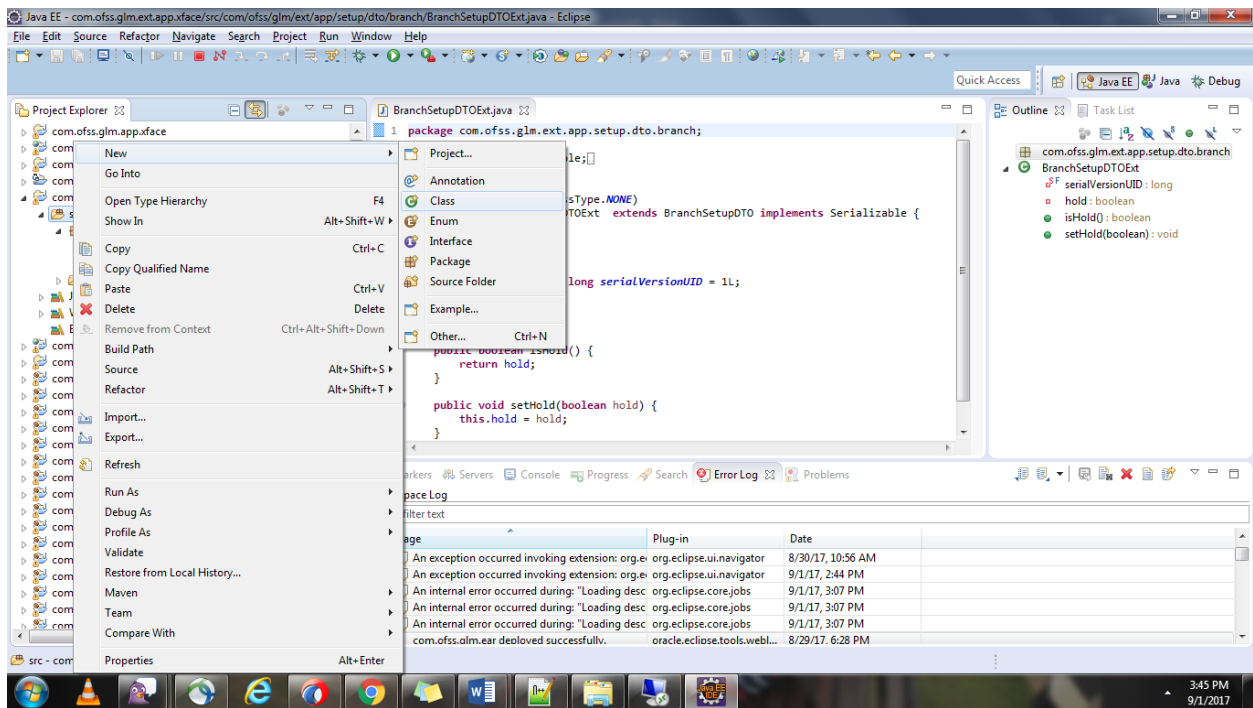
2.1 Extending Common Projects and Deployment

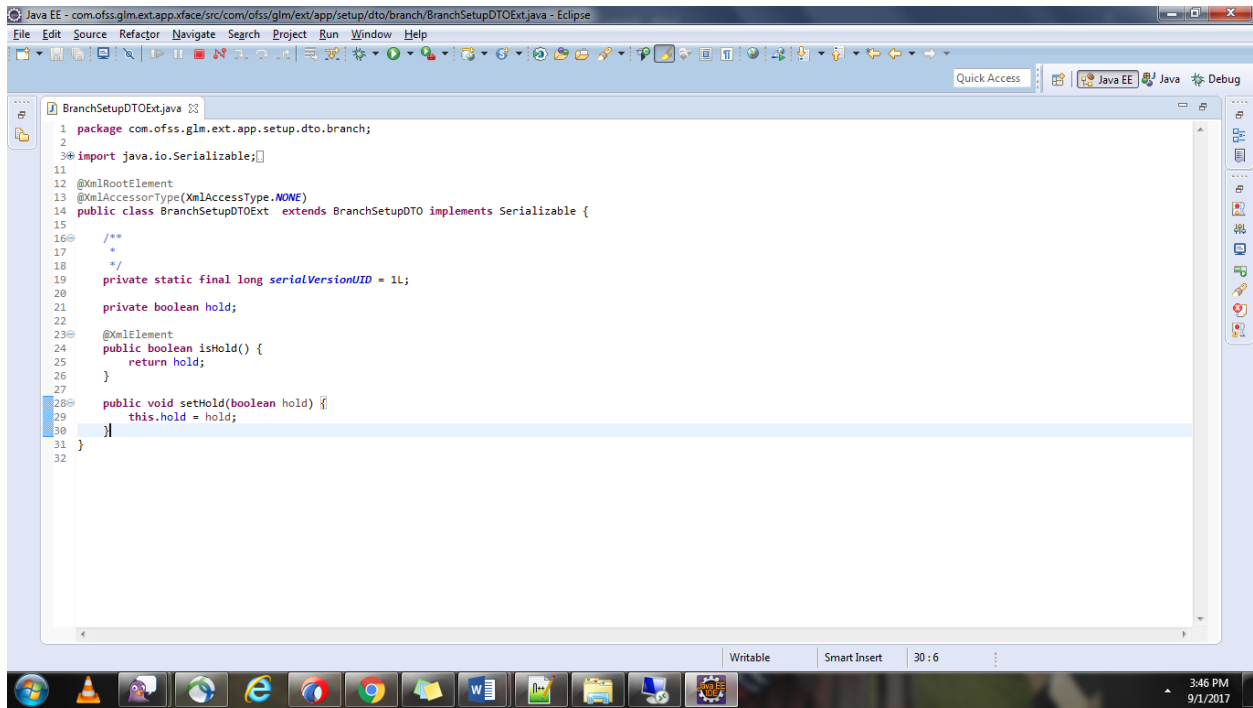
1. Create xface Extension Project



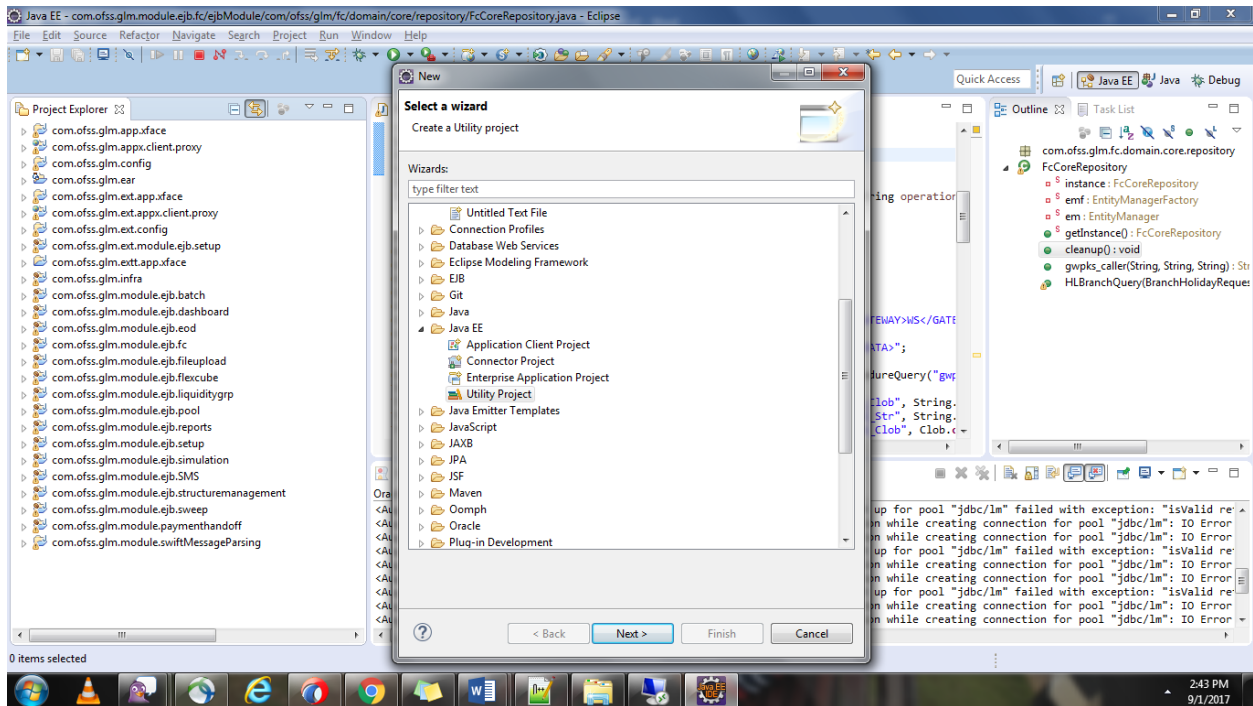


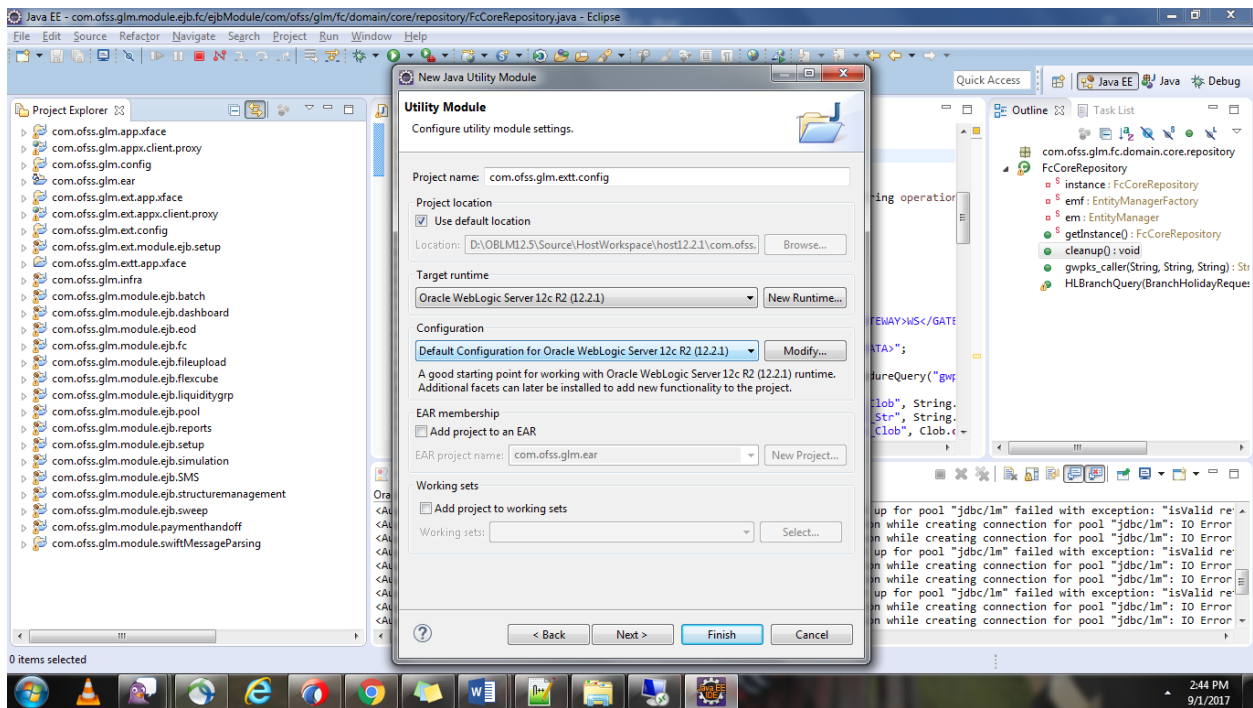
3 Once done with the project Creation, Create a Child DTO for the base DTO which we need to extend.



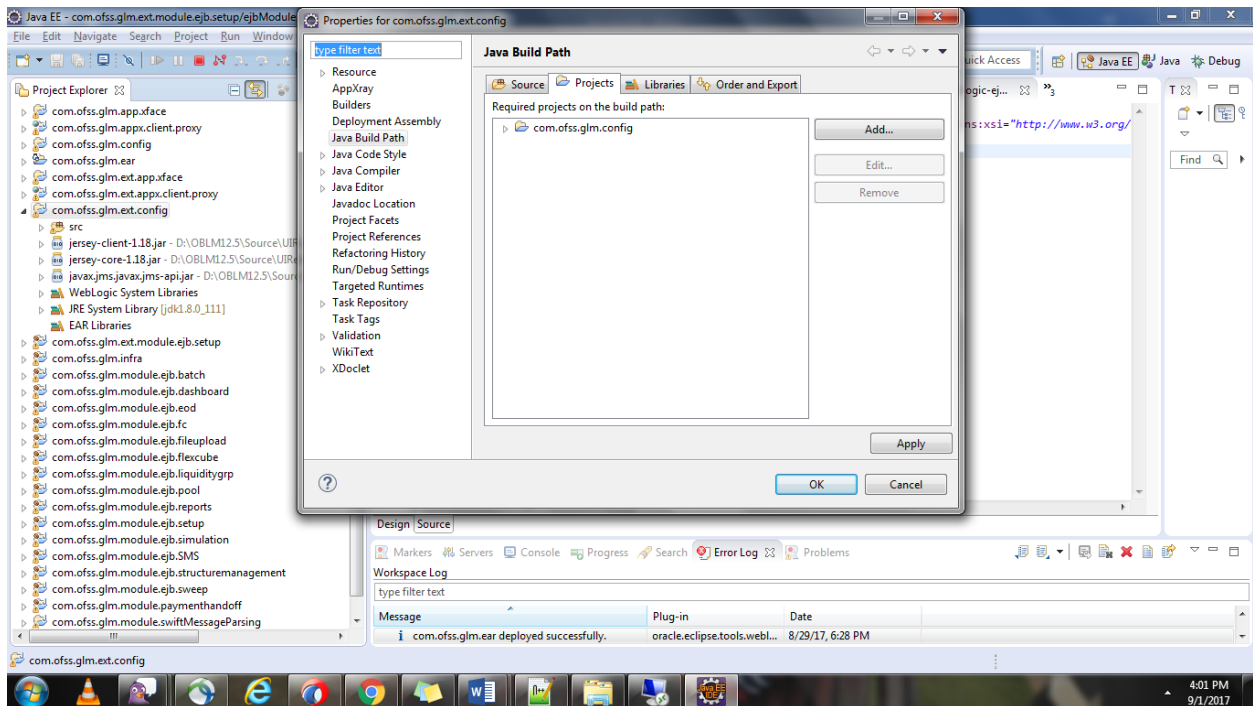


4 Create Config Extension Project

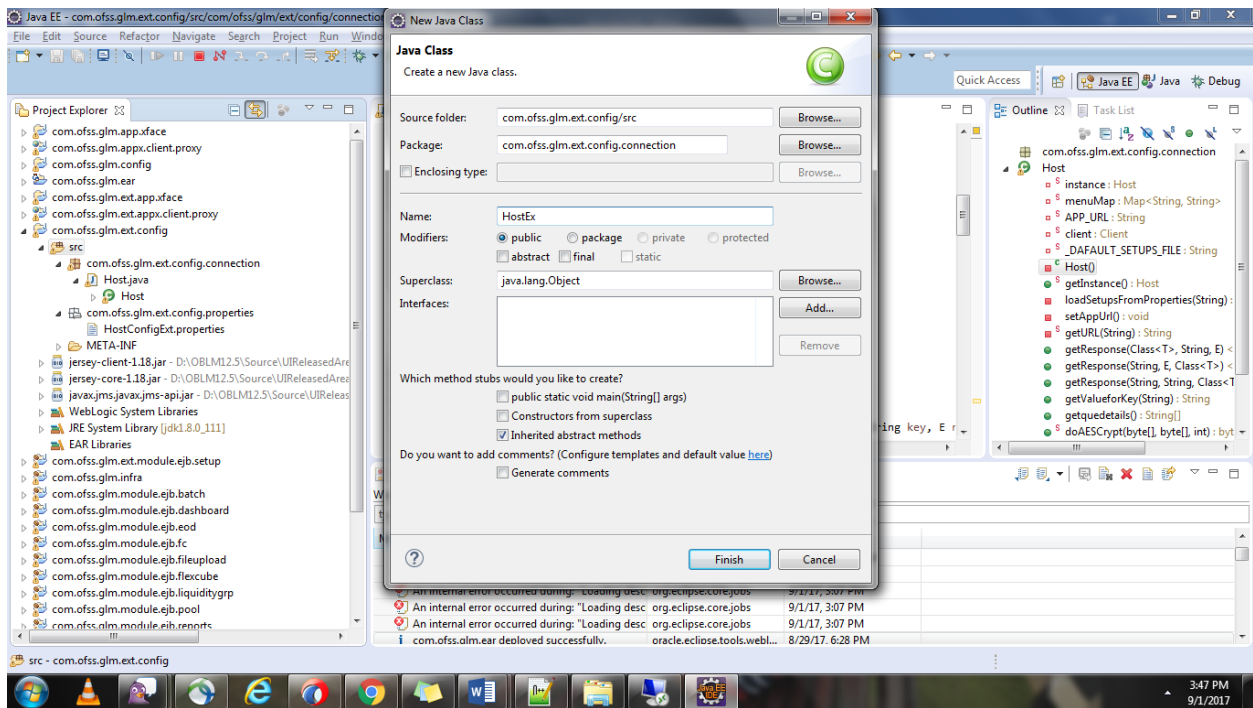




5 Add the existing Config Project as Dependency for the created extension Project



6 Create Host.java File in Java and HostConfigExt.Properties File.



```

Host.java  HostConfigExt.properties
1 protocol=http
2 host = localhost
3 port = 7001
4 appurl = /GLMServices/ProxiesExt
5 DEBUG = Y
6 LOG_PATH=D://LMLOG/LMLog.log
7 branchsetup_create_ex = /BranchSetupApplicationServiceProxyExt/createExt
8 branchsetup_fetch_ex= /BranchSetupApplicationServiceProxyExt/fetchExt

```

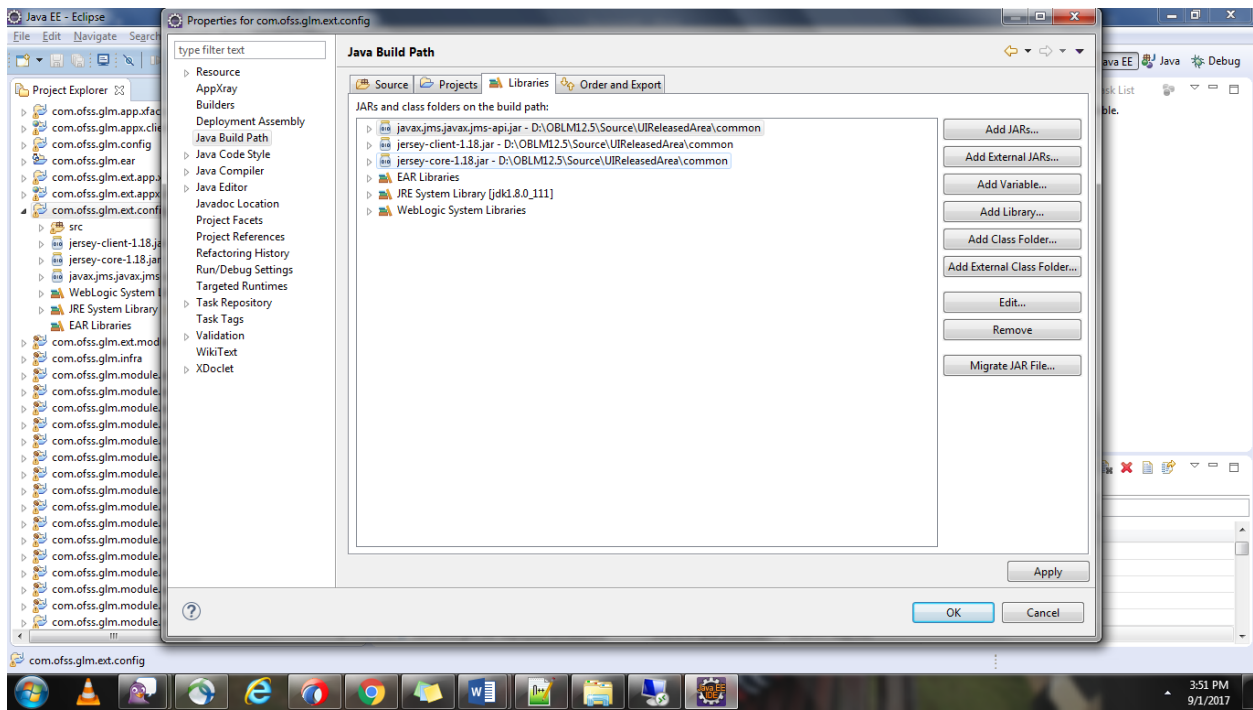
7 Copy and paste the code from Existing Host File and Replace **Default Setups File** properties file.

```

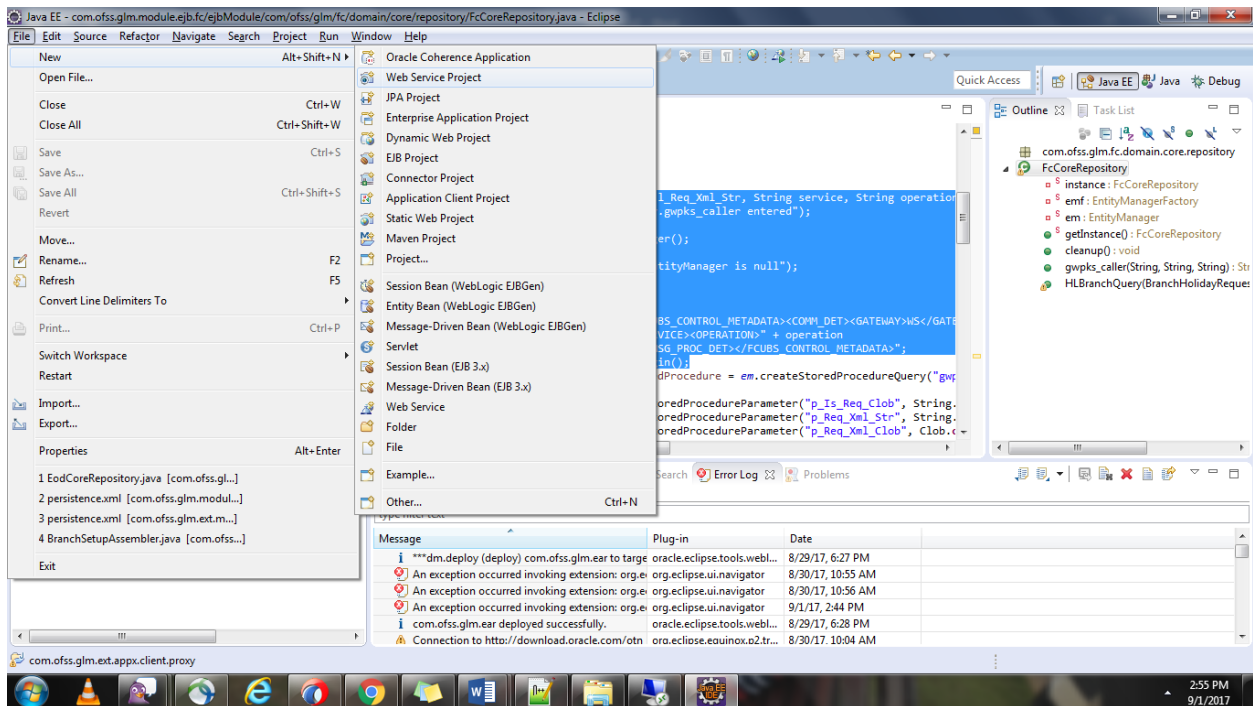
private static Map<String, String> menuMap = new HashMap<String, String>();
private static String APP_URL = "";
private static Client client = Client.create();
private static String _DEFAULT_SETUPS_FILE = "/com/ofss/glm/ext/config/properties/HostConfigExt.properties";

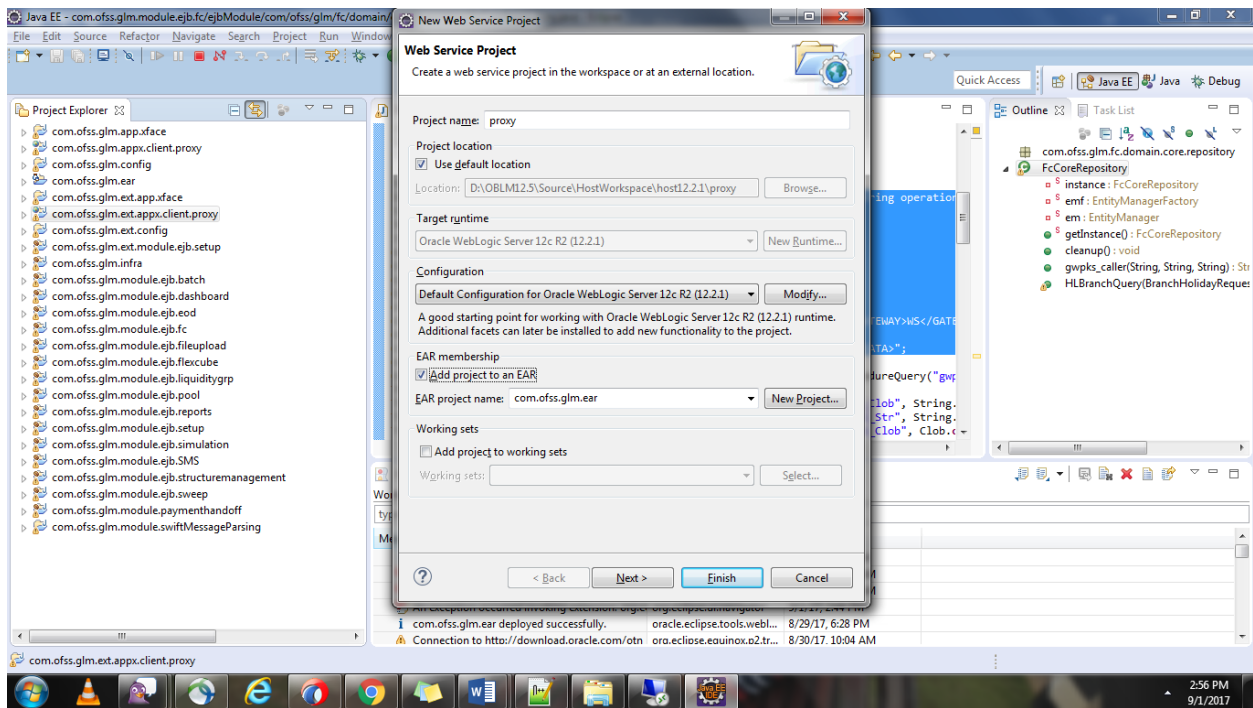
```

8 Add required common library files in Config Project.

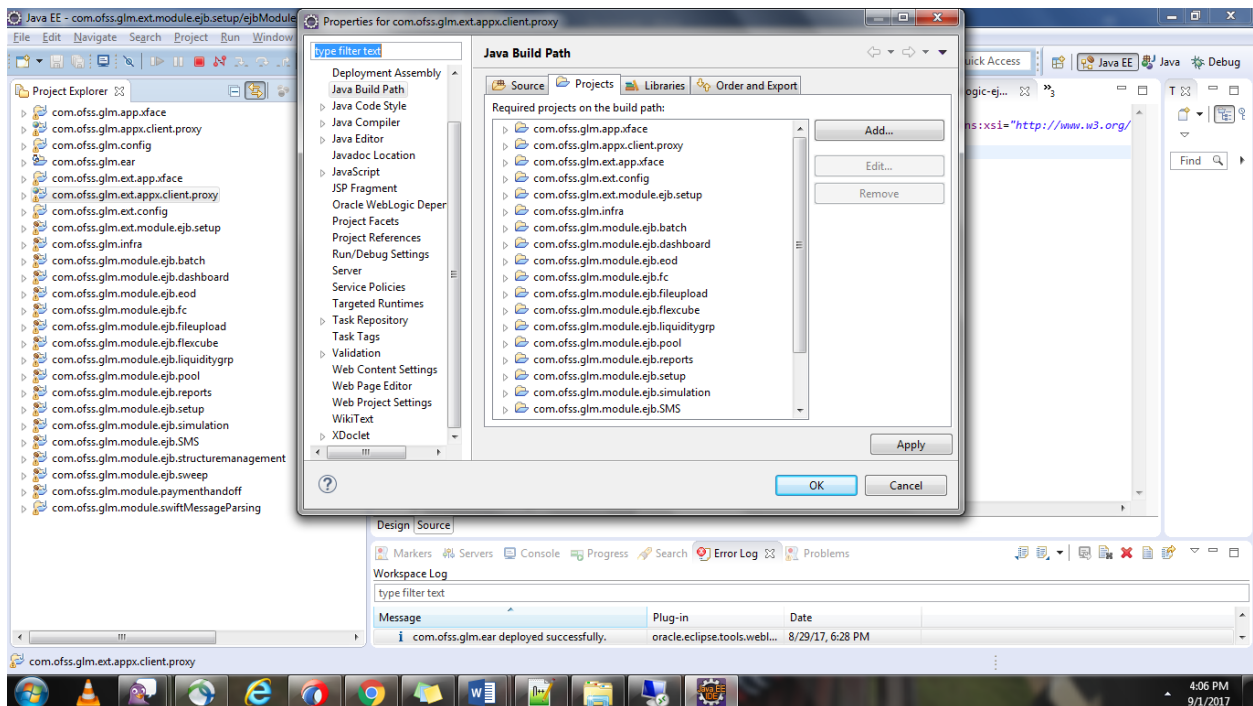


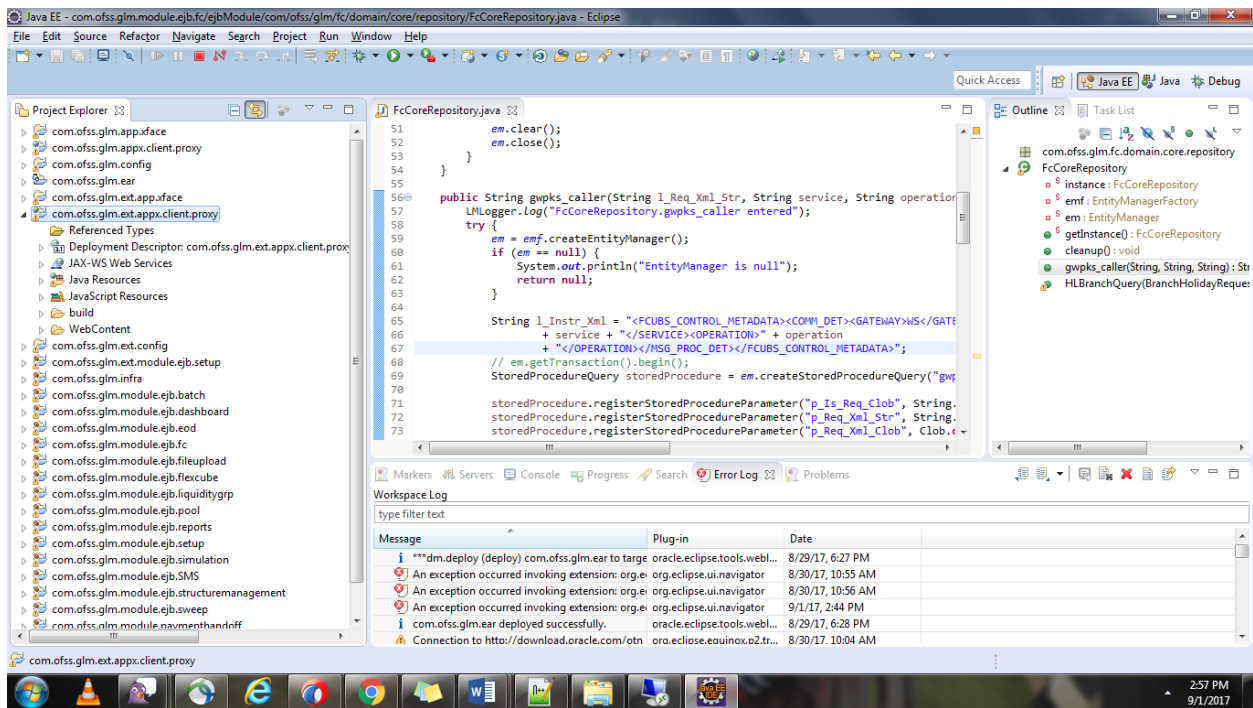
9 Create a new Web service Project for proxy project extension.



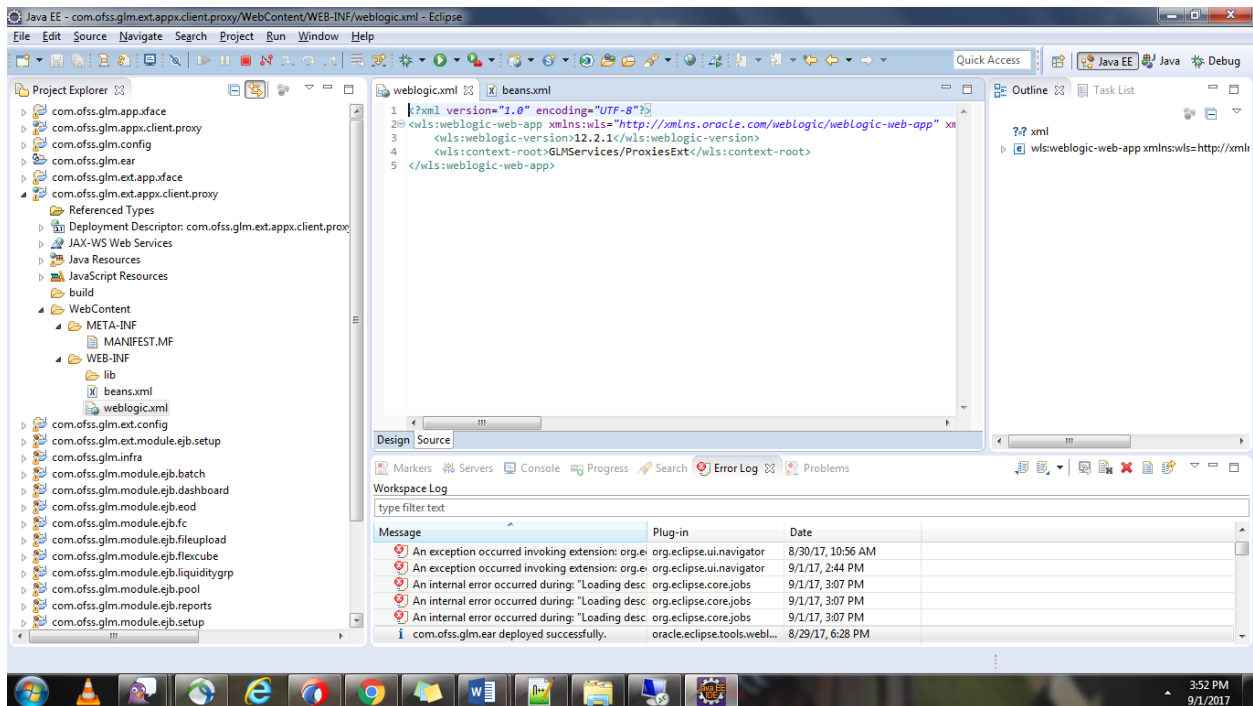


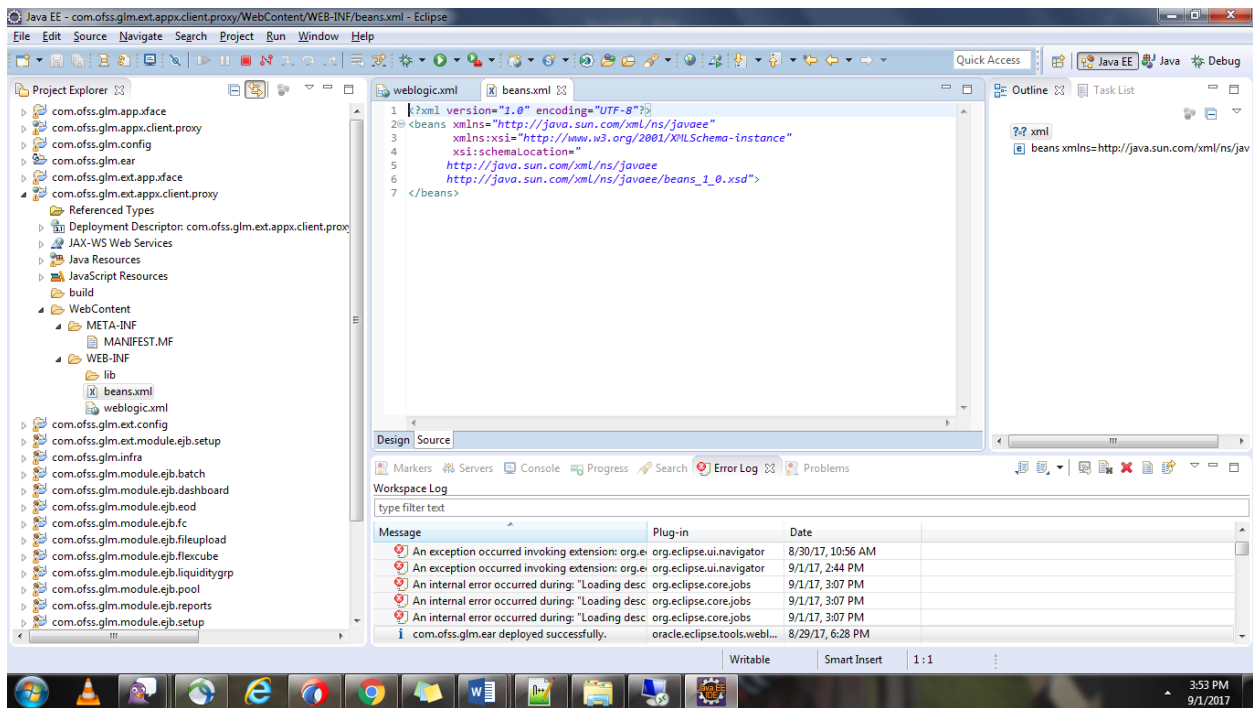
10 Add the required projects



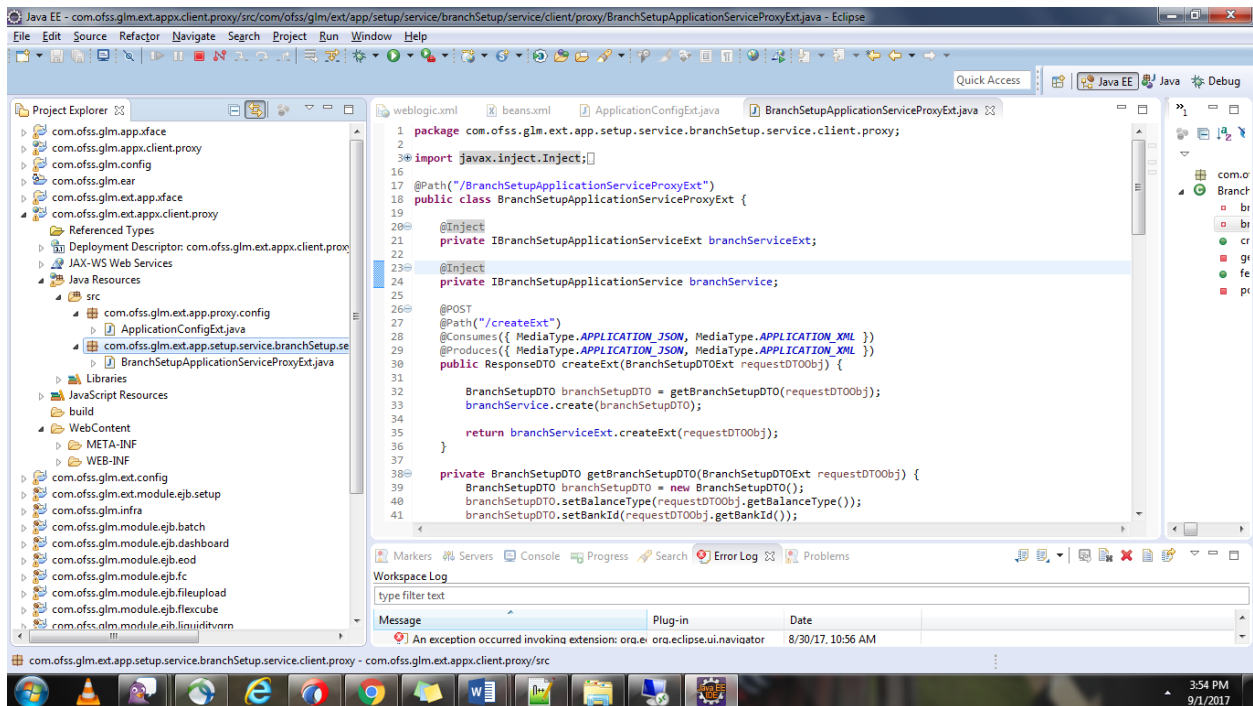


11 Add Weblogic.xml file with the context root.

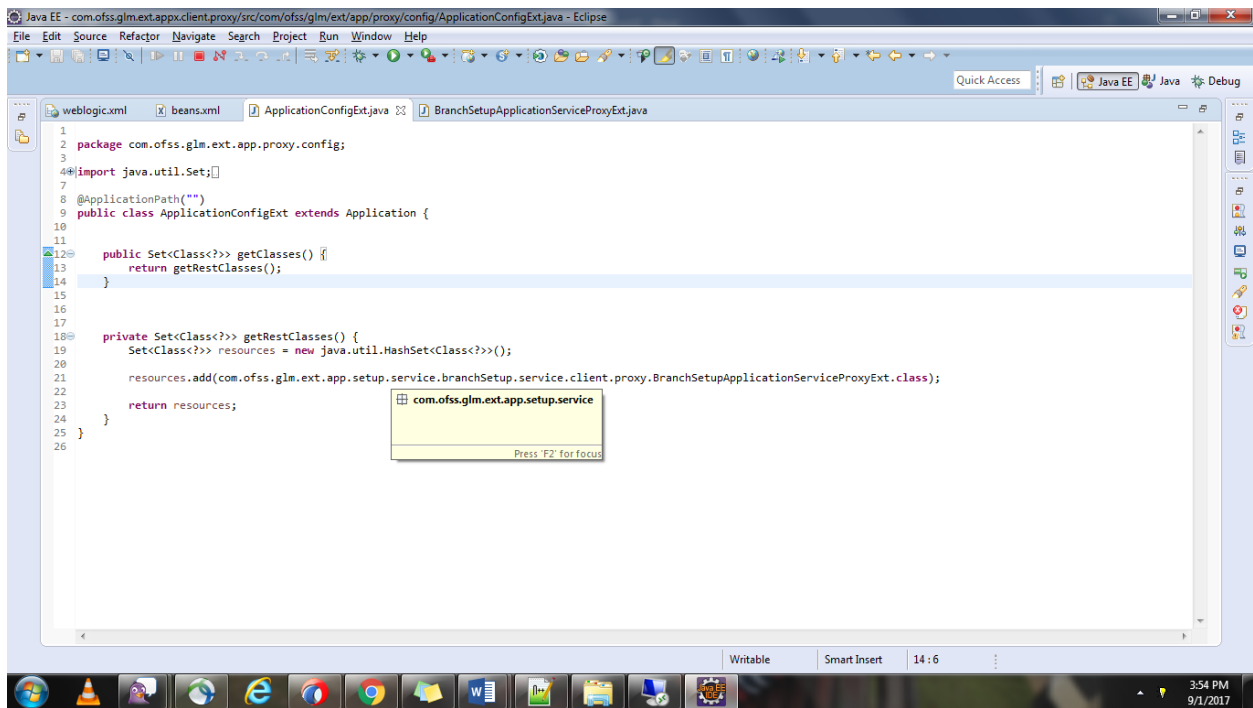




12 Create Proxy Ext Class.

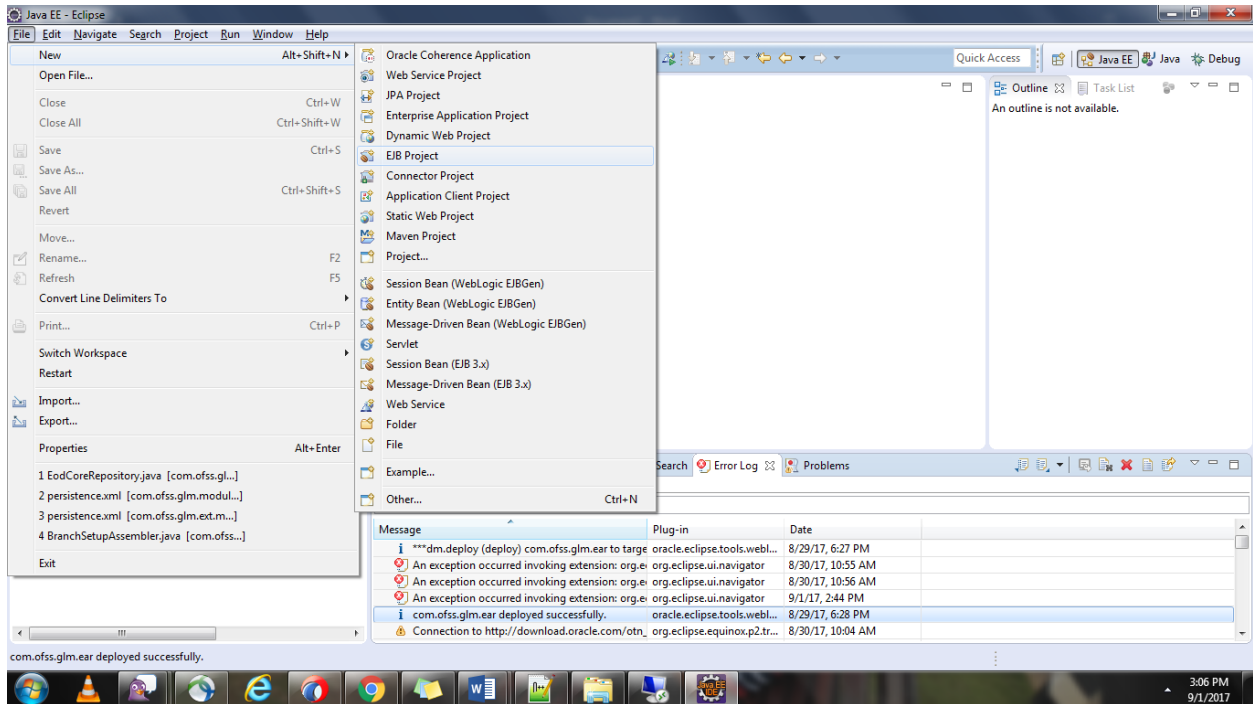


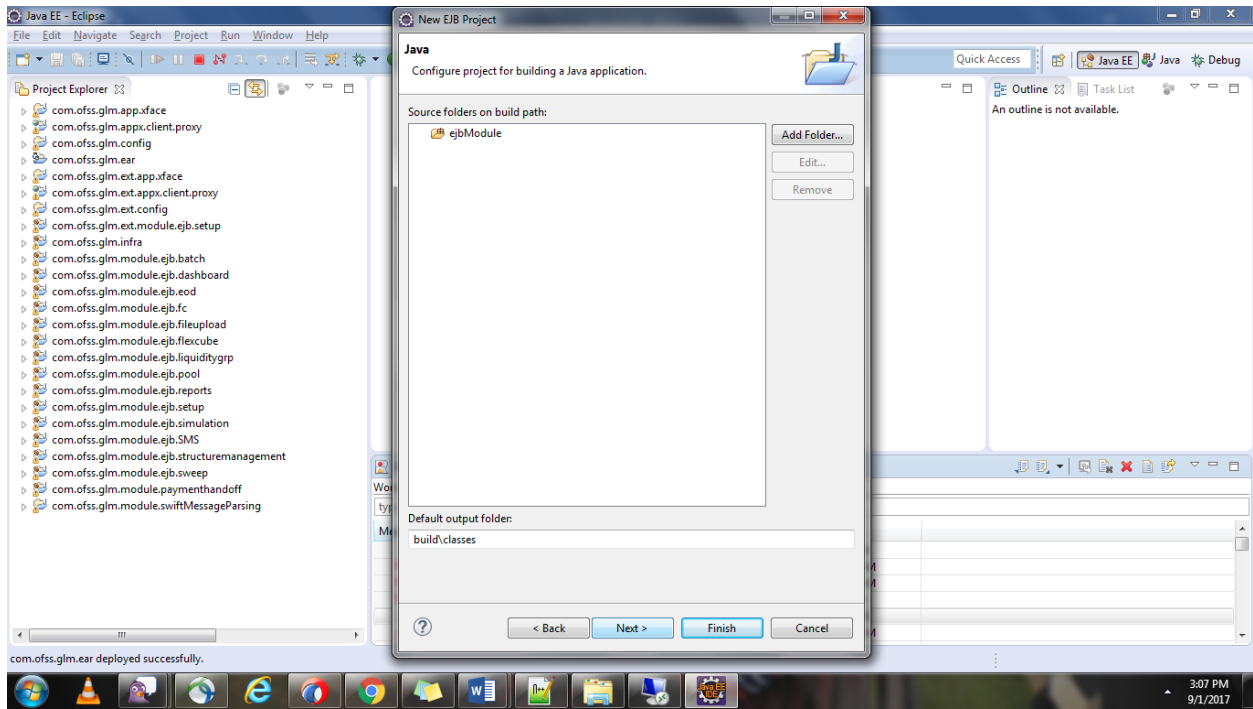
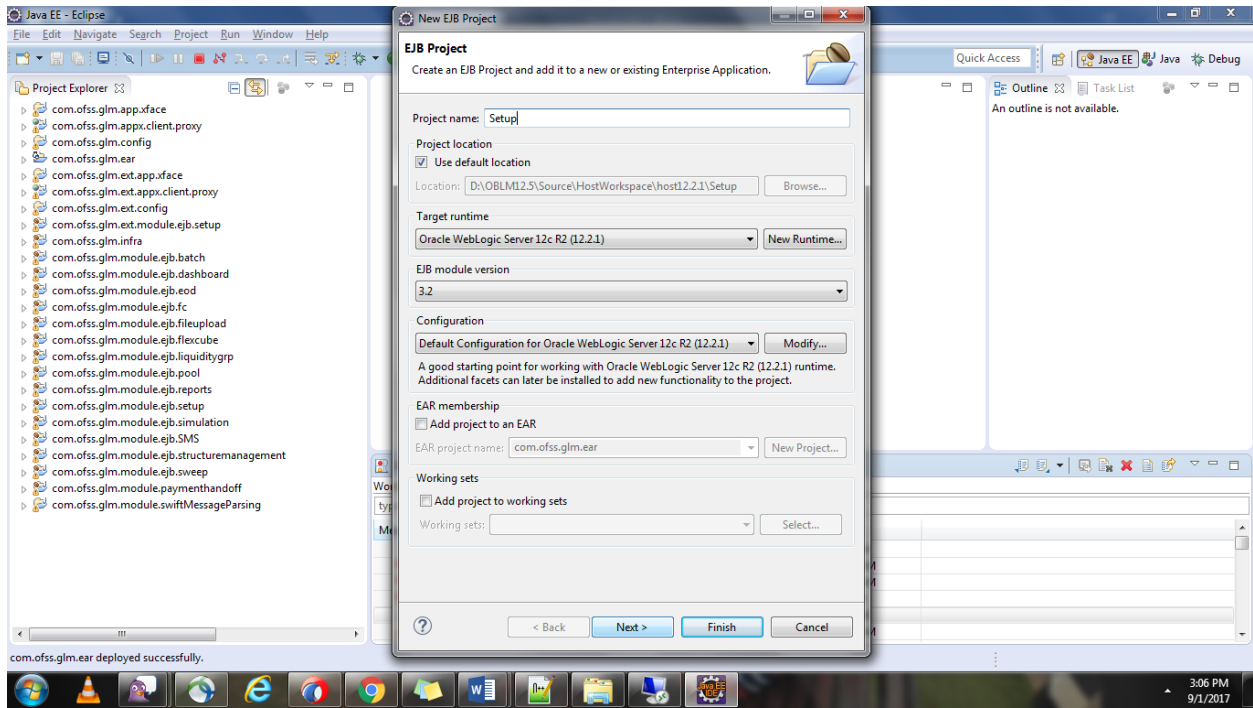
13 Add the Proxy Ext which was created in ApplicationConfigExt.

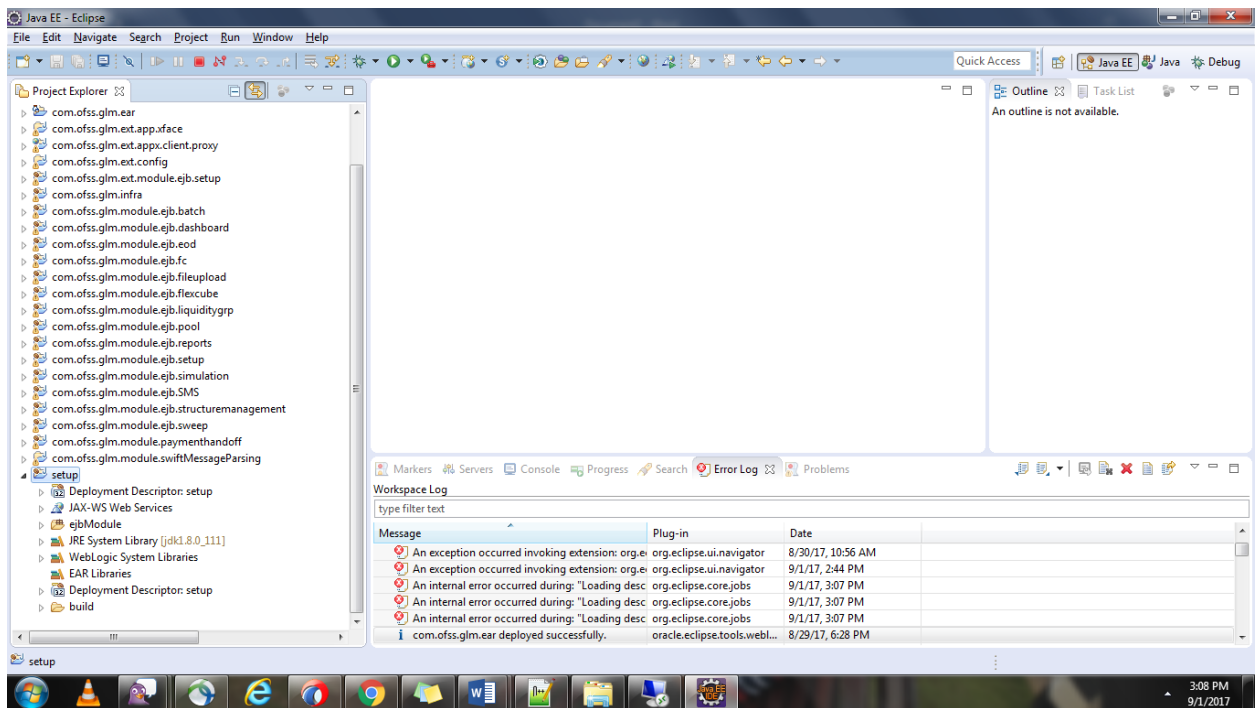
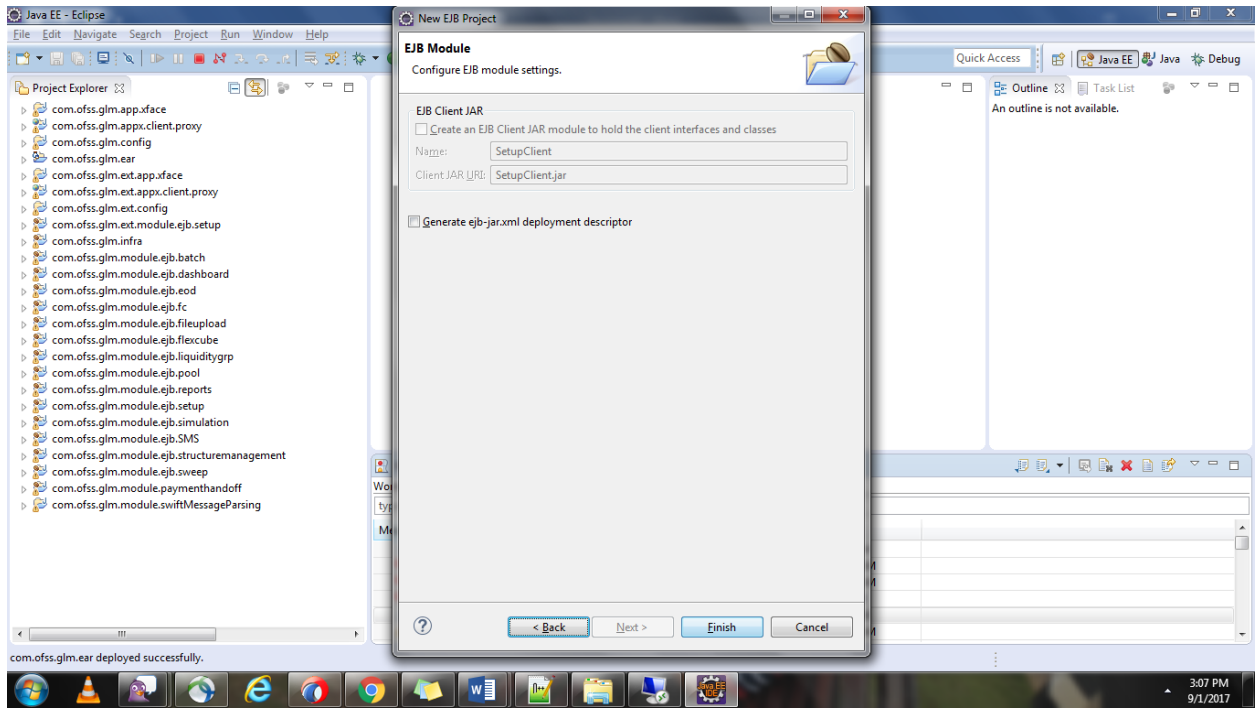


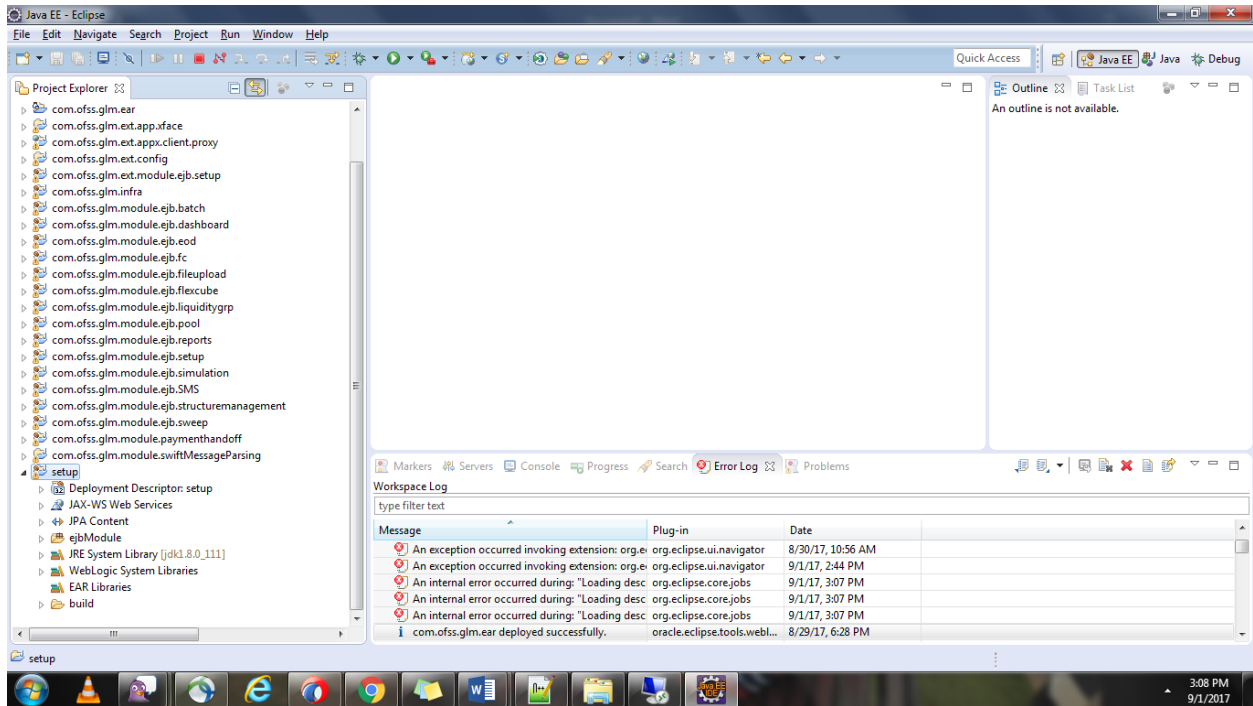
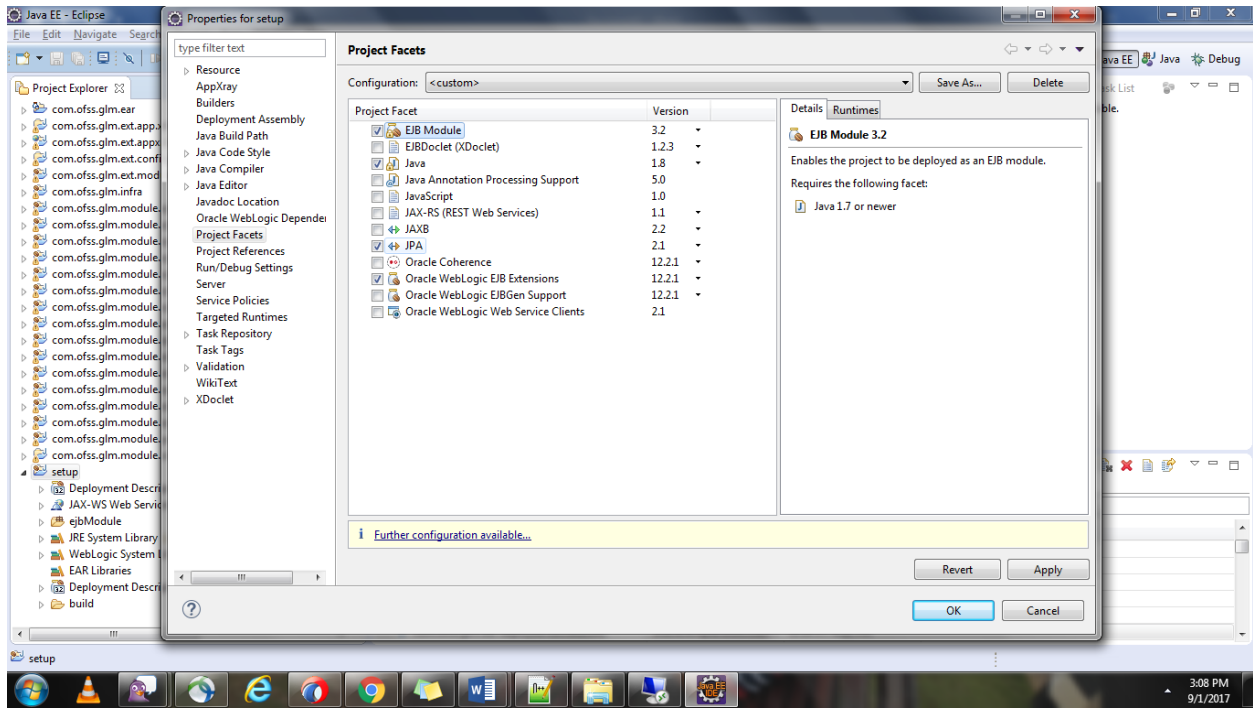
14 Extend the module on which screen we need to do changes.

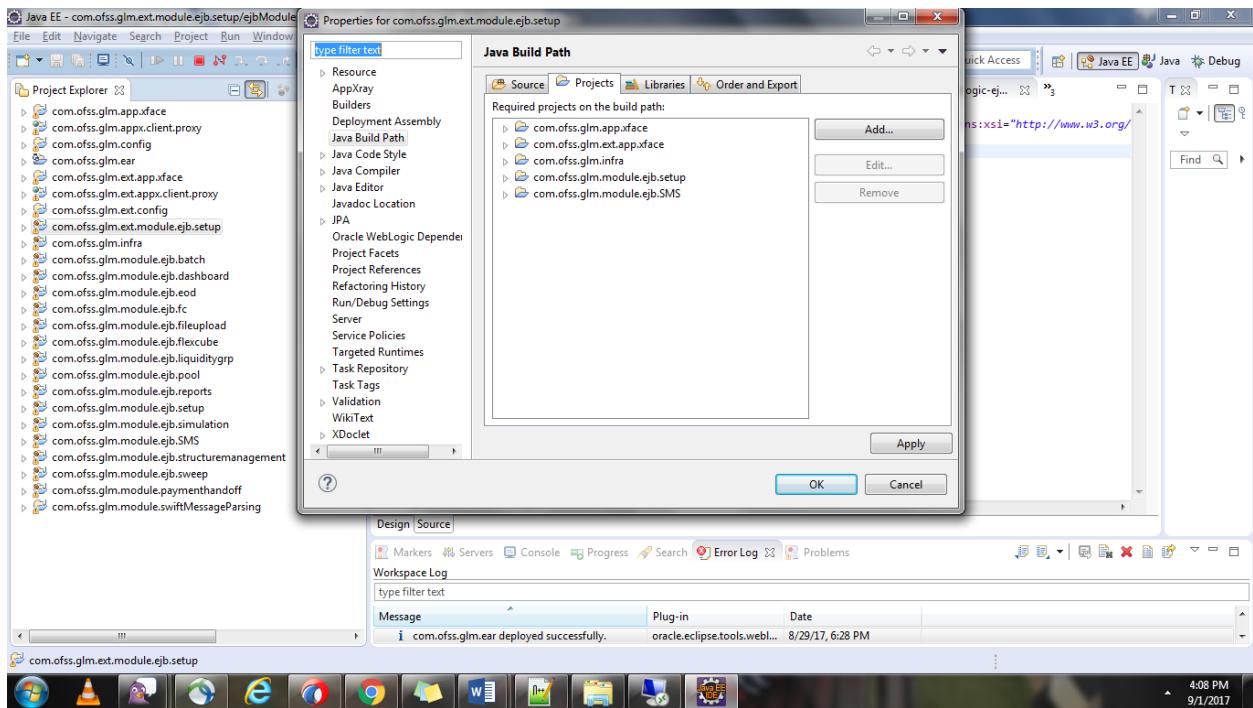
15 Create an EJB Project.



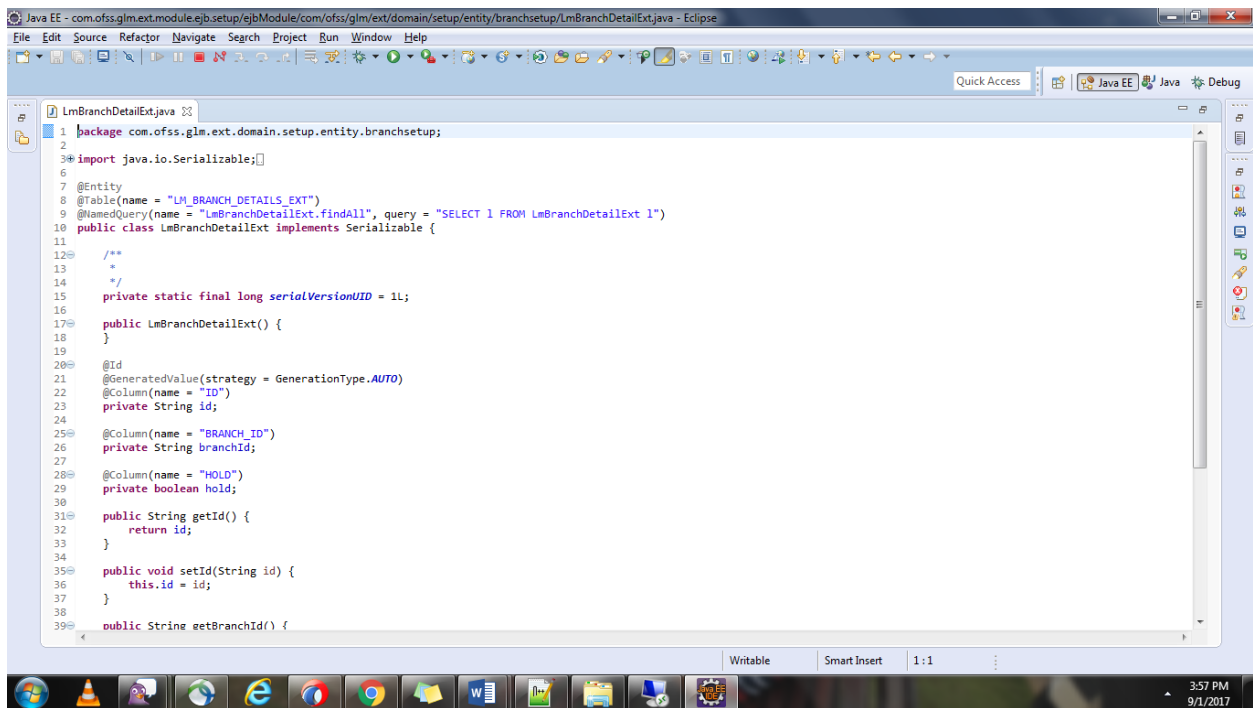








16 Add New Entity, Application Service, Domain Service and Repository.



The screenshot shows the Eclipse IDE with the following code in the editor:

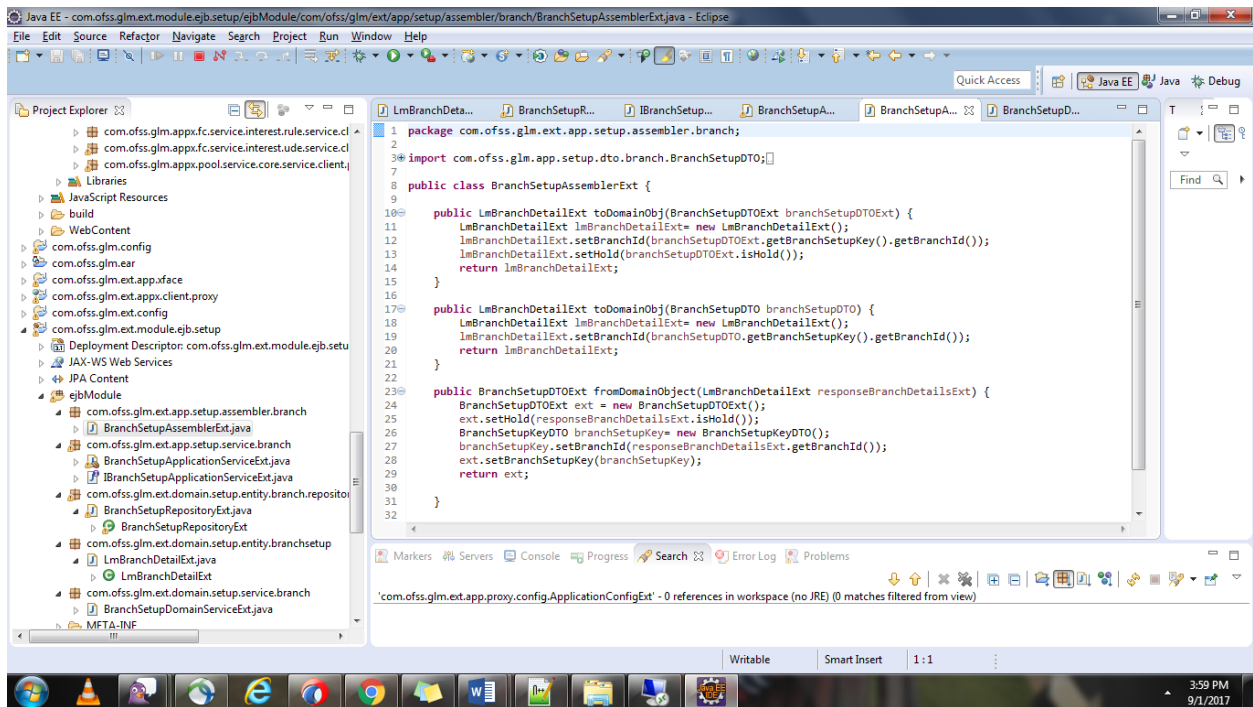
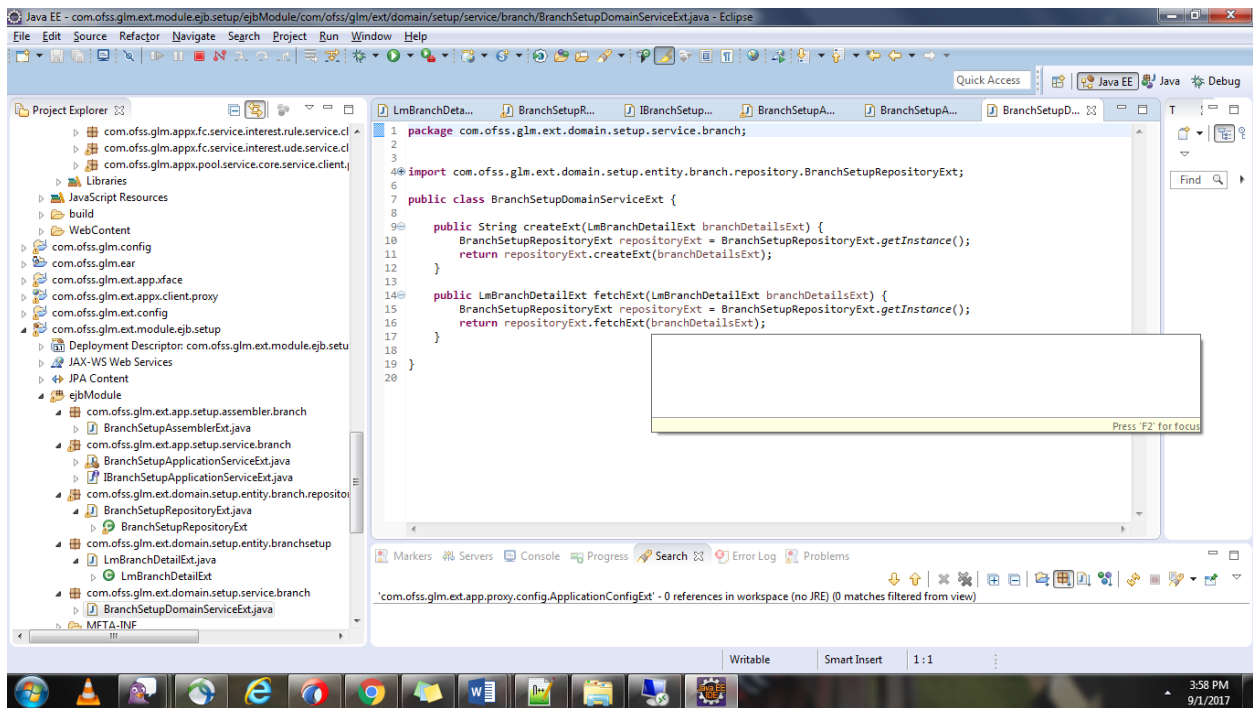
```
1 package com.ofss.glm.ext.app.setup.service.branch;
2
3 import javax.ejb.Local;
4
5 @Local
6 public interface IBranchSetupApplicationServiceExt {
7     public ResponseDTO createExt(BranchSetupDTOExt requestDTOObj);
8     public BranchSetupDTOExt fetchExt(BranchSetupDTO branchSetupDTO);
9 }
```

The Project Explorer on the left shows the project structure, with the current file selected in the package `com.ofss.glm.ext.app.setup.service.branch`. The status bar at the bottom indicates the file is writable and in Smart Insert mode.

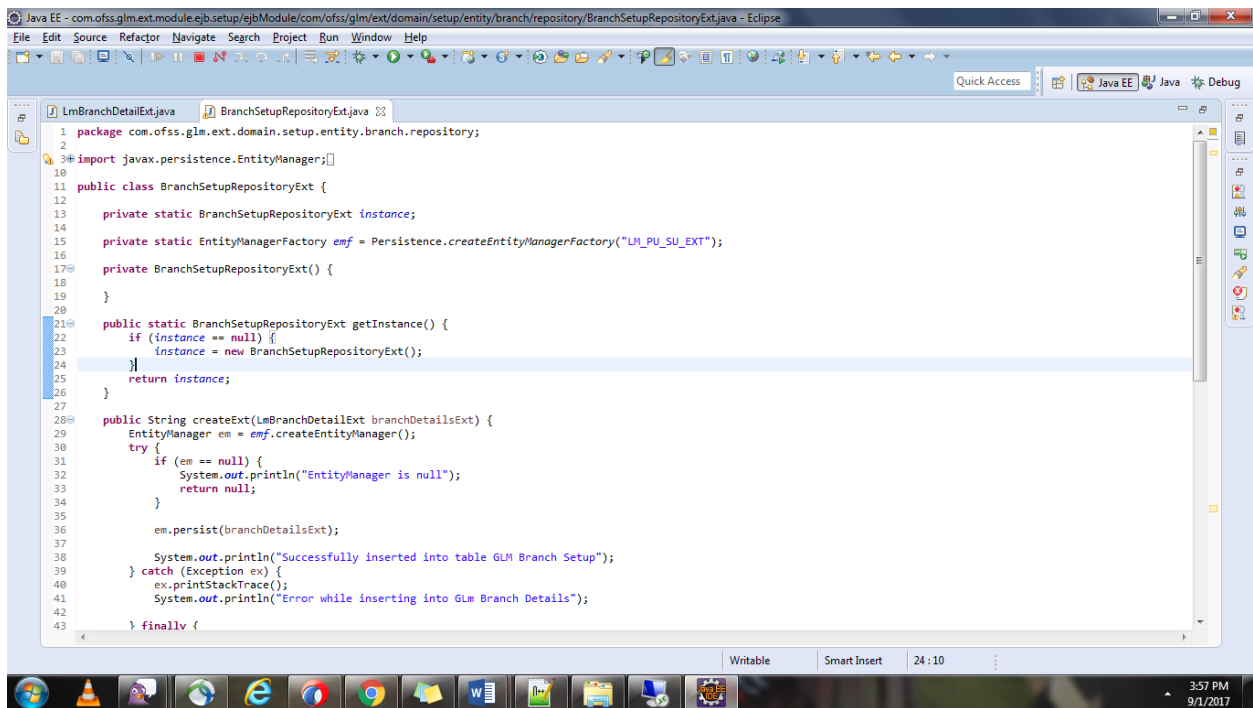
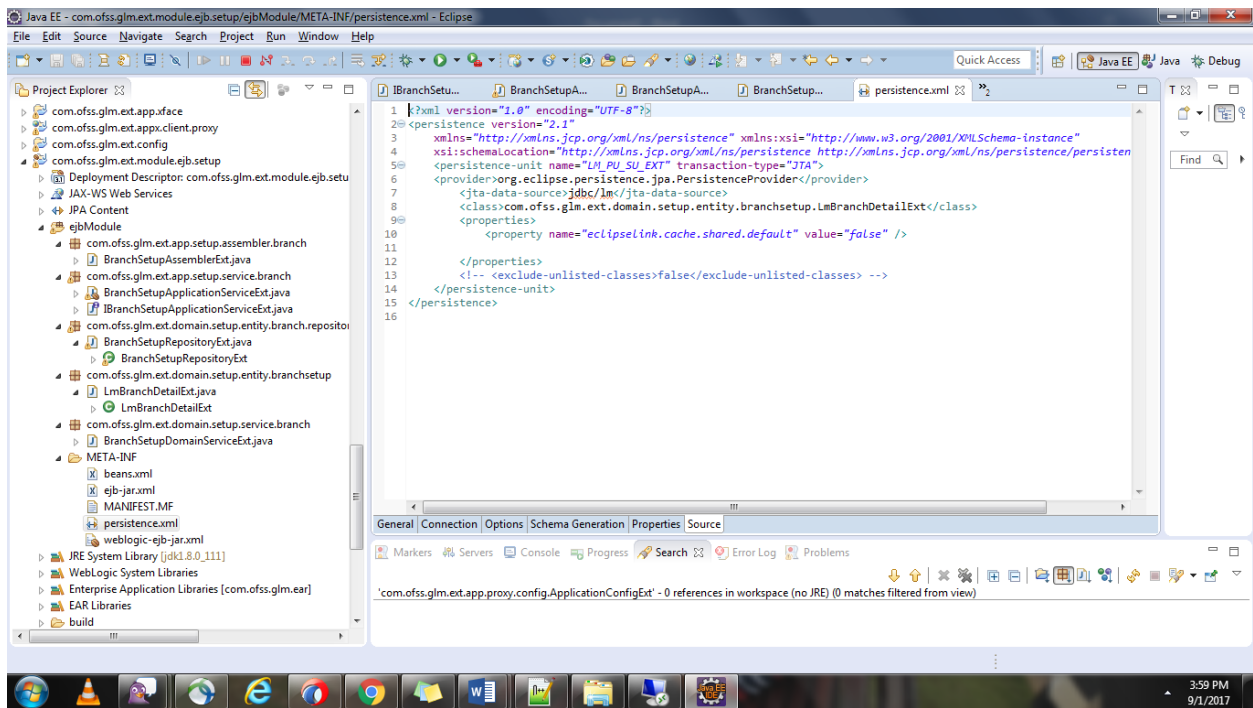
The screenshot shows the Eclipse IDE with the following code in the editor:

```
1 package com.ofss.glm.ext.app.setup.service.branch;
2
3 import javax.ejb.Stateless;
4
5 @Stateless
6 public class BranchSetupApplicationServiceExt implements IBranchSetupApplicationServiceExt {
7
8     @Override
9     public ResponseDTO createExt(BranchSetupDTOExt branchSetupDTOExt) {
10         try {
11             BranchSetupAssemblerExt assemblerExt = new BranchSetupAssemblerExt();
12             LmBranchDetailExt branchDetailsExt = assemblerExt.toDomainObj(branchSetupDTOExt);
13             BranchSetupDomainServiceExt branchService = new BranchSetupDomainServiceExt();
14             String status = branchService.createExt(branchDetailsExt);
15             if ("SUCCESS".equals(status)) {
16                 return new ResponseDTO(true, "");
17             } else {
18                 return new ResponseDTO(false, status);
19             }
20         } catch (Exception ex) {
21             ex.printStackTrace();
22             return new ResponseDTO(false, ex.getLocalizedMessage());
23         }
24         // return new ResponseDTO(true, "");
25     }
26
27     @Override
28     public BranchSetupDTOExt fetchExt(BranchSetupDTO branchSetupDTO) {
29         BranchSetupDTOExt branchSetupDTOExt = new BranchSetupDTOExt();
30         try {
31             BranchSetupAssemblerExt assemblerExt = new BranchSetupAssemblerExt();
32         }
33     }
34 }
```

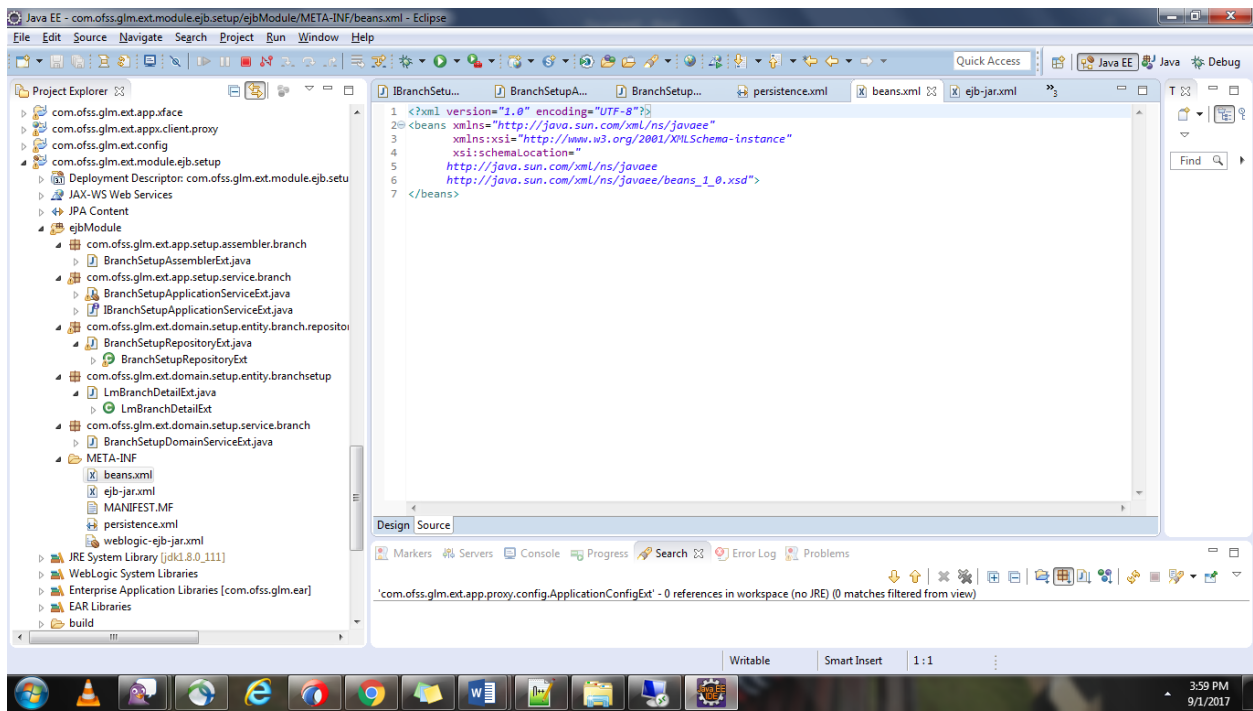
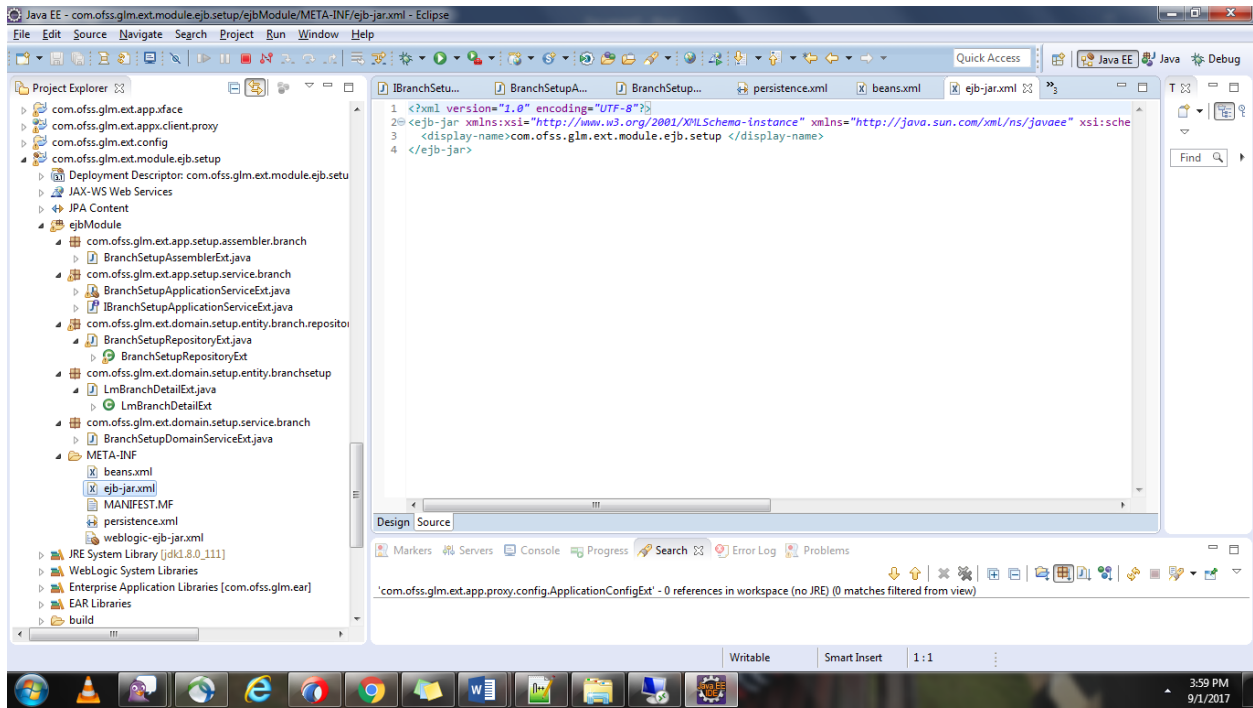
The Project Explorer on the left shows the project structure, with the current file selected in the package `com.ofss.glm.ext.app.setup.service.branch`. The status bar at the bottom indicates the file is writable and in Smart Insert mode.

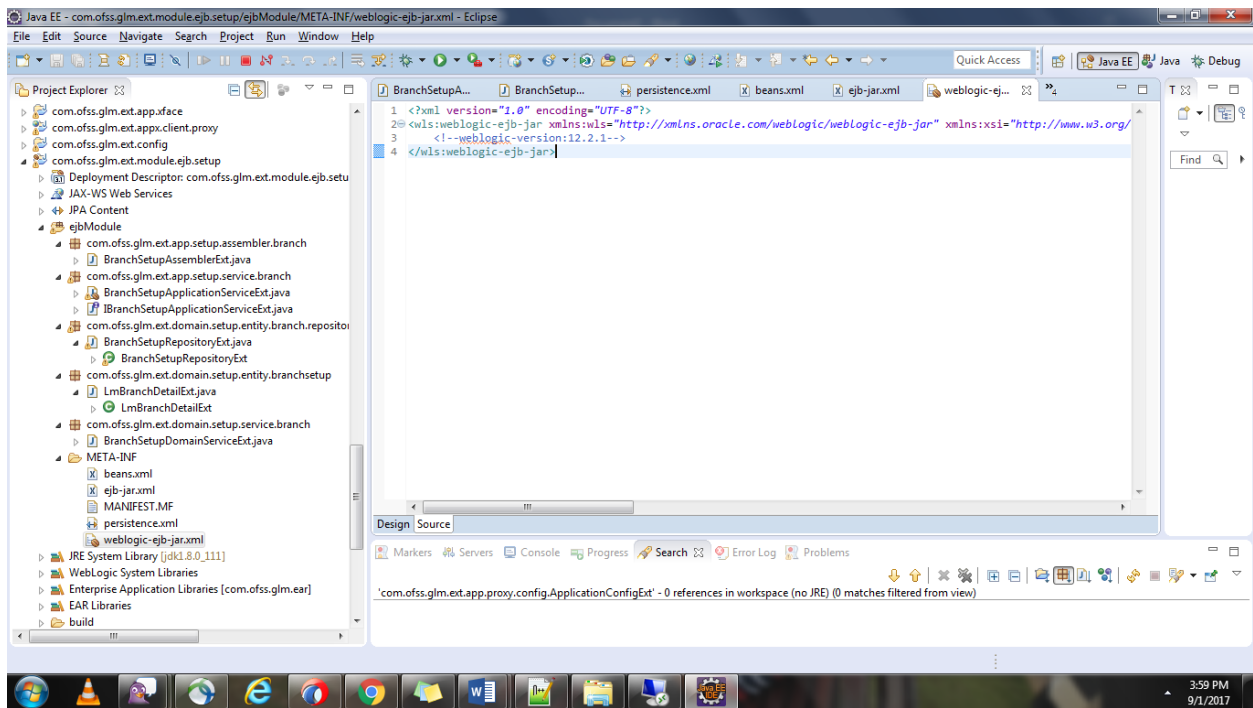


17 Create a persistence.xml and add the entity inside the persistence.xml.

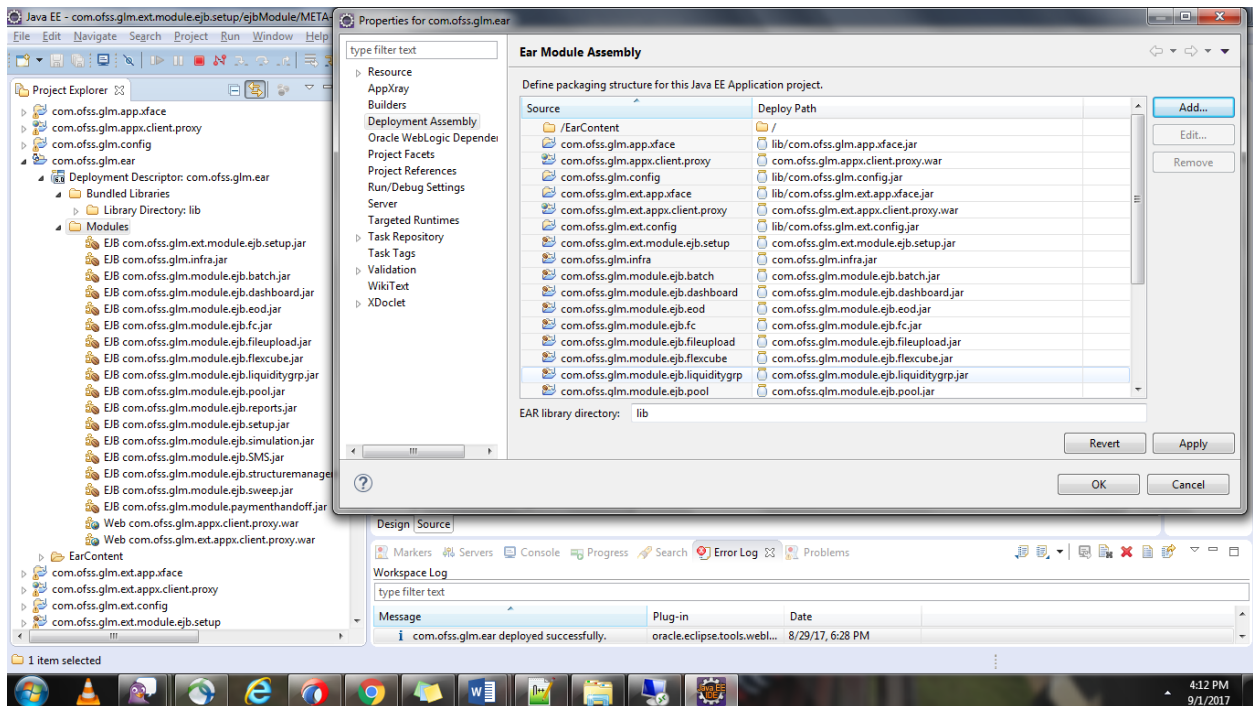


18 Add ejb-jar.xml, weblogic-beans.xml and beans.xml.





19 Add the newly created projects in Deployment Assembly in the ear project.



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