
<JSTORM>

**Writing Enterprise Applications with Java 2
Platform, Enterprise Edition - part3**



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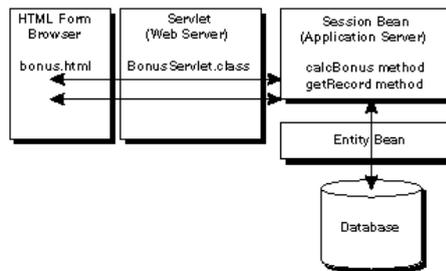


Lesson 3 - Bean

Lesson 2 「 Entity Bean 」 , Session Bean
 Entity Bean
 . Session Bean 가 Entity Bean
 . Session Bean Entity Bean
 1 JAR .
 - 1 JAR 2 Bean
 가 . , 2 Bean
 JAR Bean JAR .
 SQL ,

Session Bean

1 Entity Bean Session Bean 가
 , Entity Bean Lesson 2 「 Entity Bean 」 BonusServlet
 , Session Bean
 Entity Bean Session Bean calcBonus



1. Session Bean Entity Bean

CalcHome

CalcHome

create 가 .

```
package Beans;
import java.rmi.RemoteException;
import javax.ejb.CreateException;
import javax.ejb.EJBHome;
public interface CalcHome extends EJBHome {
    public Calc create() throws CreateException, RemoteException;
}
```

Calc

Calc

calcBonus

. CalcBean , Entity Bean
 ty Bean . getRecord 가 CalcBean
 () Entity Bean
 , calcBonus (Signature) DuplicateKeyException CreateException
 BonusServlet
 . DuplicateKeyException CreateException
 . DuplicateKeyException , CreateException
 calcBonus DuplicateKeyException
 Exception . calcBonus Dupli-cateKeyException Create

```
package Beans;
import javax.ejb.EJBObject;
import java.rmi.RemoteException;
import javax.ejb.DuplicateKeyException;
import javax.ejb.CreateException;
public interface Calc extends EJBObject {
    public Bonus calcBonus(int multiplier, double bonus, String socsec)
        throws RemoteException, DuplicateKeyException, CreateException;
    public Bonus getRecord(String socsec) throws RemoteException;
}
```

CalcBean

Entity Bean

BonusServlet

calcBonus

. Entity Bean
 . homebonus , calcBonus
 Entity Bean getRecord

Entity Bean 가 .

```
package Beans;
import java.rmi.RemoteException;
import javax.ejb.SessionBean;
import javax.ejb.SessionContext;
import javax.naming.InitialContext;
import javax.rmi.PortableRemoteObject;
import javax.ejb.DuplicateKeyException;
import javax.ejb.CreateException;
public class CalcBean implements SessionBean {
    BonusHome homebonus;

    //Throw DuplicateKeyException and CreateException
    //so BonusServlet can catch and handle these
    //exception conditions.
    public Bonus calcBonus(int multiplier, doublebonus, String socsec)
        throws DuplicateKeyException, CreateException {
        Bonus theBonus = null;
        double calc = (multiplier*bonus);
        try {
            InitialContext ctx = new InitialContext();
            Object objref = ctx.lookup("bonus");
            homebonus = (BonusHome)
                PortableRemoteObject.narrow(objref, BonusHome.class);
        } catch (Exception NamingException) {
            NamingException.printStackTrace();
        }
        //Store data in entitybean
        try {
            theBonus = homebonus.create(calc, socsec);
        } catch (java.rmi.RemoteException e) {
            String message = e.getMessage();
            e.printStackTrace();
        }
        return theBonus;
    }

    public Bonus getRecord(String socsec) {
        Bonus record = null;
        //Use primary key to retrieve data from entity bean
        try {
            record = homebonus.findByPrimaryKey(socsec);
        } catch (java.rmi.RemoteException e) {
            String message = e.getMessage();
        } catch (javax.ejb.FinderException e) {
            e.printStackTrace();
        }
    }
}
```

```
    }  
    return record;  
  }  
  
  public void ejbCreate() { }  
  public void setSessionContext(  
    SessionContext context){  
  }  
  public void ejbRemove() { }  
  public void ejbActivate() { }  
  public void ejbPassivate() { }  
  public void ejbLoad() { }  
  public void ejbStore() { }  
}
```

BonusServlet, Lesson 2 「 Entity Bean」
init doGet 가 . init CalcBean
Session .

```
public class BonusServlet extends HttpServlet {  
  CalcHome homecalc;  
  //Need Bonus variables because CalcBean methods  
  //called in the doGet method return instances  
  //of type Bonus  
  Bonus theBonus, record;  
  
  public void init(ServletConfig config)  
    throws ServletException{  
    try {  
      InitialContext ctx = new InitialContext();  
      Object objref = ctx.lookup("calcs");  
      homecalc = (CalcHome)  
        PortableRemoteObject.narrow(  
          objref, CalcHome.class);  
    } catch (Exception NamingException) {  
      NamingException.printStackTrace();  
    }  
  }  
}
```

doGet try Session Bean
calcBonus getRecord . 가
Entity Bean HTML 가 . D
uplicateKeyException가 calcBonus

(multiplier) 「 Duplicateprimary key 」 HTML

Lesson 2 「 Entity Bean 」 catch (

```
try {
    Calc theCalculation;
    //Retrieve Bonus and Social Security Information
    String strMult = request.getParameter("MULTIPLIER") ;//Calculate bonus
    Integer integerMult = new Integer(strMult);
    multiplier = integerMult.intValue();
    socsec = request.getParameter("SOCSEC");
    //Calculate bonus
    double bonus = 100.00;
    theCalculation = home calc.create();
    //Call session bean
    //Pass 3 parameters:multiplier, bonus, and socsec
    theBonus = theCalculation.calcBonus(
        multiplier, bonus, socsec);
    record = theCalculation.getRecord(socsec);
    //Display data returned by session bean
    out.println("<H1>Bonus Calculation</H1>");
    out.println("<P>Soc Sec retrieved: " +
        record.getSocSec() + "<P>");
    out.println("<P>Bonus Amount retrieved: "+
        record.getBonus() + "<P>");
    out.println("</BODY></HTML>");
} catch (javax.ejb.DuplicateKeyException e) {
    String message = e.getMessage();
    out.println("<H1>Bonus Calculation</H1>");
    out.println("<P>Soc Sec passed in: " + socsec + "<P>");
    out.println("<P>Multiplier passed in: " + multiplier + "<P>");
    out.println("</BODY></HTML>");
} catch (Exception CreateException) {
    CreateException.printStackTrace();
}
```

, Session Bean

, 「 Lesson1 」

Session Bean

Unix:

```
#!/bin/sh
cd /home/monicap/J2EE
J2EE_HOME=/home/monicap/J2EE/j2sdkee1.2.1
CPATH=.:$J2EE_HOME/lib/j2ee.jar
javac -d . -classpath "$CPATH" Beans/CalcBean.java
Beans/CalcHome.java Beans/Calc.java
```

Windows:

```
cd \home\monicap\J2EE
set J2EE_HOME=\home\monicap\J2EE\j2sdkee1.2.1
set CPATH=.;%J2EE_HOME%\lib\j2ee.jar
javac -d . -classpath %CPATH% Beans/CalcBean.java
Beans/CalcHome.java Beans/Calc.java
```

Unix:

```
cd /home/monicap/J2EE/ClientCode
J2EE_HOME=/home/monicap/J2EE/j2sdkee1.2
CPATH=.:$J2EE_HOME/lib/j2ee.jar:
/home/monicap/J2EE
javac -d . -classpath "$CPATH" BonusServlet.java
```

Windows:

```
cd \home\monicap\J2EE\ClientCode
set J2EE_HOME=\home\monicap\J2EE\j2sdkee1.2
set CPATH=.;%J2EE_HOME%\lib\j2ee.jar;\home\monicap\J2EE
javac -d . -classpath %CPATH% BonusServlet.java
```

```
가 , J2EE , Deploy , Cloudscape
가
j2ee -verbose
deploytool
cloudscape -start
가 , J2EE
```

Unix:

```
j2sdkee1.2.1/bin/j2ee -verbose
j2sdkee1.2.1/bin/deploytool
j2sdkee1.2.1/bin/cloudscape -start
```

Windows:

```
j2sdkee1.2.1\bin\j2ee -verbose
```

j2sdkee1.2.1\bin\deploytool
j2sdkee1.2.1\bin\cloudscape -start

- o J2EE
- o Web
- o Session Bean Entity Bean 1 () JAR

J2EE

「Lessons 1」 「Lessons 2」 J2EE
J2EE

BonusApp :

- o BonusApp
- o [] []

2BeansApp :

- o [File] [New Application]
- o [Application Display Name]
2BeansApp 가
- o [Browse] , EAR

[New Application] :

- o EAR
- o , /export/home/monicap/J2EE
- o [File name] 2BeansApp.ear
- o [New Application]
- o [OK]

Web

, , WAR
, 「Lesson1」

2BeansApp가

[File] :

- o [New Web Component]

[Introduction] :

- o [Next]

[War File General Properties] :

- o BonusWar
- o [Add]
- o ClientCode , bonus.html 가
- o [Next]
- o ClientCode , BonusServlet.class 가
- o [Finish]

[War File General Properties] :

- o [Next]

[Choose Component Type] :

- o
- o [Next]

[Component General Properties] :

- o BonusServlet
- o BonusServlet
- o [Next]

[Component Initialization Parameters] :

- o [Next]

[Component Aliases] :

- o BonusAlias .
- o [Finish] .

[Inspecting] :

- o [Web Context] .
- o BonusRoot .

Session Bean Entity Bean 1 JAR

, Session Bean Entity Bean JAR
. , Session Bean JAR , ,
JAR EntityBean 가 .

Session Bean JAR

- o 2BeansApp 가

[File] :

- o [New Enterprise Bean] .

[Introduction]:

- o [Next] .

[EJB JAR]:

- o 2BeansApp 가 [Enterprise Bean will go in]
.
- o display name 2BeansJar .
- o [Add...] ([Contents])() .
- o Beans () .
- o "Calc.class" .
- o [Add] .
- o "CalcBean.class" .
- o [Add] .
- o "CalcHome.class" .
- o [Add] .

[Enterprise Bean JAR classes]:

- o Beans/Calc.class, Beans/CalcHome.class, Beans/CalcBean.class 가
- o [OK]

[EJB JAR]:

- o [Next]

[General]:

- o Beans.CalcBean Bean , Beans.CalcHome , Beans.Calc 가
- o display name CalcBean .
- o [Session]&[stateless]
- o [Next]

[Environment Entries]:

- o [Next] Session Bean ()

[Enterprise Bean References]:

- o [Next]

[Resource References]:

- o [Next] Session Bean JavaMail Session

[Security]:

- o [Next] Session Bean security roles

[Transaction Management]:

- o [Container-managed transactions] ().
- o calcBonus getRecord "Required" .
, 가 Commit .
, 「Enterprise JavaBeans Developer's Guide」 「Chapter 6」 .
- o [Next] .

[Review Settings]:

- o [Finish] .

[Local Applications] :

- o "2BeansApp" .
- o [] [JNDI] , CalcBean calcs JNDI , Return .

Entity Bean 가

- o 2BeansApp 가 .

[File] :

- o [New Enterprise Bean] .

[Introduction]:

- o [Next] .

[EJB JAR]:

- o 2BeansJar 가 [Enterprise Bean will go in] . Bean JAR , JA R 가 .
- o [Add] ([Contents]) .
- o "Bonus.class" .
- o [Add] .

- "BonusBean.class" .
- [Add] .
- "BonusHome.class" .
- [Add] .

[Enterprise Bean JAR classes]:

- Beans/Bonus.class, Beans/BonusHome.class, Beans/BonusBean.class .
- [OK] .

[EJB JAR]:

- [Next] .

[General]:

- Beans.BonusBean Bean , Beans.BonusHome 가 , Beans.Bonus 가
- BonusBean .
- [Entity] .
- [Next] .

[Entity Settings]:

- [Container managed persistence] .
- [bonus] [socsec] .
java.lang.String 가 , socsec 가
(ex: int, float...)
- [Next] .

[Environment Entries]:

- [Next] . Entity Bean ()

[Enterprise Bean References]:

- [Next] . Entity Bean Bean

[Resource References]:

- o [Next] Entity Bean JavaM
ail Session .

[Security]:

- o [Next] Entity Bean security roles .

[Transaction Management]:

- o [Container-managed transactions] (.) .
- o create, findByPrimaryKey, getBonus, getSocSec "Required"
 . , , 가
Commit . , 「Enterpri
se JavaBeans De veloper's Guide」 「Chapter 6」 .
- o [Next] .

[Review Settings]:

- o [Finish] .

[Local Applications] :

- o "2BeansApp" .
- o [Inspecting] [JNDI names] , BonusBean bonus
JNDI , CalcBean calcs JNDI .
, Return .

J2EE , Entity Bean , SQL
가 . , .

[Local Applications window] :

- o "BonusBean" .

[Inspecting] :

- o [Entity] .
- o [Deployment Settings] .

[Deployment Settings] :

- o JNDI jdbc/Cloudscape (Cloudscape C) .
- o Return .
- o [Create table on deploy] [Delete table on Undeploy] 가
- o [Generate SQL now] .
- 가 , 「 」
- (51) , .

SQL , .

- o [EJB method box] [findByPrimaryKey] .
- o SQL 「SELECT "socsec" FROM "Bon us-BeanTable"WHERE "socsec"=?」 () . SQL (?) findByPrimaryKey .
- o [OK] .

J2EE

Bean 가 , verifier compiler 가 . verifier

- 가 , ,

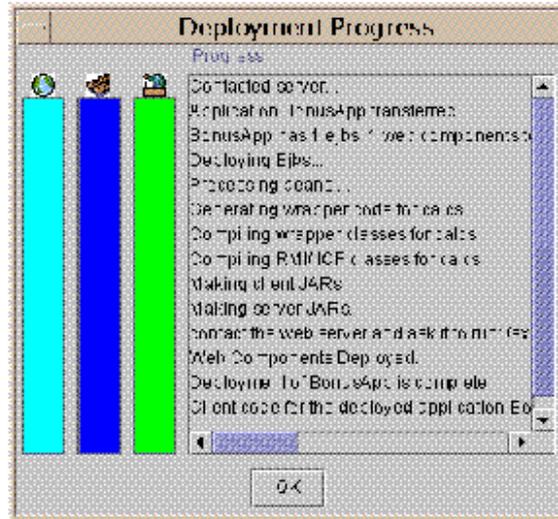
Verify:

- o 2BeansApp 가 ,[Tool] [Verifier] () .
- o [OK] 가 가
- o 가 가
- Verifier .
- 12.1 , tests app.WebURI 가

가 . , Deploy WAR WAR . war
 (extension) 가 J2EE 가

Deploy:

- o [Tool] [Deploy Application] . [Deploy BonusApp]
 가 .
- o J2EE .
- o - [Return Client Jar] .
 가 , Bean
- HTML
- JAR .
- o [Next] .
- o CalcBean JNDI calcs 가 , BonusBean JNDI bonus
 , JNDI
- Return .
- o [Next] . Context Root BonusRoot 가
 , Context Root Return
- o [Next] .
- o [Finish] .
- 가 .
- o 가 , 3 가 2
 가 [OK] .



2 Deploy

J2EE

- o Web 8000 . bonus.html
http://localhost:8000/BonusRoot/bonus.html , Deploy
- o HTML
- o [Submit] . BonusServlet
- o HTML
- o Bonus Calculation
Soc Sec retrieved: 77777777
Bonus Amount Retrieved: 200.0
- o 가 2 HTML
- o Bonus Calculation
Soc Sec passed in: 77777777
Multiplier passed in: 2
Duplicate primary key