**Demonstrate mapping List, Set ,Bag ,and Map in collection using XML file**

**ProductDetails.java**

import java.io.IOException;

import java.io.PrintWriter;

import java.util.Collection;

import java.util.List;

import java.util.Map;

import java.util.Set;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import org.hibernate.Session;

import org.hibernate.SessionFactory;

import com.ecommerce.Color;

import com.ecommerce.EProduct;

import com.ecommerce.Finance;

import com.ecommerce.HibernateUtil;

import com.ecommerce.OS;

import com.ecommerce.ScreenSizes;

/\*\*

\* Servlet implementation class ProductDetails

\*/

public class ProductDetails extends HttpServlet {

private static final long *serialVersionUID* = 1L;

/\*\*

\* @see HttpServlet#HttpServlet()

\*/

public ProductDetails() {

super();

// TODO Auto-generated constructor stub

}

/\*\*

\* @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse

\* response)

\*/

protected void doGet(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

// TODO Auto-generated method stub

try {

SessionFactory factory = HibernateUtil.*getSessionFactory*();

Session session = factory.openSession();

List<EProduct> list = session.createQuery("from EProduct").list();

PrintWriter out = response.getWriter();

out.println("<html><body>");

out.println("<b>Product Listing</b><br>");

for (EProduct p : list) {

out.println("ID: " + String.*valueOf*(p.getID()) + ", Name: " + p.getName() + ", Price: "

+ String.*valueOf*(p.getPrice()) + ", Date Added: " + p.getDateAdded().toString());

List<Color> colors = p.getColors();

out.println("Colors: ");

for (Color c : colors) {

out.print(c.getName() + "&nbsp;");

}

Collection<ScreenSizes> sizes = p.getScreensizes();

out.println(", Screen Sizes: ");

for (ScreenSizes s : sizes) {

out.print(s.getSize() + "&nbsp;");

}

Set<OS> os = p.getOs();

out.println(", OS : ");

for (OS o : os) {

out.print(o.getName() + "&nbsp;");

}

Map finances = p.getFinance();

out.println(", Finance Options: ");

if (finances.get("CREDITCARD") != null) {

Finance f = (Finance) finances.get("CREDITCARD");

out.println(f.getName() + " &nbsp;");

}

if (finances.get("BANK") != null) {

Finance f = (Finance) finances.get("BANK");

out.println(f.getName() + " &nbsp;");

}

out.println("<hr>");

}

session.close();

out.println("</body></html>");

} catch (Exception ex) {

throw ex;

}

}

/\*\*

\* @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse

\* response)

\*/

protected void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

// TODO Auto-generated method stub

doGet(request, response);

}

}

**Color.java**

package com.ecommerce;

public class Color {

private long COLORID;

private String name;

public Color() {

}

public Color(String name) {

this.COLORID = 0;

this.name = name;

}

public long getCOLORID() {return this.COLORID; }

public String getName() { return this.name;}

public void setCOLORID(long id) { this.COLORID = id;}

public void setName(String name) { this.name = name;}

}

**EProduct.java**

package com.ecommerce;

import java.math.BigDecimal;

import java.util.Collection;

import java.util.Date;

import java.util.List;

import java.util.Set;

import java.util.Map;

public class EProduct {

private long ID;

private String name;

private BigDecimal price;

private Date dateAdded;

private List<Color> colors;

private Collection<ScreenSizes> screenSizes;

private Set<OS> os;

private Map finance;

public EProduct() {

}

public long getID() {

return this.ID;

}

public String getName() {

return this.name;

}

public BigDecimal getPrice() {

return this.price;

}

public Date getDateAdded() {

return this.dateAdded;

}

public List<Color> getColors() {

return this.colors;

}

public Collection<ScreenSizes> getScreensizes() {

return this.screenSizes;

}

public Set<OS> getOs() {

return this.os;

}

public Map getFinance() {

return this.finance;

}

public void setID(long id) {

this.ID = id;

}

public void setName(String name) {

this.name = name;

}

public void setPrice(BigDecimal price) {

this.price = price;

}

public void setDateAdded(Date date) {

this.dateAdded = date;

}

public void setColors(List<Color> colors) {

this.colors = colors;

}

public void setScreensizes(Collection<ScreenSizes> sizes) {

this.screenSizes = sizes;

}

public void setOs(Set<OS> os) {

this.os = os;

}

public void setFinance(Map finance) {

this.finance = finance;

}

}

**Finance.java**

package com.ecommerce;

public class Finance {

private long FINANCEID;

private String name;

private String ftype;

public Finance() {

}

public Finance(String name, String ftype) {

this.FINANCEID = 0;

this.name = name;

this.ftype = ftype;

}

public long getFINANCEID() {return this.FINANCEID; }

public String getName() { return this.name;}

public String getFtype() { return this.ftype;}

public void setFINANCEID(long id) { this.FINANCEID = id;}

public void setName(String name) { this.name = name;}

public void setFtype(String ftype) { this.ftype= ftype;}

}

**HibernateUtil.java**

package com.ecommerce;

import org.hibernate.SessionFactory;

import org.hibernate.boot.Metadata;

import org.hibernate.boot.MetadataSources;

import org.hibernate.boot.registry.StandardServiceRegistry;

import org.hibernate.boot.registry.StandardServiceRegistryBuilder;

public class HibernateUtil {

private static final SessionFactory sessionFactory;

static {

try {

StandardServiceRegistry standardRegistry = new StandardServiceRegistryBuilder()

.configure("hibernate.cfg.xml").build();

Metadata metaData = new MetadataSources(standardRegistry).getMetadataBuilder().build();

sessionFactory = metaData.getSessionFactoryBuilder().build();

} catch (Throwable th) {

throw new ExceptionInInitializerError(th);

}

}

public static SessionFactory getSessionFactory() {

return sessionFactory;

}

}

**OS.java**

package com.ecommerce;

public class OS {

private long OSID;

private String name;

public OS() {

}

public OS(String name) {

this.OSID = 0;

this.name = name;

}

public long getOSID() {

return this.OSID;

}

public String getName() {

return this.name;

}

public void setOSID(long id) {

this.OSID = id;

}

public void setName(String name) {

this.name = name;

}

}

ScreenSizes.java

package com.ecommerce;

public class ScreenSizes {

private long SCREENID;

private String size;

public ScreenSizes() {

}

public ScreenSizes(String size) {

this.SCREENID = 0;

this.size = size;

}

public long getSCREENID() {return this.SCREENID; }

public String getSize() { return this.size;}

public void setSCREENID(long id) { this.SCREENID = id;}

public void setSize(String size) { this.size = size;}

}

**Color.hbm.xml**

<?xml version=*"1.0"*?>

<!DOCTYPE hibernate-mapping PUBLIC

"-//Hibernate/Hibernate Mapping DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package=*"com.ecommerce"*>

<class name=*"Color"* table=*"colors"*>

<id name=*"COLORID"* type=*"long"* column=*"ID"*>

<generator class=*"identity"*/>

</id>

<property name=*"name"* type=*"string"* column=*"COLOR\_NAME"*/>

</class>

</hibernate-mapping>

EProduct.hbm.xml

<?xml version=*"1.0"*?>

<!DOCTYPE hibernate-mapping PUBLIC

"-//Hibernate/Hibernate Mapping DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package=*"com.ecommerce"*>

<class name=*"EProduct"* table=*"eproduct"*>

<id name=*"ID"* type=*"long"* column=*"ID"*>

<generator class=*"identity"*/>

</id>

<property name=*"name"* type=*"string"* column=*"NAME"*/>

<property name=*"price"* type=*"big\_decimal"* column=*"PRICE"*/>

<property name=*"dateAdded"* type=*"timestamp"* column=*"DATE\_ADDED"*/>

<list name=*"colors"* cascade=*"all"*>

<key column=*"product\_id"* />

<list-index column=*"idx"* />

<one-to-many class=*"com.ecommerce.Color"* />

</list>

<bag name=*"screensizes"* cascade=*"all"*>

<key column=*"product\_id"*></key>

<one-to-many class=*"com.ecommerce.ScreenSizes"*/>

</bag>

<set name = *"os"* cascade=*"all"*>

<key column = *"product\_id"*/>

<one-to-many class=*"OS"*/>

</set>

<map name = *"finance"* cascade=*"all"*>

<key column = *"product\_id"*/>

<index column = *"ftype"* type = *"string"*/>

<one-to-many class=*"com.ecommerce.Finance"*/>

</map>

</class>

</hibernate-mapping>

**Finance.hbm.xml**

<?xml version=*"1.0"*?>

<!DOCTYPE hibernate-mapping PUBLIC

"-//Hibernate/Hibernate Mapping DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package=*"com.ecommerce"*>

<class name=*"Finance"* table=*"finance"*>

<id name=*"FINANCEID"* type=*"long"* column=*"ID"*>

<generator class=*"identity"*/>

</id>

<property name=*"name"* type=*"string"* column=*"NAME"*/>

<property name=*"ftype"* type=*"string"* column=*"FTYPE"*/>

</class>

</hibernate-mapping>

**Os.hbm.xml**

<?xml version=*"1.0"*?>

<!DOCTYPE hibernate-mapping PUBLIC

"-//Hibernate/Hibernate Mapping DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package=*"com.ecommerce"*>

<class name=*"OS"* table=*"os"*>

<id name=*"OSID"* type=*"long"* column=*"ID"*>

<generator class=*"identity"*/>

</id>

<property name=*"name"* type=*"string"* column=*"NAME"*/>

</class>

</hibernate-mapping>

**ScreenSizes.hbm.xml**

<?xml version=*"1.0"*?>

<!DOCTYPE hibernate-mapping PUBLIC

"-//Hibernate/Hibernate Mapping DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package=*"com.ecommerce"*>

<class name=*"ScreenSizes"* table=*"screensizes"*>

<id name=*"SCREENID"* type=*"long"* column=*"ID"*>

<generator class=*"identity"*/>

</id>

<property name=*"size"* type=*"string"* column=*"SIZE"*/>

</class>

</hibernate-mapping>

**hibernate.cfg.xml**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<!DOCTYPE hibernate-configuration PUBLIC

"-//Hibernate/Hibernate Configuration DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">

<hibernate-configuration>

<session-factory>

<property name=*"hibernate.connection.driver\_class"*>com.mysql.jdbc.Driver</property>

<property name=*"hibernate.connection.password"*>root</property>

<property name=*"hibernate.connection.url"*>jdbc:mysql://localhost:3306/ecommerce</property>

<property name=*"hibernate.connection.username"*>root</property>

<property name=*"hibernate.dialect"*>org.hibernate.dialect.MySQLDialect</property>

<mapping resource=*"com/ecommerce/EProduct.hbm.xml"*/>

<mapping resource=*"com/ecommerce/Color.hbm.xml"*/>

<mapping resource=*"com/ecommerce/ScreenSizes.hbm.xml"*/>

<mapping resource=*"com/ecommerce/Os.hbm.xml"*/>

<mapping resource=*"com/ecommerce/Finance.hbm.xml"*/>

</session-factory>

</hibernate-configuration>

**web.xml**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://xmlns.jcp.org/xml/ns/javaee"* xsi:schemaLocation=*"http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/javaee/web-app\_4\_0.xsd"* id=*"WebApp\_ID"* version=*"4.0"*>

<display-name>HibernateListMapping</display-name>

<welcome-file-list>

<welcome-file>index.html</welcome-file>

<welcome-file>index.htm</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>default.html</welcome-file>

<welcome-file>default.htm</welcome-file>

<welcome-file>default.jsp</welcome-file>

</welcome-file-list>

<servlet>

<servlet-name>ProductDetails</servlet-name>

<servlet-class>ProductDetails</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>ProductDetails</servlet-name>

<url-pattern>/details</url-pattern>

</servlet-mapping>

</web-app>

**index.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Collection Mapping</title>

</head>

<body>

<h1>Collection Mapping</h1>

<a href=*"details"*>Product Details</a><br>

</body>

</html>

**OUTPUT**



