**Phase 2:Practice Project: Assissted Practice: 3**

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

**Source Code:**

**Index.html:**

<!DOCTYPEhtml>

<html>

<head>

<metacharset=*"ISO-8859-1"*>

<title>Hibernate Collection Mapping</title>

</head>

<body>

<ahref=*"ProductDetails"*>Product Details</a>

<br>

</body>

</html>

**Color.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-mappingPUBLIC

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

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

<hibernate-mapping>

<classname=*"com.ecommerce.Color"*table=*"colors"*>

<idname=*"COLORID"*type=*"long"*column=*"ID"*>

<generatorclass=*"identity"*/>

</id>

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

</class>

</hibernate-mapping>

**EProduct.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-mappingPUBLIC

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

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

<hibernate-mapping>

<classname=*"com.ecommerce.EProduct"*table=*"eproduct"*>

<idname=*"ID"*type=*"long"*column=*"ID"*>

<generatorclass=*"identity"*/>

</id>

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

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

<listname=*"colors"*cascade=*"all"*>

<keycolumn=*"product\_id"*/>

<list-indexcolumn=*"idx"*/>

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

</list>

<bagname=*"screensizes"*cascade=*"all"*>

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

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

</bag>

<setname=*"os"*cascade=*"all"*>

<keycolumn=*"product\_id"*/>

<one-to-manyclass=*"com.ecommerce.OS"*/>

</set>

<mapname=*"finance"*cascade=*"all"*>

<keycolumn=*"product\_id"*/>

<indexcolumn=*"ftype"*type=*"string"*/>

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

</map>

</class>

</hibernate-mapping>

**Finance.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-mappingPUBLIC

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

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

<hibernate-mapping>

<classname=*"com.ecommerce.Finance"*table=*"finance"*>

<idname=*"FINANCEID"*type=*"long"*column=*"ID"*>

<generatorclass=*"identity"*/>

</id>

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

<propertyname=*"ftype"*type=*"string"*column=*"FTYPE"*/>

</class>

</hibernate-mapping>

**OS.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-mappingPUBLIC

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

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

<hibernate-mapping>

<classname=*"com.ecommerce.OS"*table=*"os"*>

<idname=*"OSID"*type=*"long"*column=*"ID"*>

<generatorclass=*"identity"*/>

</id>

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

</class>

</hibernate-mapping>

**ScreenSize.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-mappingPUBLIC

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

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

<hibernate-mapping>

<classname=*"com.ecommerce.ScreenSizes"*table=*"screensizes"*>

<idname=*"SCREENID"*type=*"long"*column=*"ID"*>

<generatorclass=*"identity"*/>

</id>

<propertyname=*"size"*type=*"string"*column=*"SIZE"*/>

</class>

</hibernate-mapping>

**Hibernate.hbm.xml**

<?xmlversion=*"1.0"*encoding=*"UTF-8"*?>

<!DOCTYPEhibernate-configurationPUBLIC

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

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

<hibernate-configuration>

<session-factory>

<!-- Database connection settings -->

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

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

<propertyname=*"connection.username"*>student</property>

<propertyname=*"connection.password"*>student</property>

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

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

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

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

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

</session-factory>

</hibernate-configuration>

**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;

**publicclass**HibernateUtil {

**privatestaticfinal**SessionFactory***sessionFactory***;

**static** {

**try** {

StandardServiceRegistrystandardRegistry = **new**StandardServiceRegistryBuilder()

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

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

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

} **catch** (Throwable th) {

**thrownew**ExceptionInInitializerError(th);

}

}

**publicstatic**SessionFactorygetSessionFactory() {

**return*sessionFactory***;

}

}

**Color.java**

**package**com.ecommerce;

**publicclass**Color {

**privatelong**COLORID;

**private** String name;

**public**Color() {

}

**public**Color(String name) {

**this**.COLORID = 0;

**this**.name = name;

}

**publiclong**getCOLORID() {

**returnthis**.COLORID;

}

**public** String getName() {

**returnthis**.name;

}

**publicvoid**setCOLORID(**long**id) {

**this**.COLORID = id;

}

**publicvoid**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.Map;

**import**java.util.Set;

**publicclass**EProduct {

**privatelong**ID;

**private** String name;

**private**BigDecimalprice;

**private** List<Color>colors;

**private** Collection<ScreenSizes>screenSizes;

**private** Set<OS>os;

**private** Map finance;

**public**EProduct() {

}

**publiclong**getID() {

**returnthis**.ID;

}

**public** String getName() {

**returnthis**.name;

}

**public**BigDecimalgetPrice() {

**returnthis**.price;

}

**public** List<Color>getColors() {

**returnthis**.colors;

}

**public** Collection<ScreenSizes>getScreensizes() {

**returnthis**.screenSizes;

}

**public** Set<OS>getOs() {

**returnthis**.os;

}

**public** Map getFinance() {

**returnthis**.finance;

}

**publicvoid**setID(**long**id) {

**this**.ID = id;

}

**publicvoid**setName(String name) {

**this**.name = name;

}

**publicvoid**setPrice(BigDecimalprice) {

**this**.price = price;

}

**publicvoid**setColors(List<Color>colors) {

**this**.colors = colors;

}

**publicvoid**setScreensizes(Collection<ScreenSizes>sizes) {

**this**.screenSizes = sizes;

}

**publicvoid**setOs(Set<OS>os) {

**this**.os = os;

}

**publicvoid**setFinance(Map finance) {

**this**.finance = finance;

}

}

**Finance.java**

**package**com.ecommerce;

**publicclass** Finance {

**privatelong**FINANCEID;

**private** String name;

**private** String ftype;

**public**Finance() {

}

**public**Finance(String name, String ftype) {

**this**.FINANCEID = 0;

**this**.name = name;

**this**.ftype = ftype;

}

**publiclong**getFINANCEID() {

**returnthis**.FINANCEID;

}

**public** String getName() {

**returnthis**.name;

}

**public** String getFtype() {

**returnthis**.ftype;

}

**publicvoid**setFINANCEID(**long**id) {

**this**.FINANCEID = id;

}

**publicvoid**setName(String name) {

**this**.name = name;

}

**publicvoid**setFtype(String ftype) {

**this**.ftype = ftype;

}

}

**OS.java**

**package**com.ecommerce;

**publicclass** OS {

**privatelong**OSID;

**private** String name;

**public**OS() {

}

**public**OS(String name) {

**this**.OSID = 0;

**this**.name = name;

}

**publiclong**getOSID() {

**returnthis**.OSID;

}

**public** String getName() {

**returnthis**.name;

}

**publicvoid**setOSID(**long**id) {

**this**.OSID = id;

}

**publicvoid**setName(String name) {

**this**.name = name;

}

}

**ScreenSizes.java**

**package**com.ecommerce;

**publicclass**ScreenSizes {

**privatelong**SCREENID;

**private** String size;

**public**ScreenSizes() {

}

**public**ScreenSizes(String size) {

**this**.SCREENID = 0;

**this**.size = size;

}

**publiclong**getSCREENID() {

**returnthis**.SCREENID;

}

**public** String getSize() {

**returnthis**.size;

}

**publicvoid**setSCREENID(**long**id) {

**this**.SCREENID = id;

}

**publicvoid**setSize(String size) {

**this**.size = size;

}

}

**ProductDetails.java**

**package**com.ecommerce;

**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.annotation.WebServlet;

**import**javax.servlet.http.HttpServlet;

**import**javax.servlet.http.HttpServletRequest;

**import**javax.servlet.http.HttpServletResponse;

**import**org.hibernate.Session;

**import**org.hibernate.SessionFactory;

@WebServlet("/ProductDetails")

**publicclass**ProductDetails**extends**HttpServlet {

**privatestaticfinallong*serialVersionUID*** = 1L;

**public**ProductDetails() {

**super**();

**protectedvoid**doGet(HttpServletRequestrequest, HttpServletResponseresponse)

**throws**ServletException, IOException {

**try** {

SessionFactoryfactory = HibernateUtil.getSessionFactory();

Session session = factory.openSession();

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

PrintWriterout = response.getWriter();

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

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

**for** (EProductp :list) {

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

+ String.*valueOf*(p.getPrice()));

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

out.println("Colors: ");

**for** (Colorc :colors) {

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

}

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

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

**for** (ScreenSizess :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;

}

}

**protectedvoid**doPost(HttpServletRequestrequest, HttpServletResponseresponse)

**throws**ServletException, IOException {

doGet(request, response);

}

}

**OUTPUT:**



