

## Assisted project 5: Demonstrate mapping List, Set, Bag, and Map in collection using XML file.

### Index.html:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Hibernate Collection Mapping</title>
</head>
<body>
<a href="ProductDetails">Product Details</a><br>

</body>
</html>
```

### 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>
  <!-- Database connection settings -->
  <property name="connection.driver_class">com.mysql.jdbc.Driver</property>
  <property name="connection.url">jdbc:mysql://localhost:3306/ecommerce</property>
  <property name="connection.username">root</property>
  <property name="connection.password">Vinny@12345</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>
```

### ProductDetails:

```
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;

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
 */
@WebServlet("/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)
     */
    @SuppressWarnings("unchecked")
    protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
        ServletException, IOException {
        // TODO Auto-generated method stub
        try {

```

```
SessionFactory factory = HibernateUtil.getSessionFactory();
```

```
Session session = factory.openSession();
```

```
@SuppressWarnings("deprecation")
```

```
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;}

}

```

## 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;}

}

```

### 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;
    }
}

```

### 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"/>
    </class>
</hibernate-mapping>

```



```

    <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>

```

### 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>

```

### 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>

```

## 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>

```

## 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>

```

