

7. Demonstrate component mapping in Hibernate.

Source Code:

```
DROP TABLE IF EXISTS `eproduct`;
CREATE TABLE `eproduct` (
  `ID` bigint(20) NOT NULL AUTO_INCREMENT,
  `name` varchar(100) DEFAULT NULL,
  `price` decimal(10,2) DEFAULT NULL,
  `date_added` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP,
  `parts_hdd` varchar(10) DEFAULT NULL,
  `parts_cpu` varchar(10) DEFAULT NULL,
  `parts_ram` varchar(10) DEFAULT NULL,
  PRIMARY KEY (`ID`)
) ENGINE=InnoDB AUTO_INCREMENT=4 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;

LOCK TABLES `eproduct` WRITE;
/*!40000 ALTER TABLE `eproduct` DISABLE KEYS */;
INSERT INTO `eproduct` VALUES (1,'HP Laptop ABC',21900.00,'2019-06-04 07:18:57','2 Gb HDD','AMD Phenom','4 Gb'),(2,'Acer Laptop ABC',23300.00,'2019-06-04 07:19:07','500 Gb HDD','Core-i7','4 Gb'),(3,'Lenovo Laptop ABC',33322.00,'2019-06-04 07:19:19','1 Tb HDD','Core-i7','8 Gb');
/*!40000 ALTER TABLE `eproduct` ENABLE KEYS */;
UNLOCK TABLES;
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;
```

```
/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;  
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;  
/*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;  
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;  
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;  
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;  
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
```

```
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 ProductParts parts;

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 ProductParts getParts() { return this.parts;}

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 setParts(ProductParts parts) { this.parts = parts;}
}
```

```
package com.ecommerce;
```

```
public class ProductParts {

    private String hdd;
    private String cpu;
```

```
private String ram;

public String getHdd() { return this.hdd;}
public String getCpu() { return this.cpu;}
public String getRam() { return this.ram;}

public void setHdd(String value) { this.hdd= value;}
public void setCpu(String value) { this.cpu= value;}
public void setRam(String value) { this.ram= value;}

}

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;
    }
}

```

```

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

```

```
<property name="price" type="big_decimal" column="PRICE"/>
<property name="dateAdded" type="timestamp" column="DATE_ADDED"/>
```

```
    <component name="parts" class="com.ecommerce.ProductParts">
        <property name="hdd" column="parts_hdd" type="string" />
        <property name="cpu" column="parts_cpu" type="string" />
        <property name="ram" column="parts_ram" type="string" />
    </component>
</class>
</hibernate-mapping>
```

```
<?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">master</property>
        <mapping resource="com/ecommerce/EProduct.hbm.xml"/>
    </session-factory>
</hibernate-configuration>
```

Index.html

```
<!DOCTYPE html>

<html>

<head>

<meta charset="UTF-8">

<title>Hibernate Component Mapping</title>

</head>

<body>

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


</body>

</html>
```

ProductDetails.java

```
import java.io.IOException;
import java.io.PrintWriter;


import javax.servlet.ServletConfig;
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 javax.transaction.*;
import javax.xml.bind.*;
```

```
import java.io.Serializable;
import java.math.BigDecimal;
import java.util.ArrayList;
import java.util.Calendar;
import java.util.Collection;
import java.util.List;
import java.util.Map;
import java.util.Set;
```

```
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.Transaction;
import org.hibernate.cfg.Configuration;
import com.ecommerce.EProduct;
import com.ecommerce.HibernateUtil;
import com.ecommerce.ProductParts;
```

```
/**
 * 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)
 */
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>Component Mapping</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());
```

```
        ProductParts parts = p.getParts();  
        out.println("Parts =" + parts.getCpu() + ", " + parts.getHdd() + ", " +  
parts.getRam());
```

```
        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);
```

```
}
```

}

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>HibernateComponentMapping</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>
```

Output:



Product Details Information