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

**6. Demonstrate lazy collection in Hibernate.**

**Source Code:**

**Index.html:**

<!DOCTYPEhtml>

<html>

<head>

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

<title>Lazy Collection</title>

</head>

<body>

<h2>Lazy Collection </h2>

<formaction=*"LazyServlet"*method=*get*>

<inputtype=*"submit"*value=*"Fetch"*/>

</form>

</body>

</html>

**LazyServlet:**

**import**java.io.IOException;

**import**java.io.PrintWriter;

**import**java.util.List;

**import**javax.persistence.TypedQuery;

**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.connection.HibernateConnection;

**import**com.models.Student;

@WebServlet("/LazyServlet")

**publicclass**LazyServlet**extends**HttpServlet {

**privatestatic**SessionFactory*sessionFactory* = **null**;

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

**public**LazyServlet() {

**super**();

*sessionFactory* = HibernateConnection.*getSessionFactory*();

}

**protectedvoid**service(HttpServletRequestrequest, HttpServletResponseresponse)

**throws**ServletException, IOException {

**try** {

response.setContentType("text/html");

PrintWriterout = response.getWriter();

Session session = *sessionFactory*.openSession();

TypedQuery<Student>query = session.createQuery("from Student");

List<Student>studentList = query.getResultList();

out.println("<h1>Student Details</h1>");

**for** (Student student :studentList) {

out.println("<p><b>Roll No</b>: " + student.getRollNo() + "</p>");

out.println("<p><b>Name</b>: " + student.getStudentName() + "</p>");

}

session.close();

} **catch** (Exception e) {

e.printStackTrace();

}

}

}

**HibernateConnection:**

**package**com.connection;

**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**HibernateConnection {

**privatestatic**SessionFactory*sessionFactory*;

**publicstatic**SessionFactorygetSessionFactory() {

**if** (*sessionFactory* == **null**) {

**try** {

StandardServiceRegistrystandardRegistry = **new**StandardServiceRegistryBuilder()

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

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

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

} **catch** (Exception e) {

e.printStackTrace();

}

}

**return***sessionFactory*;

}

}

**Course:**

**package**com.models;

**import**javax.persistence.Column;

**import**javax.persistence.Entity;

**import**javax.persistence.GeneratedValue;

**import**javax.persistence.GenerationType;

**import**javax.persistence.Id;

**import**javax.persistence.Table;

@Entity

@Table(name = "courses")

**publicclass** Course {

@Id

@GeneratedValue(strategy = GenerationType.***IDENTITY***)

@Column(name = "course\_id")

**privateint**courseId;

@Column(name = "course\_name")

**private** String courseName;

**publicint**getCourseId() {

**return**courseId;

}

**publicvoid**setCourseId(**int**courseId) {

**this**.courseId = courseId;

}

**public** String getCourseName() {

**return**courseName;

}

**publicvoid**setCourseName(String courseName) {

**this**.courseName = courseName;

}

@Override

**public** String toString() {

**return**"Course [courseId=" + courseId + ", courseName=" + courseName + "]";

}

}

**Student:**

**package**com.models;

**import**java.util.List;

**import**javax.persistence.CascadeType;

**import**javax.persistence.Column;

**import**javax.persistence.Entity;

**import**javax.persistence.GeneratedValue;

**import**javax.persistence.GenerationType;

**import**javax.persistence.Id;

**import**javax.persistence.OneToMany;

**import**javax.persistence.Table;

**import**org.hibernate.annotations.LazyCollection;

**import**org.hibernate.annotations.LazyCollectionOption;

@Entity

@Table(name = "students")

**publicclass** Student {

@Id

@GeneratedValue(strategy = GenerationType.***IDENTITY***)

@Column(name = "roll\_no")

**privateint**rollNo;

@Column(name = "student\_name")

**private** String studentName;

@OneToMany(targetEntity = Course.**class**, cascade = CascadeType.***ALL***)

@LazyCollection(LazyCollectionOption.***TRUE***)

**private** List<Course>courses;

**publicint**getRollNo() {

**return**rollNo;

}

**publicvoid**setRollNo(**int**rollNo) {

**this**.rollNo = rollNo;

}

**public** String getStudentName() {

**return**studentName;

}

**publicvoid**setStudentName(String studentName) {

**this**.studentName = studentName;

}

**public** List<Course>getCourses() {

**return**courses;

}

**publicvoid**setCourses(List<Course>courses) {

**this**.courses = courses;

}

@Override

**public** String toString() {

**return**"Student [rollNo=" + rollNo + ", studentName=" + studentName + ", courses=" + courses + "]";

}

}

**Hibernate.cfg.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>

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

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

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

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

<propertyname=*"hibernate.dialect"*>org.hibernate.dialect.MySQL5Dialect</property>

<propertyname=*"show\_sql"*>true</property>

<propertyname=*"hbm2ddl.auto"*>update</property>

<mappingclass=*"com.models.Student"*/>

<mappingclass=*"com.models.Course"*/>

</session-factory>

</hibernate-configuration>

**Output:**

