

Name – Bhupender

Student Code – AF0323757

Batch code – ANP-C6008

Assignment work(10)

1) Define a JPA entity class named **Product** that maps to a database table named **products**. The **Product** entity should have the following attributes:

- **id** (Primary Key)
- **name**
- **price**

Use appropriate JPA annotations to map the entity to the database table.

Product Entity class

```
import jakarta.persistence.Column;
import jakarta.persistence.Entity;
import jakarta.persistence.Id;
@Entity
public class product{
    @Id
    @Column(name = "product ID")
    private int id;
    @Column(name = "product name")
    private String name;
    @Column(name = "product price")
    private double price;
    @Override
    public String toString() {
        return "product [ id=" + id + ", name =" + name + ", price=" + price + " ]";
    }
    public int getId() {
        return id;
    }
    public void setId(int id) {
        this.id = id;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public double getPrice() {
        return price;
    }
    public void setPrice(double price) {
        this.price = price;
    }
}
```

→ Set up a Hibernate configuration file (**hibernate.cfg.xml**) to configure the data source, connection properties, and dialect. Ensure that Hibernate is set to create/update the database schema automatically.

```
-//Hibernate/Hibernate Configuration DTD 3.0//EN (doctype)
<!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>
        <!-- DB -->
        <!-- Set Driver Name -->
        <property name = "connection.driver_class">com.mysql.cj.jdbc.Driver</property>

        <!-- Set URL -->
        <property name="connection.url">jdbc:mysql://localhost:3306/products</property>

        <!-- Set User Name -->
        <property name = "connection.username">root</property>

        <!-- Set Password -->
        <property name="connection.password">rahul@968</property>

        <!-- Dialect-->
        <property name = "dialect">org.hibernate.dialect.MySQLDialect</property>
        <property name = "hbm2ddl.auto">update</property>
        <property name = "show_sql">true</property>
        <property name = "format_sql">true</property>

        <!-- Mapping Config-->
        <!--<mapping class="com.Firstproject.HibernateProject.Lab.Product"/>-->
        <!--<---->

        <mapping class="assignmentwork.product"/>

    </session-factory>
</hibernate-configuration>

<!--hiberate configuration dtd file 3.0 -->
```

-> Write Java code to perform CRUD (Create, Read, Update, Delete) operations on the **Product** entity using Hibernate. Implement methods to:

* Insert a new product into the database.

```
package assignmentwork;

import java.util.Scanner;

public class crudoper {
    public static void main(String[] args) {

        // creating product object
        product p = new product();

        @SuppressWarnings("resource")
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter the product id : ");
        int id = sc.nextInt();
        p.setId(id);

        sc.nextLine();

        System.out.println("Enter product name : ");
        String name = sc.nextLine();
        p.setName(name);

        System.out.println("Enter product price : ");
        double price = sc.nextDouble();
        p.setPrice(price);
        // configure Hibernate using the "javaxyz.xml"
        Configuration con = new Configuration();
        con.configure("javaxyz.xml");

        try {
            // creating hibernate sessionFactory and session
            SessionFactory factory = con.buildSessionFactory();
            Session session = factory.openSession();
            // persist project object to the database
            session.persist(p);
            // begin a database transaction
            Transaction tx = session.beginTransaction();

            tx.commit();
            //close the hibernate resources
            factory.close();
            session.close();
        }
        catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

Output :

```
Enter the product id :
201
Enter product name :
oreo
Enter product price :
35
Oct 06, 2023 8:46:05 PM org.hibernate.Version logVersion
INFO: HHH0000412: Hibernate ORM core version 6.3.0.Final
Oct 06, 2023 8:46:06 PM org.hibernate.cache.internal.RegionFactoryInitiator initiateService
INFO: HHH0000026: Second-level cache disabled
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl conf
WARN: HHH10001002: Using built-in connection pool (not intended for production use)
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buil
INFO: HHH10001005: Loaded JDBC driver class: com.mysql.cj.jdbc.Driver
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buil
INFO: HHH10001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/products]
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buil
INFO: HHH10001001: Connection properties: {password=****, user=root}
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buil
INFO: HHH10001003: Autocommit mode: false
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$Pool
INFO: HHH10001115: Connection pool size: 20 (min=1)
Fri Oct 06 20:46:06 IST 2023 WARN: Establishing SSL connection without server's identity verification is not re
Oct 06, 2023 8:46:06 PM org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl constructDialect
WARN: HHH90000025: MySQLDialect does not need to be specified explicitly using 'hibernate.dialect' (remove the
Oct 06, 2023 8:46:07 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initiateSer
INFO: HHH0000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platform int
Oct 06, 2023 8:46:07 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaIm
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEn
Hibernate:
    insert
    into
        product
    ('product name', 'product price', 'product ID')
```

Data insert in table using hibernate

	product ID	product name	product price
►	1	basmati rice	800
	3	name	899
	4	namkin	60
	8	rin	240
	201	oreo	35

- Retrieve a product by its ID.

```
package assignmentwork;

import java.util.Scanner;

import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.cfg.Configuration;

public class retrieveproduct {

    public static void main(String[] args) {
        @SuppressWarnings("resource")
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter product Id that you want to retrieve : ");
        int productid = sc.nextInt();
        // configure hibernate using javaxyz.xml cfg file
        Configuration con = new Configuration();
        con.configure("javaxyz.xml");
        // create sessionFactory and Session
        SessionFactory factory = con.buildSessionFactory();
        Session session = factory.openSession();
        // fetching data from on screen
        product p1 = session.get(product.class, productid);

        System.out.println(p1);

        factory.close();
        session.close();
    }
}
```

Output:

```
Enter product Id that you want to retrieve :
3
Oct 06, 2023 9:15:35 PM org.hibernate.Version logVersion
INFO: HHH0000412: Hibernate ORM core version 6.3.0.Final
Oct 06, 2023 9:15:35 PM org.hibernate.cache.internal.RegionFactoryInitiator initiateService
INFO: HHH000026: Second-level cache disabled
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl configure
WARN: HHH10001002: Using built-in connection pool (not intended for production use)
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001005: Loaded JDBC driver class: com.mysql.cj.jdbc.Driver
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/products]
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001001: Connection properties: {password=****, user=root}
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001003: Autocommit mode: false
Oct 06, 2023 9:15:35 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$PooledConnection
INFO: HHH10001115: Connection pool size: 20 (min=1)
Fri Oct 06 21:15:36 IST 2023 WARN: Establishing SSL connection without server's identity verification is not recommended.
Oct 06, 2023 9:15:36 PM org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl constructDialect
WARN: HHH90000025: MySQLDialect does not need to be specified explicitly using 'hibernate.dialect' (remove the property s
Oct 06, 2023 9:15:37 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initiateService
INFO: HHH0000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platform integration)
Oct 06, 2023 9:15:37 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsola
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentI
Hibernate:
select
    p1_0.`product ID`,
    p1_0.`product name`,
    p1_0.`product price`
```

```

from
    product p1_0
where
    p1_0.`product ID`=?
product [ id=3, name =name, price=899.0]
Oct 06, 2023 9:15:37 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerCo
INFO: HHH10001008: Cleaning up connection pool [jdbc:mysql://localhost:3306/products]

```

• Update the details of a product.

```

import java.util.Scanner;
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.cfg.Configuration;

public class updatedetails {
    public static void main(String[] args) {
        @SuppressWarnings("resource")
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter product Id that you want to update : ");
        int productid = sc.nextInt();
        System.out.println("Enter product name that you want to update : ");
        sc.skip("(\\r\\n|[\\n\\r\\u2028\\u2029\\u0085])");
        String productname = sc.nextLine();
        // configure hibernate using javaxyz.xml cfg file
        Configuration con = new Configuration();
        con.configure("javaxyz.xml");
        // create sessionFactory and Session
        SessionFactory factory = con.buildSessionFactory();
        Session session = factory.openSession();
        // fetching data from on screen
        product p1 = session.get(product.class, productid);
        p1.setName(productname);

        session.beginTransaction();
        session.update(p1);
        session.getTransaction().commit();

        factory.close();
        session.close();
    }
}

```

Output :

```
Enter product Id that you want to update :
1
Enter product name that you want to update :
basmati rice
Oct 06, 2023 9:42:00 PM org.hibernate.Version logVersion
INFO: HHH0000412: Hibernate ORM core version 6.3.0.Final
Oct 06, 2023 9:42:01 PM org.hibernate.cache.internal.RegionFactoryInitiator initiateService
INFO: HHH000026: Second-level cache disabled
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl configure
WARN: HHH10001002: Using built-in connection pool (not intended for production use)
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001005: Loaded JDBC driver class: com.mysql.cj.jdbc.Driver
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/products]
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001001: Connection properties: {password=****, user=root}
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001003: Autocommit mode: false
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$PooledConnec
INFO: HHH10001115: Connection pool size: 20 (min=1)
Fri Oct 06 21:42:01 IST 2023 WARN: Establishing SSL connection without server's identity verification is not recommende
Oct 06, 2023 9:42:01 PM org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl constructDialect
WARN: HHH90000025: MySQLDialect does not need to be specified explicitly using 'hibernate.dialect' (remove the property
Oct 06, 2023 9:42:03 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initiateService
INFO: HHH000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platform integration
Oct 06, 2023 9:42:03 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIs
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmen
Hibernate:
select
    pl_0.`product ID`,
    pl_0.`product name`,
    pl_0.`product price`
from
    product pl_0

from
    product pl_0
where
    pl_0.`product ID`=?
Hibernate:
update
    product
set
    `product name`=?,
    `product price`=?
where
    `product ID`=?
Oct 06, 2023 9:42:03 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl
INFO: HHH10001008: Cleaning up connection pool [jdbc:mysql://localhost:3306/products]
Fri Oct 06 21:42:03 IST 2023 WARN: Caught while disconnecting...
```

After updating value in table :

	product ID	product name	product price
▶	1	basmati rice	800
	3	name	899
	4	namkin	60
	8	rin	240
	201	oreo	35

- Delete a product by its ID.

```

import java.util.Scanner;
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.Transaction;
import org.hibernate.cfg.Configuration;
}
public class deleteproduct {
}
    public static void main(String[] args) {
        @SuppressWarnings("resource")
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter product Id that you want to Delete : ");
        int productid = sc.nextInt();
        // configure hibernate using javaxyz.xml cfg file
        Configuration con = new Configuration();
        con.configure("javaxyz.xml");
        // create sessionFactory and Session
        SessionFactory factory = con.buildSessionFactory();
        Session session = factory.openSession();
        // fetching data from on screen
        product pu = session.get(product.class, productid);
        Transaction trans = session.beginTransaction();
        // remove()
        //session.delete();
        session.remove(pu);
        session.getTransaction();
        trans.commit();

        factory.close();
        session.close();
    }
}
}

```

Output :

```

Enter product Id that you want to Delete :
3
Oct 06, 2023 9:53:26 PM org.hibernate.Version logVersion
INFO: HHH0000412: Hibernate ORM core version 6.3.0.Final
Oct 06, 2023 9:53:26 PM org.hibernate.cache.internal.RegionFactoryInitiator initiateService
INFO: HHH000026: Second-level cache disabled
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl conf
WARN: HHH10001002: Using built-in connection pool (not intended for production use)
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl build
INFO: HHH10001005: Loaded JDBC driver class: com.mysql.cj.jdbc.Driver
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl build
INFO: HHH10001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/products]
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl build
INFO: HHH10001001: Connection properties: {password=****, user=root}
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl build
INFO: HHH10001003: Autocommit mode: false
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$Pool
INFO: HHH10001115: Connection pool size: 20 (min=1)
Fri Oct 06 21:53:27 IST 2023 WARN: Establishing SSL connection without server's identity verification is not re
Oct 06, 2023 9:53:27 PM org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl constructDialect
WARN: HHH90000025: MySQLDialect does not need to be specified explicitly using 'hibernate.dialect' (remove the
Oct 06, 2023 9:53:28 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initiateSer
INFO: HHH000489: No JTA platform available (set 'hibernate.transaction.jta.platform' to enable JTA platform int
Oct 06, 2023 9:53:28 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaIm
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEn
Hibernate:
select
    pl_0.`product ID`,
    pl_0.`product name`,
    pl_0.`product price`
from
    product pl_0
where

```


After deleting value from table :

	product ID	product name	product price
▶	1	basmati rice	800
	4	namkin	60
	8	rin	240
	201	oreo	35
*	NULL	NULL	NULL