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Batch code: ANP-C6008

Lab Assignment 1

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.

-> 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.

-> 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.
- Retrieve a product by its ID.
- Update the details of a product.
- Delete a product by its ID.

```
package com.firstproject.newProject;
import jakarta.persistence.Column;
import jakarta.persistence.Entity;
import jakarta.persistence.Id;
//import org.hibernate.dialect.MySQL8Dialect;
//student table creates automatically
@Entity // table
public class Products {
    @Column
    private String name; // creates column name
    @Id //primary key
    private int id; //creates column id but primary key...it
has to be unique for all the people
    @Column
    private int price;
    //getter and setter
```

```

    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public int getId() {
        return id;
    }
    public void setId(int id) {
        this.id = id;
    }
    public int getPrice() {
        return price;
    }
    public void setPrice(int price) {
        this.price = price;
    }
    @Override
    public String toString() {
        return "Products [name=" + name + ", id=" + id + ",
price=" + price + "]";
    }
}

```

```

package com.firstproject.newProject;
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.Transaction;
import org.hibernate.cfg.Configuration;

import jakarta.persistence.Entity;
//import org.hibernate.dialect.MySQL8Dialect;
//student table creates automatically
@Entity // table

public class App1 {

    public static void main(String[] args) {
        //Scanner s = new Scanner(System.in);
        //System.out.println("Enter the password :
");

        Products p = new Products();
        p.setId(1); //set this password
        p.setName("Biscuit"); //set this name
        p.setPrice(10); //step 1
        Configuration con2 = new Configuration();
        con2.configure("hibernate.cfg.xml");
        //step 2
    }
}

```

```

        SessionFactory factory2 =
con2.buildSessionFactory();
        //Step 3
        Session session2 = factory2.openSession();
        //session.save(s1);
        session2.persist(p);
        //TCL
        Transaction tx2 = session2.beginTransaction();
        tx2.commit();
        //closing
        factory2.close();
        session2.close();
    }
}

```

```

<!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/college</property
>

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

        <!-- Set Password -->
        <property name = "connection.password">1234</property>

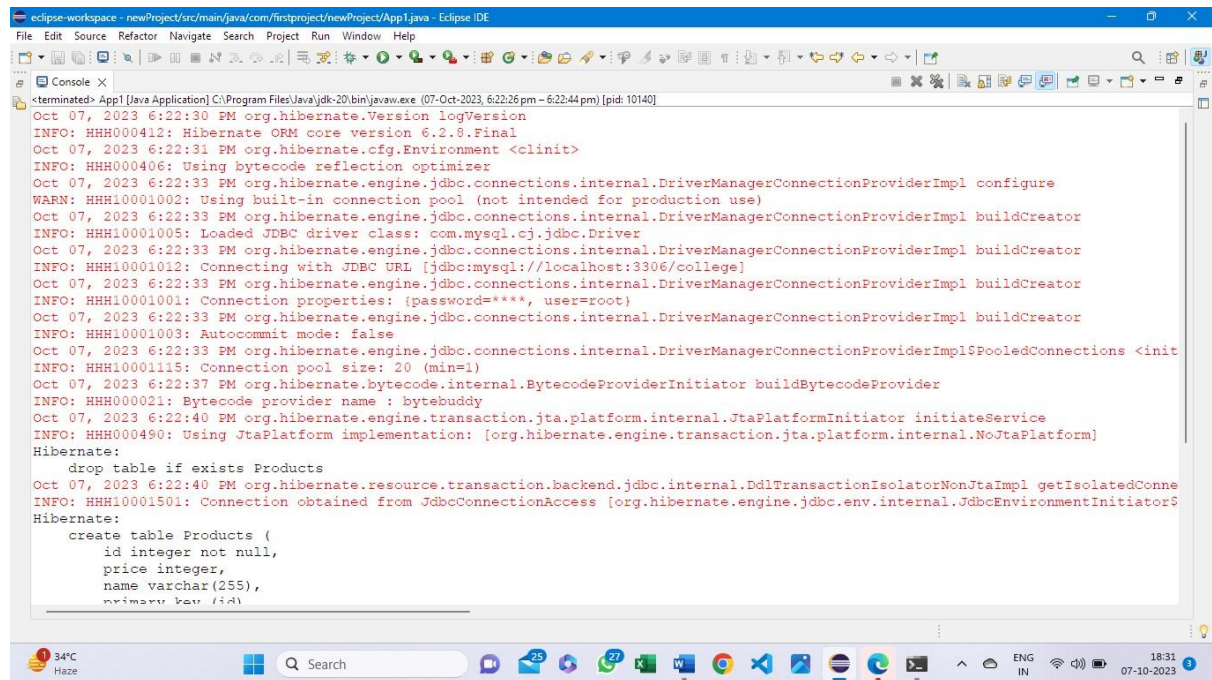
        <!-- Dialect-->
        <property name =
"dialect">org.hibernate.dialect.MySQLDialect</property>
        <property name = "hbm2ddl.auto">create</property>
        <property name = "show_sql">true</property>
        <property name = "format_sql">true</property>

        <!-- Mapping Config-->
        <mapping class="com.firstproject.newProject.Products"/>

```

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

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

A screenshot of the Eclipse IDE's console window. The title bar reads "eclipse-workspace - newProject\src\main\java\com\firstproject\newProject\App1.java - Eclipse IDE". The menu bar includes File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. The toolbar contains various icons for development tasks. The console output shows a series of log messages from the Hibernate application, including version information, environment initialization, connection pool configuration, and database schema creation. The messages are timestamped and include log levels like INFO, WARN, and INFO. The database schema creation for the 'Products' table is clearly visible.

```
<terminated> App1 [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe [07-Oct-2023, 6:22:26 pm - 6:22:44 pm] [pid: 10140]
Oct 07, 2023 6:22:30 PM org.hibernate.Version logVersion
INFO: HHH0000412: Hibernate ORM core version 6.2.8.Final
Oct 07, 2023 6:22:31 PM org.hibernate.cfg.Environment <clinit>
INFO: HHH0000406: Using bytecode reflection optimizer
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl configure
WARN: HHH10001002: Using built-in connection pool (not intended for production use)
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001005: Loaded JDBC driver class: com.mysql.cj.jdbc.Driver
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/college]
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001001: Connection properties: {password=****, user=root}
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HHH10001003: Autocommit mode: false
Oct 07, 2023 6:22:33 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$PooledConnections <init>
INFO: HHH10001015: Connection pool size: 20 (min=1)
Oct 07, 2023 6:22:37 PM org.hibernate.bytecode.internal.BytecodeProviderInitiator buildBytecodeProvider
INFO: HHH000021: Bytecode provider name : bytebuddy
Oct 07, 2023 6:22:40 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initiateService
INFO: HHH0000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
Hibernate:
drop table if exists Products
Oct 07, 2023 6:22:40 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConne
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$
Hibernate:
create table Products (
  id integer not null,
  price integer,
  name varchar(255),
  primary key (id)
) engine=InnoDB
```

```
Hibernate:
create table Products (
  id integer not null,
  price integer,
  name varchar(255),
  primary key (id)
) engine=InnoDB
Oct 07, 2023 6:22:41 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConne
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$
Hibernate:
insert
into
Products
(name,price,id)
values
(?,?,?)
Oct 07, 2023 6:22:43 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$PoolState stop
INFO: HHH10001008: Cleaning up connection pool [jdbc:mysql://localhost:3306/college]
```

mysql> use college;

Database changed

mysql> show tables;

```
+-----+
| Tables_in_college |
+-----+
| customer          |
| password           |
```

```
| products      |
```

```
| student      |
```

```
+-----+
```

4 rows in set (0.06 sec)

```
mysql> select * from products;
```

```
+---+-----+-----+
```

```
| id | price | name  |
```

```
+---+-----+-----+
```

```
| 1 | 10 | Biscuit |
```

```
+---+-----+-----+
```

1 row in set (0.00 sec)

*****Updating product's details*****

```
mysql> select * from products;
```

```
+---+-----+-----+
```

```
| id | price | name  |
```

```
+---+-----+-----+
```

```
| 1 | 10 | Biscuit |
```

```
| 2 | 20 | Biscuit |
```

```
+---+-----+-----+
```

2 rows in set (0.23 sec)

```
mysql> update Products set price = 50, name = juice where id = 1;
```

ERROR 1054 (42S22): Unknown column 'juice' in 'field list'

```
mysql> update Products set price = 50, name = "juice" where id = 1;
```

Query OK, 1 row affected (0.30 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from products;
```

```
+---+-----+-----+
```

```
| id | price | name  |
```

1	50	juice	
2	20	Biscuit	

--	--	--	--

2 rows in set (0.00 sec)

*****Deleting a product by it's id*****

mysql> select * from products;

id	price	name	

--	--	--	--

1	10	chocolate	
2	50	juice	
3	100	pepsi	

--	--	--	--

3 rows in set (0.00 sec)

mysql> delete from Products where id = 1;

Query OK, 1 row affected (0.10 sec)

mysql> select * from products;

id	price	name	

--	--	--	--

2	50	juice	
3	100	pepsi	

--	--	--	--

2 rows in set (0.00 sec)