Question 3: Product Inventory Management

Create a Product Inventory Management system with the following requirements:

1. Product class with attributes productId, productName, and quantity.

2. Implement a method to update product quantities. If a negative value is added to the

inventory, use a try-catch block to catch and handle the error, displaying a message

saying "Quantity cannot be negative."

3. In the main method, create multiple products and attempt to update quantities with

both valid and invalid values.

Hint: Handle the IllegalArgumentException if an invalid quantity is entered.

```java
package productManagement;

public class Product {
    private int productId;
    private String productName;
    private int quantity;

    // Constructor to initialize the product attributes
    public Product(int productId, String productName, int
quantity){
        this.productId=productId;
        this.productName=productName;
        this.quantity=quantity;
    }

    // Method to update the product qty
    public void updateQuantity(int newQuantity){
        try{
            if(newQuantity < 0){
                throw new IllegalArgumentException("Quantity
cannot be negative");
            }
            this.quantity += newQuantity;
            System.out.println("Updated quantity of "+
productName + ": " + this.quantity);
        }catch (IllegalArgumentException e){
            System.out.println(e.getMessage());
        }
    }

    //Method to display the product details
    public void displayProductDetails(){
        System.out.println("Product ID: "+ productId + ",
Name: "+ productName +", Quantity: "+ quantity);
```

```
        }

}
```

```java
package productManagement;

public class ProductInventoryManagement {
    public static void main(String[] args) {
        // Creating product instances
        Product laptop=new Product(101,"LAPTOP",10);
        Product mobile=new Product(102,"MOBILE",20);

        //Displaying the initial product details
        System.out.println("Initial Details of Product: ");
        laptop.displayProductDetails();
        mobile.displayProductDetails();


System.out.println("=========================================
================");
        //Updating the quantities with valid values
        System.out.println("Updating the quantities with valid
values");
        laptop.updateQuantity(5);
        mobile.updateQuantity(10);


System.out.println("=========================================
================");
        System.out.println("Attempting to add invalid
values");
        laptop.updateQuantity(-2);
        mobile.updateQuantity(-4);


System.out.println("=========================================
================");
        System.out.println("Displaying the updated values");
        laptop.displayProductDetails();
        mobile.displayProductDetails();


    }
}
```

Database

What is database?

Is a collection of data organized and stored electronically in a system.

Why Database?

- Organizing information
  - Keeps the information organized and easy to retrieve
  - Locating specific record is quick
- Large amount of data
  - Data Accuracy

Types of databases:

1. Relational Database*
   - It stores data in tables related through common fields
   - Used Uses the Structured Query Language(SQL) for management and queries

Characteristics:

- Data is organized in rows and columns
- We can link tables using relationships

Example:

- MySQL: Often used for web applications

2. NoSQL Database*
3. In-memory database*
4. NewSQL Database*

SQL (Structured Query Language)

- A language which is used to interact with database.
- It helps to retrieve or store the information in database.

SQL commands:

Create database:

CREATE DATABASE decemberbatch;

show databases;   //to check whether db created or not

use decemberbatch;

mysql> show tables;

Empty set (0.00 sec)   // because we have not created any table

```
CREATE TABLE EMP (

    EMPNO INT(4) NOT NULL PRIMARY KEY,
    ENAME VARCHAR(20),

    SAL DECIMAL(7,2),

    DEPTNO INT(4)

);
```

To insert values into emp table

```
INSERT INTO EMP VALUES (1234,'kRISHNA',1000,10);
```