Project :

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# Step 1: Identify products and create a table

Here are 6 products that I want to store in my system:

|  |  |
| --- | --- |
| **Attribute** | **Sample Data** |
| Name of the product | itemNumber (int), name (String), quantity (int), price (double),  active (boolean) |
| Price | 9.99, 15.99, 15.0, 199.99, 29.99, 499.99 |
| Number of units in stock | 25, 10, 10, 40, 50, 60 |
| Item number | 1001, 1002, 1003, 1004, 1005, 1006 |

# Step 2: Add data types to the table

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Sample Data** | **Data Type** |
| Name of the product | name | String |
| Price | 9.59 | double |
| Number of units in stock | 10 | int |
| Item number | 1001 | int |

# Also, include getter and setter methods for each field and a toString method to display product details.

# java

# Copy code

# package inventory;

# public class Product {

# private int itemNumber;

# private String name;

# private int quantity;

# private double price;

# private boolean active;

# // Constructor

# public Product(int itemNumber, String name, int quantity, double price) {

# this.itemNumber = itemNumber;

# this.name = name;

# this.quantity = quantity;

# this.price = price;

# this.active = true; // Default value for active

# }

# // Getters and Setters

# public int getItemNumber() {

# return itemNumber;

# }

# public void setItemNumber(int itemNumber) {

# this.itemNumber = itemNumber;

# }

# public String getName() {

# return name;

# }

# public void setName(String name) {

# this.name = name;

# }

# public int getQuantity() {

# return quantity;

# }

# public void setQuantity(int quantity) {

# this.quantity = quantity;

# }

# public double getPrice() {

# return price;

# }

# public void setPrice(double price) {

# this.price = price;

# }

# public boolean isActive() {

# return active;

# }

# public void setActive(boolean active) {

# this.active = active;

# }

# // Method to calculate inventory value

# public double getInventoryValue() {

# return price \* quantity;

# }

# // toString method

# @Override

# public String toString() {

# return "Item Number : " + itemNumber + "\n" +

# "Name : " + name + "\n" +

# "Quantity in stock: " + quantity + "\n" +

# "Price : " + price + "\n" +

# "Stock Value : " + getInventoryValue() + "\n" +

# "Product Status : " + (active ? "Active" : "Discontinued");

# }

# }

# Step 2: Creating the ProductTester class

# Step 2: Creating the ProductTester Class

# Next, we'll modify the ProductTester class to use Scanner for input and create Product objects based on user input.

# java

# Copy code

# package inventory;

# import java.util.Scanner;

# public class ProductTester {

# public static void main(String[] args) {

# Scanner in = new Scanner(System.in);

# // Temporary local variables

# int tempNumber;

# String tempName;

# int tempQty;

# double tempPrice;

# // Get user input for p1

# System.out.println("Enter details for product 1:");

# System.out.print("Item Number: ");

# tempNumber = in.nextInt();

# in.nextLine(); // Consume newline

# System.out.print("Name: ");

# tempName = in.nextLine();

# System.out.print("Quantity: ");

# tempQty = in.nextInt();

# System.out.print("Price: ");

# tempPrice = in.nextDouble();

# // Create p1 object

# Product p1 = new Product(tempNumber, tempName, tempQty, tempPrice);

# // Get user input for p2

# System.out.println("Enter details for product 2:");

# in.nextLine(); // Clear buffer

# System.out.print("Item Number: ");

# tempNumber = in.nextInt();

# in.nextLine(); // Consume newline

# System.out.print("Name: ");

# tempName = in.nextLine();

# System.out.print("Quantity: ");

# tempQty = in.nextInt();

# System.out.print("Price: ");

# tempPrice = in.nextDouble();

# // Create p2 object

# Product p2 = new Product(tempNumber, tempName, tempQty, tempPrice);

# // Set p6 object to inactive and display its details

# Product p6 = new Product(6, "Example Product", 10, 15.0);

# p6.setActive(false);

# // Display product details

# System.out.println(p1);

# System.out.println(p2);

# System.out.println(p6);

# // Close the Scanner

# in.close();

# }

# }

# Summary of Modifications

# Created Product class with required fields, constructor, getters, setters, and methods.

# Modified ProductTester class to take user input for product details using Scanner.

# Added logic to handle the active status of products and display the inventory value.

Here is the **ProductTester** class:

// inventory/ProductTester.java

public class ProductTester {

public static void main(String[] args) {

// Create and initialize six Product objects Product product1 = new Product();

Product product2 = new Product();

Product product3 = new Product(1001, "Office Chair", 25, 9.59);

Product product4 = new Product(1002, "Desk Lamp", 50, 5.99);

Product product5 = new Product(1003, "Laptop", 30, 14.99);

Product product6 = new Product(1004, "Notebook", 20, 199.99);

// Display the details of each product to the console System.out.println(product1.toString());

System.out.println(product2.toString()); System.out.println(product3.toString()); System.out.println(product4.toString()); System.out.println(product5.toString()); System.out.println(product6.toString());

}

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Description automatically generated}

# Explanation:

1. User Input for Product 1:

Item Number: 1

Name: Greatest Hits

Quantity: 25

Price: 9.99

This results in a product with a stock value of 25×9.99=249.75 and an active status.

1. User Input for Product 2:

Item Number: 2

Name: Ultimate Collection

Quantity: 10

Price: 15.99

This results in a product with a stock value of 10×15.99=159.9 and an active status.

1. Predefined Product 6:

Item Number: 6

Name: Example Product

Quantity: 10

Price: 15.0

Status: Discontinued (set by p6.setActive(false))

This results in a product with a stock value of 10×15.0=150.0 and a discontinued status.

Complete Code for Reference

Here is the complete code for both the Product and ProductTester classes.

# Product.java:

package inventory;

public class Product {

private int itemNumber;

private String name;

private int quantity;

private double price;

private boolean active;

// Constructor

public Product(int itemNumber, String name, int quantity, double price) {

this.itemNumber = itemNumber;

this.name = name;

this.quantity = quantity;

this.price = price;

this.active = true; // Default value for active

}

// Getters and Setters

public int getItemNumber() {

return itemNumber;

}

public void setItemNumber(int itemNumber) {

this.itemNumber = itemNumber;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public int getQuantity() {

return quantity;

}

public void setQuantity(int quantity) {

this.quantity = quantity;

}

public double getPrice() {

return price;

}

public void setPrice(double price) {

this.price = price;

}

public boolean isActive() {

return active;

}

public void setActive(boolean active) {

this.active = active;

}

// Method to calculate inventory value

public double getInventoryValue() {

return price \* quantity;

}

// toString method

@Override

public String toString() {

return "Item Number : " + itemNumber + "\n" +

"Name : " + name + "\n" +

"Quantity in stock: " + quantity + "\n" +

"Price : " + price + "\n" +

"Stock Value : " + getInventoryValue() + "\n" +

"Product Status : " + (active ? "Active" : "Discontinued");

}

}

# ProductTester.java:

package inventory;

import java.util.Scanner;

public class ProductTester {

public static void main(String[] args) {

Scanner in = new Scanner(System.in);

// Temporary local variables

int tempNumber;

String tempName;

int tempQty;

double tempPrice;

// Get user input for p1

System.out.println("Enter details for product 1:");

System.out.print("Item Number: ");

tempNumber = in.nextInt();

in.nextLine(); // Consume newline

System.out.print("Name: ");

tempName = in.nextLine();

System.out.print("Quantity: ");

tempQty = in.nextInt();

System.out.print("Price: ");

tempPrice = in.nextDouble();

// Create p1 object

Product p1 = new Product(tempNumber, tempName, tempQty, tempPrice);

// Get user input for p2

System.out.println("Enter details for product 2:");

in.nextLine(); // Clear buffer

System.out.print("Item Number: ");

tempNumber = in.nextInt();

in.nextLine(); // Consume newline

System.out.print("Name: ");

tempName = in.nextLine();

System.out.print("Quantity: ");

tempQty = in.nextInt();

System.out.print("Price: ");

tempPrice = in.nextDouble();

// Create p2 object

Product p2 = new Product(tempNumber, tempName, tempQty, tempPrice);

// Set p6 object to inactive and display its details

Product p6 = new Product(6, "Example Product", 10, 15.0);

p6.setActive(false);

// Display product details

System.out.println(p1);

System.out.println(p2);

System.out.println(p6);

// Close the Scanner

in.close();

}

}