# **JAVA FUNDAMENTALS SECTION 5:** Creating an Inventory Project

1. **Product Class**: A simple class to hold product information.
2. **ProductTester Class**: Contains the **main** method to interact with the user and manage the product inventory.

import java.util.Scanner;

import java.util.InputMismatchException;

// Product class to hold product information

class Product {

private String name;

private int quantity;

private double price;

private int itemNumber;

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

this.name = name;

this.quantity = quantity;

this.price = price;

this.itemNumber = itemNumber;

}

@Override

public String toString() {

return "Product [Name: " + name + ", Quantity: " + quantity + ", Price: $" + price + ", Item Number: " + itemNumber + "]";

}

}

public class ProductTester {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

int maxSize = -1; // Initialize with a value that will fail the loop

// Prompt user to enter the number of products to add

do {

try {

System.out.println("Enter the number of products you would like to add:");

System.out.println("Enter 0 (zero) if you do not wish to add products");

maxSize = scanner.nextInt();

if (maxSize < 0) {

System.out.println("Incorrect value entered.");

}

} catch (InputMismatchException e) {

System.out.println("Incorrect data type entered! Please enter a valid integer.");

scanner.next(); // Clear the invalid input from the scanner buffer

}

} while (maxSize < 0);

if (maxSize == 0) {

System.out.println("No products required!");

} else {

Product[] products = new Product[maxSize];

scanner.nextLine(); // Clear the input buffer

for (int i = 0; i < maxSize; i++) {

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

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

String name = scanner.nextLine();

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

int quantity = scanner.nextInt();

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

double price = scanner.nextDouble();

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

int itemNumber = scanner.nextInt();

scanner.nextLine(); // Clear the input buffer

products[i] = new Product(name, quantity, price, itemNumber);

}

System.out.println("\nProduct Inventory:");

for (Product product : products) {

System.out.println(product);

}

}

scanner.close();

}

}

**Explanation:**

1. **Product Class**:
   * Contains fields for **name**, **quantity**, **price**, and **itemNumber**.
   * A constructor initializes these fields.
   * An overridden **toString()** method provides a string representation of the product.
2. **ProductTester Class**:
   * Prompts the user to enter the number of products they wish to add.
   * Uses a **do-while** loop to ensure valid input (positive integer or zero).
   * Includes a **try-catch** block to handle **InputMismatchException** and other exceptions.
   * If **maxSize** is zero, it prints "No products required!".
   * Otherwise, it creates an array of **Product** objects based on the user-defined **maxSize**.
   * It then populates the array with product details entered by the user.
   * Finally, it uses a **for-each** loop to display all products in the inventory.

**Testing the Program:**

* Entering a character instead of a number will trigger the **InputMismatchException** and prompt the user to re-enter a valid integer.
* Entering a valid number will allow the user to add products to the inventory and display them.

