Problem Description: Food Cart Management System

Objective

Design a **Food Cart Management System** that demonstrates the concept of inheritance in Java. The system should include a hierarchy of food items (Beverages, Snacks, and Desserts) with unique attributes and behaviors for each category.

Specifications

1. Base Class: FoodItem

The FoodItem class serves as the base class for all food items.

- **Attributes**:
    - name (String): The name of the food item.
    - price (double): The price per unit of the food item.
    - quantity (int): The number of units of the food item.
- **Methods**:
    - displayInfo(): Prints the details of the food item (name, price, and quantity).
    - applyDiscount(double percentage): Applies a discount to the item's price based on the given percentage.

2. Derived Classes

Each derived class represents a specific category of food items.

A. Class Beverage (inherits FoodItem)

- **Additional Attribute**:
    - size (String): The size of the beverage (e.g., Small, Medium, Large).
    - hasIce (boolean): Whether ice is added (default: false).
- **Overridden Method**:
    - displayInfo(): Displays details including the size and whether ice is added.
- **Unique Method**:
    - addIce(boolean addIce): Updates whether ice is added to the beverage.

B. Class Snack (inherits FoodItem)

- **Additional Attribute**:

    o isSpicy (boolean): Whether the snack is spicy.

- **Overridden Method**:

    o displayInfo(): Displays details including whether the snack is spicy.

- **Unique Method**:

    o toggleSpiciness(): Toggles the spiciness status of the snack.

C. Class Dessert (inherits FoodItem)

- **Additional Attribute**:

    o calories (int): The number of calories in the dessert.

- **Overridden Method**:

    o displayInfo(): Displays details including the calorie count.

- **Unique Method**:

    o halfServing(): Halves the quantity and price of the dessert.

3. Class FoodCart

The FoodCart class manages the food items added to the cart.

- **Attributes**:

    o items (FoodItem[]): A collection of all food items in the cart, stored in an array. Take the length of the array 10.

- **Methods**:

    o addItem(FoodItem item): Adds a food item to the cart.

    o showCart(): Displays all items currently in the cart by invoking displayInfo() for each item.

    o calculateTotal(): Calculates and returns the total price of all items in the cart (considering their quantity).

The main class is given for your convenience.