**Exercise 3: Sorting Customer Orders**

public class OrderSortingExample {

static class Order {

int orderId;

String customerName;

double totalPrice;

public Order(int orderId, String customerName, double totalPrice) {

this.orderId = orderId;

this.customerName = customerName;

this.totalPrice = totalPrice;

}

public void display() {

System.out.println("Order ID: " + orderId + ", Customer: " + customerName + ", Total: ₹" + totalPrice);

}

}

// Bubble Sort

public static void bubbleSort(Order[] orders) {

int n = orders.length;

for (int i = 0; i < n - 1; i++) {

for (int j = 0; j < n - i - 1; j++) {

if (orders[j].totalPrice > orders[j + 1].totalPrice) {

Order temp = orders[j];

orders[j] = orders[j + 1];

orders[j + 1] = temp;

}

}

}

}

// Quick Sort

public static void quickSort(Order[] orders, int low, int high) {

if (low < high) {

int pi = partition(orders, low, high);

quickSort(orders, low, pi - 1);

quickSort(orders, pi + 1, high);

}

}

private static int partition(Order[] orders, int low, int high) {

double pivot = orders[high].totalPrice;

int i = low - 1;

for (int j = low; j < high; j++) {

if (orders[j].totalPrice < pivot) {

i++;

Order temp = orders[i];

orders[i] = orders[j];

orders[j] = temp;

}

}

Order temp = orders[i + 1];

orders[i + 1] = orders[high];

orders[high] = temp;

return i + 1;

}

public static void displayOrders(String message, Order[] orders) {

System.out.println("\n" + message);

for (Order order : orders) {

order.display();

}

}

public static void main(String[] args) {

Order[] orders1 = {

new Order(1, "Alice", 2500.0),

new Order(2, "Bob", 700.0),

new Order(3, "Charlie", 1800.0),

new Order(4, "Diana", 3000.0)

};

Order[] orders2 = orders1.clone(); // clone for separate sorting

displayOrders("Original Orders:", orders1);

bubbleSort(orders1);

displayOrders("Orders sorted using Bubble Sort (by totalPrice):", orders1);

quickSort(orders2, 0, orders2.length - 1);

displayOrders("Orders sorted using Quick Sort (by totalPrice):", orders2);

}

}

OUTPUT:

A screenshot of a computer

AI-generated content may be incorrect.