**Exercise 3**

**Sorting Customers Orders**

Order.java:

**package** sorting;

**public** **class** Order {

**private** String orderId;

**private** **double** totalPrice;

**public** Order(String orderId, **double** totalPrice) {

**this**.orderId = orderId;

**this**.totalPrice = totalPrice;

}

**public** String getOrderId() {

**return** orderId;

}

**public** **double** getTotalPrice() {

**return** totalPrice;

}

**public** String toString()

{

**return** "Order ID: "+orderId +", Total Price: "+totalPrice;

}

}

SortUtils.java:

**package** sorting;

**public** **class** SortUtils {

**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[i].getTotalPrice() > orders[j+1].getTotalPrice()) {

Order temp=orders[j];

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

orders[j+1]=temp;

}

}

}

}

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

{

**if**(low<high)

{

**int** p=*partition*(orders,low,high);

*quickSort*(orders,low,p-1);

*quickSort*(orders,p+1,high);

}

}

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

{

**double** pivot=orders[high].getTotalPrice();

**int** i=low-1;

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

{

**if**(orders[j].getTotalPrice()<=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;

}

}

SortTest.java:

**package** sorting;

**public** **class** SortTest {

**public** **static** **void** main(String[] args)

{

Order[] orders= {

**new** Order("101",500.0),

**new** Order("102",1200.0),

**new** Order("103",450.0),

**new** Order("104",990.0)

};

System.***out***.println("Oiginal Orders:");

*printOrders*(orders);

Order[] bubbleSorted=orders.clone();

SortUtils.*bubbleSort*(bubbleSorted);

System.***out***.println("\n Bubble Sorted Order: ");

*printOrders*(bubbleSorted);

Order[] quickSorted=orders.clone();

SortUtils.*quickSort*(quickSorted,0,quickSorted.length-1);

System.***out***.println("\n Quick Sorted Orders: ");

*printOrders*(quickSorted);

}

**private** **static** **void** printOrders(Order[] orders)

{

**for**(Order o: orders)

{

System.***out***.println(o);

}

}

}

**Output:**

