

# COMP 4003A 2024W

## Assignment #3

### Due: March 3 @11:59pm

#### Instruction

1. You should do the assignment independently. If copying is found, the case will be reported to the office of the Dean of Science immediately.
2. You need to use [Oracle VM](#) to do this assignment and take proper screenshots of execution results for the relevant questions. If there is **no screenshot**, you will get **0** for the question.
3. First replace **MacDiarmid** below with your last name. If your last name is not showing in the screenshot, you will get a **0** for the assignment. Also, rename this document with your last name+first name.
4. Copy your screenshots into this document and submit it to brightspace. Also submit your source codes as separate files to be Make sure your uploaded file can be opened and is correct. No submission will be accepted after the deadline no matter what reason.

#### Part 1 (35)

Use JDBC to create an application that does the same things as in Assignment #2 with the following options. As all the tables may be dropped, you need to create them if they are not there.

- |                                                 |                                        |
|-------------------------------------------------|----------------------------------------|
| 1. Add a customer                               | 2. Display a customer                  |
| 3. Add a product                                | 4. Display a product                   |
| 5. Add a line_item                              | 6. Add an order of line_items          |
| 7. Add a customer order                         | 8. List all orders of a given customer |
| 9. List customers who ordered the given product | 10. Drop all tables                    |
- 
1. If the customer to be added is already in, then display this message and do nothing. The case for products is similar.
  2. Option 2 displays the customer's information and his/her previous and current orders if available (i.e., all invoices of the customer).
  3. It is assumed only one customer's order can be processed at a time so everything is related to the customer and the order but the customer may first get some items first (option 5) before the complete information is added to Customers and Orders tables. The customer order is done when a new customer is added or the program ends.
  4. Option 6 means an order number (O#) is added to all current line\_items without O# but the C# may not be available yet.
  5. Option 7 creates the C# and also adds it to the order if the order exists.

When the user selects an option, it prompts the user to enter additional information if needed. Use this program to populate the database with five customers: Smith, Jones, Blake, Clark, and **MacDiarmid**; five products: Apple, Banana, Orange, Peach, and Watermelon; Smith orders the *first* product, Jones *first two* products, ..., and **MacDiarmid** orders everything. The program should first find the highest C#, O#, I#, or P# and generate a new number by adding 1 to it, and also check

if the customer or product to be added exists; i.e., customer names and product names are unique.  
Use **MacDiarmid** for option 8 and Apple for option 9.

Marking scheme:

- 5 marks for initial setup & option 10 (Drop tables)
- 15 marks for the ADD functions (option 1,5,7)
- 15 marks for the SQL file that defines functions

This screen shot shows the before and after table of adding a customer:

```
C#      Name      Address
----      -
1       Smith     1125 colonel by dr
2       Jones     1125 colonel by dr
3       Blake     1125 colonel by dr
4       Clark     1125 colonel by dr
5       MacDiarmid 1125 colonel by dr

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 1
[Enter a name: Nathan
[Enter an address: this address
Customer added successfully.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 11
C#      Name      Address
----      -
1       Smith     1125 colonel by dr
2       Jones     1125 colonel by dr
3       Blake     1125 colonel by dr
4       Clark     1125 colonel by dr
5       MacDiarmid 1125 colonel by dr
6       Nathan     this address
```

This screen shot displays a customer and their orders:

```
[Enter a customer name: MacDiarmid
C#      Name      Address
-----
5      MacDiarmid      1125 colonel by dr

O#      C#      Date      Total Price
-----
5      5      Mar 3 2024      11.53
```

This screen shot displays adding a product:

```
P#      Name      Price
-----
1      Apple      1.25
2      Banana      .79
3      Orange      1.75
4      Peach      2.75
5      Watermelon      4.99
6      Blueberry      3.99

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 3
[Enter a name: Strawberry
[Enter a price: 4.99
Product added successfully.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 12
P#      Name      Price
-----
1      Apple      1.25
2      Banana      .79
3      Orange      1.75
4      Peach      2.75
5      Watermelon      4.99
6      Blueberry      3.99
7      Strawberry      4.99
```

This screen shot displays a product:

```
[Enter a product name: Apple
P#      Name      Price
----      -
1       Apple     1.25
```

These next screen shots show adding a line item:

```
[Enter an option: 1
I#      O#      P#      Qty
----      -
1       1       1       1
2       2       1       1
3       2       2       1
4       3       1       1
5       3       2       1
6       3       3       1
7       4       1       1
8       4       2       1
9       4       3       1
10      4       4       1
11      5       1       1
12      5       2       1
13      5       3       1
14      5       4       1
15      5       5       1
```

```
I#      O#      P#      Qty
----      -
1       1       1       1
2       2       1       1
3       2       2       1
4       3       1       1
5       3       2       1
6       3       3       1
7       4       1       1
8       4       2       1
9       4       3       1
10      4       4       1
11      5       1       1
12      5       2       1
13      5       3       1
14      5       4       1
15      5       5       1
16      null    1       5
```

```
Enter an option: 5
Enter a valid product name: Apple
Enter a quantity for the product: 5
Do you want more products? yes or no: no
LineItem added successfully.
```

These screen shots show the addition of an order of line items:

O#	C#	Date	Total Price	O#	C#	Date	Total Price
1	1	Mar 3 2024	1.25	1	1	Mar 3 2024	1.25
2	2	Mar 3 2024	2.04	2	2	Mar 3 2024	2.04
3	3	Mar 3 2024	3.79	3	3	Mar 3 2024	3.79
4	4	Mar 3 2024	6.54	4	4	Mar 3 2024	6.54
5	5	Mar 3 2024	11.53	5	5	Mar 3 2024	11.53
				6	null	Mar 3 2024	6.25

I#	O#	P#	Qty
----	----	----	----
1	1	1	1
2	2	1	1
3	2	2	1
4	3	1	1
5	3	2	1
6	3	3	1
7	4	1	1
8	4	2	1
9	4	3	1
10	4	4	1
11	5	1	1
12	5	2	1
13	5	3	1
14	5	4	1
15	5	5	1
16	6	1	5

These are the screen shots for adding a customer order:

```

C#      Name      Address
----      -
1      Smith      1125 colonel by dr
2      Jones      1125 colonel by dr
3      Blake      1125 colonel by dr
4      Clark      1125 colonel by dr
5      MacDiarmid      1125 colonel by dr

```

Command Line Menu:

1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit

[Enter an option: 7

[Enter a name: Nathan

[Enter an address: This my address

Customer order added successfully.

Command Line Menu:

1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit

[Enter an option: 11

```

C#      Name      Address
----      -
1      Smith      1125 colonel by dr
2      Jones      1125 colonel by dr
3      Blake      1125 colonel by dr
4      Clark      1125 colonel by dr
5      MacDiarmid      1125 colonel by dr
6      Nathan      This my address

```

O#	C#	Date	Total Price
----	----	-----	-----
1	1	Mar 3 2024	1.25
2	2	Mar 3 2024	2.04
3	3	Mar 3 2024	3.79
4	4	Mar 3 2024	6.54
5	5	Mar 3 2024	11.53
6	6	Mar 3 2024	6.25



This is a screen shot of listing all orders of a given customer:

```
[Enter an option: 8
[Enter a valid customer name: MacDiarmid
O#      C#      Date      Total Price
-----
5       5       Mar 3 2024    11.53
```

This is a screen shot of all the customers who ordered a given product:

```
[Enter an option: 9
[Enter a valid product name: Apple
P#      Name      Price
-----
5       MacDiarmid  1125 colonel by dr
3       Blake      1125 colonel by dr
1       Smith      1125 colonel by dr
4       Clark      1125 colonel by dr
2       Jones      1125 colonel by dr
```

This is a screen shot of the tables being dropped:

```
[Enter an option: 10
Tables dropped.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 1
[Enter a name: Macdiarmid
[Enter an address: No gonna work
SQL exception:
java.sql.SQLException: ORA-00942: table or view does not exist

    at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:440)
    at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:396)
    at oracle.jdbc.driver.T4C8Oall.processError(T4C8Oall.java:837)
    at oracle.jdbc.driver.T4CTTIfun.receive(T4CTTIfun.java:445)
    at oracle.jdbc.driver.T4CTTIfun.doRPC(T4CTTIfun.java:191)
    at oracle.jdbc.driver.T4C8Oall.doOALL(T4C8Oall.java:523)
    at oracle.jdbc.driver.T4CStatement.doOall8(T4CStatement.java:193)
    at oracle.jdbc.driver.T4CStatement.executeForDescribe(T4CStatement.java:852)
    at oracle.jdbc.driver.OracleStatement.executeMaybeDescribe(OracleStatement.java:1153)
    at oracle.jdbc.driver.OracleStatement.doExecuteWithTimeout(OracleStatement.java:1275)
    at oracle.jdbc.driver.OracleStatement.executeQuery(OracleStatement.java:1477)
    at oracle.jdbc.driver.OracleStatementWrapper.executeQuery(OracleStatementWrapper.java:392)
    at Part1.addCustomer(Part1.java:110)
    at Part1.displayMenu(Part1.java:42)
    at Part1.main(Part1.java:14)
```

## Part 2 (65)

Redo Part 1 that calls PL/SQL procedure or function created in Assignment #2 and test all options.

Marking scheme:

- 10 marks for option 2 by calling a function
- 20 marks for options 2 and 4 (queries of product and customer)
- 15 marks for option 8 with nested line items of products.
- 20 marks for option 9 by calling a function.

This screen shot shows the before and after table of adding a customer:

```
C#      Name      Address
-----
1       Smith     1125 colonel by dr
2       Jones     1125 colonel by dr
3       Blake     1125 colonel by dr
4       Clark     1125 colonel by dr
5       MacDiarmid 1125 colonel by dr

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 1
[Enter a name: Nathan
[Enter an address: this address
Customer added successfully.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 11

C#      Name      Address
-----
1       Smith     1125 colonel by dr
2       Jones     1125 colonel by dr
3       Blake     1125 colonel by dr
4       Clark     1125 colonel by dr
5       MacDiarmid 1125 colonel by dr
6       Nathan    this address
```

This screen shot displays a customer and their orders:

```
[Enter a customer name: MacDiarmid
C#      Name      Address
-----
5      MacDiarmid      1125 colonel by dr

O#      C#      Date      Total Price
-----
5      5      Mar 3 2024      11.53
```

This screen shot displays adding a product:

```
P#      Name      Price
-----
1      Apple      1.25
2      Banana      .79
3      Orange      1.75
4      Peach      2.75
5      Watermelon      4.99
6      Blueberry      3.99

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 3
[Enter a name: Strawberry
[Enter a price: 4.99
Product added successfully.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 12
P#      Name      Price
-----
1      Apple      1.25
2      Banana      .79
3      Orange      1.75
4      Peach      2.75
5      Watermelon      4.99
6      Blueberry      3.99
7      Strawberry      4.99
```



This screen shot displays a product:

```
[Enter a product name: Apple
P#      Name      Price
----      -
1       Apple     1.25
```

These next screen shots show adding a line item:

```
[Enter an option: 1
I#      O#      P#      Qty
----      -
1       1       1       1
2       2       1       1
3       2       2       1
4       3       1       1
5       3       2       1
6       3       3       1
7       4       1       1
8       4       2       1
9       4       3       1
10      4       4       1
11      5       1       1
12      5       2       1
13      5       3       1
14      5       4       1
15      5       5       1
```

```
I#      O#      P#      Qty
----      -
1       1       1       1
2       2       1       1
3       2       2       1
4       3       1       1
5       3       2       1
6       3       3       1
7       4       1       1
8       4       2       1
9       4       3       1
10      4       4       1
11      5       1       1
12      5       2       1
13      5       3       1
14      5       4       1
15      5       5       1
16      null    1       5
```

```
Enter an option: 5
Enter a valid product name: Apple
Enter a quantity for the product: 5
Do you want more products? yes or no: no
LineItem added successfully.
```

These screen shots show the addition of an order of line items:

O#	C#	Date	Total Price	O#	C#	Date	Total Price
1	1	Mar 3 2024	1.25	1	1	Mar 3 2024	1.25
2	2	Mar 3 2024	2.04	2	2	Mar 3 2024	2.04
3	3	Mar 3 2024	3.79	3	3	Mar 3 2024	3.79
4	4	Mar 3 2024	6.54	4	4	Mar 3 2024	6.54
5	5	Mar 3 2024	11.53	5	5	Mar 3 2024	11.53
				6	null	Mar 3 2024	6.25

I#	O#	P#	Qty
----	----	----	----
1	1	1	1
2	2	1	1
3	2	2	1
4	3	1	1
5	3	2	1
6	3	3	1
7	4	1	1
8	4	2	1
9	4	3	1
10	4	4	1
11	5	1	1
12	5	2	1
13	5	3	1
14	5	4	1
15	5	5	1
16	6	1	5

These are the screen shots for adding a customer order:

```

C#      Name      Address
----      -
1      Smith      1125 colonel by dr
2      Jones      1125 colonel by dr
3      Blake      1125 colonel by dr
4      Clark      1125 colonel by dr
5      MacDiarmid      1125 colonel by dr

```

Command Line Menu:

1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit

[Enter an option: 7

[Enter a name: Nathan

[Enter an address: This my address

Customer order added successfully.

Command Line Menu:

1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit

[Enter an option: 11

```

C#      Name      Address
----      -
1      Smith      1125 colonel by dr
2      Jones      1125 colonel by dr
3      Blake      1125 colonel by dr
4      Clark      1125 colonel by dr
5      MacDiarmid      1125 colonel by dr
6      Nathan      This my address

```

O#	C#	Date	Total Price
----	----	-----	-----
1	1	Mar 3 2024	1.25
2	2	Mar 3 2024	2.04
3	3	Mar 3 2024	3.79
4	4	Mar 3 2024	6.54
5	5	Mar 3 2024	11.53
6	6	Mar 3 2024	6.25

This is a screen shot of listing all orders of a given customer:

```
[Enter an option: 8
[Enter a valid customer name: MacDiarmid
O#      C#      Date      Total Price
-----
5       5       Mar 3 2024    11.53
```

This is a screen shot of all the customers who ordered a given product:

```
[Enter an option: 9
[Enter a valid product name: Apple
P#      Name      Price
-----
5       MacDiarmid  1125 colonel by dr
3       Blake      1125 colonel by dr
1       Smith      1125 colonel by dr
4       Clark      1125 colonel by dr
2       Jones      1125 colonel by dr
```

This is a screen shot of the tables being dropped:

```
[Enter an option: 10
Tables dropped.

Command Line Menu:
1. Add a customer
2. Display a customer
3. Add a product
4. Display a product
5. Add a line item
6. Add an order of line items
7. Add a customer order
8. List all orders of a given customer
9. List customers who ordered the given product
10. Drop all tables
0. Exit
[Enter an option: 1
[Enter a name: Macdiarmid
[Enter an address: No gonna work
SQL exception:
java.sql.SQLException: ORA-00942: table or view does not exist

    at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:440)
    at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:396)
    at oracle.jdbc.driver.T4C8Oall.processError(T4C8Oall.java:837)
    at oracle.jdbc.driver.T4CTTIfun.receive(T4CTTIfun.java:445)
    at oracle.jdbc.driver.T4CTTIfun.doRPC(T4CTTIfun.java:191)
    at oracle.jdbc.driver.T4C8Oall.doALL(T4C8Oall.java:523)
    at oracle.jdbc.driver.T4CStatement.doAll18(T4CStatement.java:193)
    at oracle.jdbc.driver.T4CStatement.executeForDescribe(T4CStatement.java:852)
    at oracle.jdbc.driver.OracleStatement.executeMaybeDescribe(OracleStatement.java:1153)
    at oracle.jdbc.driver.OracleStatement.doExecuteWithTimeout(OracleStatement.java:1275)
    at oracle.jdbc.driver.OracleStatement.executeQuery(OracleStatement.java:1477)
    at oracle.jdbc.driver.OracleStatementWrapper.executeQuery(OracleStatementWrapper.java:392)
    at Part1.addCustomer(Part1.java:110)
    at Part1.displayMenu(Part1.java:42)
    at Part1.main(Part1.java:14)
```