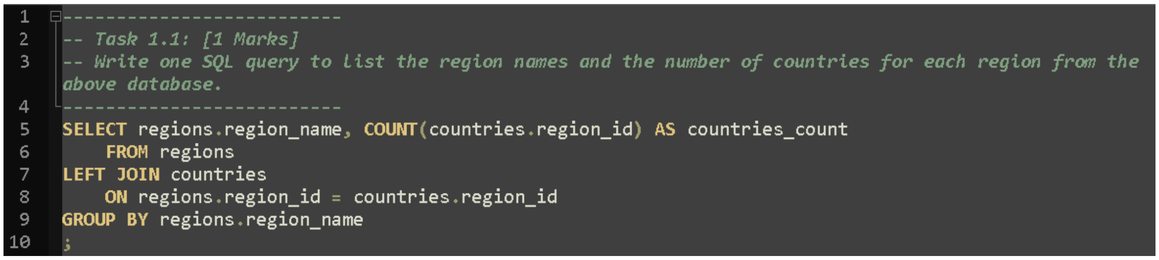
SIT772 2022 T1

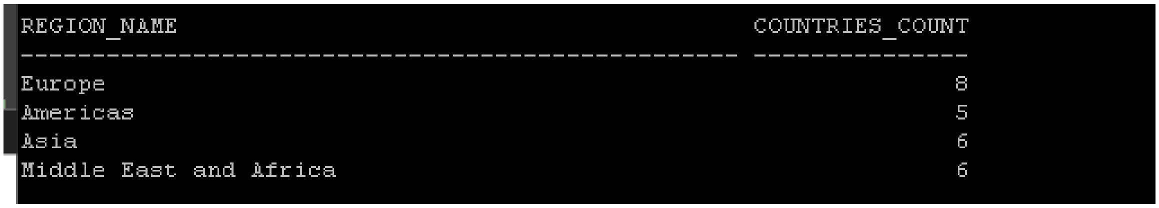
Assignment 1b

YANJUN CHEN
216327327

1.1

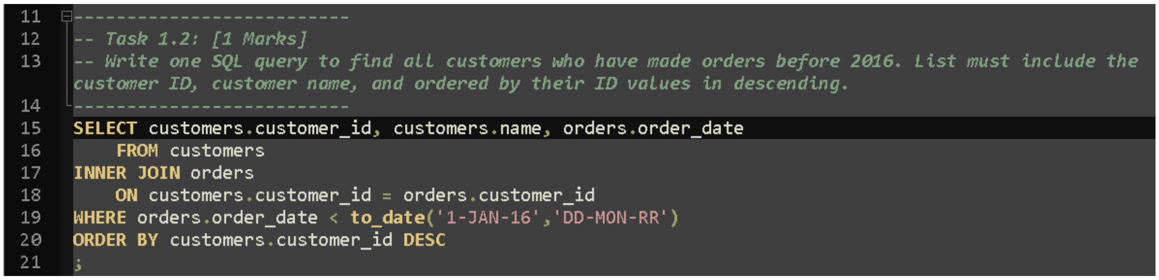


```
-------------------------
-- Task 1.1: [1 Marks]
-- Write one SQL query to list the region names and the number of countries for each region from the above database.
-------------------------
SELECT regions.region_name, COUNT(countries.region_id) AS countries_count
    FROM regions
LEFT JOIN countries
    ON regions.region_id = countries.region_id
GROUP BY regions.region_name
;
```

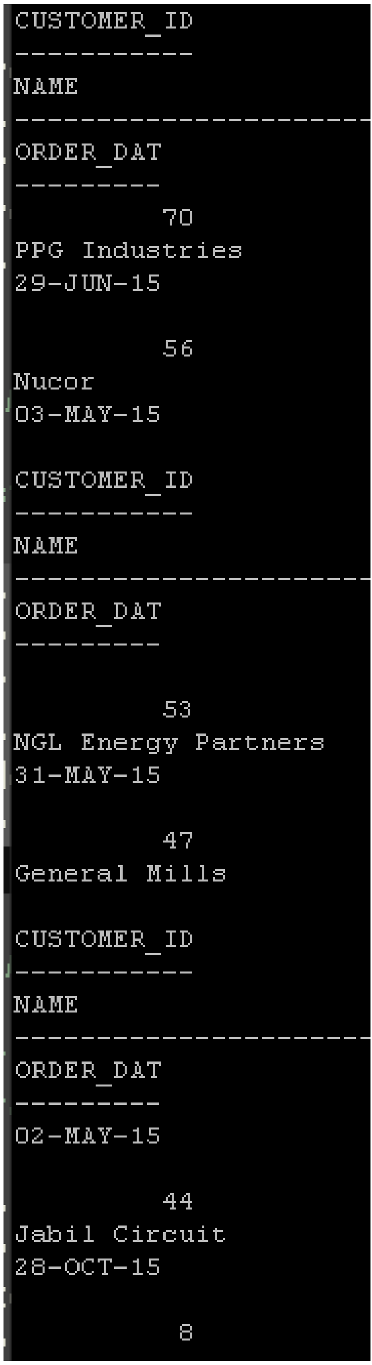


```
REGION_NAME                                        COUNTRIES_COUNT
-------------------------------------------------- ---------------
Europe                                                           8
Americas                                                         5
Asia                                                             6
Middle East and Africa                                           6
```

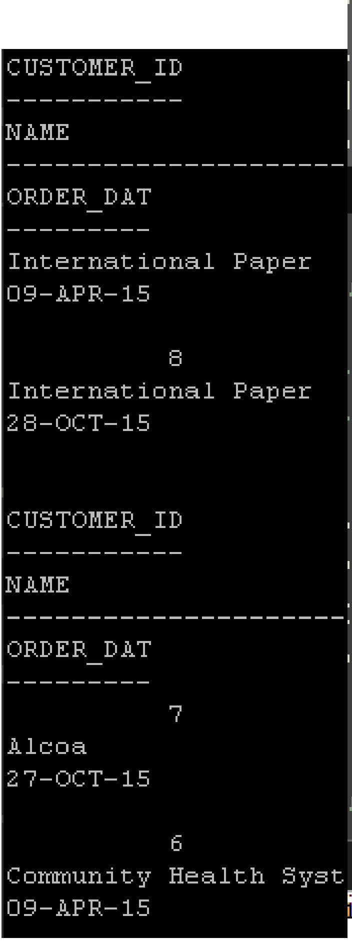
1.2



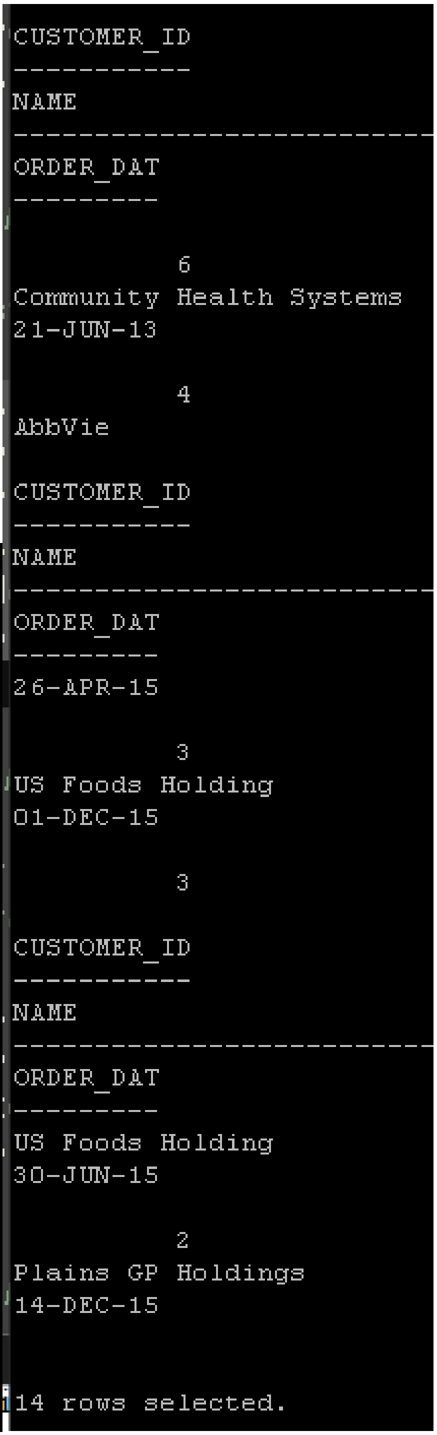
```
-------------------------
-- Task 1.2: [1 Marks]
-- Write one SQL query to find all customers who have made orders before 2016. List must include the customer ID, customer name, and ordered by their ID values in descending.
-------------------------
SELECT customers.customer_id, customers.name, orders.order_date
    FROM customers
INNER JOIN orders
    ON customers.customer_id = orders.customer_id
WHERE orders.order_date < to_date('1-JAN-16','DD-MON-RR')
ORDER BY customers.customer_id DESC
;
```



```
CUSTOMER_ID
-----------
NAME
----------------------
ORDER_DAT
---------
         70
PPG Industries
29-JUN-15

         56
Nucor
03-MAY-15

CUSTOMER_ID
-----------
NAME
----------------------
ORDER_DAT
---------

         53
NGL Energy Partners
31-MAY-15

         47
General Mills

CUSTOMER_ID
-----------
NAME
----------------------
ORDER_DAT
---------
02-MAY-15

         44
Jabil Circuit
28-OCT-15

          8
```

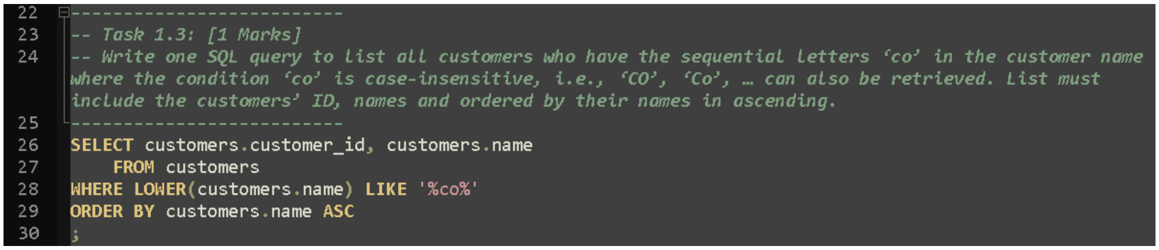


```
CUSTOMER_ID
-----------
NAME
---------------------
ORDER_DAT
---------
International Paper
09-APR-15

          8
International Paper
28-OCT-15


CUSTOMER_ID
-----------
NAME
---------------------
ORDER_DAT
---------
          7
Alcoa
27-OCT-15

          6
Community Health Syst
09-APR-15
```

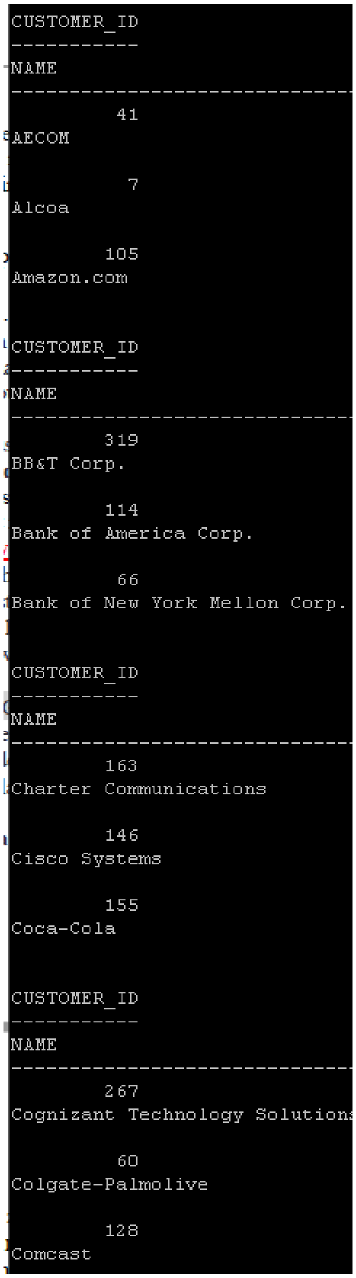


```
CUSTOMER_ID
-----------
NAME
--------------------------
ORDER_DAT
---------

          6
Community Health Systems
21-JUN-13

          4
AbbVie

CUSTOMER_ID
-----------
NAME
--------------------------
ORDER_DAT
---------
26-APR-15

          3
US Foods Holding
01-DEC-15

          3

CUSTOMER_ID
-----------
NAME
--------------------------
ORDER_DAT
---------
US Foods Holding
30-JUN-15

          2
Plains GP Holdings
14-DEC-15


14 rows selected.
```

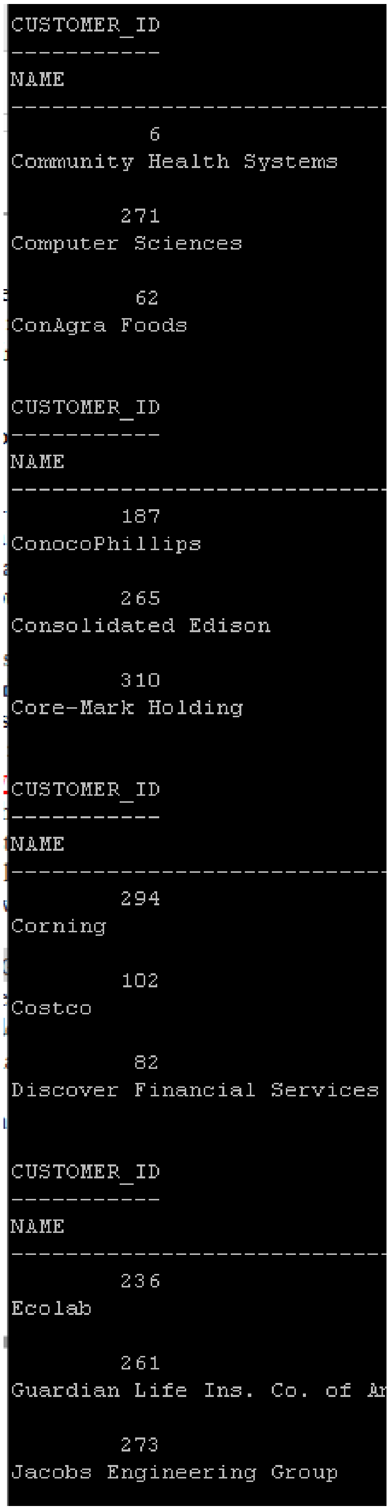
1.3



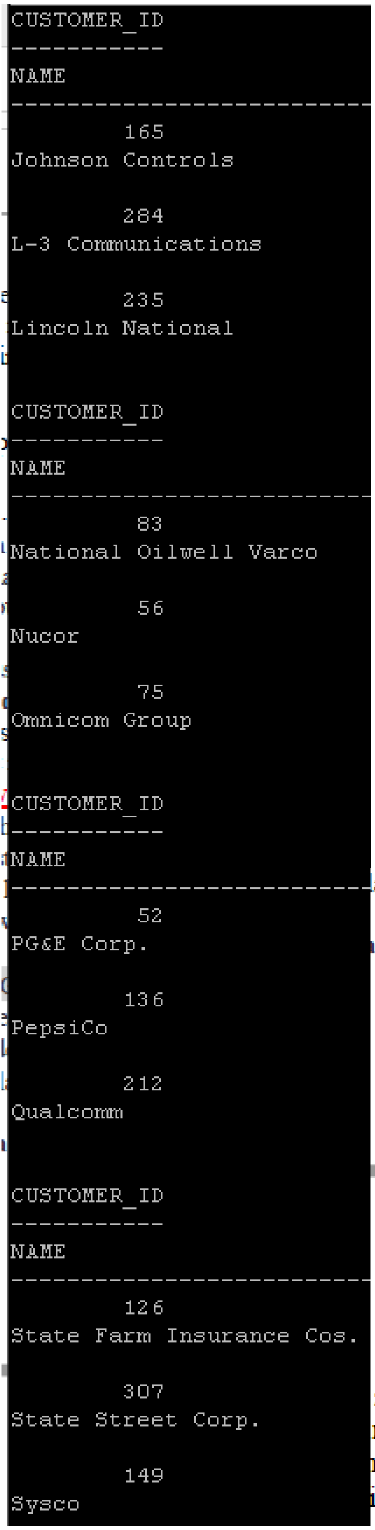
```
--------------------------
-- Task 1.3: [1 Marks]
-- Write one SQL query to list all customers who have the sequential letters ‘co’ in the customer name
where the condition ‘co’ is case-insensitive, i.e., ‘CO’, ‘Co’, … can also be retrieved. List must
include the customers’ ID, names and ordered by their names in ascending.
--------------------------
SELECT customers.customer_id, customers.name
    FROM customers
WHERE LOWER(customers.name) LIKE '%co%'
ORDER BY customers.name ASC
;
```



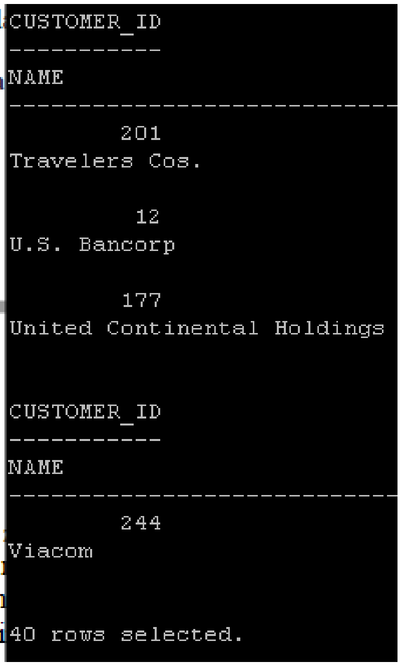
```
CUSTOMER_ID
-----------
NAME
------------------------------
         41
AECOM

          7
Alcoa

        105
Amazon.com


CUSTOMER_ID
-----------
NAME
------------------------------
        319
BB&T Corp.

        114
Bank of America Corp.

         66
Bank of New York Mellon Corp.


CUSTOMER_ID
-----------
NAME
------------------------------
        163
Charter Communications

        146
Cisco Systems

        155
Coca-Cola


CUSTOMER_ID
-----------
NAME
------------------------------
        267
Cognizant Technology Solutions

         60
Colgate-Palmolive

        128
Comcast
```



```
CUSTOMER_ID
-----------
NAME
---------------------------
          6
Community Health Systems

        271
Computer Sciences

         62
ConAgra Foods


CUSTOMER_ID
-----------
NAME
---------------------------
        187
ConocoPhillips

        265
Consolidated Edison

        310
Core-Mark Holding


CUSTOMER_ID
-----------
NAME
---------------------------
        294
Corning

        102
Costco

         82
Discover Financial Services


CUSTOMER_ID
-----------
NAME
---------------------------
        236
Ecolab

        261
Guardian Life Ins. Co. of Am

        273
Jacobs Engineering Group
```

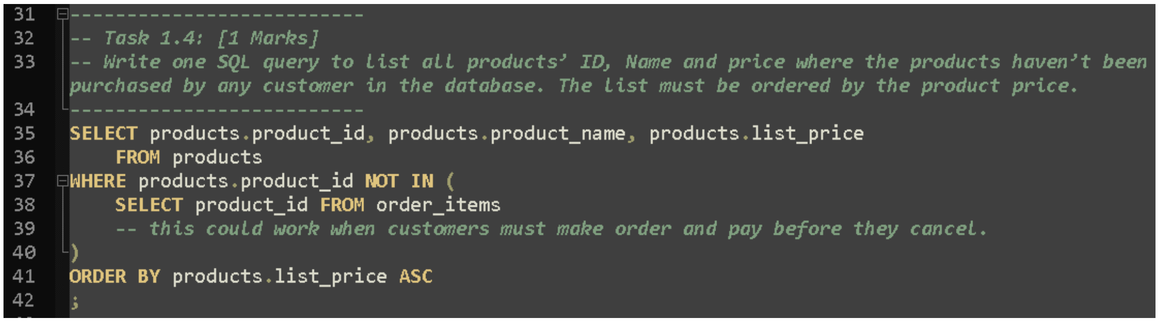


```
CUSTOMER_ID
-----------
NAME
--------------------------
        165
Johnson Controls

        284
L-3 Communications

        235
Lincoln National


CUSTOMER_ID
-----------
NAME
--------------------------
         83
National Oilwell Varco

         56
Nucor

         75
Omnicom Group


CUSTOMER_ID
-----------
NAME
--------------------------
         52
PG&E Corp.

        136
PepsiCo

        212
Qualcomm


CUSTOMER_ID
-----------
NAME
--------------------------
        126
State Farm Insurance Cos.

        307
State Street Corp.

        149
Sysco
```

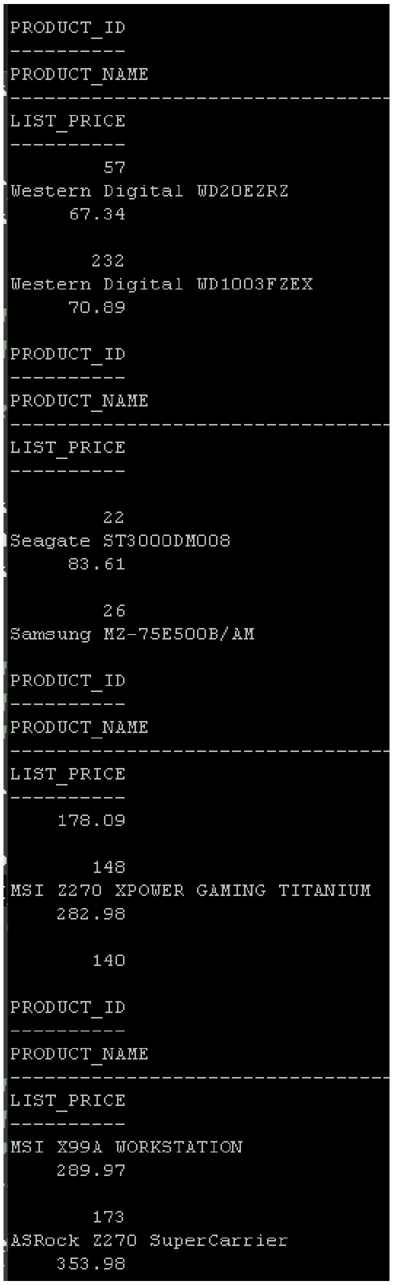


```
CUSTOMER_ID
-----------
NAME
----------------------------
        201
Travelers Cos.

         12
U.S. Bancorp

        177
United Continental Holdings


CUSTOMER_ID
-----------
NAME
----------------------------
        244
Viacom


40 rows selected.
```

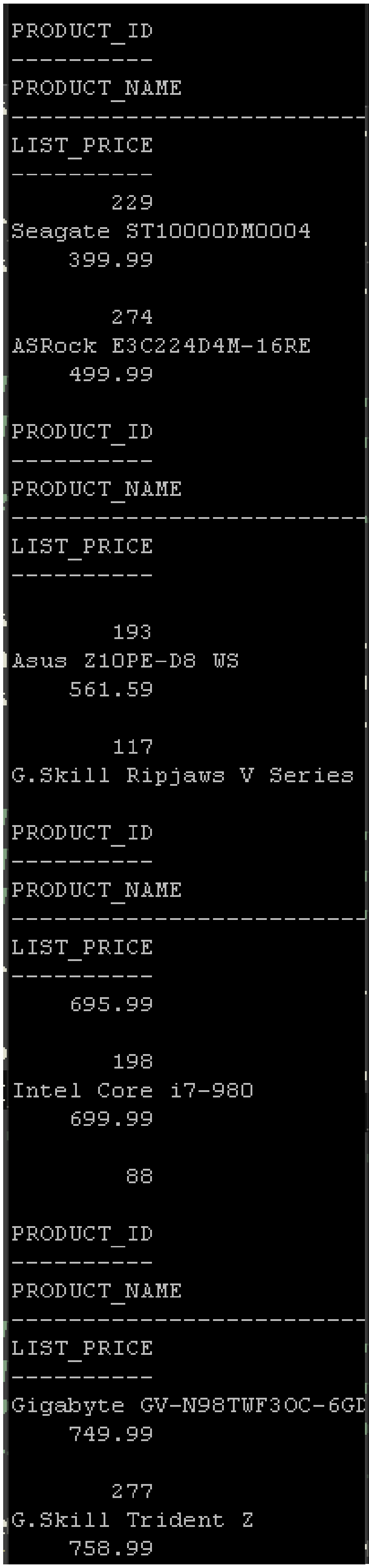
1.4



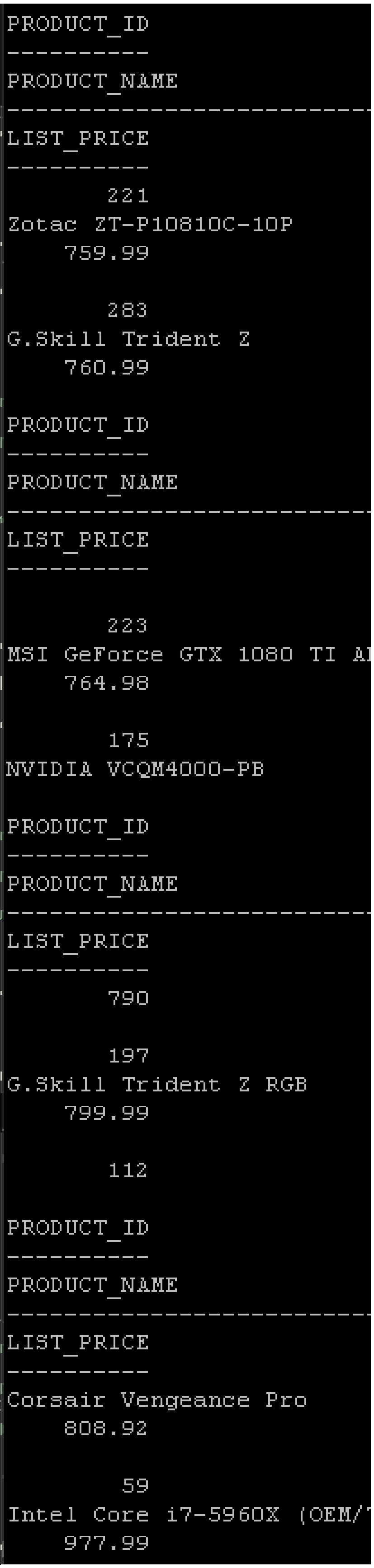
```
-------------------------
-- Task 1.4: [1 Marks]
-- Write one SQL query to list all products’ ID, Name and price where the products haven’t been purchased by any customer in the database. The list must be ordered by the product price.
-------------------------
SELECT products.product_id, products.product_name, products.list_price
    FROM products
WHERE products.product_id NOT IN (
    SELECT product_id FROM order_items
    -- this could work when customers must make order and pay before they cancel.
)
ORDER BY products.list_price ASC
;
```



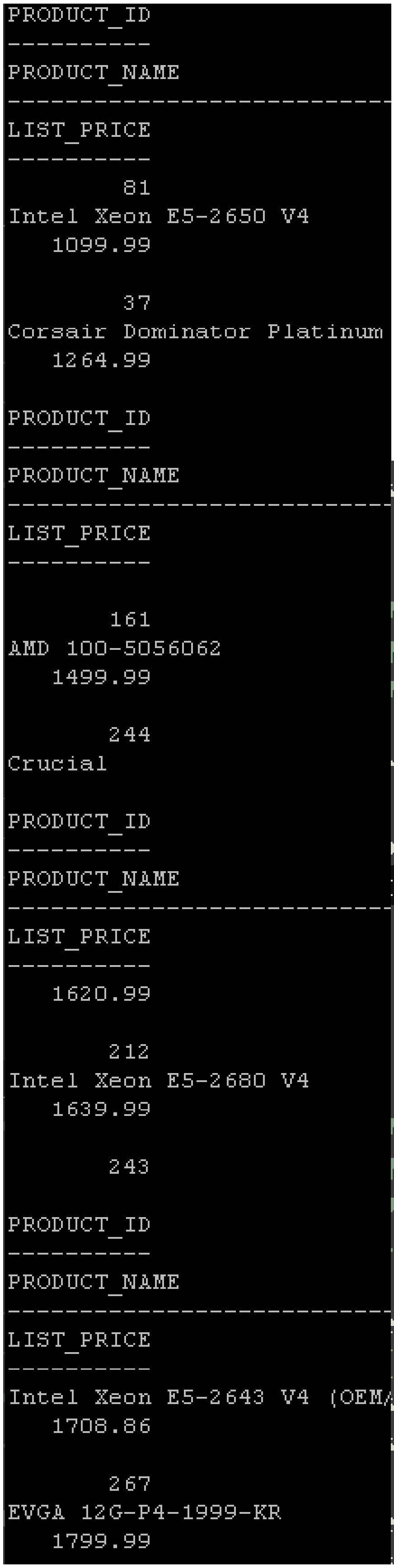
```
PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------
        57
Western Digital WD20EZRZ
     67.34

       232
Western Digital WD1003FZEX
     70.89

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------

        22
Seagate ST3000DM008
     83.61

        26
Samsung MZ-75E500B/AM

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------
    178.09

       148
MSI Z270 XPOWER GAMING TITANIUM
    282.98

       140

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------
MSI X99A WORKSTATION
    289.97

       173
ASRock Z270 SuperCarrier
    353.98
```



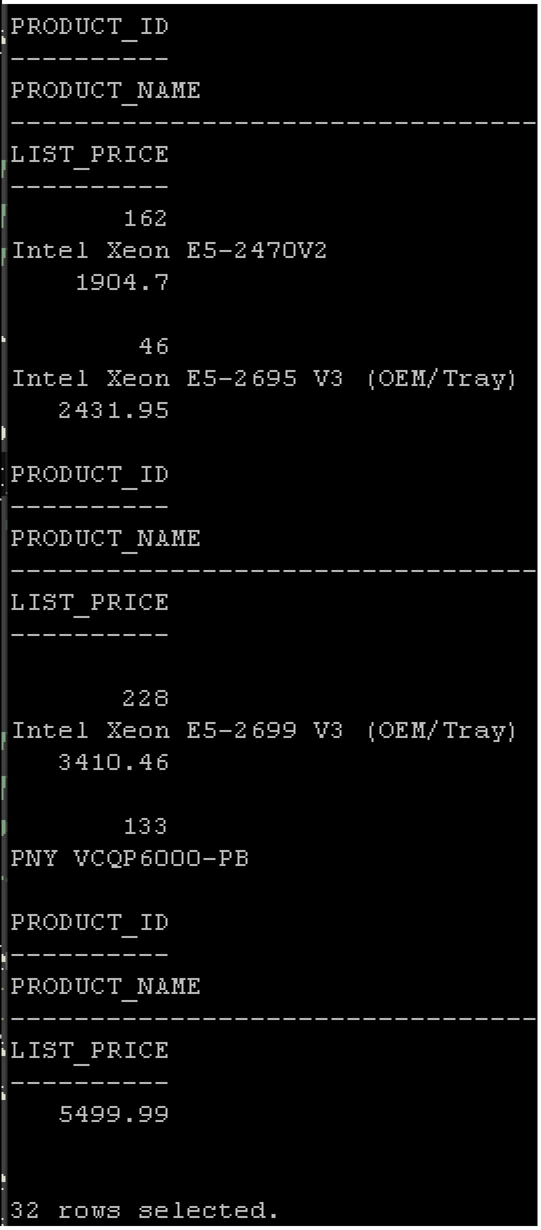
```
PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
       229
Seagate ST10000DM0004
    399.99

       274
ASRock E3C224D4M-16RE
    499.99

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------

       193
Asus Z10PE-D8 WS
    561.59

       117
G.Skill Ripjaws V Series

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
    695.99

       198
Intel Core i7-980
    699.99

        88

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
Gigabyte GV-N98TWF3OC-6GD
    749.99

       277
G.Skill Trident Z
    758.99
```



```
PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
       221
Zotac ZT-P10810C-10P
    759.99

       283
G.Skill Trident Z
    760.99

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------

       223
MSI GeForce GTX 1080 TI A
    764.98

       175
NVIDIA VCQM4000-PB

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
       790

       197
G.Skill Trident Z RGB
    799.99

       112

PRODUCT_ID
----------
PRODUCT_NAME
-------------------------
LIST_PRICE
----------
Corsair Vengeance Pro
    808.92

        59
Intel Core i7-5960X (OEM/
    977.99
```

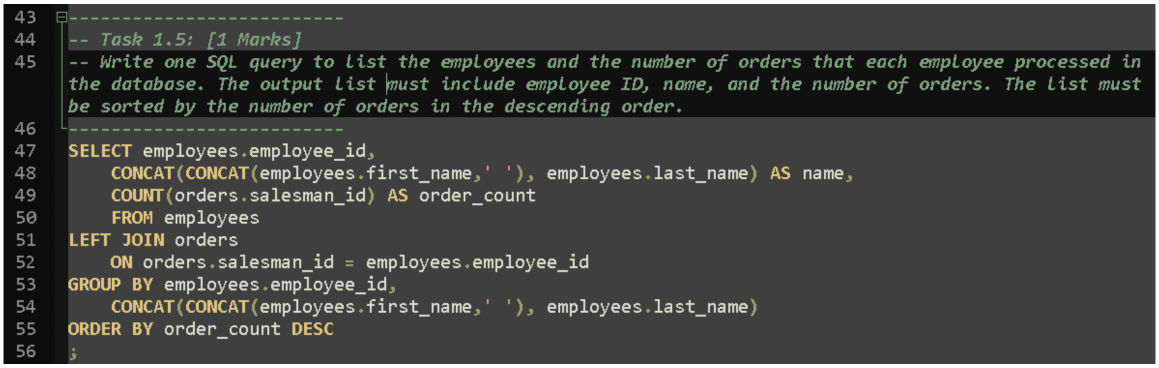


```
PRODUCT_ID
----------
PRODUCT_NAME
---------------------------
LIST_PRICE
----------
        81
Intel Xeon E5-2650 V4
   1099.99

        37
Corsair Dominator Platinum
   1264.99

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------
LIST_PRICE
----------

       161
AMD 100-5056062
   1499.99

       244
Crucial

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------
LIST_PRICE
----------
   1620.99

       212
Intel Xeon E5-2680 V4
   1639.99

       243

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------
LIST_PRICE
----------
Intel Xeon E5-2643 V4 (OEM/
   1708.86

       267
EVGA 12G-P4-1999-KR
   1799.99
```

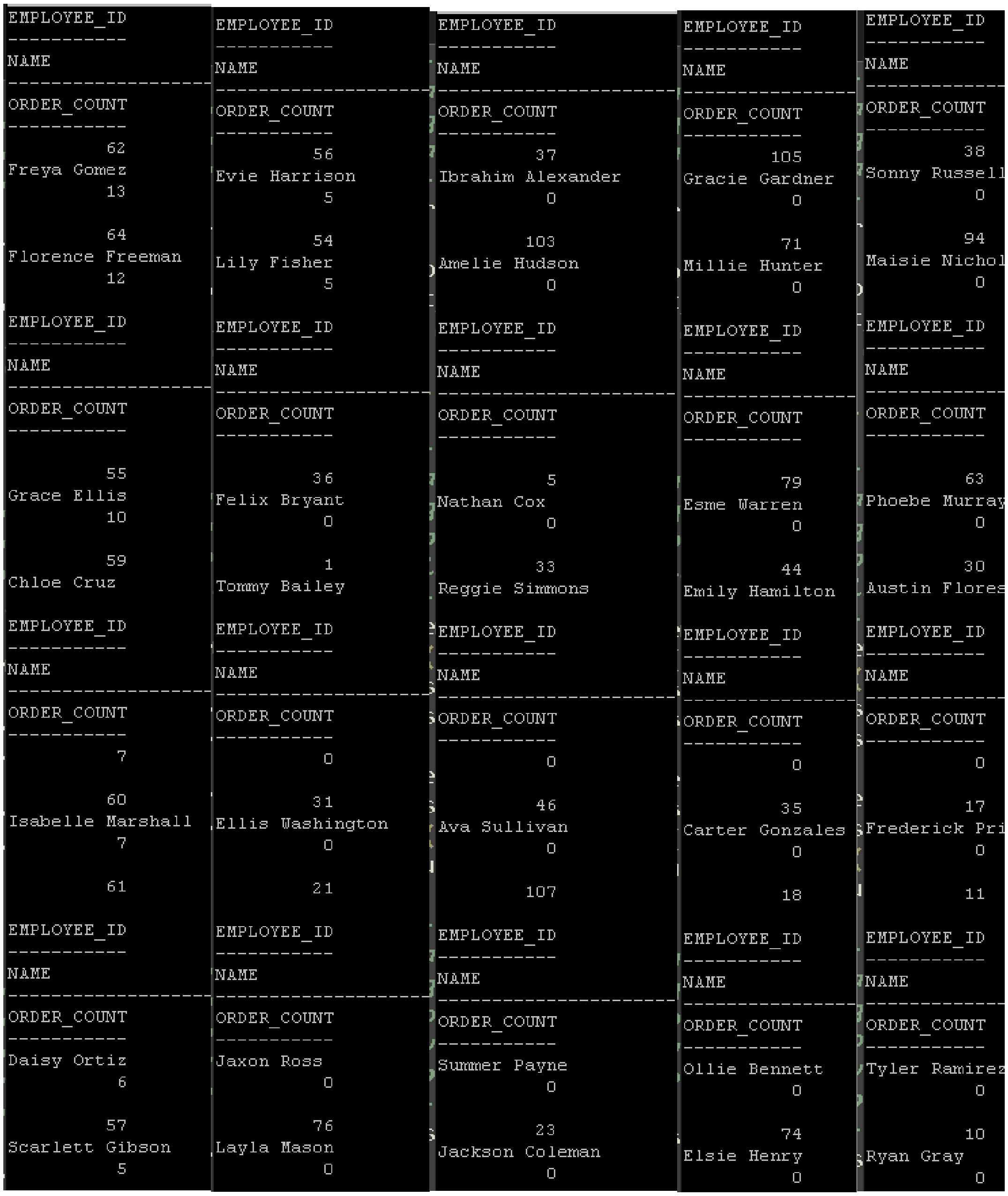


```
PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------
       162
Intel Xeon E5-2470V2
    1904.7

        46
Intel Xeon E5-2695 V3 (OEM/Tray)
   2431.95

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------

       228
Intel Xeon E5-2699 V3 (OEM/Tray)
   3410.46

       133
PNY VCQP6000-PB

PRODUCT_ID
----------
PRODUCT_NAME
---------------------------------
LIST_PRICE
----------
   5499.99


32 rows selected.
```

1.5



```
--------------------------
-- Task 1.5: [1 Marks]
-- Write one SQL query to list the employees and the number of orders that each employee processed in the database. The output list must include employee ID, name, and the number of orders. The list must be sorted by the number of orders in the descending order.
--------------------------
SELECT employees.employee_id,
    CONCAT(CONCAT(employees.first_name,' '), employees.last_name) AS name,
    COUNT(orders.salesman_id) AS order_count
    FROM employees
LEFT JOIN orders
    ON orders.salesman_id = employees.employee_id
GROUP BY employees.employee_id,
    CONCAT(CONCAT(employees.first_name,' '), employees.last_name)
ORDER BY order_count DESC
;
```



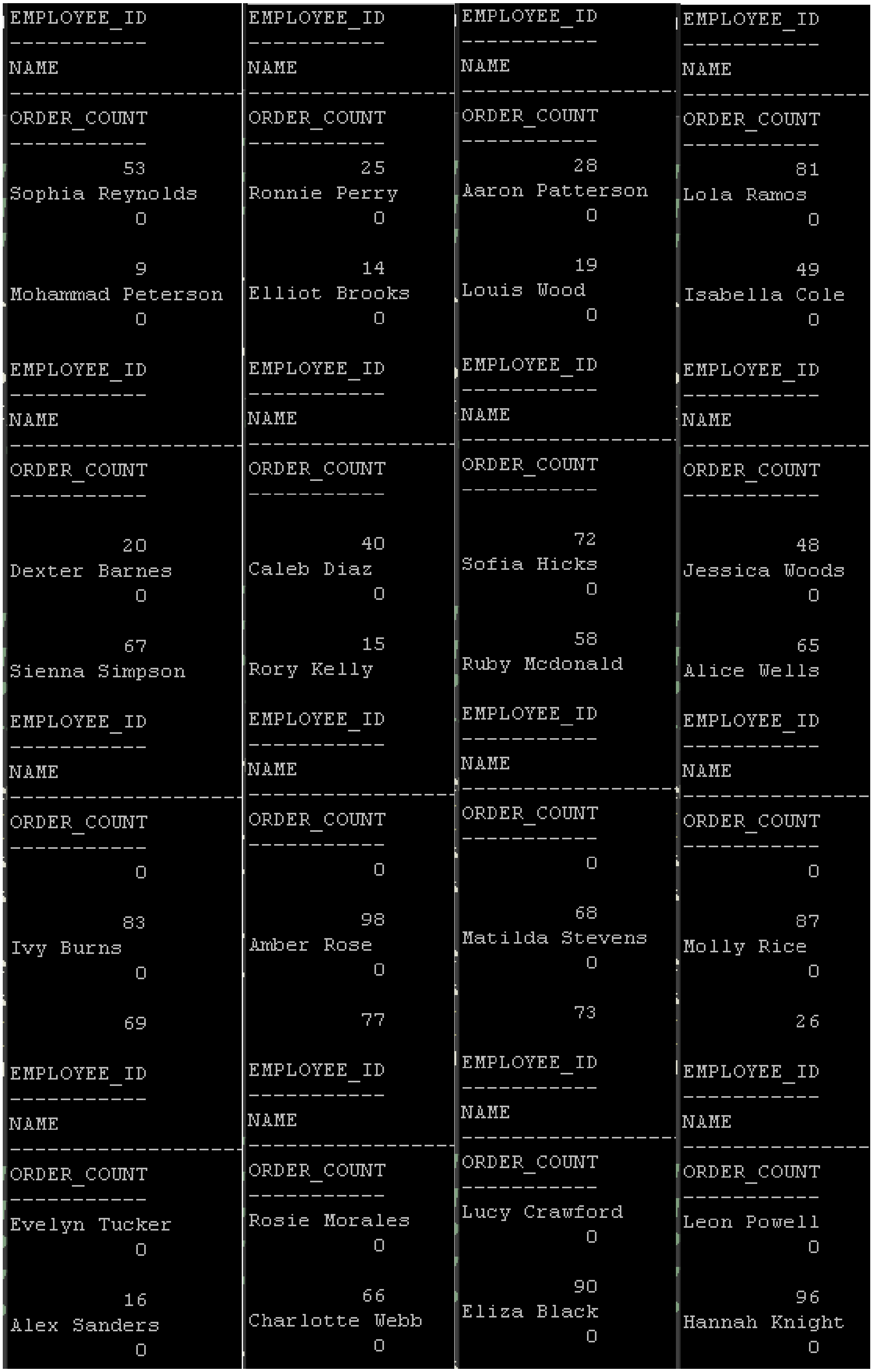
```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         62
Freya Gomez
         13

         64
Florence Freeman
         12

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         55
Grace Ellis
         10

         59
Chloe Cruz

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          7

         60
Isabelle Marshall
          7

         61

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Daisy Ortiz
          6

         57
Scarlett Gibson
          5
```

```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         56
Evie Harrison
          5

         54
Lily Fisher
          5

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         36
Felix Bryant
          0

          1
Tommy Bailey

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         31
Ellis Washington
          0

         21

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Jaxon Ross
          0

         76
Layla Mason
          0
```

```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         37
Ibrahim Alexander
          0

        103
Amelie Hudson
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

          5
Nathan Cox
          0

         33
Reggie Simmons

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         46
Ava Sullivan
          0

        107

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Summer Payne
          0

         23
Jackson Coleman
          0
```

```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
        105
Gracie Gardner
          0

         71
Millie Hunter
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         79
Esme Warren
          0

         44
Emily Hamilton

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         35
Carter Gonzales
          0

         18

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Ollie Bennett
          0

         74
Elsie Henry
          0
```

```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         38
Sonny Russell
          0

         94
Maisie Nichol
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         63
Phoebe Murray
          0

         30
Austin Flores

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         17
Frederick Pri
          0

         11

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Tyler Ramirez
          0

         10
Ryan Gray
          0
```

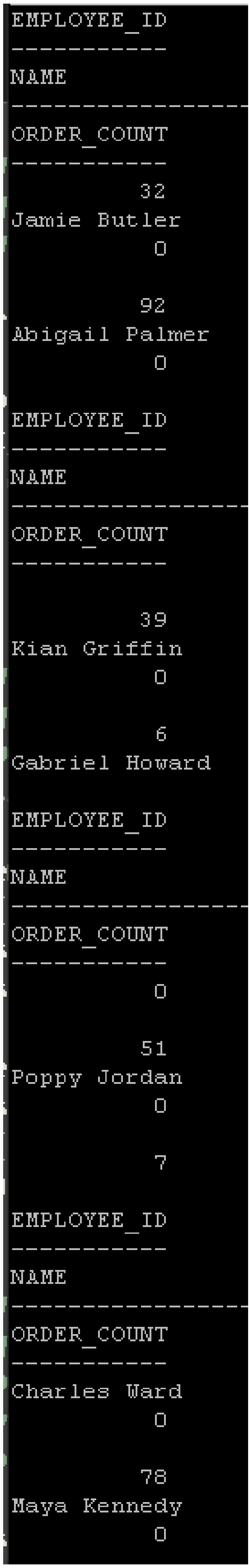


```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         53
Sophia Reynolds
          0

          9
Mohammad Peterson
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         20
Dexter Barnes
          0

         67
Sienna Simpson

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         83
Ivy Burns
          0

         69

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Evelyn Tucker
          0

         16
Alex Sanders
          0
```

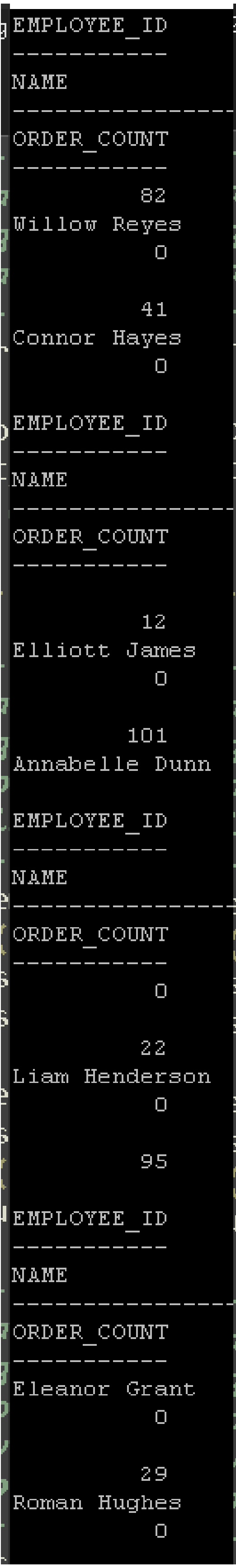
```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         25
Ronnie Perry
          0

         14
Elliot Brooks
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         40
Caleb Diaz
          0

         15
Rory Kelly

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         98
Amber Rose
          0

         77

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Rosie Morales
          0

         66
Charlotte Webb
          0
```

```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         28
Aaron Patterson
          0

         19
Louis Wood
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         72
Sofia Hicks
          0

         58
Ruby Mcdonald

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         68
Matilda Stevens
          0

         73

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Lucy Crawford
          0

         90
Eliza Black
          0
```

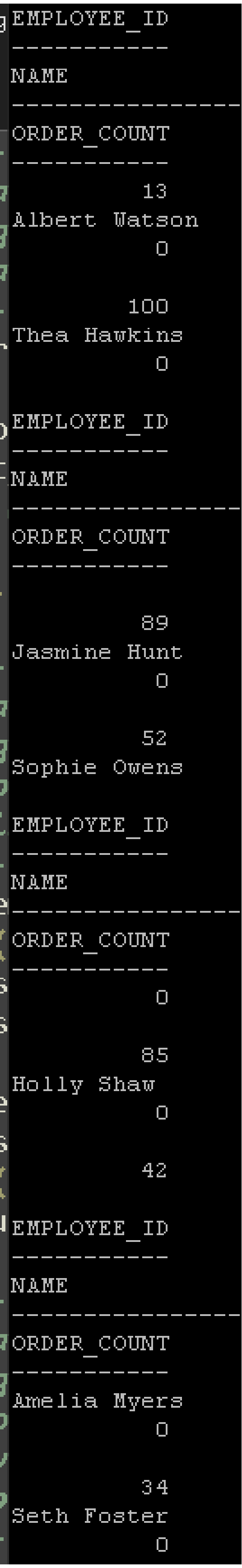
```
EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
         81
Lola Ramos
          0

         49
Isabella Cole
          0

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------

         48
Jessica Woods
          0

         65
Alice Wells

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
          0

         87
Molly Rice
          0

         26

EMPLOYEE_ID
-----------
NAME
--------------------
ORDER_COUNT
-----------
Leon Powell
          0

         96
Hannah Knight
          0
```



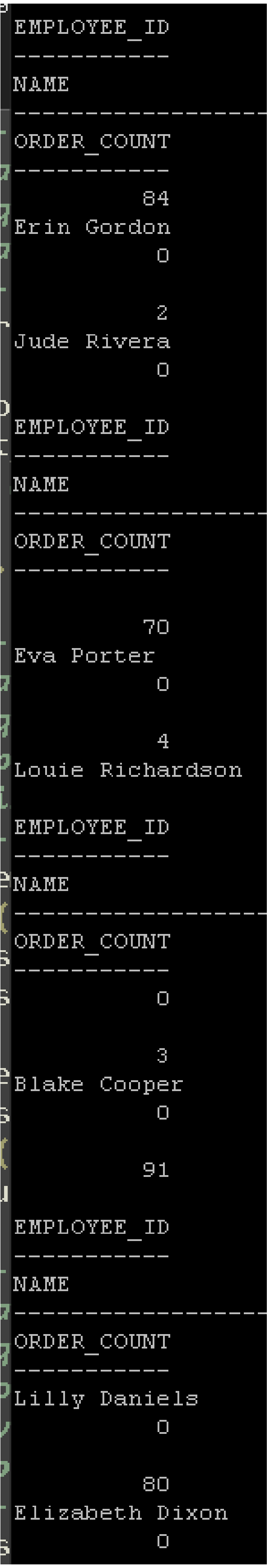
```
EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
         32
Jamie Butler
          0

         92
Abigail Palmer
          0

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------

         39
Kian Griffin
          0

          6
Gabriel Howard

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
          0

         51
Poppy Jordan
          0

          7

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
Charles Ward
          0

         78
Maya Kennedy
          0
```



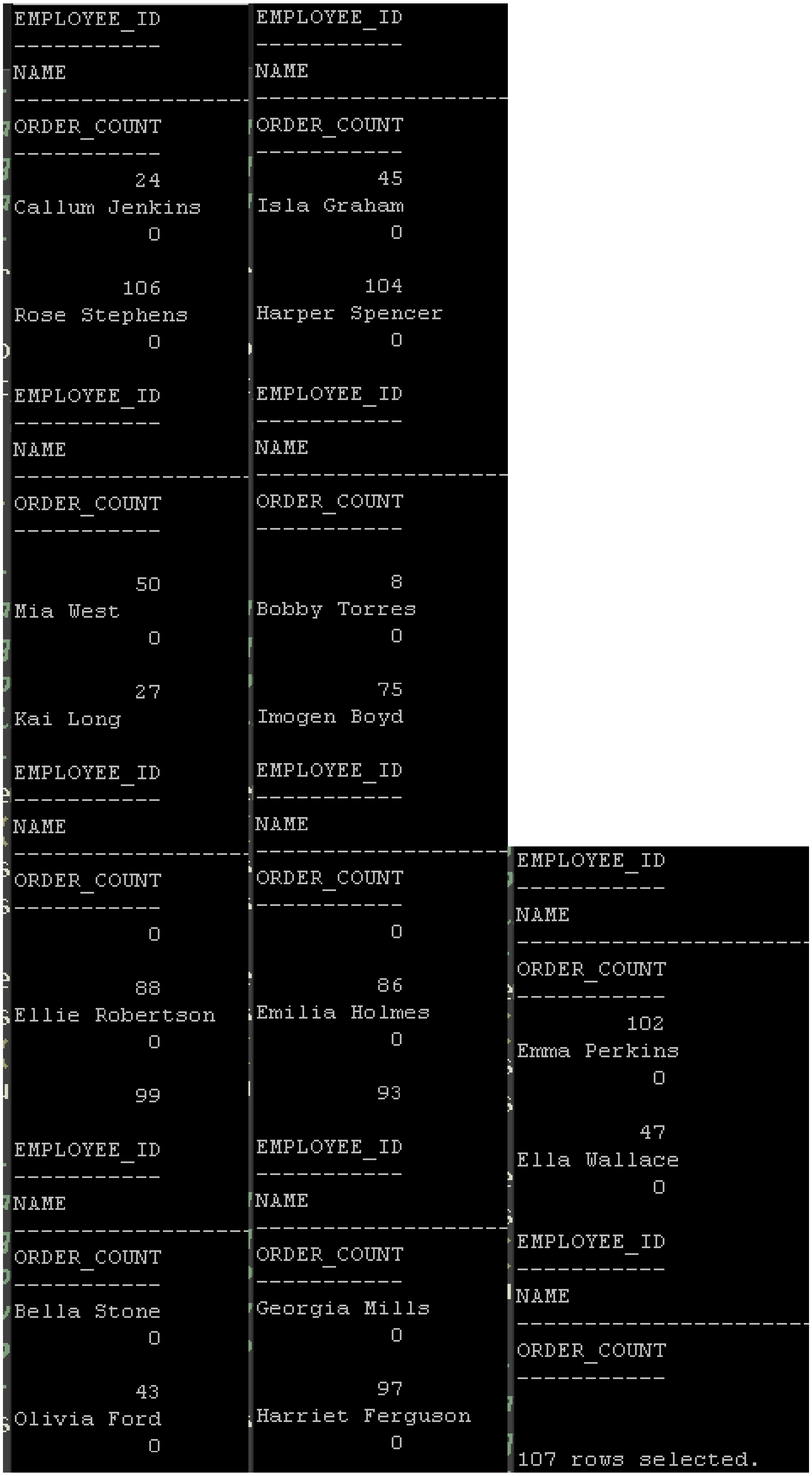
```
EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
         82
Willow Reyes
          0

         41
Connor Hayes
          0

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------

         12
Elliott James
          0

        101
Annabelle Dunn

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
          0

         22
Liam Henderson
          0

         95

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
Eleanor Grant
          0

         29
Roman Hughes
          0
```



```
EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
         13
Albert Watson
          0

        100
Thea Hawkins
          0

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------

         89
Jasmine Hunt
          0

         52
Sophie Owens

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
          0

         85
Holly Shaw
          0

         42

EMPLOYEE_ID
-----------
NAME
-----------------
ORDER_COUNT
-----------
Amelia Myers
          0

         34
Seth Foster
          0
```



```
EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
         84
Erin Gordon
          0

          2
Jude Rivera
          0

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------

         70
Eva Porter
          0

          4
Louie Richardson

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
          0

          3
Blake Cooper
          0

         91

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
Lilly Daniels
          0

         80
Elizabeth Dixon
          0
```

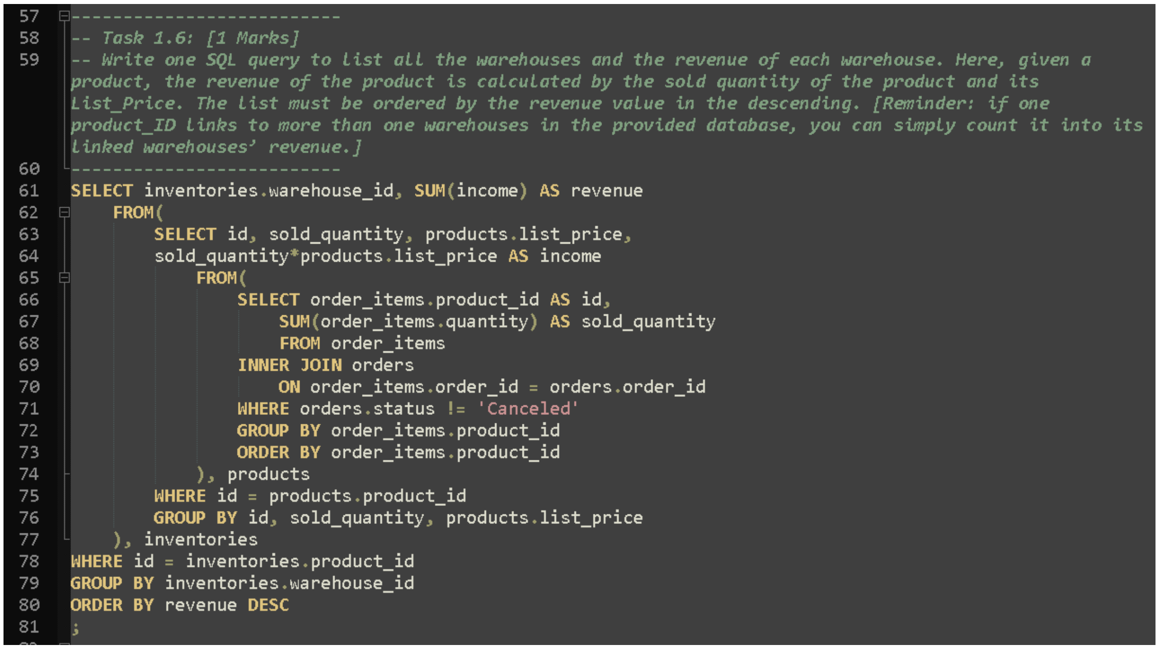


```
EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
         24
Callum Jenkins
          0

        106
Rose Stephens
          0

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------

         50
Mia West
          0

         27
Kai Long

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
          0

         88
Ellie Robertson
          0

         99

EMPLOYEE_ID
-----------
NAME
------------------
ORDER_COUNT
-----------
Bella Stone
          0

         43
Olivia Ford
          0
```

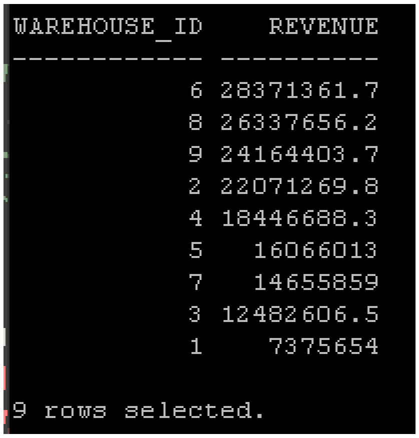
```
EMPLOYEE_ID
-----------
NAME
-------------------
ORDER_COUNT
-----------
         45
Isla Graham
          0

        104
Harper Spencer
          0

EMPLOYEE_ID
-----------
NAME
-------------------
ORDER_COUNT
-----------

          8
Bobby Torres
          0

         75
Imogen Boyd

EMPLOYEE_ID
-----------
NAME
-------------------
ORDER_COUNT
-----------
          0

         86
Emilia Holmes
          0

         93

EMPLOYEE_ID
-----------
NAME
-------------------
ORDER_COUNT
-----------
Georgia Mills
          0

         97
Harriet Ferguson
          0
```

```
EMPLOYEE_ID
-----------
NAME
----------------------
ORDER_COUNT
-----------
        102
Emma Perkins
          0

         47
Ella Wallace
          0

EMPLOYEE_ID
-----------
NAME
----------------------
ORDER_COUNT
-----------


107 rows selected.
```

1.6

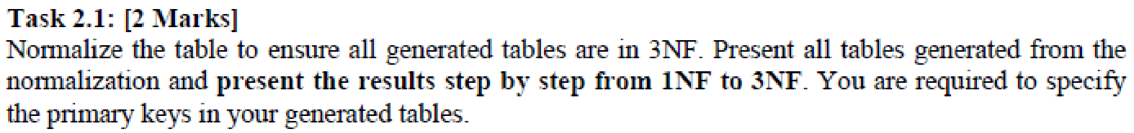


```sql
--------------------------
-- Task 1.6: [1 Marks]
-- Write one SQL query to list all the warehouses and the revenue of each warehouse. Here, given a product, the revenue of the product is calculated by the sold quantity of the product and its List_Price. The list must be ordered by the revenue value in the descending. [Reminder: if one product_ID links to more than one warehouses in the provided database, you can simply count it into its linked warehouses’ revenue.]
--------------------------
SELECT inventories.warehouse_id, SUM(income) AS revenue
    FROM(
        SELECT id, sold_quantity, products.list_price,
        sold_quantity*products.list_price AS income
            FROM(
                SELECT order_items.product_id AS id,
                    SUM(order_items.quantity) AS sold_quantity
                    FROM order_items
                INNER JOIN orders
                    ON order_items.order_id = orders.order_id
                WHERE orders.status != 'Canceled'
                GROUP BY order_items.product_id
                ORDER BY order_items.product_id
            ), products
        WHERE id = products.product_id
        GROUP BY id, sold_quantity, products.list_price
    ), inventories
WHERE id = inventories.product_id
GROUP BY inventories.warehouse_id
ORDER BY revenue DESC
;
```



```
WAREHOUSE_ID    REVENUE
------------ ----------
           6 28371361.7
           8 26337656.2
           9 24164403.7
           2 22071269.8
           4 18446688.3
           5   16066013
           7   14655859
           3 12482606.5
           1    7375654

9 rows selected.
```

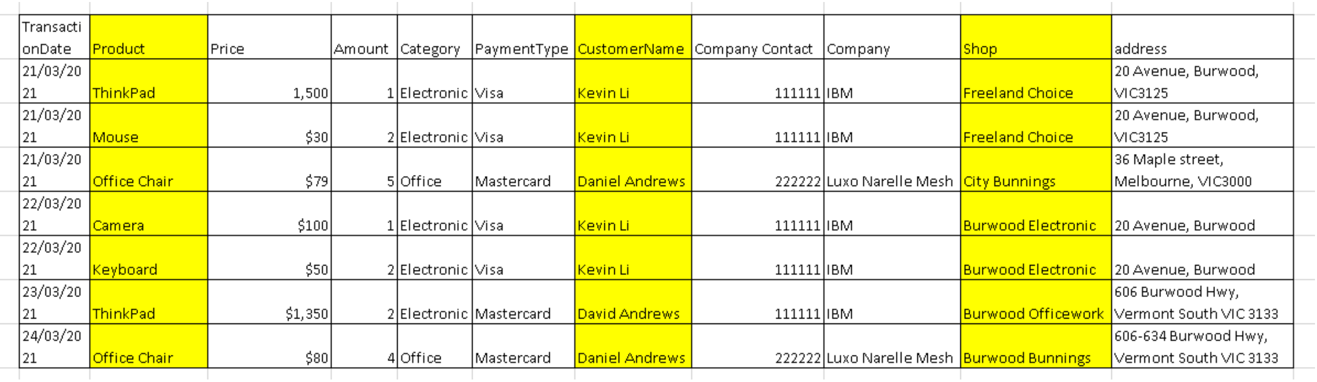
2.1



Task 2.1: [2 Marks]
Normalize the table to ensure all generated tables are in 3NF. Present all tables generated from the normalization and **present the results step by step from 1NF to 3NF**. You are required to specify the primary keys in your generated tables.

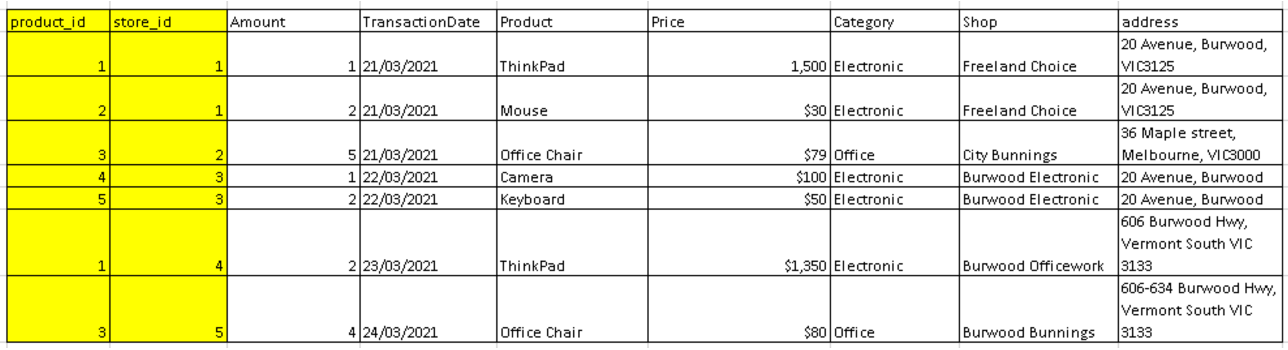
***All the primary key of following table has been highlighted with yellow.**

1NF

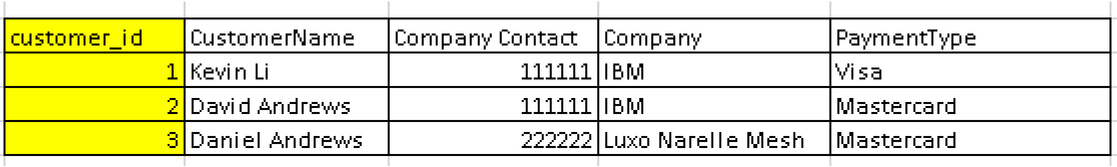


TransactionDate	Product	Price	Amount	Category	PaymentType	CustomerName	Company Contact	Company	Shop	address
21/03/2021	ThinkPad	1,500	1	Electronic	Visa	Kevin Li	111111	IBM	Freeland Choice	20 Avenue, Burwood, VIC3125
21/03/2021	Mouse	$30	2	Electronic	Visa	Kevin Li	111111	IBM	Freeland Choice	20 Avenue, Burwood, VIC3125
21/03/2021	Office Chair	$79	5	Office	Mastercard	Daniel Andrews	222222	Luxo Narelle Mesh	City Bunnings	36 Maple street, Melbourne, VIC3000
22/03/2021	Camera	$100	1	Electronic	Visa	Kevin Li	111111	IBM	Burwood Electronic	20 Avenue, Burwood
22/03/2021	Keyboard	$50	2	Electronic	Visa	Kevin Li	111111	IBM	Burwood Electronic	20 Avenue, Burwood
23/03/2021	ThinkPad	$1,350	2	Electronic	Mastercard	David Andrews	111111	IBM	Burwood Officework	606 Burwood Hwy, Vermont South VIC 3133
24/03/2021	Office Chair	$80	4	Office	Mastercard	Daniel Andrews	222222	Luxo Narelle Mesh	Burwood Bunnings	606-634 Burwood Hwy, Vermont South VIC 3133

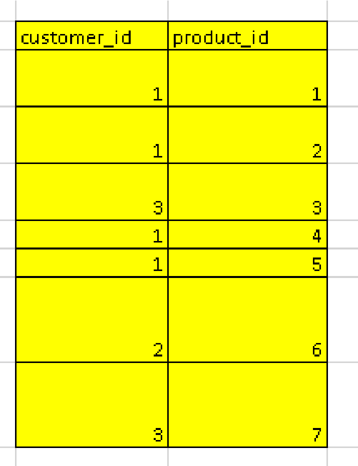
2NF



product_id	store_id	Amount	TransactionDate	Product	Price	Category	Shop	address
1	1	1	21/03/2021	ThinkPad	1,500	Electronic	Freeland Choice	20 Avenue, Burwood, VIC3125
2	1	2	21/03/2021	Mouse	$30	Electronic	Freeland Choice	20 Avenue, Burwood, VIC3125
3	2	5	21/03/2021	Office Chair	$79	Office	City Bunnings	36 Maple street, Melbourne, VIC3000
4	3	1	22/03/2021	Camera	$100	Electronic	Burwood Electronic	20 Avenue, Burwood
5	3	2	22/03/2021	Keyboard	$50	Electronic	Burwood Electronic	20 Avenue, Burwood
1	4	2	23/03/2021	ThinkPad	$1,350	Electronic	Burwood Officework	606 Burwood Hwy, Vermont South VIC 3133
3	5	4	24/03/2021	Office Chair	$80	Office	Burwood Bunnings	606-634 Burwood Hwy, Vermont South VIC 3133

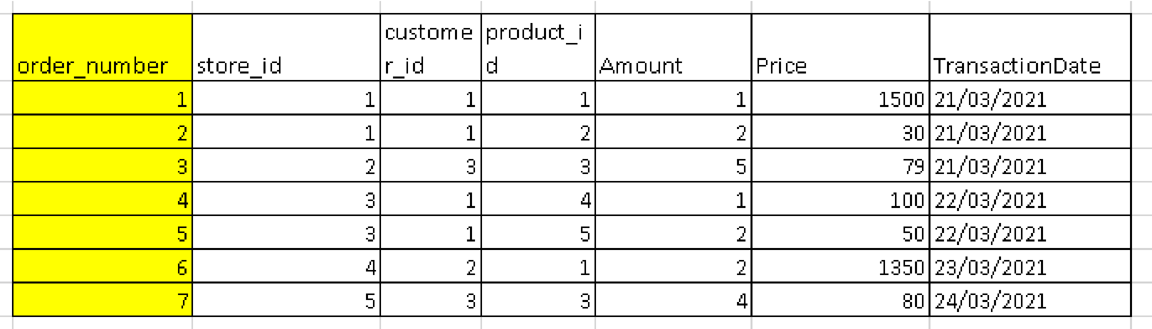


customer_id	CustomerName	Company Contact	Company	PaymentType
1	Kevin Li	111111	IBM	Visa
2	David Andrews	111111	IBM	Mastercard
3	Daniel Andrews	222222	Luxo Narelle Mesh	Mastercard

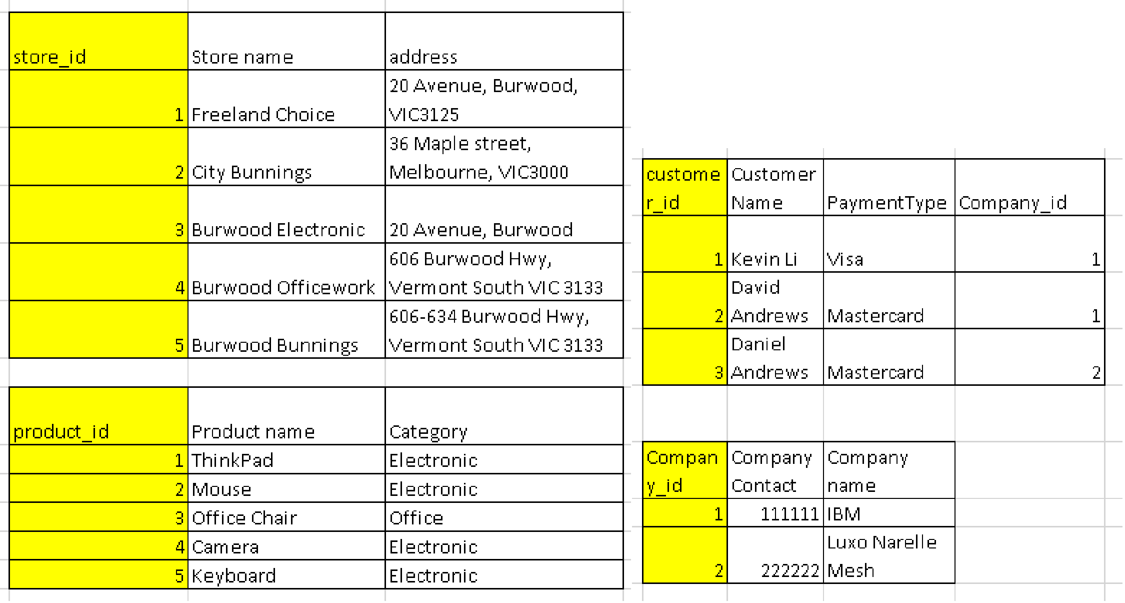


customer_id	product_id
1	1
1	2
3	3
1	4
1	5
2	6
3	7

3NF



order_number	store_id	customer_id	product_id	Amount	Price	TransactionDate
1	1	1	1	1	1500	21/03/2021
2	1	1	2	2	30	21/03/2021
3	2	3	3	5	79	21/03/2021
4	3	1	4	1	100	22/03/2021
5	3	1	5	2	50	22/03/2021
6	4	2	1	2	1350	23/03/2021
7	5	3	3	4	80	24/03/2021



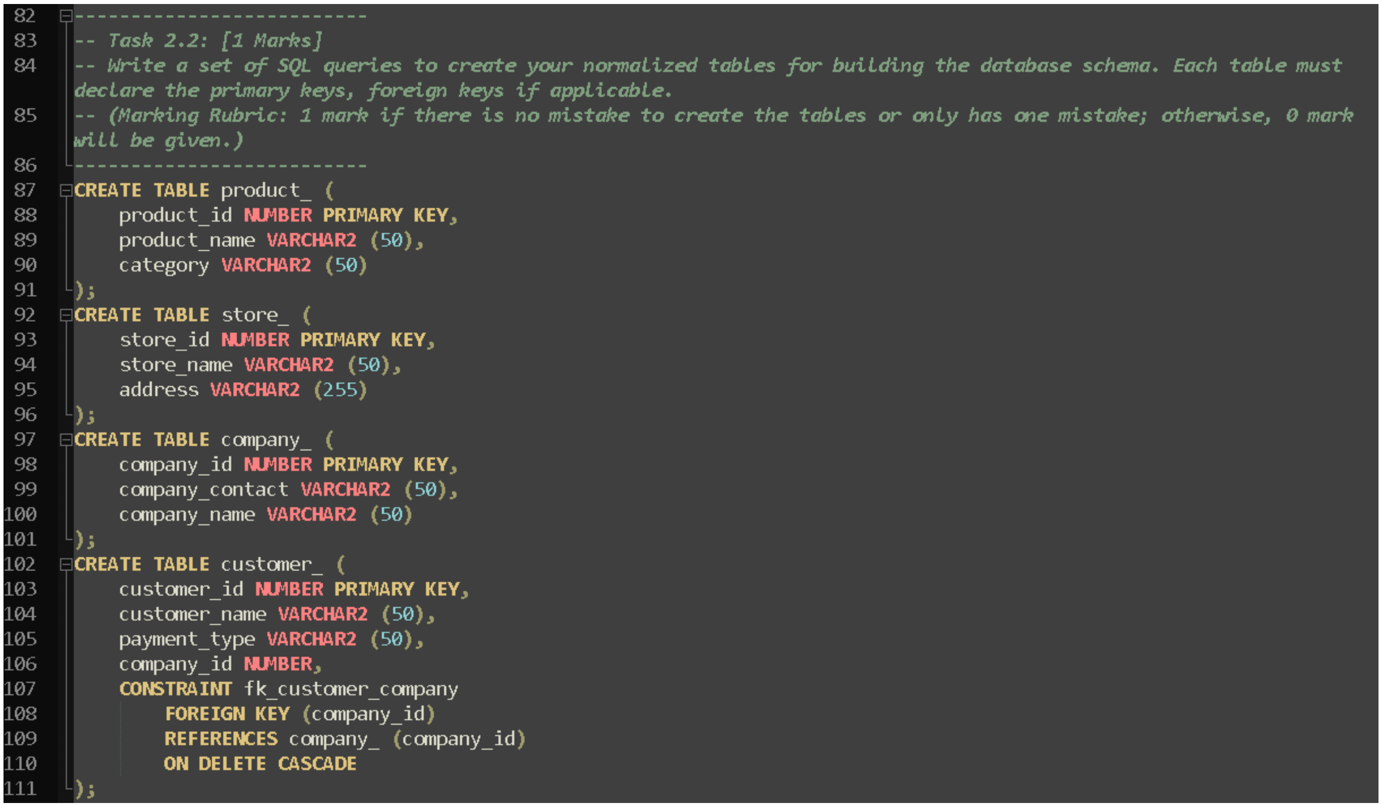
store_id	Store name	address
1	Freeland Choice	20 Avenue, Burwood, VIC3125
2	City Bunnings	36 Maple street, Melbourne, VIC3000
3	Burwood Electronic	20 Avenue, Burwood
4	Burwood Officework	606 Burwood Hwy, Vermont South VIC 3133
5	Burwood Bunnings	606-634 Burwood Hwy, Vermont South VIC 3133

product_id	Product name	Category
1	ThinkPad	Electronic
2	Mouse	Electronic
3	Office Chair	Office
4	Camera	Electronic
5	Keyboard	Electronic

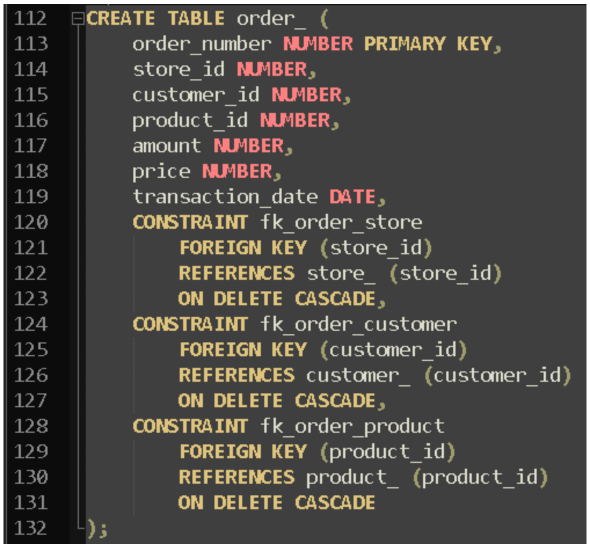
customer_id	Customer Name	PaymentType	Company_id
1	Kevin Li	Visa	1
2	David Andrews	Mastercard	1
3	Daniel Andrews	Mastercard	2

Company_id	Company Contact	Company name
1	111111	IBM
2	222222	Luxo Narelle Mesh

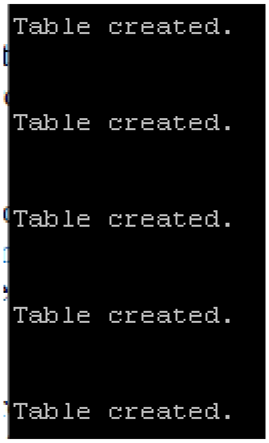
2.2



```sql
-------------------------
-- Task 2.2: [1 Marks]
-- Write a set of SQL queries to create your normalized tables for building the database schema. Each table must declare the primary keys, foreign keys if applicable.
-- (Marking Rubric: 1 mark if there is no mistake to create the tables or only has one mistake; otherwise, 0 mark will be given.)
-------------------------
CREATE TABLE product_ (
    product_id NUMBER PRIMARY KEY,
    product_name VARCHAR2 (50),
    category VARCHAR2 (50)
);
CREATE TABLE store_ (
    store_id NUMBER PRIMARY KEY,
    store_name VARCHAR2 (50),
    address VARCHAR2 (255)
);
CREATE TABLE company_ (
    company_id NUMBER PRIMARY KEY,
    company_contact VARCHAR2 (50),
    company_name VARCHAR2 (50)
);
CREATE TABLE customer_ (
    customer_id NUMBER PRIMARY KEY,
    customer_name VARCHAR2 (50),
    payment_type VARCHAR2 (50),
    company_id NUMBER,
    CONSTRAINT fk_customer_company
        FOREIGN KEY (company_id)
        REFERENCES company_ (company_id)
        ON DELETE CASCADE
);
```

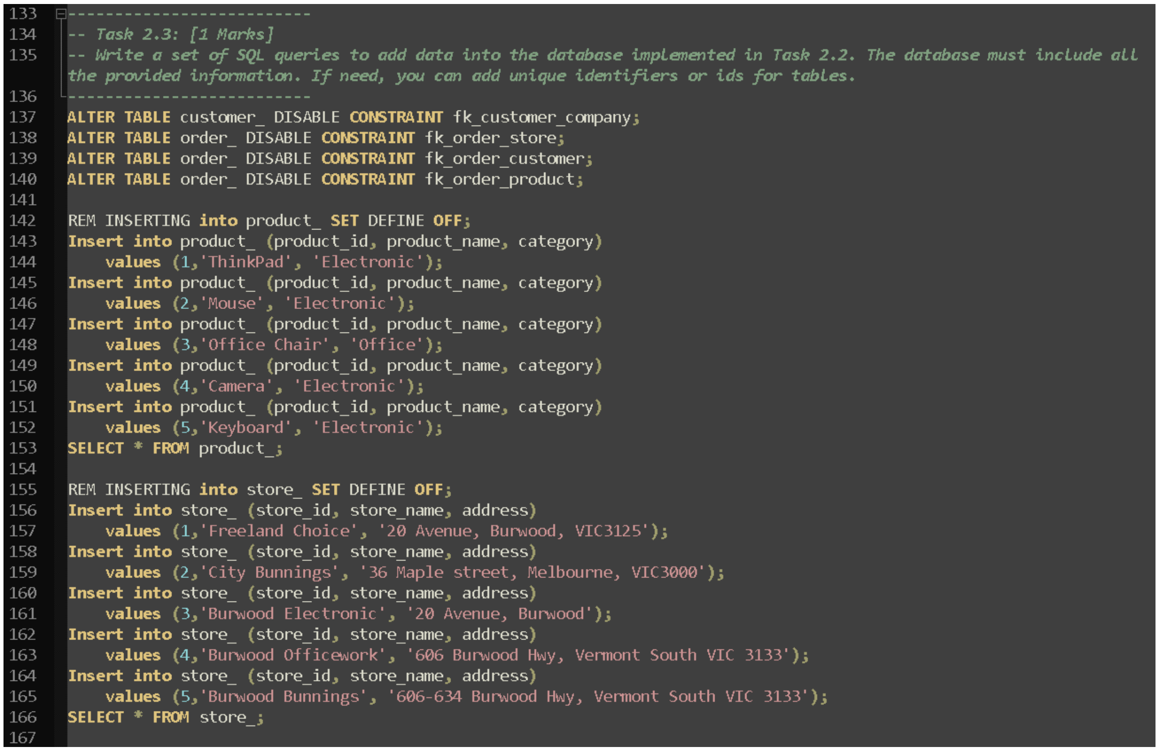


```sql
CREATE TABLE order_ (
    order_number NUMBER PRIMARY KEY,
    store_id NUMBER,
    customer_id NUMBER,
    product_id NUMBER,
    amount NUMBER,
    price NUMBER,
    transaction_date DATE,
    CONSTRAINT fk_order_store
        FOREIGN KEY (store_id)
        REFERENCES store_ (store_id)
        ON DELETE CASCADE,
    CONSTRAINT fk_order_customer
        FOREIGN KEY (customer_id)
        REFERENCES customer_ (customer_id)
        ON DELETE CASCADE,
    CONSTRAINT fk_order_product
        FOREIGN KEY (product_id)
        REFERENCES product_ (product_id)
        ON DELETE CASCADE
);
```

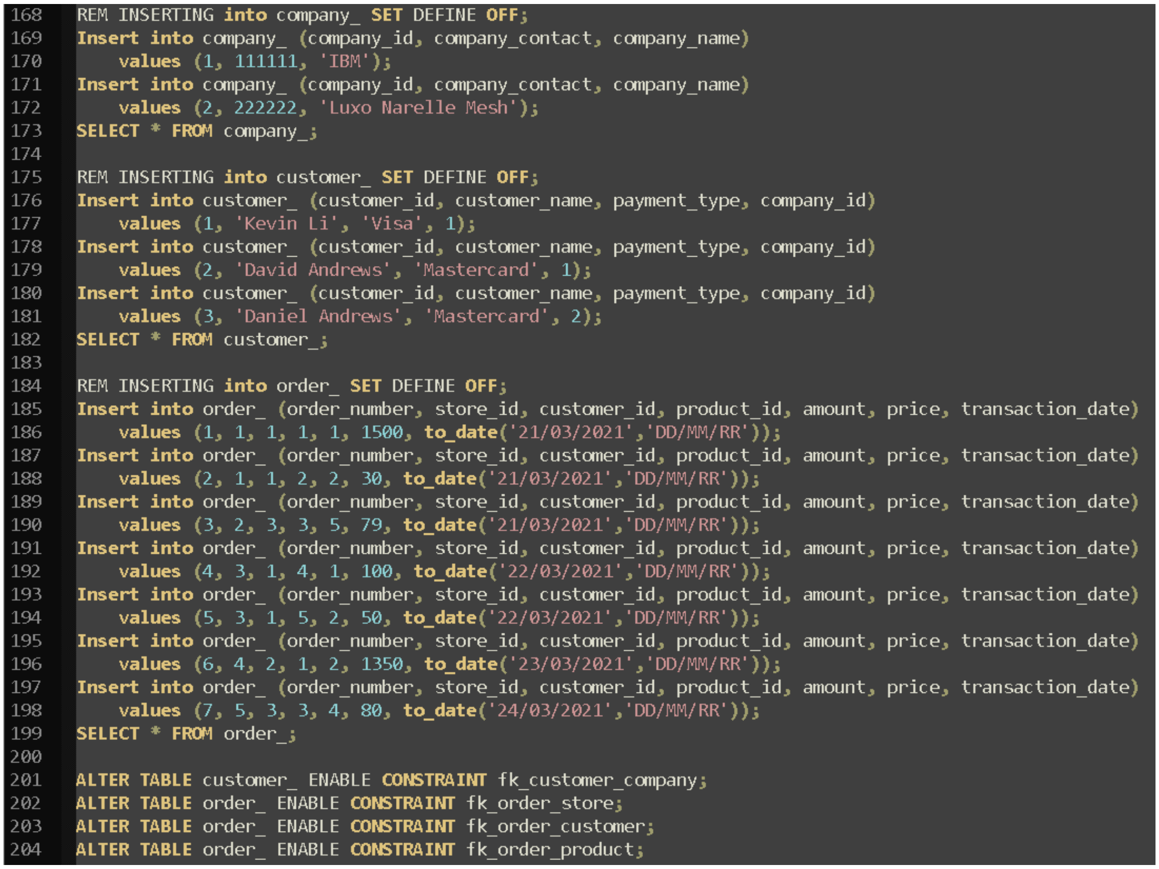


```
Table created.


Table created.


Table created.


Table created.


Table created.
```

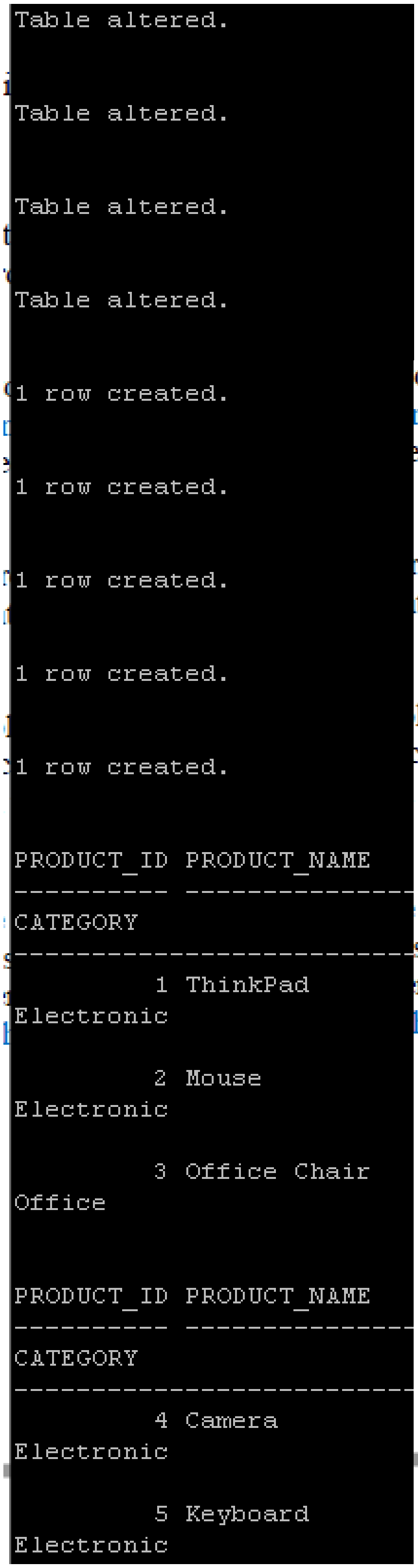
2.3



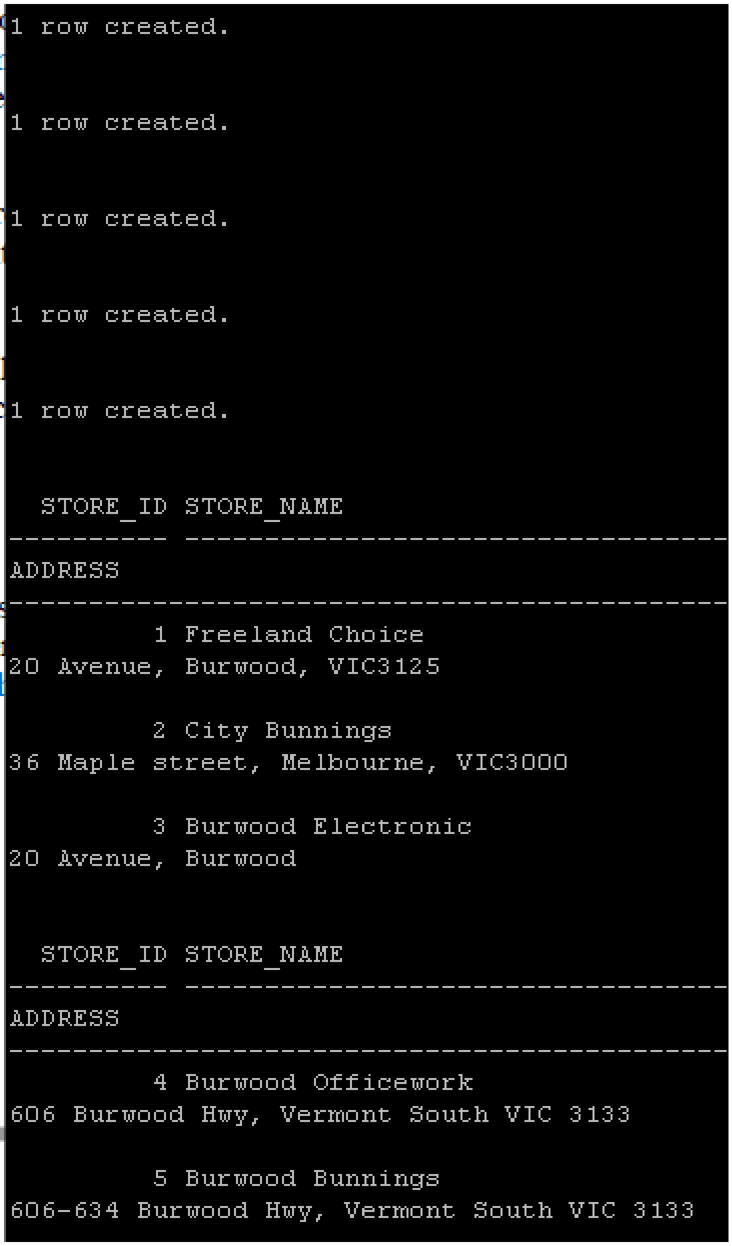
```sql
-------------------------
-- Task 2.3: [1 Marks]
-- Write a set of SQL queries to add data into the database implemented in Task 2.2. The database must include all the provided information. If need, you can add unique identifiers or ids for tables.
-------------------------
ALTER TABLE customer_ DISABLE CONSTRAINT fk_customer_company;
ALTER TABLE order_ DISABLE CONSTRAINT fk_order_store;
ALTER TABLE order_ DISABLE CONSTRAINT fk_order_customer;
ALTER TABLE order_ DISABLE CONSTRAINT fk_order_product;

REM INSERTING into product_ SET DEFINE OFF;
Insert into product_ (product_id, product_name, category)
    values (1,'ThinkPad', 'Electronic');
Insert into product_ (product_id, product_name, category)
    values (2,'Mouse', 'Electronic');
Insert into product_ (product_id, product_name, category)
    values (3,'Office Chair', 'Office');
Insert into product_ (product_id, product_name, category)
    values (4,'Camera', 'Electronic');
Insert into product_ (product_id, product_name, category)
    values (5,'Keyboard', 'Electronic');
SELECT * FROM product_;

REM INSERTING into store_ SET DEFINE OFF;
Insert into store_ (store_id, store_name, address)
    values (1,'Freeland Choice', '20 Avenue, Burwood, VIC3125');
Insert into store_ (store_id, store_name, address)
    values (2,'City Bunnings', '36 Maple street, Melbourne, VIC3000');
Insert into store_ (store_id, store_name, address)
    values (3,'Burwood Electronic', '20 Avenue, Burwood');
Insert into store_ (store_id, store_name, address)
    values (4,'Burwood Officework', '606 Burwood Hwy, Vermont South VIC 3133');
Insert into store_ (store_id, store_name, address)
    values (5,'Burwood Bunnings', '606-634 Burwood Hwy, Vermont South VIC 3133');
SELECT * FROM store_;

```



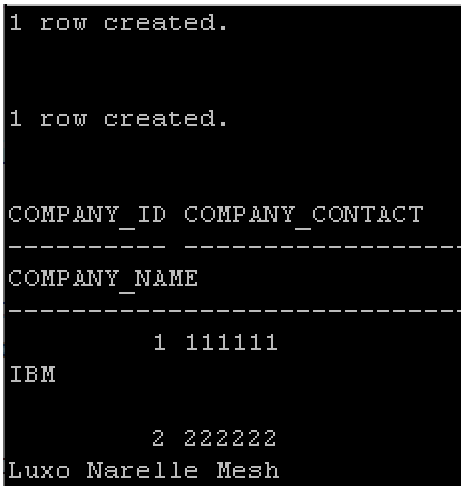
```sql
REM INSERTING into company_ SET DEFINE OFF;
Insert into company_ (company_id, company_contact, company_name)
    values (1, 111111, 'IBM');
Insert into company_ (company_id, company_contact, company_name)
    values (2, 222222, 'Luxo Narelle Mesh');
SELECT * FROM company_;

REM INSERTING into customer_ SET DEFINE OFF;
Insert into customer_ (customer_id, customer_name, payment_type, company_id)
    values (1, 'Kevin Li', 'Visa', 1);
Insert into customer_ (customer_id, customer_name, payment_type, company_id)
    values (2, 'David Andrews', 'Mastercard', 1);
Insert into customer_ (customer_id, customer_name, payment_type, company_id)
    values (3, 'Daniel Andrews', 'Mastercard', 2);
SELECT * FROM customer_;

REM INSERTING into order_ SET DEFINE OFF;
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (1, 1, 1, 1, 1, 1500, to_date('21/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (2, 1, 1, 2, 2, 30, to_date('21/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (3, 2, 3, 3, 5, 79, to_date('21/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (4, 3, 1, 4, 1, 100, to_date('22/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (5, 3, 1, 5, 2, 50, to_date('22/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (6, 4, 2, 1, 2, 1350, to_date('23/03/2021','DD/MM/RR'));
Insert into order_ (order_number, store_id, customer_id, product_id, amount, price, transaction_date)
    values (7, 5, 3, 3, 4, 80, to_date('24/03/2021','DD/MM/RR'));
SELECT * FROM order_;

ALTER TABLE customer_ ENABLE CONSTRAINT fk_customer_company;
ALTER TABLE order_ ENABLE CONSTRAINT fk_order_store;
ALTER TABLE order_ ENABLE CONSTRAINT fk_order_customer;
ALTER TABLE order_ ENABLE CONSTRAINT fk_order_product;
```



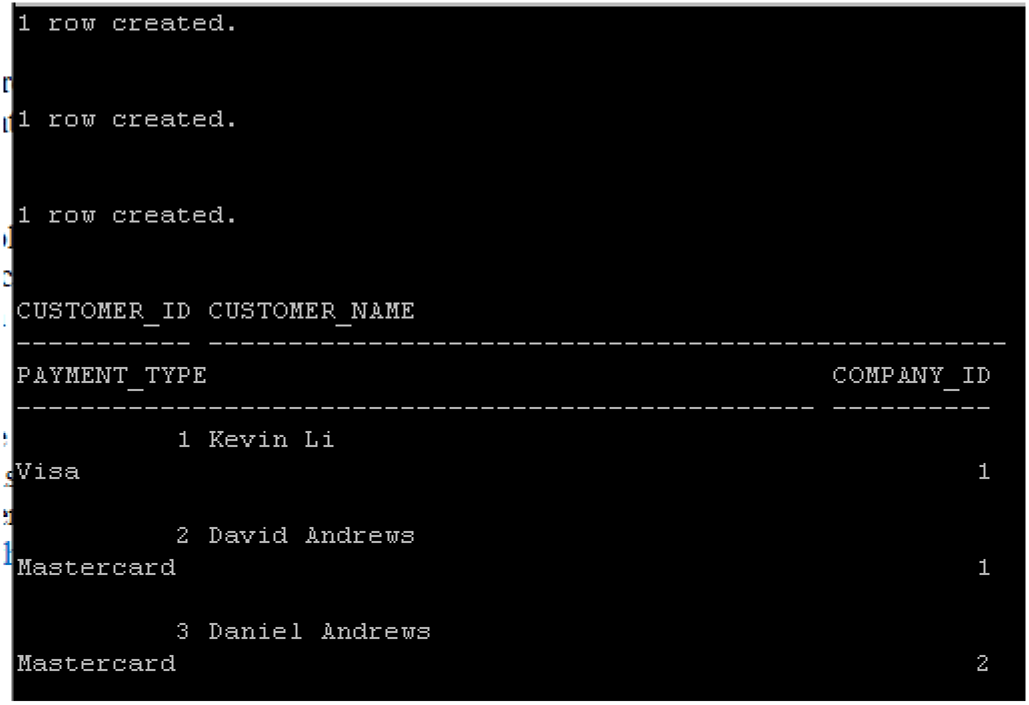
```
Table altered.


Table altered.


Table altered.


Table altered.


1 row created.


1 row created.


1 row created.


1 row created.


1 row created.


PRODUCT_ID PRODUCT_NAME
---------- ---------------
CATEGORY
--------------------------
         1 ThinkPad
Electronic

         2 Mouse
Electronic

         3 Office Chair
Office


PRODUCT_ID PRODUCT_NAME
---------- ---------------
CATEGORY
--------------------------
         4 Camera
Electronic

         5 Keyboard
Electronic
```



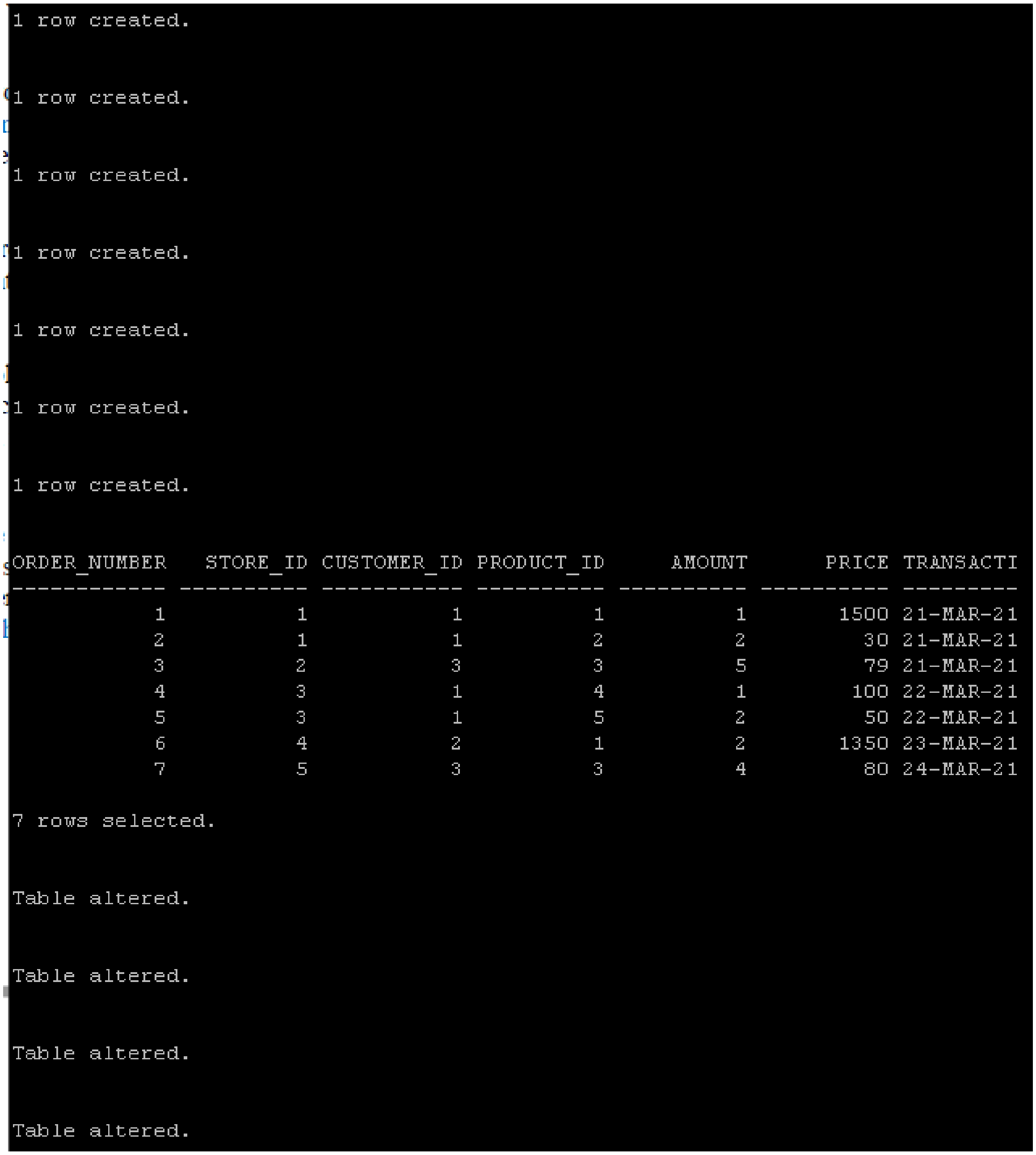
```
1 row created.


1 row created.


1 row created.


1 row created.


1 row created.


  STORE_ID STORE_NAME
---------- ----------------------------------
ADDRESS
---------------------------------------------
         1 Freeland Choice
20 Avenue, Burwood, VIC3125

         2 City Bunnings
36 Maple street, Melbourne, VIC3000

         3 Burwood Electronic
20 Avenue, Burwood


  STORE_ID STORE_NAME
---------- ----------------------------------
ADDRESS
---------------------------------------------
         4 Burwood Officework
606 Burwood Hwy, Vermont South VIC 3133

         5 Burwood Bunnings
606-634 Burwood Hwy, Vermont South VIC 3133
```



```
1 row created.


1 row created.


COMPANY_ID COMPANY_CONTACT
---------- ------------------
COMPANY_NAME
-----------------------------
         1 111111
IBM

         2 222222
Luxo Narelle Mesh
```



```
1 row created.


1 row created.


1 row created.


CUSTOMER_ID CUSTOMER_NAME
----------- --------------------------------------------------
PAYMENT_TYPE                                       COMPANY_ID
-------------------------------------------------- ----------
          1 Kevin Li
Visa                                                        1

          2 David Andrews
Mastercard                                                  1

          3 Daniel Andrews
Mastercard                                                  2
```



```
1 row created.


1 row created.


1 row created.


1 row created.


1 row created.


1 row created.


1 row created.


ORDER_NUMBER   STORE_ID CUSTOMER_ID PRODUCT_ID     AMOUNT      PRICE TRANSACTI
------------ ---------- ----------- ---------- ---------- ---------- ---------
           1          1           1          1          1       1500 21-MAR-21
           2          1           1          2          2         30 21-MAR-21
           3          2           3          3          5         79 21-MAR-21
           4          3           1          4          1        100 22-MAR-21
           5          3           1          5          2         50 22-MAR-21
           6          4           2          1          2       1350 23-MAR-21
           7          5           3          3          4         80 24-MAR-21

7 rows selected.


Table altered.


Table altered.


Table altered.


Table altered.
```