High Distinction Task S1 2023

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Part 1 – Business Narrative

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StudentID: 103542074 (ends with 4)

Business type: Handling tasks for a House cleaning business

We believe that a relation databse can greatly assist database solution in many ways:

- A relational database solution allows the cleaning business to store and retrieve large amout of data, such as customer information, cleaning schedule in an organised and efficient manner
- Improved the data accuracy and consistency. A relational database can store data in accuracy and consistency across many tables and records.
- Better data analysis and reporting: With the data stored in a relational database, data analysis can use tools such as PowerBi to visualized the trends of the business. Reports can generated an overview the business's performance. Finally, to have the ability to orientation for the business.

Scenario:

The house cleaning business operates by providing cleaning services to residential customers. Customers can request cleaning services by phone, email, or through the company's website. The company assigns a cleaning team to each customer based on the customer's location, cleaning needs, and availability.

The data involved in this business includes various entities and attributes, such as:

- Customers: name, address, phone number, email address
- Cleaning service: service code, service description, servicerate
- Cleaning teams: team members, availability, location
- Cleaning schedules: date and time of cleaning, duration, location
- Invoices: Invoices number, customer name, date of service, total cost

It is useful for this organization to use a database to store this data because it enables efficient storage, retrieval, and management of large amounts of information. A database also facilitates data analysis and reporting, enabling the business to make informed decisions and optimize its operations.

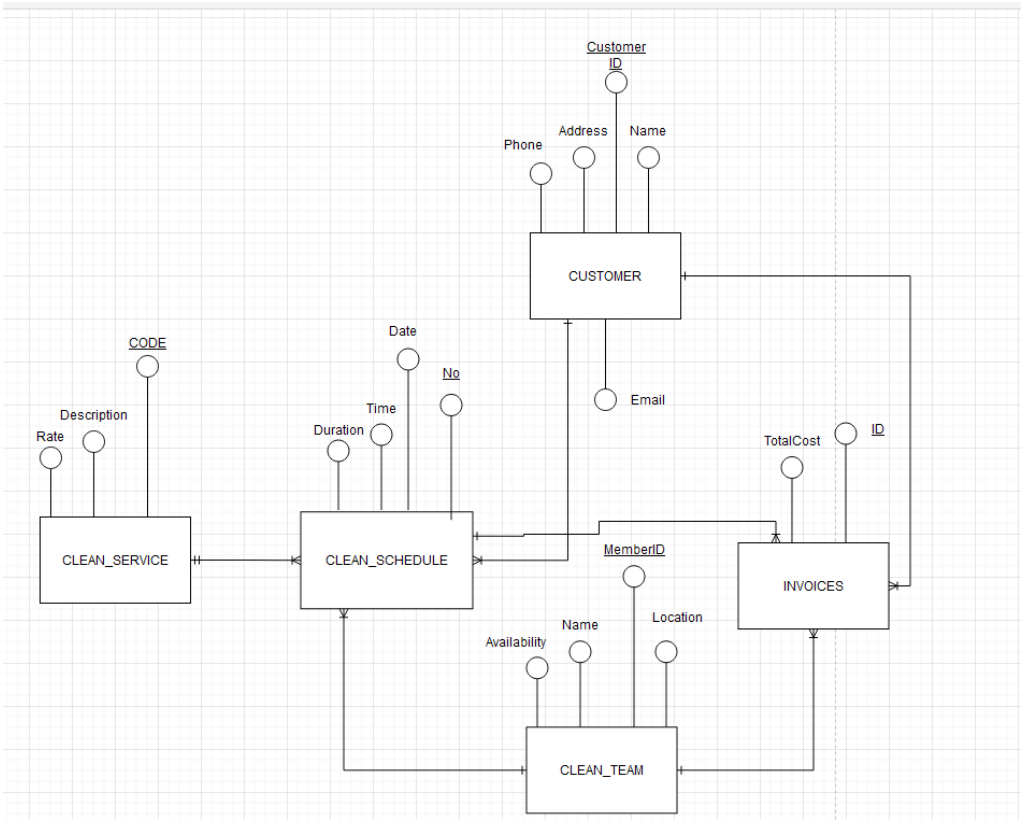
The business rules that apply to the data include:

- Each customer can request cleaning services on a recurring or one-time basis
- Each cleaning team can be assigned to multiple customers
- Each cleaning team can only be assigned to one location at a time
- Each cleaning schedule must be confirmed by the customer before the cleaning takes place
- Invoices must be generated for each cleaning service and sent to the customer

To provide useful outcomes, the business could use queries to retrieve specific information, such as all cleaning schedules for a particular day. Reports could be generated to provide an overview of the business's performance, such as the number of cleaning services provided each month. Visualizations could be used to identify trends and patterns in the data, such as the busiest times of day or week for cleaning services. Overall, the use of a database can help the house cleaning business operate more efficiently and effectively.

Part 2 – ERDs and Relational Schema

ERD:



Relational schema:

CUSTOMER (CustomerID, Phone, Address, Name, Email)

PK CustomerID

CLEAN_SERVICE (Code, Description, Rate)

PK (Code)

CLEAN_TEAM (MemberID, Name, Location, Availability)

PK (MemberID)

CLEAN_SCHEDULE (No, Date, Time, Duration, CustomerID, MemberID, Code)

PK (No, CustomerID, MemberID, Code)

FK1 CustomerID references CUSTOMER (CustomerID)

FK2 MemberID references CLEAN_TEAM (MemberID)

FK3 Code references CLEAN_SERVICE (Code)

INVOICES (ID, TotalCost, CustomerID, MemberID, InvoiceNo)

PK (ID, CustomerID, MemberID, No)

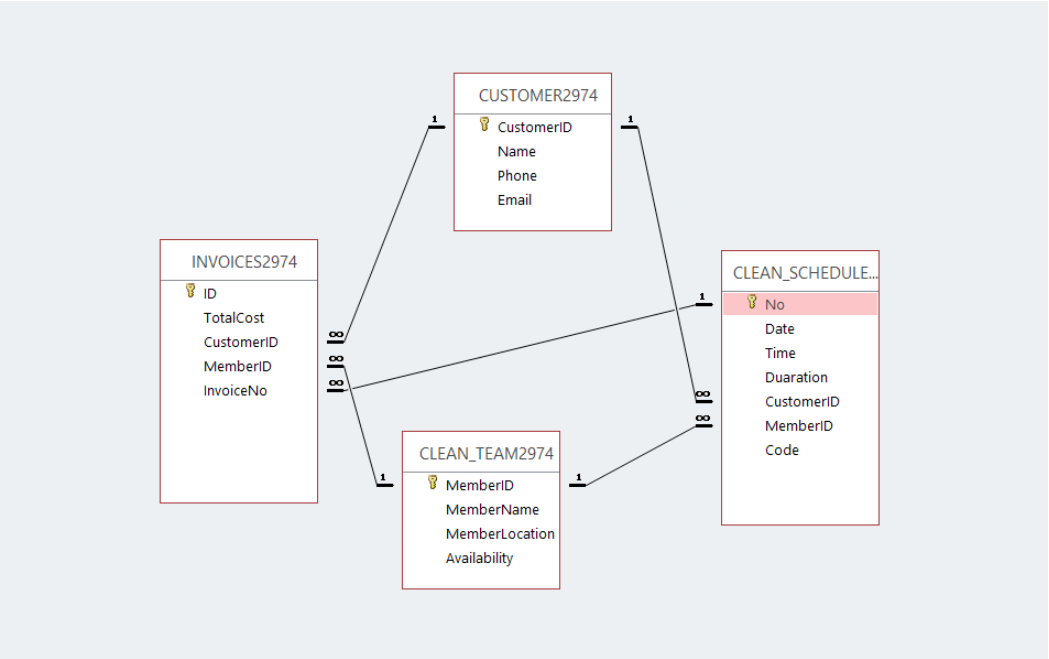
FK1 CustomerID references CUSTOMER (CustomerID)

FK2 MemberID references CLEAN_TEAM (MemberID)

FK3 InvoiceNo references INVOICES(No)

Part 3 – DB Solution (If using Access then file is to be uploaded to Canvas)
(If using SQL then Drop Table, Create Table, Insert Statements are pasted here)

Relational Diagram (MS Access)



Part 4 – Test Data (Diagram and/or Statements)

Design Views/Datasheet views or Sql scripts - Paste here.

Table 1

Zoom

```
SELECT *
From clean_schedule2974;
```

Sort & Filter | Records | Find

Q1 | Q2 | Q3 | Q4 | Q5

No	Date	Time	Duaration	CustomerID	MemberID	Code
1	3/14/2023	1PM	2	10003	103542974	JS
2	11/10/2022	8AM	3	10002	255	GCS
3	3/3/2023	4PM	2	20001	312	LDC
4	2/7/2023	9AM	1	20007	103542974	RCS
5	12/6/2022	7AM	3	10005	101	LDC
6	12/23/2022	7AM	5	30017	433	CCS
7	2/14/2023	1PM	2	10002	433	SDS
8	3/2/2023	8PM	2	20007	101	PWS
(New)			0	0	0	

Table 2

Zoom

```
SELECT *
From clean_service2974;
```

Remove Sort | Toggle Filter | All | Delete | More

Sort & Filter | Records | Find

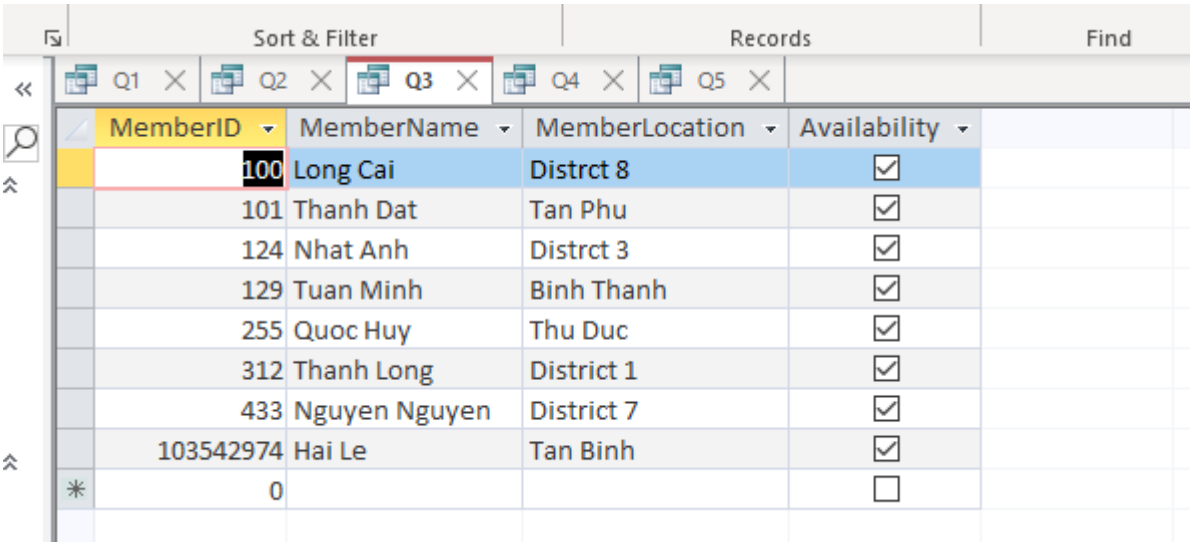
Q1 | Q2 | Q3 | Q4 | Q5

Code	Description	Rate
ACS	A Clean Start	5
CCS	Commercial Service	5
GCS	Green Cleaning Service	4
JS	Janitorial Service	4
LDC	Laundry and Dry Cleaning	1
PWS	Pressure Washing Service	5
RCS	Residental Cleaning Service	3
SDS	Sanitizing and Disinfecting Se	2
		0

Table 3

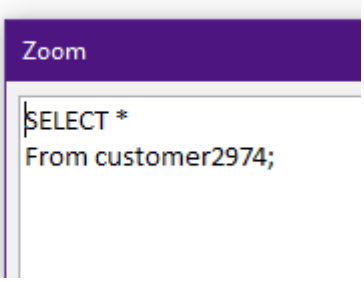
Zoom

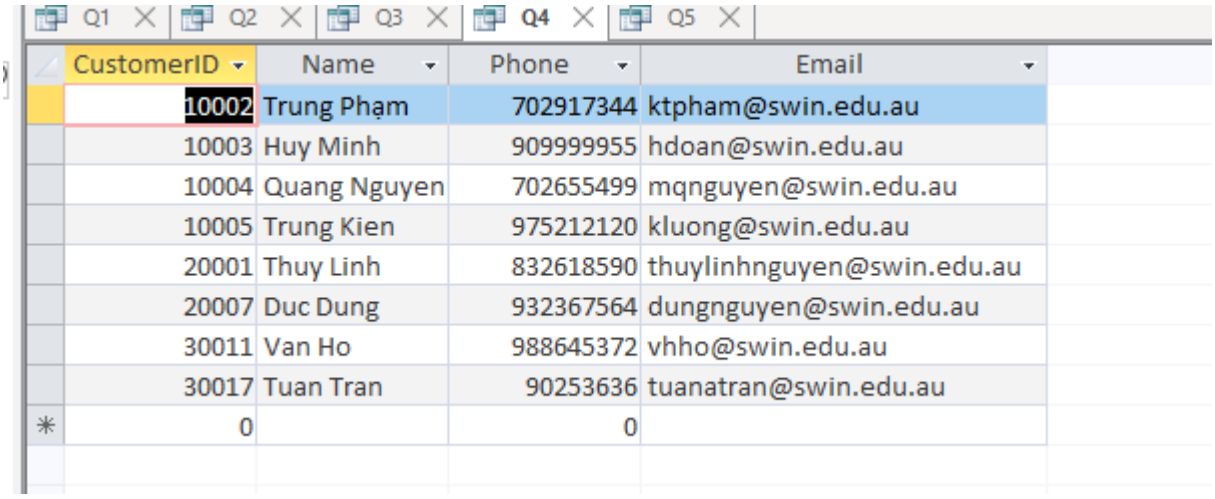
```
SELECT *
From clean_team2974;
```



MemberID	MemberName	MemberLocation	Availability
100	Long Cai	Distrct 8	☑
101	Thanh Dat	Tan Phu	☑
124	Nhat Anh	Distrct 3	☑
129	Tuan Minh	Binh Thanh	☑
255	Quoc Huy	Thu Duc	☑
312	Thanh Long	District 1	☑
433	Nguyen Nguyen	District 7	☑
103542974	Hai Le	Tan Binh	☑
0			☐

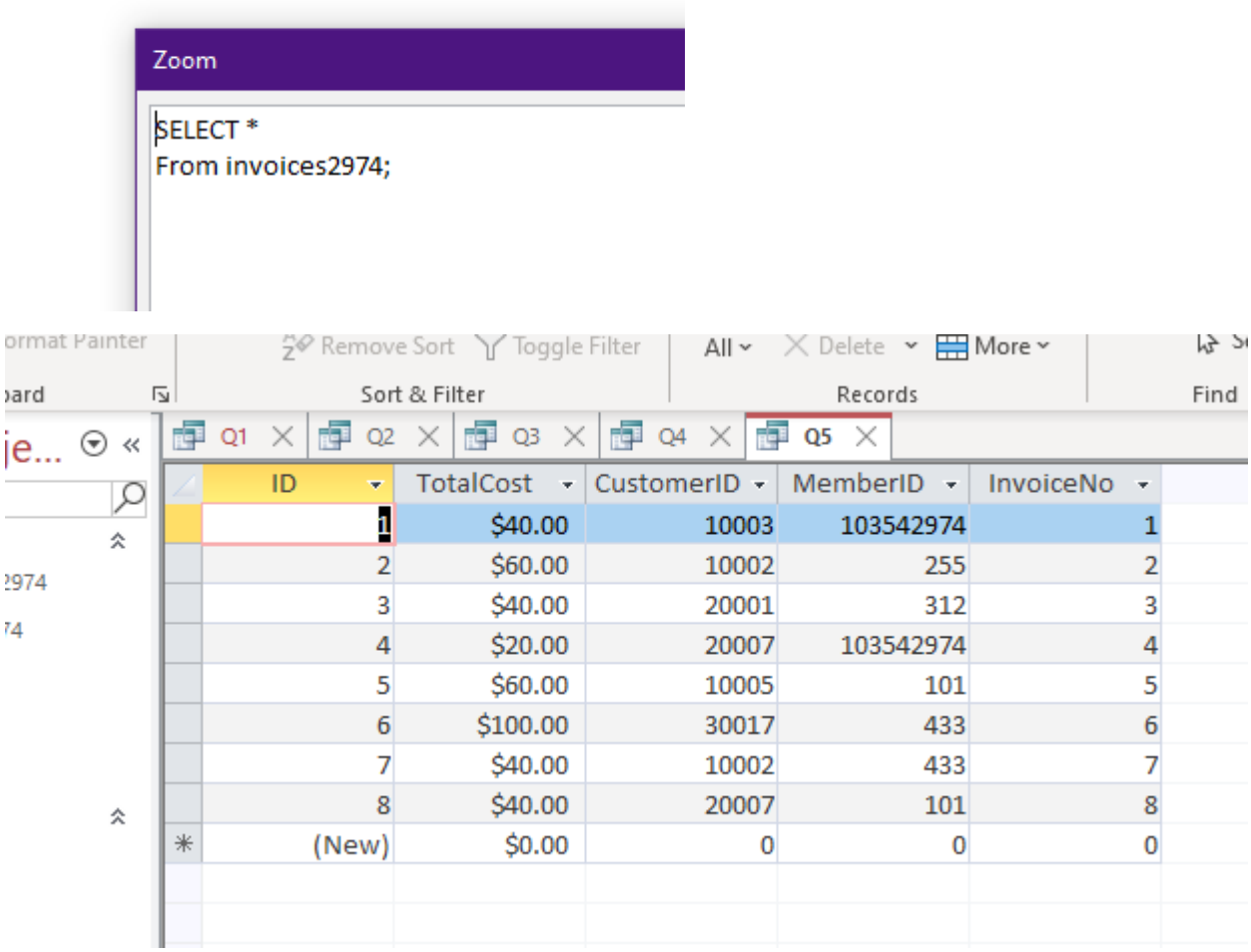
Table 4





CustomerID	Name	Phone	Email
10002	Trung Phạm	702917344	ktpham@swin.edu.au
10003	Huy Minh	909999955	hdoan@swin.edu.au
10004	Quang Nguyen	702655499	mqnguyen@swin.edu.au
10005	Trung Kien	975212120	kluong@swin.edu.au
20001	Thuy Linh	832618590	thuylinhnguyen@swin.edu.au
20007	Duc Dung	932367564	dungnguyen@swin.edu.au
30011	Van Ho	988645372	vhho@swin.edu.au
30017	Tuan Tran	90253636	tuanatran@swin.edu.au
0		0	

Table 5



Part 5 – Queries, Visualisations, (i.e. Queries or sql scripts)

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Q6: List all clean member that have more than 1 task

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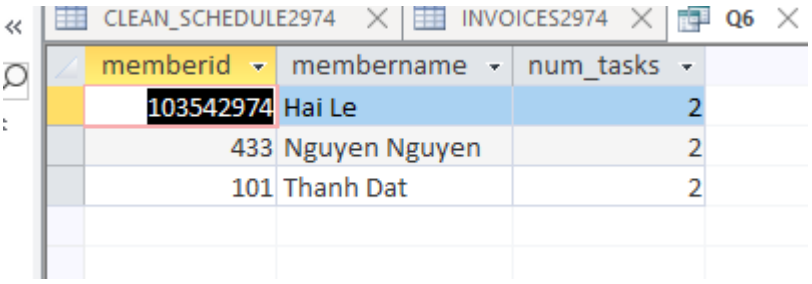
```
SELECT t.memberid, t.membername, Count(s.memberid) AS [num_tasks]
FROM clean_team2974 AS t INNER JOIN clean_schedule2974 AS s ON t.memberid = s.memberid
GROUP BY t.memberid, t.membername
HAVING Count(s.memberid)>1
ORDER BY  t.memberid DESC;
```



CLEAN_SCHEDULE2974 | INVOICES2974 | Q6

memberid	membername	num_tasks
103542974	Hai Le	2
433	Nguyen Nguyen	2
101	Thanh Dat	2

Q7: List all cleaning request in March

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```
SELECT *
from clean_schedule2974 s
where Month(date) = 3
order by s.no ASC;
```

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CLEAN_SCHEDULE2974 | INVOICES2974 | Q6 | CLEAN_TEAM2974 | CLEAN_SERVICE2974 | Q5 | Q7

No	Date	Time	Duaration	CustomerID	MemberID	Code
1	3/14/2023	1PM	2	10003	103542974	JS
3	3/3/2023	4PM	2	20001	312	LDC
8	3/2/2023	8PM	2	20007	101	PWS
(New)			0	0	0	

Q8: List the services that had been requested totally as the favourite service

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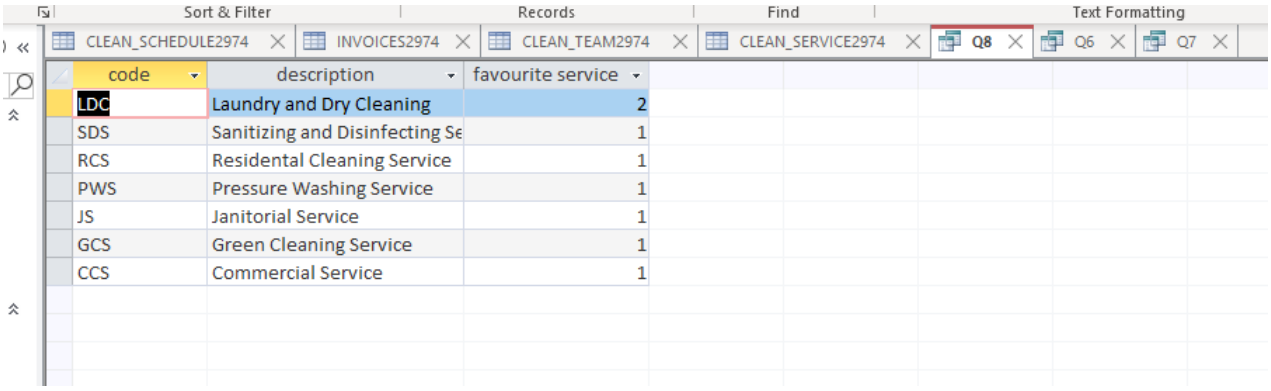
```
SELECT s.code,s.description, count(c.code) as [favourite service]
FROM clean_service2974  s INNER JOIN clean_schedule2974 c ON s.code = c.code
GROUP BY s.code,s.description
ORDER BY count(c.code)  DESC;
```

Font... OK



code	description	favourite service
LDC	Laundry and Dry Cleaning	2
SDS	Sanitizing and Disinfecting Se	1
RCS	Residental Cleaning Service	1
PWS	Pressure Washing Service	1
JS	Janitorial Service	1
GCS	Green Cleaning Service	1
CCS	Commercial Service	1

Q9: List the customer as royal customer which has the most request service

Zoom

```
select c.customerid, c.name, c.email, count(s.customerid) as [royal customer ]
from customer2974 c
inner join clean_schedule2974 s
on c.customerid = s.customerid
group by
c.customerid, c.name, c.email
order by count(s.customerid) desc;
```

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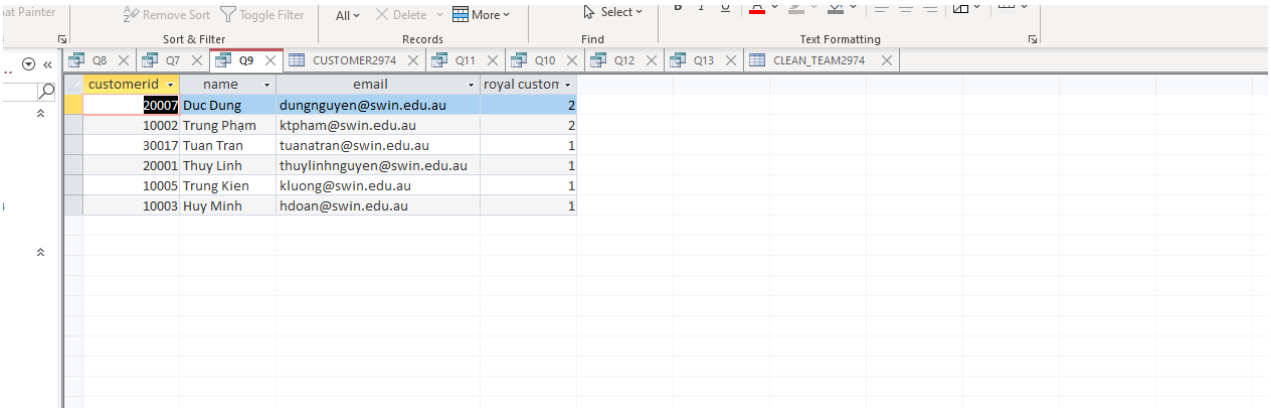
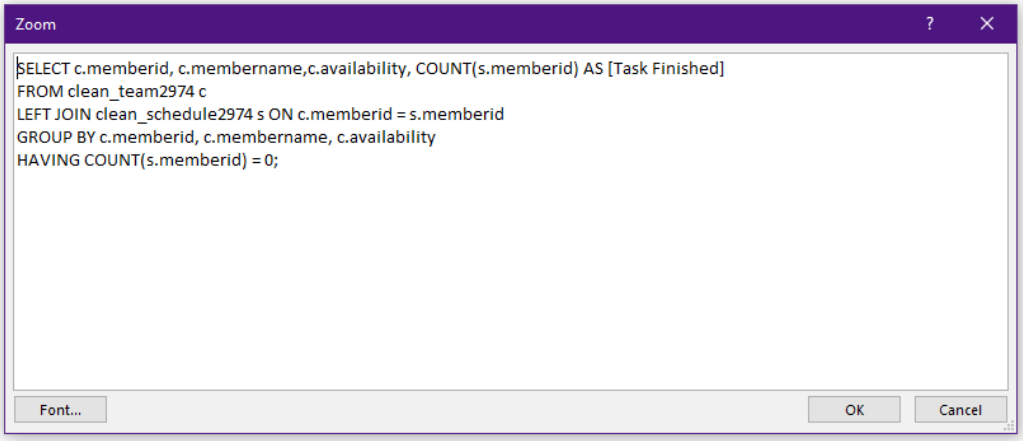
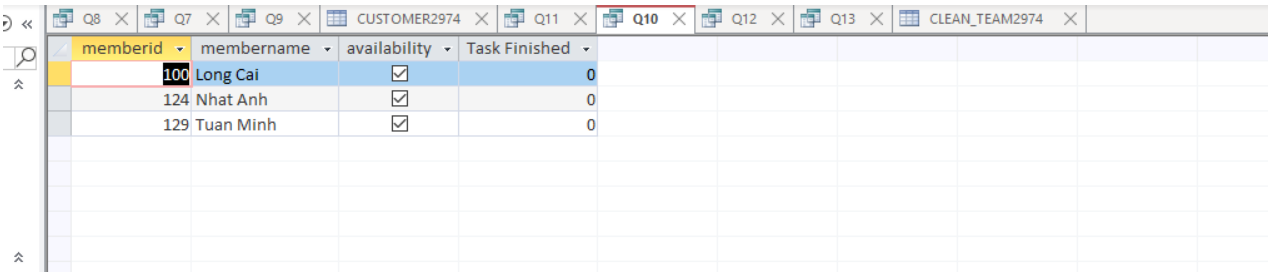
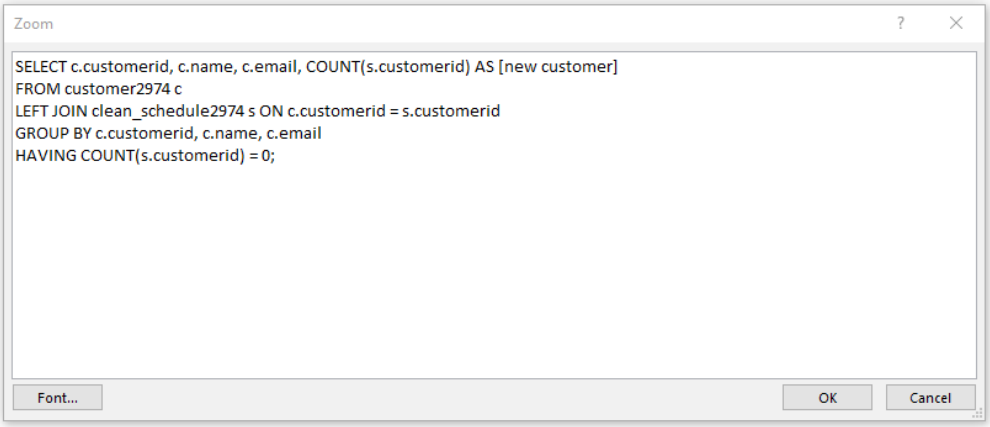


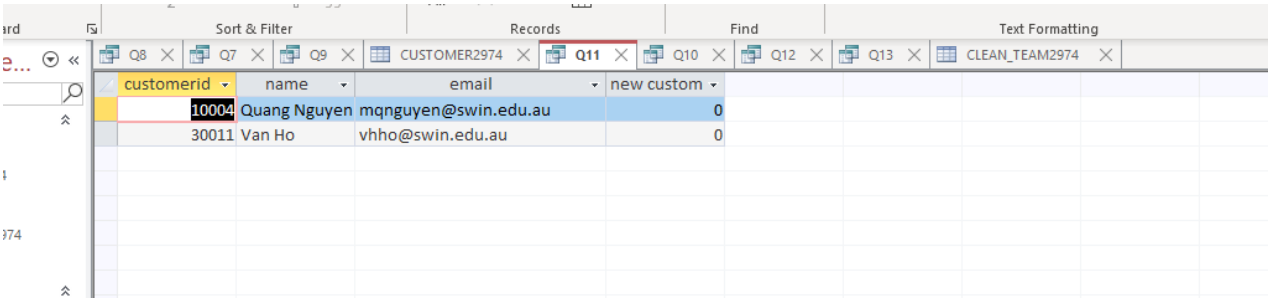
Q10: List all cleaning member which doesn't finish any task



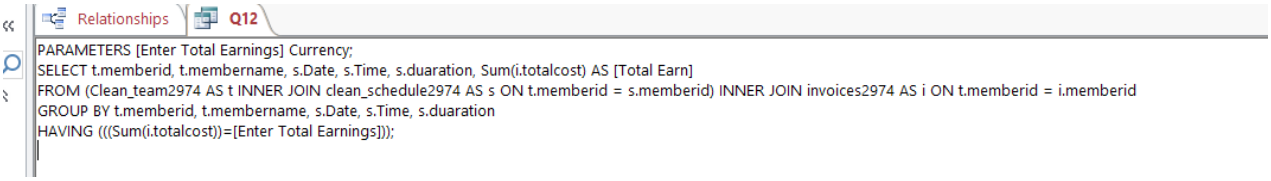


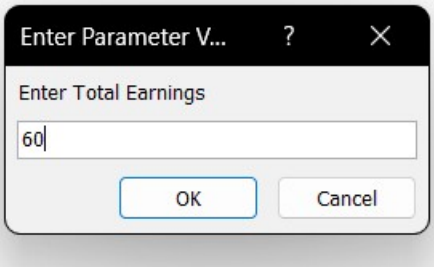
Q11: List customer that haven't request any service

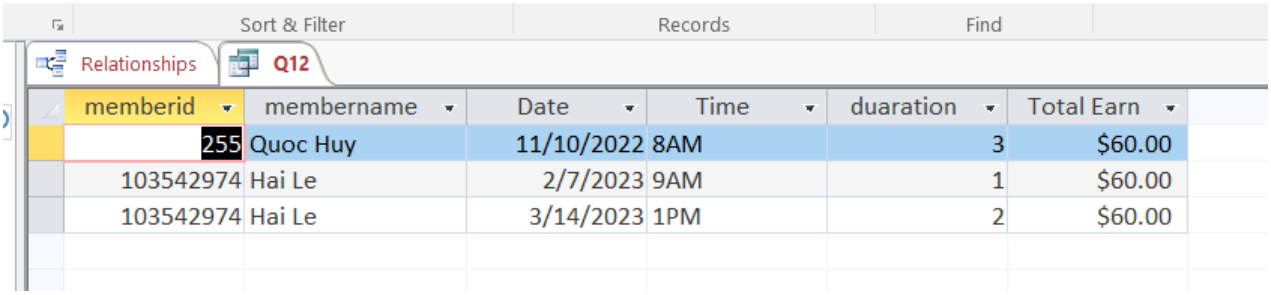




Q12: List the information of cleaning team member based on their earning as the input

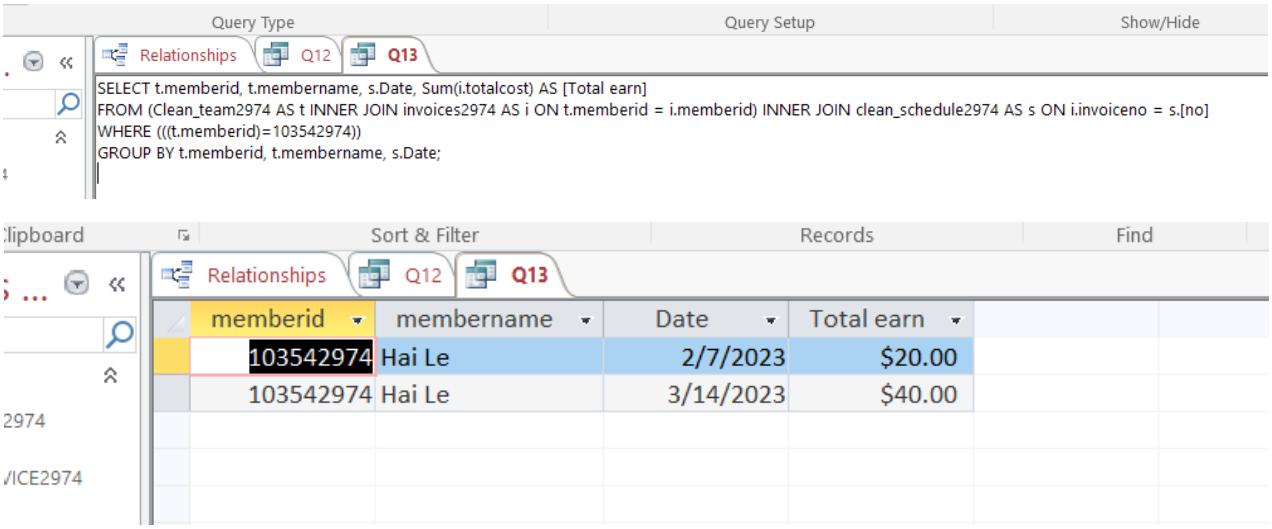






memberid	membername	Date	Time	duaration	Total Earn
255	Quoc Huy	11/10/2022	8AM	3	$60.00
103542974	Hai Le	2/7/2023	9AM	1	$60.00
103542974	Hai Le	3/14/2023	1PM	2	$60.00

Q13: List the task that I do and my earning for each task



memberid	membername	Date	Total earn
103542974	Hai Le	2/7/2023	$20.00
103542974	Hai Le	3/14/2023	$40.00