



DAD 220 Cardinality and Targeted Data Template

Replace the bracketed text in this template with your screenshots and responses. Then submit it to the Module Four Lab for submission, grading, and feedback. Screenshots should be sized to approximately one quarter of a page. Written responses should be in complete sentences. Rename this document by adding your last name to the file name before you submit.

1. **Retrieve employee tuples and identify the number of employees** in San Francisco and New York.

```
mysql> SELECT firstName, lastName, jobTitle, offices.city
-> FROM employees
-> INNER JOIN offices
-> ON employees.officeCode = office.officeCode
-> WHERE state = 'NY';
ERROR 1054 (42S22): Unknown column 'office.officeCode' in 'on clause'
mysql> SELECT firstName, lastName, jobTitle, offices.city
-> FROM employees
-> INNER JOIN offices
-> ON employees.officeCode = offices.officeCode
-> WHERE state = 'NY';

+-----+-----+-----+-----+
| firstName | lastName | jobTitle | city |
+-----+-----+-----+-----+
| Foon Yue  | Tseng    | Sales Rep | NYC  |
| George    | Vanauf   | Sales Rep | NYC  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> SELECT firstName, lastName, jobTitle, offices.city
-> FROM employees
-> INNER JOIN offices
-> ON employees.officeCode = offices.officeCode
->
-> WHERE state = 'CA';

+-----+-----+-----+-----+
| firstName | lastName | jobTitle          | city          |
+-----+-----+-----+-----+
| Diane     | Murphy  | President         | San Francisco |
| Mary      | Patterson | VP Sales          | San Francisco |
| Jeff      | Firrelli | VP Marketing      | San Francisco |
| Anthony   | Bow     | Sales Manager (NA) | San Francisco |
| Leslie    | Jennings | Sales Rep         | San Francisco |
| Leslie    | Thompson | Sales Rep         | San Francisco |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> 
```

I used the SELECT statement to get the proper info that was needed to be displayed. I did make an error when doing the NY table because I had accidentally typed 'office.officeCode' instead of 'offices.officeCode', this was corrected! I used the WHERE statement to distinguish which city would be shown on the table

2. **Retrieve order details** for orderNumber 10330, 10338, and 10194 and **identify** what **type of cardinality** this represents in the entity relationship model.
 - a. The cardinality that this represents is ZERO-ONE because there could be no or only one instance of the order detail. Each order number would only reference one instance

```
mysql> SELECT *
-> FROM orderdetails
-> WHERE orderNumber = 10330;
```

orderNumber	productCode	quantityOrdered	priceEach	orderLineNumber
10330	S18_3482	37	136.70	3
10330	S18_3782	29	59.06	2
10330	S18_4721	50	133.92	4
10330	S24_2360	42	56.10	1

4 rows in set (0.00 sec)

```
mysql> SELECT *
-> FROM orderdetails
-> WHERE orderNumber = 10338;
```

orderNumber	productCode	quantityOrdered	priceEach	orderLineNumber
10338	S18_1662	41	137.19	1
10338	S18_3029	28	80.86	3
10338	S18_3856	45	93.17	2

3 rows in set (0.00 sec)

```
mysql> SELECT *
-> FROM orderdetails
-> WHERE orderNumber = 10194;
```

orderNumber	productCode	quantityOrdered	priceEach	orderLineNumber
10194	S10_1949	42	203.59	11
10194	S10_4962	26	134.44	4
10194	S12_1666	38	124.37	8
10194	S18_1097	21	103.84	10
10194	S18_2432	45	51.05	2
10194	S18_4600	32	113.82	5
10194	S18_4668	41	47.79	9
10194	S24_2300	49	112.46	1
10194	S32_1268	37	77.05	3
10194	S32_3522	39	61.41	7
10194	S700_2824	26	80.92	6

11 rows in set (0.00 sec)

```
mysql>
```

3. **Delete records** from the payments table where the customer number equals 103.

```
mysql> SELECT *
-> FROM payments
-> WHERE customerNumber = 103;
```

customerNumber	checkNumber	paymentDate	amount
103	HQ336336	2004-10-19	6066.78
103	JM555205	2003-06-05	14571.44
103	OM314933	2004-12-18	1676.14

```
3 rows in set (0.00 sec)

mysql>
```

Here is the table before it was deleted, I used the SELECT statement ^

```
mysql> SELECT *
-> FROM payments
-> WHERE customerNumber = 103;
```

customerNumber	checkNumber	paymentDate	amount
103	JM555205	2003-06-05	14571.44
103	OM314933	2004-12-18	1676.14

```
3 rows in set (0.00 sec)

mysql> DELETE FROM payments
-> WHERE customerNumber = 103;
Query OK, 3 rows affected (0.05 sec)

mysql> SELECT &
-> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds
to your MySQL server version for the right syntax to use near '&' at line 1
mysql> SELECT *
-> FROM payments
-> WHERE customerNumber = 103;
Empty set (0.00 sec)
```

Here, I accidentally typed 'SELECT &' instead of 'SELECT *', I fixed this with the proper statement and displayed that the customerNumber of 103 has been deleted, here you can see it say "Empty set"

4. **Retrieve customer records** for sales representative Barry Jones and **identify** if the **relationships** are one-to-one or one-to-many.

- The relationship is ONE-MANY because Barry Jones is one employee, but handles customers

```
mysql> SELECT *
-> FROM employees
-> INNER JOIN customers
-> ON employees.employeeNumber = customers.salesRepEmployeeNumber
-> WHERE employees.employeeNumber = 1504;
```

employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	customerNumber	customerName	country	salesRepEmployeeNumber	creditLimit
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	121	Baane Mini Import	No	1504	81700.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	128	Blauer See Auto,	Ge	1504	59700.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	144	Volvo Model Repli	Sw	1504	53100.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	167	Herkku Gifts	No	1504	96800.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	189	Clover Collection	Ir	1504	69400.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	259	Toms Spezialitäre	Ge	1504	120400.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	299	Norway Gifts By M	No	1504	95100.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	415	Bavarian Collecta	Ge	1504	77000.00
1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	448	Scandinavian Gift	Sw	1504	116400.00

9 rows in set (0.00 sec)

```
mysql>
```

5. **Retrieve records** for customers who reside in Massachusetts and **identify their sales rep and the relationship of entities**. Identify if these entities demonstrate one-to-one or many-to-many relationships.
 - a. The relationship is MANY-MANY because each Rep has many customers and each customer can have many Reps

```
mysql> SELECT employees.firstName, employees.lastName, customers.customerName
-> FROM employees
-> INNER JOIN customers
-> ON employees.employeeNumber = customers.salesRepEmployeeNumber
-> WHERE customers.state = 'MA';
```

firstName	lastName	customerName
Julie	Firrelli	Cambridge Collectables Co.
Julie	Firrelli	Online Mini Collectables
Julie	Firrelli	Mini Creations Ltd.
Julie	Firrelli	Collectables For Less Inc.
Julie	Firrelli	Diecast Collectables
Steve	Patterson	Auto-Moto Classics Inc.
Steve	Patterson	Marta's Replicas Co.
Steve	Patterson	Gifts4AllAges.com
Steve	Patterson	FunGiftIdeas.com

```
9 rows in set (0.00 sec)

mysql>
```

6. **Add one customer record** with your last name using an INSERT statement. You may use the name of a celebrity or fictional character if you don't use your own name.

```

13 rows in set (0.00 sec)

mysql> INSERT INTO customers
-> VALUES (
-> 1313, 'Bernotas', 'George', 'Weasley', '412-444-4444', '123 Burrow Rd', NULL,
-> 'Pittsburgh', 'PA', '15111', 'USA', 1504, 12000);
Query OK, 1 row affected (0.03 sec)

mysql> SELECT *
-> FROM customers;
+-----+-----+-----+-----+-----+-----+-----+-----+
| customerNumber | customerName | contactLastName | contactFirstName | phone | addressLine1 | addressLine2 | city | state | postalCode |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 103 | Atelier graphique | Schmitt | Carine | 40.32.2555 | 54, rue Royale | NULL | Nantes | NULL | 44000 |
| 112 | Signal Gift Stores | King | Jean | 7025551838 | 8489 Strong St. | NULL | Las Vegas | NV | 83030 |
| 114 | Australian Collectors, Co. | Ferguson | Peter | 03 9520 4555 | 636 St Kilda Road | NULL | Melbourne | Victoria | 3004 |
| 119 | La Rochelle Gifts | Labruno | Janine | 40.67.8555 | 67, rue des Cinquante Otages | NULL | Nantes | NULL | 44000 |
| 121 | Baane Mini Imports | Bergulfsen | Jonas | 07-98 9555 | Erling Skakkes gate 78 | NULL | Staverv | NULL | 4110 |
| 124 | Mini Gifts Distributors Ltd. | Nelson | Susan | 4155551450 | 5677 Strong St. | NULL | San Rafael | CA | 97562 |
| 125 | Havel & Zbyszek Co | Piestrzeniewicz | Zbyszek | (26) 642-7555 | ul. Filtrowa 68 | NULL | Warszawa | NULL | 01-012 |
| 128 | Blauer See Auto, Co. | Keitel | Roland | +49 69 66 90 2555 | Lyonerstr. 34 | NULL | Blauer See | NULL | 35500 |
| 1313 | Bernotas | George | Weasley | 412-444-4444 | 123 Burrow Rd | NULL | Pittsburgh | PA | 15111 |
+-----+-----+-----+-----+-----+-----+-----+-----+
123 rows in set (0.00 sec)

mysql> SELECT *
-> FROM customers
-> WHERE customerNumber = 1313;
+-----+-----+-----+-----+-----+-----+-----+-----+
| customerNumber | customerName | contactLastName | contactFirstName | phone | addressLine1 | addressLine2 | city | state | postalCode |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1313 | Bernotas | George | Weasley | 412-444-4444 | 123 Burrow Rd | NULL | Pittsburgh | PA | 15111 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql>

```

I used my last name and a fictional name from Harry Potter, "George Weasley", I took two screenshots just so that you could see it was for sure added!



7. Reflection

- a. **Define how cardinality is applied** to the databases you've been working with and why different numbers of records returned from the different offices.
 - i. Cardinality is applied to databases to help represent a relationship between tables. In this database specifically, cardinality was used to determine the relationship between customer and employee. It kept track of which customers were represented by which representative. There were different numbers of records returned from different offices because of the MANY-MANY relationship. One Rep can have many customers, so there would be more than one record under that representative's office, same way vice versa as a customer could have many representatives.
- b. **Compare and contrast** the different **queries** you ran and how cardinality applies to them.
 - i. I ran a few different queries but the most common ones were a SELECT statement and an INNER JOIN. SELECT and INNER JOIN applies to cardinality because it allows the use of special syntax to pull from two, or more, tables at once. This is what allows us to see the relationship between tables. When creating the table, the most important part of incorporating cardinality is by using keys. Especially with the FOREIGN KEY, which was used in the database, this allows us to reference another column from a separate table, all while keeping the information.
- c. **Describe two** of the crucial **benefits of cardinality** in this type of database.
 - i. When having a database that is keeping track of customer orders, products, etc. Using cardinality is a major benefit because it allows organization among order numbers, products, and who is handling a specific customer. Distinguishing the relationship among the employees and customers allows orders to not get lost as easily. This linking of relationship to table to table puts everything in a structured manner.
 - ii. Another major benefit of cardinality in this database is allowing the user to search for data very easily. Accessing data in a database that is using cardinality makes it much easier to access. This way you do not have to physically match employee ID and order numbers yourself, but can separate it through the system much faster and more efficiently.