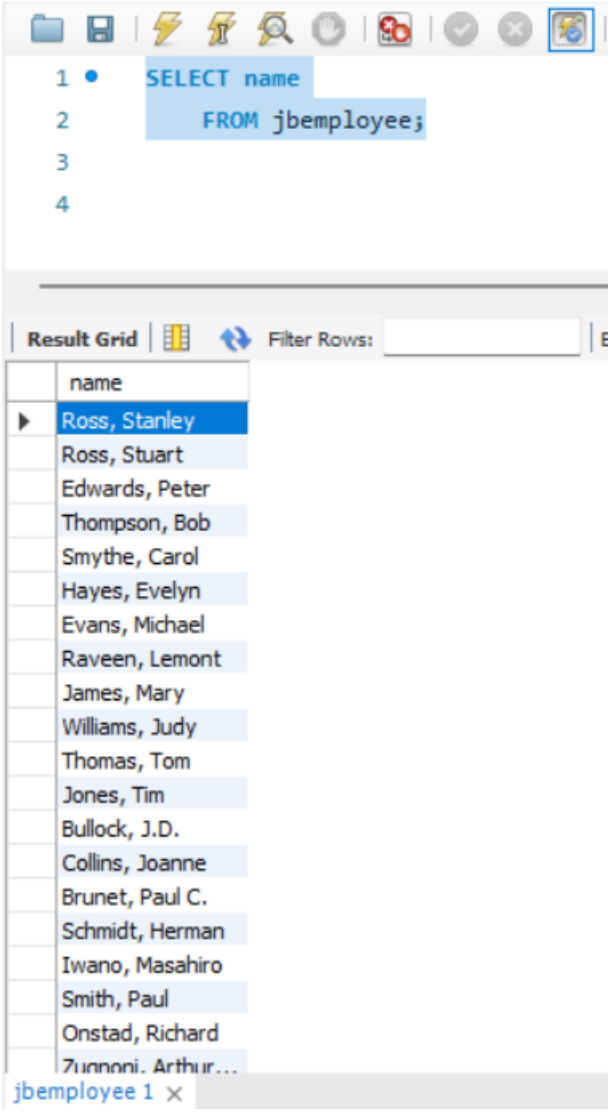
Relational Database Lab1

1) List all employees, i.e. all tuples in the jbemployee relation

Selecting all the employees name from name column.

Query:

SELECT name FROM jbemployee;



2)List the name of all departments in alphabetical order. Note: by “name” we mean the name attribute for all tuples in the jbdept relation.

The names are listed in ascending order.

Query:

SELECT name FROM jbdept ORDER BY name;

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```
SELECT name
    FROM jbdept
    ORDER BY name;
```

Result Grid | Filter Rows:

name
Bargain
Book
Candy
Children's
Children's
Furniture
Giftwrap
Jewelry
Junior Miss
Junior's
Linens
Major App...
Men's
Sportswear
Stationary
Toys
Women's
Women's
Women's

3)What parts are not in store, i.e. qoh = 0? (qoh = Quantity On Hand)

Listing any parts from the jbparts table that do not have a qoh in store.

Query:

SELECT * FROM jbparts WHERE qoh=0;

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```
SELECT * FROM jbparts WHERE qoh=0;
```

id	name	color	weight	qoh
11	card reader	gray	327	0
12	card punch	gray	427	0
13	paper tape reader	black	107	0
14	paper tape punch	black	147	0
NULL	NULL	NULL	NULL	NULL

4)Which employees have a salary between 9000 (included) and 10000 (included)?

Selecting the employee name whose salary between 9000 & 10000.

Query:

SELECT id,name,salary

FROM jbemployee

WHERE salary between 9000 AND 10000;

```
SELECT id,name,salary
FROM jbemployee
WHERE salary between 9000 AND 10000;
```

id	name	salary
13	Edwards, Peter	9000
32	Smythe, Carol	9050
98	Williams, Judy	9000
129	Thomas, Tom	10000
NULL	NULL	NULL

5)What was the age of each employee when they started working (startyear)? Finding the age of an employee when they started working by using 2 columns (startyear, and birthyear)

Finding the age of the employee by using started year of the company.

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Query:

SELECT Name, startyear - Birthyear AS Employee_experience FROM jbemployee;

```
SELECT Name, startyear - Birthyear AS Employee_experience FROM jbemployee;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	Employee_experience
Ross, Stanley	18
Ross, Stuart	1
Edwards, Peter	30
Thompson, Bob	40
Smythe, Carol	38
Hayes, Evelyn	32
Evans, Michael	22
Raveen, Lemont	24
James, Mary	49
Williams, Judy	34
Thomas, Tom	21
Jones, Tim	20
Bullock, J.D.	0
Collins, Joanne	21
Brunet, Paul C.	21
Schmidt, Herman	20
Iwano, Masahiro	26
Smith, Paul	21
Onstad, Richard	19
Zugnoni, Arthur...	21
Choy, Wanda	23
Wallace, Maggi...	19
Bailey, Chas M.	19
Bono, Sonny	24

6) Which employees have a last name ending with “son”?

Finding the employee whose last name ending with “son”.

Query:

SELECT name

FROM jbemployee

WHERE name LIKE ‘%son, %’;

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```
SELECT name from jbemployee where name like '%son, %';
```

name
Thompson, Bob

7) Which items (note items, not parts) have been delivered by a supplier called Fisher-Price? Formulate this query using a subquery in the where-clause.

Using subquery to get the items have been delivered by the supplier.

Query:

SELECT id,name,supplier FROM jbitem

WHERE supplier in (SELECT id FROM jbsupplier WHERE name='fisher-price')

ORDER BY name ASC;

```
SELECT id,name,supplier FROM jbitem
WHERE supplier in (SELECT id FROM jbsupplier WHERE name='fisher-price')
ORDER BY name ASC;
```

id	name	supplier
43	Maze	89
119	Squeeze Ball	89
107	The 'Feel' Book	89
NULL	NULL	NULL

8)Formulate the same query as above, but without a subquery.

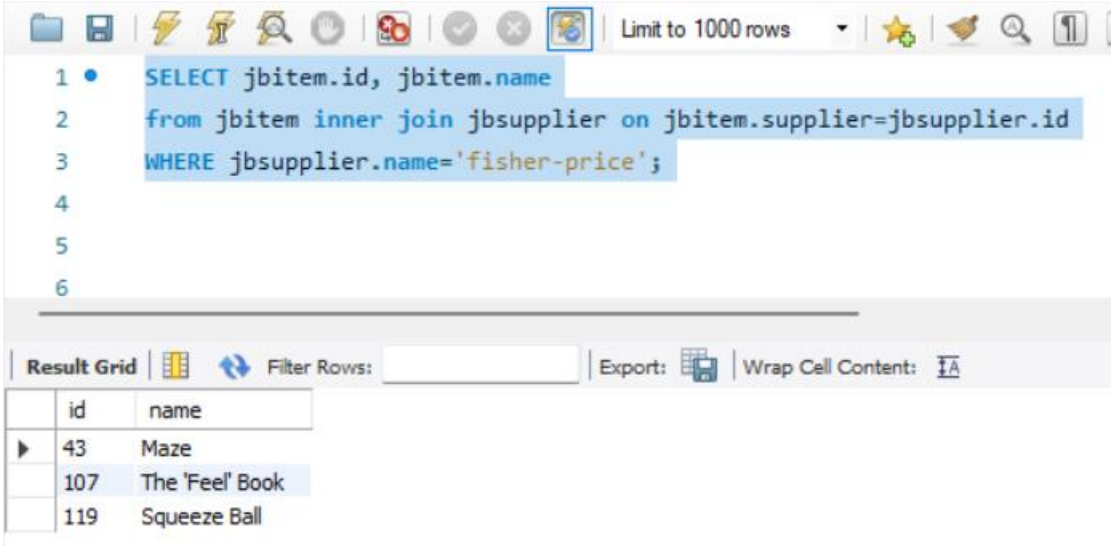
Inner join is used here to get the supplier.

Query:

SELECT jbitem.id, jbitem.name

from jbitem inner join jbsupplier on jbitem.supplier=jbsupplier.id

WHERE jbsupplier.name='fisher-price';



9) Show all cities that have suppliers located in them. Formulate this query using a subquery in the where-clause.

Selecting cities using subquery where the id of a city is in supplier table.

<u>Query:</u>

SELECT * FROM jbcity

where id in (SELECT city FROM jbsupplier);

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```
SELECT * FROM jbcity
where id in (SELECT city FROM jbsupplier);
```

Result Grid

id	name	state
10	Amherst	Mass
21	Boston	Mass
100	New York	NY
106	White Plains	Neb
118	Hickville	Okla
303	Atlanta	Ga
537	Madison	Wisc
609	Paxton	Ill
752	Dallas	Tex
802	Denver	Colo
841	Salt Lake City	Utah
900	Los Angeles	Calif
921	San Diego	Calif
941	San Francisco	Calif
981	Seattle	Wash
NULL	NULL	NULL

10) What is the name and color of the parts that are heavier than a card reader?

In order to obtain the name and color of the specific parts, a subquery is utilized to retrieve their weight.

Query:

SELECT name, color

FROM jbparts

WHERE weight> (SELECT weight FROM jbparts WHERE name='card reader');

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```
SELECT name, color
FROM jbparts
WHERE weight> (SELECT weight FROM jbparts WHERE name='card reader');
```

name	color
disk drive	black
tape drive	black
line printer	yellow
card punch	gray

11) Formulate the same query as above, but without a subquery. (The query must not contain the weight as a constant.)

Obtain the name and color of the specific parts without the subquery

Query:

SELECT tab1.name, tab1.color

FROM jbparts tab1 JOIN jbparts tab2

WHERE tab2.name='card reader' AND tab1.weight>tab2.weight;

```
SELECT tab1.name, tab1.color
FROM jbparts tab1 JOIN jbparts tab2
WHERE tab2.name='card reader' AND tab1.weight>tab2.weight;
```

name	color
disk drive	black
tape drive	black
line printer	yellow
card punch	gray

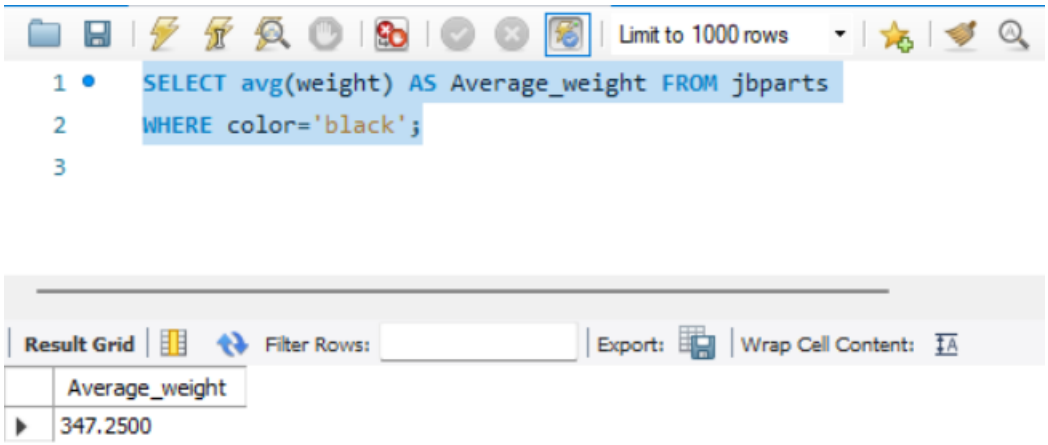
12) What is the average weight of black parts?

The average is obtained by utilizing the avg function and applying a where-clause for a particular color.

Query:

SELECT avg(weight) AS Average_weight FROM jbparts

WHERE color='black';



13) What is the total weight of all parts that each supplier in Massachusetts ("Mass") has delivered? Retrieve the name and the total weight for each of these suppliers. Do not forget to take the quantity of delivered parts into account. Note that one row should be returned for each supplier.

Using inner join to merge the tables to find the total weight of each supplier in Massachusetts (mass).

Query:

SELECT jbsupplier.name as Supplier_name, SUM(jbsupply.quan * jbparts.weight) as TotalWeight

FROM jbsupplier

INNER JOIN jbcity ON jbsupplier.city = jbcity.id

INNER JOIN jbsupply ON jbsupplier.id = jbsupply.supplier

INNER JOIN jbparts ON jbsupply.part = jbparts.id

WHERE jbcity.state = 'Mass'

GROUP BY jbsupplier.id

ORDER BY Supplier_name ASC;

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```
SELECT jbsupplier.name as Supplier_name, SUM(jbsupply.quan * jbparts.weight) as TotalWeight
FROM jbsupplier
INNER JOIN jbcity ON jbsupplier.city = jbcity.id
INNER JOIN jbsupply ON jbsupplier.id = jbsupply.supplier
INNER JOIN jbparts ON jbsupply.part = jbparts.id
WHERE jbcity.state = 'Mass'
GROUP BY jbsupplier.id
ORDER BY Supplier_name ASC;
```

Result Grid

Supplier_name	TotalWeight
DEC	3120
Fisher-Price	1135000

14) Create a new relation (a table), with the same attributes as the table items using the CREATE TABLE syntax where you define every attribute explicitly (i.e. not as a copy of another table). Then fill the table with all items that cost less than the average price for items. Remember to define primary and foreign keys in your table!

Creating the table with the same attribute as jbitem and added the values in the table where the cost is less than the average price by defining the primary and foreign key.

Query:

```
CREATE TABLE jbitems_cost (
id int,
Name varchar(255),
Dept int not null,
Price int not null,
qoh int,
Supplier int not null,
primary key(id), foreign key(dept) references jbdept(id),
 foreign key(supplier) references jbsupplier(id)
);
```

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INSERT into jbitems_cost (id, name, dept, price, qoh, supplier)

SELECT id, name, dept, price, qoh, supplier from jbitem

WHERE price < (SELECT AVG(price) FROM jbitem);

```
CREATE TABLE jbitems_cost (
id int,
Name varchar(255),
Dept int not null,Price int not null, qoh int,Supplier int not null,
primary key(id), foreign key(dept) references jbdept(id),
foreign key(supplier) references jbsupplier(id));
INSERT into jbitems_cost (id, name, dept, price, qoh, supplier)
SELECT id, name, dept, price, qoh, supplier from jbitem
WHERE price < (SELECT AVG(price) FROM jbitem);

SELECT * FROM jbitems_cost;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

id	Name	Dept	Price	qoh	Supplier
11	Wash Cloth	1	75	575	213
19	Bellbottoms	43	450	600	33
21	ABC Blocks	1	198	405	125
23	1 lb Box	10	215	100	42
25	2 lb Box, Mix	10	450	75	42
26	Earrings	14	1000	20	199
43	Maze	49	325	200	89
106	Clock Book	49	198	150	125
107	The 'Feel' Book	35	225	225	89
118	Towels, Bath	26	250	1000	213
119	Squeeze Ball	49	250	400	89
120	Twin Sheet	26	800	750	213
165	Jean	65	825	500	33
258	Shirt	58	650	1200	33
NULL	NULL	NULL	NULL	NULL	NULL