

NAME :: IBRAR BABAR

ROLL NO. :: P19-0104

BS(CS) :: Section 4A

DATABSE LAB

LAB TASKS (5)

SELECT Subqueries

```
SELECT TICKET_NO, TICKET_TYPE, TICKET_PRICE  
FROM TICKET  
WHERE TICKET_PRICE >= (SELECT AVG(TICKET_PRICE) FROM TICKET);
```

```
mysql> SELECT TICKET_NO, TICKET_TYPE, TICKET_PRICE  
-> FROM TICKET  
-> WHERE TICKET_PRICE >= (SELECT AVG(TICKET_PRICE) FROM TICKET);  
+-----+-----+-----+  
| TICKET_NO | TICKET_TYPE | TICKET_PRICE |  
+-----+-----+-----+  
|      11001 | Adult      |         24.99 |  
|      13002 | Adult      |         34.99 |  
|      67833 | Adult      |         28.67 |  
|      88567 | Child      |         22.50 |  
|      88568 | Adult      |         42.10 |  
+-----+-----+-----+  
5 rows in set (0.00 sec)
```

IN Subqueries

```
SELECT DISTINCT EMP_NUM, EMP_LNAME, EMP_FNAME, PARK_NAME  
FROM EMPLOYEE NATURAL JOIN HOURS NATURAL JOIN  
ATTRACTION NATURAL JOIN THEMEPARK
```

```
WHERE PARK_CODE IN (SELECT THEMEPARK.PARK_CODE FROM  
THEMEPARK WHERE PARK_NAME LIKE '%Fairy%');
```

```
mysql> SELECT DISTINCT EMP_NUM, EMP_LNAME, EMP_FNAME, PARK_NAME  
-> FROM EMPLOYEE NATURAL JOIN HOURS NATURAL JOIN  
-> ATTRACTION NATURAL JOIN THEMEPARK  
-> WHERE PARK_CODE IN (SELECT THEMEPARK.PARK_CODE FROM  
-> THEMEPARK WHERE PARK_NAME LIKE '%Fairy%');  
+-----+-----+-----+-----+  
| EMP_NUM | EMP_LNAME | EMP_FNAME | PARK_NAME |  
+-----+-----+-----+-----+  
|      100 | Calderdale | Emma      | FairyLand |  
|      105 | Namowa     | Mirrelle  | FairyLand |  
+-----+-----+-----+-----+  
2 rows in set (0.00 sec)
```

HAVING Subqueries

```
SELECT PARK_CODE, SUM(LINE_QTY)  
FROM SALES_LINE NATURAL JOIN TICKET  
GROUP BY PARK_CODE  
HAVING SUM(LINE_QTY) > (SELECT AVG(LINE_QTY) FROM SALES_LINE);
```

```
mysql> SELECT PARK_CODE, SUM(LINE_QTY)  
-> FROM SALES_LINE NATURAL JOIN TICKET  
-> GROUP BY PARK_CODE  
-> HAVING SUM(LINE_QTY) > (SELECT AVG(LINE_QTY) FROM SALES_LINE);  
+-----+-----+  
| PARK_CODE | SUM(LINE_QTY) |  
+-----+-----+  
| FR1001    | 14             |  
| UK3452    | 29             |  
| ZA1342    | 18             |  
+-----+-----+  
3 rows in set (0.09 sec)
```

Task 5.2

```
select emp_fname,emp_lname,sum(hours_per_attract)
```

-> from employee natural join hours

-> where date_worked like "2007-05-%"

-> group by emp_fname,emp_lname,date_worked

-> having sum(hours_per_attract) > (select avg(hours_per_attract) from hours);

```
mysql> select emp_fname,emp_lname,sum(hours_per_attract)
-> from employee natural join hours
-> where date_worked like "2007-05-%"
-> group by emp_fname,emp_lname,date_worked
-> having sum(hours_per_attract) > (select avg(hours_per_attract) from hours);
```

emp_fname	emp_lname	sum(hours_per_attract)
Arif	Arshad	6
Emma	Calderdale	6
Emma	Calderdale	6
Enrica	Denver	6
Enrica	Denver	6
Marshel	Ricardo	6
Mirrelle	Namowa	6
Mirrelle	Namowa	6

8 rows in set, 1 warning (0.00 sec)

5.4 Multirow Subquery operator ALL

SELECT TICKET_NO, PARK_CODE, TICKET_PRICE

FROM TICKET

WHERE TICKET_PRICE > ALL (SELECT TICKET_PRICE FROM TICKET

WHERE TICKET_TYPE = 'CHILD');

```
mysql> SELECT TICKET_NO, PARK_CODE, TICKET_PRICE
-> FROM TICKET
-> WHERE TICKET_PRICE > ALL (SELECT TICKET_PRICE FROM TICKET
-> WHERE TICKET_TYPE = 'CHILD');
+-----+-----+-----+
| TICKET_NO | PARK_CODE | TICKET_PRICE |
+-----+-----+-----+
| 11001 | SP4533 | 24.99 |
| 13002 | FR1001 | 34.99 |
| 67833 | ZA1342 | 28.67 |
| 88568 | UK3452 | 42.10 |
+-----+-----+-----+
4 rows in set (0.09 sec)
```

5.5 Attribute list Subqueries

```
SELECT TICKET_NO, TICKET_PRICE,
(SELECT AVG(TICKET_PRICE) FROM TICKET) AS AVGPRICE,
TICKET_PRICE - (SELECT AVG(TICKET_PRICE) FROM TICKET) AS DIFF
FROM TICKET;
```

```
mysql> SELECT TICKET_NO, TICKET_PRICE,
-> (SELECT AVG(TICKET_PRICE) FROM TICKET) AS AVGPRICE,
-> TICKET_PRICE - (SELECT AVG(TICKET_PRICE) FROM TICKET) AS DIFF
-> FROM TICKET;
+-----+-----+-----+-----+
| TICKET_NO | TICKET_PRICE | AVGPRICE | DIFF |
+-----+-----+-----+-----+
| 11001 | 24.99 | 21.740000 | 3.250000 |
| 11002 | 14.99 | 21.740000 | -6.750000 |
| 11003 | 10.99 | 21.740000 | -10.750000 |
| 13001 | 18.99 | 21.740000 | -2.750000 |
| 13002 | 34.99 | 21.740000 | 13.250000 |
| 13003 | 20.99 | 21.740000 | -0.750000 |
| 67832 | 18.56 | 21.740000 | -3.180000 |
| 67833 | 28.67 | 21.740000 | 6.930000 |
| 67855 | 12.12 | 21.740000 | -9.620000 |
| 88567 | 22.50 | 21.740000 | 0.760000 |
| 88568 | 42.10 | 21.740000 | 20.360000 |
| 89720 | 10.99 | 21.740000 | -10.750000 |
+-----+-----+-----+-----+
12 rows in set (0.11 sec)
```

5.6 Correlated Subqueries

```
SELECT TRANSACTION_NO, LINE_NO, LINE_QTY, LINE_PRICE
FROM SALES_LINE SL
WHERE SL.LINE_QTY > (SELECT AVG(LINE_QTY)
FROM SALES_LINE SA
WHERE SA. TRANSACTION_NO = SL. TRANSACTION_NO);
```

```
mysql> SELECT TRANSACTION_NO, LINE_NO, LINE_QTY, LINE_PRICE
-> FROM SALES_LINE SL
-> WHERE SL.LINE_QTY > (SELECT AVG(LINE_QTY)
-> FROM SALES_LINE SA
-> WHERE SA. TRANSACTION_NO = SL. TRANSACTION_NO);
```

TRANSACTION_NO	LINE_NO	LINE_QTY	LINE_PRICE
12781	1	2	69.98
12785	3	4	139.96
34534	1	4	168.40
34537	1	2	84.20
34540	1	4	168.40

```
5 rows in set (0.02 sec)
```

(B)

```
SELECT PARK_CODE, PARK_NAME, PARK_COUNTRY
FROM THEMEPARK
WHERE EXISTS (SELECT PARK_CODE FROM SALES
WHERE SALES.PARK_CODE = THEMEPARK.PARK_CODE);
```

```
mysql> SELECT PARK_CODE, PARK_NAME, PARK_COUNTRY
-> FROM THEMEPARK
-> WHERE EXISTS (SELECT PARK_CODE FROM SALES
-> WHERE SALES.PARK_CODE = THEMEPARK.PARK_CODE);
```

PARK_CODE	PARK_NAME	PARK_COUNTRY
FR1001	FairyLand	FR
UK3452	PleasureLand	UK
ZA1342	GoldTown	ZA

```
3 rows in set (0.19 sec)
```

Q(5.1)

```
select distinct emp_fname,emp_lname
from employee natural join hours
where hour_rate > (select avg(hour_rate) from hours);
```

```
mysql> select distinct emp_fname,emp_lname
-> from employee natural join hours
-> where hour_rate > (select avg(hour_rate) from hours);
```

emp_fname	emp_lname
Enrica	Denver
Mirrelle	Namowa

```
2 rows in set (0.00 sec)
```

Q(5.2)

```
select emp_fname,emp_lname,date_worked,HOURS_PER_ATTRACT,
(select avg(HOURS_PER_ATTRACT) from hours) as AVERAGE,
HOURS_PER_ATTRACT - (select avg(HOURS_PER_ATTRACT) from hours) as DIFFERENCE
from employee natural join hours;
```

```
mysql> select emp_fname,emp_lname,date_worked,HOURS_PER_ATTRACT,
-> (select avg(HOURS_PER_ATTRACT) from hours) as AVERAGE,
-> HOURS_PER_ATTRACT - (select avg(HOURS_PER_ATTRACT) from hours) as DIFFERENCE
-> from employee natural join hours;
```

emp_fname	emp_lname	date_worked	HOURS_PER_ATTRACT	AVERAGE	DIFFERENCE
Emma	Calderdale	2007-05-18	6	4.9091	1.0909
Emma	Calderdale	2007-05-20	6	4.9091	1.0909
Marshell	Ricardo	2007-05-18	6	4.9091	1.0909
Arif	Arshad	2007-05-23	3	4.9091	-1.9091
Arif	Arshad	2007-05-21	6	4.9091	1.0909
Arif	Arshad	2007-05-22	3	4.9091	-1.9091
Enrica	Denver	2007-05-21	6	4.9091	1.0909
Enrica	Denver	2007-05-22	6	4.9091	1.0909
Mirrelle	Namowa	2007-05-18	3	4.9091	-1.9091
Mirrelle	Namowa	2007-05-18	3	4.9091	-1.9091
Mirrelle	Namowa	2007-05-19	6	4.9091	1.0909

11 rows in set (0.00 sec)

Q(5.3.....A)

```
SELECT TRANSACTION_NO, LINE_NO, LINE_QTY, LINE_PRICE
FROM SALES_LINE SL
WHERE SL.LINE_QTY IN (SELECT AVG(LINE_QTY)
FROM SALES_LINE SA
WHERE SA. TRANSACTION_NO = SL. TRANSACTION_NO);
```

```
mysql> SELECT TRANSACTION_NO, LINE_NO, LINE_QTY, LINE_PRICE
-> FROM SALES_LINE SL
-> WHERE SL.LINE_QTY IN (SELECT AVG(LINE_QTY)
-> FROM SALES_LINE SA
-> WHERE SA. TRANSACTION_NO = SL. TRANSACTION_NO);
```

TRANSACTION_NO	LINE_NO	LINE_QTY	LINE_PRICE
12782	1	2	69.98
12783	1	2	41.98
12784	2	1	14.99
34535	1	2	84.20
34536	1	2	21.98
34538	1	2	21.98
34539	1	2	21.98
34539	2	2	84.20
34541	1	2	84.20
67589	1	2	57.34
67589	2	2	37.12
67590	1	2	57.34
67590	2	2	37.12
67591	1	1	18.56
67591	2	1	12.12
67592	1	4	114.68
67593	1	2	57.34
67593	2	2	37.12

18 rows in set (0.00 sec)

Q(5.3.....B)

```
SELECT PARK_CODE, PARK_NAME, PARK_COUNTRY
FROM THEMEPARK
WHERE park_code in (SELECT PARK_CODE FROM SALES
WHERE SALES.PARK_CODE = THEMEPARK.PARK_CODE);
```

```
mysql> SELECT PARK_CODE, PARK_NAME, PARK_COUNTRY
-> FROM THEMEPARK
-> WHERE park_code in (SELECT PARK_CODE FROM SALES
-> WHERE SALES.PARK_CODE = THEMEPARK.PARK_CODE);
```

PARK_CODE	PARK_NAME	PARK_COUNTRY
FR1001	FairyLand	FR
UK3452	PleasureLand	UK
ZA1342	GoldTown	ZA

3 rows in set (0.01 sec)

Q(5.4)

```
select PARK_CODE, PARK_NAME, PARK_COUNTRY
from themepark
where exists (select park_code from ticket
where ticket.park_code=themepark.park_code);
```

```
mysql> select PARK_CODE, PARK_NAME, PARK_COUNTRY
-> from themepark
-> where exists (select park_code from ticket
-> where ticket.park_code=themepark.park_code);
+-----+-----+-----+
| PARK_CODE | PARK_NAME | PARK_COUNTRY |
+-----+-----+-----+
| FR1001    | FairyLand | FR           |
| SP4533    | AdventurePort | SP          |
| UK3452    | PleasureLand | UK           |
| ZA1342    | GoldTown   | ZA           |
+-----+-----+-----+
4 rows in set (0.01 sec)
```

(OR)

```
select PARK_CODE, PARK_NAME, PARK_COUNTRY
from themepark
where exists (select park_code from ticket
where ticket.park_code!=themepark.park_code);
```

```
mysql> select PARK_CODE, PARK_NAME, PARK_COUNTRY
-> from themepark
-> where exists (select park_code from ticket
-> where ticket.park_code!=themepark.park_code);
+-----+-----+-----+
| PARK_CODE | PARK_NAME | PARK_COUNTRY |
+-----+-----+-----+
| FR1001    | FairyLand | FR           |
| NL1202    | Efling    | NL           |
| SP4533    | AdventurePort | SP          |
| SW2323    | Labyrinthe | SW           |
| UK2622    | MiniLand  | UK           |
| UK3452    | PleasureLand | UK          |
| ZA1342    | GoldTown   | ZA           |
+-----+-----+-----+
7 rows in set (0.00 sec)
```

Q(5.5)

```
select attract_capacity,  
(SELECT AVG(ATTRACT_CAPACITY) FROM ATTRACTION) AS AVERAGE  
from attraction  
where attract_capacity <= (select avg(attract_capacity) from attraction);
```

```
mysql> select attract_capacity,  
-> (SELECT AVG(ATTRACT_CAPACITY) FROM ATTRACTION) AS AVERAGE  
-> from attraction  
-> where attract_capacity <= (select avg(attract_capacity) from attraction);  
+-----+-----+  
| attract_capacity | AVERAGE |  
+-----+-----+  
| 34 | 67.8182 |  
| 62 | 67.8182 |  
| 24 | 67.8182 |  
| 30 | 67.8182 |  
| 34 | 67.8182 |  
| 42 | 67.8182 |  
| 40 | 67.8182 |  
+-----+-----+  
7 rows in set (0.00 sec)
```