Heaven's Light is Our Guide
Rajshahi University of Engineering and Technology

Course Code
ECE 2216

Course Title
Database Systems Sessional

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Lab Report 5: Creating a database with primary and foreign keys and doing operations on it using MySQL

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Contents

1 Tools Used

- MySQL

- VS Code - as an IDE to use SQL

- MacTeX -LaTeXcompiler

- VS Code with LaTeX workshop extension as a text editor

2 Process

Create three tables in a database with primary and foreign keys and do operations on them.

SQL Codes:

Creating tables and inserting data.

Code:

```sql
1  CREATE DATABASE IF NOT
   ↪   EXISTS Relations;
2  -- creating database and
   ↪   tables.
3  CREATE TABLE
   ↪   Relations.salesman(
4      salesman_id int
       ↪   Auto_Increment
       ↪   Primary key,
5      name VARCHAR(30),
6      city VARCHAR(20),
7      commission DECIMAL(4, 2)
8  );
9  --
10 CREATE TABLE Customer(
11     customer_id int
       ↪   Auto_Increment
       ↪   Primary Key,
12     customer_name
       ↪   varchar(40),
13     city varchar(40),
14     grade int,
15     salesman_id int,
16     Constraint cust_sales
       ↪   Foreign key
       ↪   (salesman_id)
       ↪   References
       ↪   salesman(salesman_id)
17 )
18 --
19 CREATE TABLE Relations.Order(
20     order_no int
       ↪   Auto_Increment
       ↪   Primary Key,
21     purchase_amount
       ↪   DECIMAL(6, 2),
22     order_date Date,
```

```sql
23      customer_id int,
24      salesman_id int,
25      Constraint cust_order
          ↪ Foreign key
          ↪ (customer_id)
          ↪ References Customer(↵
          ↪ customer_id),
26      Constraint sales_order
          ↪ Foreign key
          ↪ (salesman_id)
          ↪ References
          ↪ salesman(salesman_id)
27  );
28  --
29  INSERT INTO
30      Relations.salesman
          ↪ (salesman_id, name,
          ↪ city, commission)
31  VALUES
32      (
33          5001,
34          'James Hoog',
35          'New York',
36          0.15
37      ),
38      (
39          5002,
40          'Nail Knite',
41          'Paris',
42          0.13
43      ),
44      (
45          5003,
46          'Lauson Hen',
47          null,
48          0.12
49      ),
50      (
51          5005,
52          'Pit Alex',
53          'London',
54          0.11
55      ),
56      (
57          5006,
58          'Mc Lyon',
59          'New York',
60          0.14
61      ),
62      (
63          5007,
64          'Pal Adam',
65          'Rome',
66          0.13
67      );
68  --
69  INSERT INTO
70      Relations.Customer (
71          customer_id,
72          customer_name,
73          city,
74          grade,
75          salesman_id
76      )
77  VALUES
78      (
79          3001,
80          'Brad Guzan',
81          'London',
82          null,
83          null
84      ),
85      (
86          3002,
87          'Nick Romando',
88          'New York',
89          100,
90          5001
91      ),
92      (
93          3003,
94          'Jozy Altidor',
95          'Moscow',
96          200,
97          5007
98      ),
99      (
100         3004,
101         'Fabian Johnson',
102         'Paris',
103         300,
104         5006
```

```sql
105        ),
106        (
107            3005,
108            'Graham Zusi',
109            'California',
110            200,
111            5002
112        ),
113        (
114            3007,
115            'Brad Davis',
116            'New York',
117            200,
118            5001
119        ),
120        (
121            3008,
122            'Julian Green',
123            'London',
124            300,
125            5002
126        ),
127        (
128            3009,
129            'Geoff Cameron',
130            'Berlin',
131            100,
132            null
133        );
134    --
135    INSERT INTO
136        Relations.Order (
137            order_no,
138            purchase_amount,
139            order_date,
140            customer_id,
141            salesman_id
142        )
143    VALUES
144        (
145            70001,
146            150.5,
147            '2012-10-05',
148            3005,
149            5002
150        ),
151        (70002, 65.26,
    ↪    '2016-10-05', 3002,
    ↪    5001),
152        (70003, 2480.4,
    ↪    '2012-10-10', 3009,
    ↪    5003),
153        (70004, 110.5,
    ↪    '2012-08-17', 3009,
    ↪    5003),
154        (70005, 2400.6,
    ↪    '2012-07-27', 3007,
    ↪    5001),
155        (70007, 948.5,
    ↪    '2012-09-10', 3005,
    ↪    5002),
156        (70008, 5760,
    ↪    '2012-09-10', 3002,
    ↪    5001),
157        (70009, 270.65,
    ↪    '2012-09-10', 3001,
    ↪    5005),
158        (70010, 1983.43,
    ↪    '2012-10-10', 3004,
    ↪    5006),
159        (70011, 75.29,
    ↪    '2012-08-17', 3003,
    ↪    5007),
160        (70012, 250.45,
    ↪    '2012-06-27', 3008,
    ↪    5002),
161        (70013, 3045.6,
    ↪    '2012-04-25', 3002,
    ↪    5001);
```

2.0.1 Find the customer name who are given highest commission.

Code:

```sql
SELECT
    customer_name as "Customer with highest Commission"
FROM
    Relations.Customer
WHERE
    Customer.customer_id = (
        SELECT
            Order.customer_id
        FROM
            Relations.Order
        ORDER BY
            Order.purchase_amount * (
                SELECT
                    salesman.commission
                FROM
                    Relations.salesman
                WHERE
                    salesman_id = Order.salesman_id
            ) DESC
        LIMIT
            1
    );
```

2.0.2 Find the amount of total commission given by salesman_id = "5001".

Code:

```sql
SELECT
    SUM(
        purchase_amount * (
            SELECT
                commission
            FROM
                Relations.salesman
            WHERE
                salesman_id = Order.salesman_id
        )
    ) AS "Total Commission",
    salesman_id as "Salesman ID"
FROM
```

```
14        Relations.Order
15    WHERE
16        Order.salesman_id = 5001;
```

2.0.3   Find the salesman name whose customer's grade is lowest.

Code:

```
1    SELECT
2        name as "Salesman Name"
3    FROM
4        Relations.salesman
5    WHERE
6        salesman_id IN (
7            SELECT
8                salesman_id
9            FROM
10               Relations.Customer
11           WHERE
12               grade IN (
13                   SELECT
14                       MIN(grade)
15                   FROM
16                       Relations.Customer
17               )
18       )
```

2.0.4   Find the total order number,ner from 5-9-2016 to 17-10-216 from the given table.
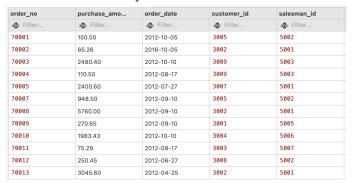
Code:

```
1    SELECT
2        COUNT(order_no) as "Total order from 2016/9/5 to 2016/10/17"
3    FROM
4        Relations.Order
5    WHERE
6        order_date BETWEEN '2016-09-05'
7        AND '2016-10-17';
```

3 Output

customer_id	customer_name	city	grade	salesman_id
Filter...	Filter...	Filter...	Filter...	Filter...
3001	Brad Guzan	London	NULL	NULL
3002	Nick Romando	New York	100	5001
3003	Jozy Altidor	Moscow	200	5007
3004	Fabian Johnson	Paris	300	5006
3005	Graham Zusi	California	200	5002
3007	Brad Davis	New York	200	5001
3008	Julian Green	London	300	5002
3009	Geoff Cameron	Berlin	100	NULL

The complete Customer table.

order_no	purchase_amo...	order_date	customer_id	salesman_id
Filter...	Filter...	Filter...	Filter...	Filter...
70001	150.50	2012-10-05	3005	5002
70002	65.26	2016-10-05	3002	5001
70003	2480.40	2012-10-10	3009	5003
70004	110.50	2012-08-17	3009	5003
70005	2400.60	2012-07-27	3007	5001
70007	948.50	2012-09-10	3005	5002
70008	5760.00	2012-09-10	3002	5001
70009	270.65	2012-09-10	3001	5005
70010	1983.43	2012-10-10	3004	5006
70011	75.29	2012-08-17	3003	5007
70012	250.45	2012-06-27	3008	5002
70013	3045.60	2012-04-25	3002	5001

The complete Order table.

salesman_id	name	city	commission
Filter...	Filter...	Filter...	Filter...
5001	James Hoog	New York	0.15
5002	Nail Knite	Paris	0.13
5003	Lauson Hen	NULL	0.12
5005	Pit Alex	London	0.11
5006	Mc Lyon	New York	0.14
5007	Pal Adam	Rome	0.13

The complete Salesman table.

Customer with highest Commission
Filter...
Nick Romando

Customer who are given highest commission.

Total Commission	Salesman ID
Filter...	Filter...
1690.7190	5001

Amount of total commission given by salesman_id = "5001"

Salesman Name
Filter...
James Hoog

Salesman name whose customer's grade is lowest.

Total order from 2016/9/5 to 2016/10/17
Filter...
1

Total order number from 5-9-2016 to 17-10-2016