KATHMANDU UNIVERSITY

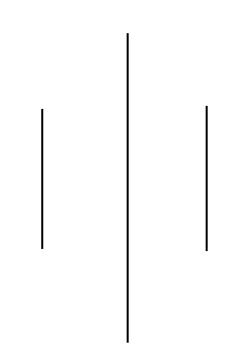## DHULIKHEL, KAVRE

Subject: COMP 232 Database Management Systems
Lab exercise no: 4

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LabWorks

You are given database schema below. Convert the following schema into SQL tables and insert at least 5 relevant data values in each relation and perform the following activities.

payscale (position ,salary,grade)

teacher (teacher_id, name, salary, joining_date, birthdate, position)

class (class_scheduleno, teacher_id, room_no)

Create a database named yourname_school and create table and populate the relevant data for the tables below and execute the following queries.

1) Display the name of the teacher who is oldest among all teachers.
2) Display teacher numbers and names of those teachers who are earning less than 'Kathlin'.
3) Display the list of all teachers who are earning equal to any teacher who have joined before '31-dec-2010'
4) Display the list of all those teachers whose salary is greater than any other teacher with job title 'Lecturer'.
5) Display the list of all those teachers whose salary is greater than all the teachers with job title as 'Lecturer'.
6) Display the list of all teachers whose job title and salary is same as that of the employee whose first name is 'James'.
7) Display names of all the teachers who are class teachers.
8) Display names, salaries and salary grades of all teachers.
9) Display names and class schedule numbers of all the teachers.
10) Display teacher ID and names of all teachers who are going to be retired by next year.
11) Show all possible teacher – class values.
12) Create a View of above relational schema and do the following opereations on it.
13) Devoluder has upgraded to Assistant professor from lecturer.
14) Find the average salary till now, earned by Janesh who has joined on January 01 2016.
15) Find the number of lecturer, Assistant Professor, Associate Professor, Professor.

Lab4.sql

```sql
drop database ayush_school;
create database ayush_school;
use ayush_school;

CREATE TABLE payscale (
  position varchar(45) ,
  salary INT ,
  grade VARCHAR(45) ,
  PRIMARY KEY (position));

CREATE TABLE teacher (
  teacher_id VARCHAR(45),
  name VARCHAR(45) ,
  salary INT ,
  joining_date DATE,
  birthdate DATE ,
  position varchar(45) ,
  PRIMARY KEY (teacher_id),
  foreign key (position) references payscale(position)
  );

CREATE TABLE class (
  class_scheduleno varchar(45),
  teacher_id VARCHAR(45),
  room_no VARCHAR(45),
  PRIMARY KEY (class_scheduleno),
foreign key (teacher_id) references teacher(teacher_id)
  );

INSERT INTO payscale (position, salary, grade)
VALUES ('HOD', '20000', '64'),
        ('Professor', '15000', '62'),
        ('Assosciate Professor', '14000', '59'),
        ('Assistant Professor', '14500', '60'),
        ('Lecturer', '12000', '57');

INSERT INTO teacher (teacher_id, name, salary, joining_date, birthdate, position)
VALUES ('KA07L001', 'Kathilin ', '15000', '2007-05-05', '1987-06-07', 'Professor'),
('JA09P003', 'James', '12000', '2011-02-01', '1990-01-02', 'Lecturer'),
('DE95H001', 'Devoluder', '20000', '1995-06-04', '1955-05-04', 'HOD'),
('PU05AS005', 'Pujan ', '14500', '2012-07-07', '1980-01-01', 'Assistant Professor'),
('BI00AC004', 'Bikash', '14000', '2000-04-02', '1975-03-05', 'Assosciate Professor'),
('JS09P003', 'Janesh', '15000', '2016-01-01', '1991-01-02', 'Lecturer');

INSERT INTO class (class_scheduleno, teacher_id, room_no) VALUES ('402L01', 'KA07L001',
'402A'),
('200P02', 'JA09P003', '200B'),
('304AS03', 'PU05AS005', '304C'),
('401AC04', 'BI00AC004', '401A'),
('102H05', 'DE95H001', '102B');
```

select name from teacher where birthdate=(select min(birthdate) from teacher);
select name,teacher_id from teacher where salary<(select salary from teacher where name='Kathilin');
select * from teacher where salary=any (select salary from teacher where joining_date<'2010-12-31');
select * from teacher where salary>any(select salary from teacher where position='Lecturer');
select * from teacher where salary>all(select salary from teacher where position='Lecturer');
select * from teacher where (position=(select position from teacher where name='James') and salary=(select salary from teacher where name='James'));
select name from teacher natural join class;
select name,salary,grade from teacher natural join payscale;
select name, class_scheduleno from teacher natural join class;
select teacher_id,name from teacher where(DATE_ADD(birthdate, INTERVAL 60 YEAR)<'2018-08-08');
select * from teacher join class ;
create view payscale_view as select position, salary from payscale;
create view teacher_view as select * from teacher;
create view class_view as select * from class;
update teacher_view set position='Assistant Professor' where name='Devoluder';
select teacher_id, name , (salary)*12 as avg_salary from teacher_view where joining_date='2016-01-01' and name='Janesh';
select position,count(position) as count_position from teacher_view group by position;

Mysql console:

mysql> source /media/ayush/54CE1672CE164C9C/KU_CE/course_materials/4th sem/COMP232 DBMS/assignment/lab4.sql

Query OK, 6 rows affected (0.42 sec)

Query OK, 1 row affected (0.00 sec)

Database changed
Query OK, 0 rows affected (0.28 sec)

Query OK, 0 rows affected (0.30 sec)

Query OK, 0 rows affected (0.30 sec)

Query OK, 5 rows affected (0.04 sec)
Records: 5 Duplicates: 0 Warnings: 0

Query OK, 6 rows affected (0.10 sec)
Records: 6 Duplicates: 0 Warnings: 0

Query OK, 5 rows affected (0.04 sec)
Records: 5 Duplicates: 0 Warnings: 0

+-----------+

```
| name      |
+-----------+
| Devoluder |
+-----------+
1 row in set (0.06 sec)
```

```
+--------+------------+
| name   | teacher_id |
+--------+------------+
| Bikash | BI00AC004  |
| James  | JA09P003   |
| Pujan  | PU05AS005  |
+--------+------------+
3 rows in set (0.00 sec)
```

```
+------------+-----------+--------+--------------+------------+---------------------+
| teacher_id | name      | salary | joining_date | birthdate  | position            |
+------------+-----------+--------+--------------+------------+---------------------+
| BI00AC004  | Bikash    | 14000  | 2000-04-02   | 1975-03-05 | Assosciate Professor |
| DE95H001   | Devoluder | 20000  | 1995-06-04   | 1955-05-04 | HOD                 |
| JS09P003   | Janesh    | 15000  | 2016-01-01   | 1991-01-02 | Lecturer            |
| KA07L001   | Kathilin  | 15000  | 2007-05-05   | 1987-06-07 | Professor           |
+------------+-----------+--------+--------------+------------+---------------------+
4 rows in set (0.00 sec)
```

```
+------------+-----------+--------+--------------+------------+---------------------+
| teacher_id | name      | salary | joining_date | birthdate  | position            |
+------------+-----------+--------+--------------+------------+---------------------+
| BI00AC004  | Bikash    | 14000  | 2000-04-02   | 1975-03-05 | Assosciate Professor |
| DE95H001   | Devoluder | 20000  | 1995-06-04   | 1955-05-04 | HOD                 |
| JS09P003   | Janesh    | 15000  | 2016-01-01   | 1991-01-02 | Lecturer            |
| KA07L001   | Kathilin  | 15000  | 2007-05-05   | 1987-06-07 | Professor           |
| PU05AS005  | Pujan     | 14500  | 2012-07-07   | 1980-01-01 | Assistant Professor |
+------------+-----------+--------+--------------+------------+---------------------+
5 rows in set (0.00 sec)
```

```
+------------+-----------+--------+--------------+------------+----------+
| teacher_id | name      | salary | joining_date | birthdate  | position |
+------------+-----------+--------+--------------+------------+----------+
| DE95H001   | Devoluder | 20000  | 1995-06-04   | 1955-05-04 | HOD      |
+------------+-----------+--------+--------------+------------+----------+
1 row in set (0.00 sec)
```

```
+------------+-------+--------+--------------+------------+----------+
| teacher_id | name  | salary | joining_date | birthdate  | position |
+------------+-------+--------+--------------+------------+----------+
| JA09P003   | James | 12000  | 2011-02-01   | 1990-01-02 | Lecturer |
+------------+-------+--------+--------------+------------+----------+
1 row in set (0.00 sec)
```

```
+-----------+
| name      |
```

```
+-----------+
| Bikash    |
| Devoluder |
| James     |
| Kathilin  |
| Pujan     |
+-----------+
5 rows in set (0.00 sec)

+-----------+--------+-------+
| name      | salary | grade |
+-----------+--------+-------+
| Bikash    |  14000 | 59    |
| Devoluder |  20000 | 64    |
| James     |  12000 | 57    |
| Kathilin  |  15000 | 62    |
| Pujan     |  14500 | 60    |
+-----------+--------+-------+
5 rows in set (0.00 sec)

+-----------+-----------------+
| name      | class_scheduleno |
+-----------+-----------------+
| Bikash    | 401AC04         |
| Devoluder | 102H05          |
| James     | 200P02          |
| Kathilin  | 402L01          |
| Pujan     | 304AS03         |
+-----------+-----------------+
5 rows in set (0.00 sec)

+------------+-----------+
| teacher_id | name      |
+------------+-----------+
| DE95H001   | Devoluder |
+------------+-----------+
1 row in set (0.00 sec)

+------------+-----------+--------+--------------+------------+---------------------+-----------------
+------------+---------+
| teacher_id | name      | salary | joining_date | birthdate  | position            | class_scheduleno |
teacher_id | room_no |
+------------+-----------+--------+--------------+------------+---------------------+-----------------
+------------+---------+
| BI00AC004  | Bikash    |  14000 | 2000-04-02   | 1975-03-05 | Assosciate Professor | 102H05
| DE95H001   | 102B    |
| BI00AC004  | Bikash    |  14000 | 2000-04-02   | 1975-03-05 | Assosciate Professor | 200P02          |
JA09P003   | 200B    |
| BI00AC004  | Bikash    |  14000 | 2000-04-02   | 1975-03-05 | Assosciate Professor | 304AS03
| PU05AS005  | 304C    |
| BI00AC004  | Bikash    |  14000 | 2000-04-02   | 1975-03-05 | Assosciate Professor | 401AC04
| BI00AC004  | 401A    |
```

BI00AC004	Bikash	14000	2000-04-02	1975-03-05	Assosciate Professor	402L01	KA07L001	402A
DE95H001	Devoluder	20000	1995-06-04	1955-05-04	HOD	102H05	DE95H001	102B
DE95H001	Devoluder	20000	1995-06-04	1955-05-04	HOD	200P02	JA09P003	200B
DE95H001	Devoluder	20000	1995-06-04	1955-05-04	HOD	304AS03	PU05AS005	304C
DE95H001	Devoluder	20000	1995-06-04	1955-05-04	HOD	401AC04	BI00AC004	401A
DE95H001	Devoluder	20000	1995-06-04	1955-05-04	HOD	402L01	KA07L001	402A
JA09P003	James	12000	2011-02-01	1990-01-02	Lecturer	102H05	DE95H001	102B
JA09P003	James	12000	2011-02-01	1990-01-02	Lecturer	200P02	JA09P003	200B
JA09P003	James	12000	2011-02-01	1990-01-02	Lecturer	304AS03	PU05AS005	304C
JA09P003	James	12000	2011-02-01	1990-01-02	Lecturer	401AC04	BI00AC004	401A
JA09P003	James	12000	2011-02-01	1990-01-02	Lecturer	402L01	KA07L001	402A
JS09P003	Janesh	15000	2016-01-01	1991-01-02	Lecturer	102H05	DE95H001	102B
JS09P003	Janesh	15000	2016-01-01	1991-01-02	Lecturer	200P02	JA09P003	200B
JS09P003	Janesh	15000	2016-01-01	1991-01-02	Lecturer	304AS03	PU05AS005	304C
JS09P003	Janesh	15000	2016-01-01	1991-01-02	Lecturer	401AC04	BI00AC004	401A
JS09P003	Janesh	15000	2016-01-01	1991-01-02	Lecturer	402L01	KA07L001	402A
KA07L001	Kathilin	15000	2007-05-05	1987-06-07	Professor	102H05	DE95H001	102B
KA07L001	Kathilin	15000	2007-05-05	1987-06-07	Professor	200P02	JA09P003	200B
KA07L001	Kathilin	15000	2007-05-05	1987-06-07	Professor	304AS03	PU05AS005	304C
KA07L001	Kathilin	15000	2007-05-05	1987-06-07	Professor	401AC04	BI00AC004	401A
KA07L001	Kathilin	15000	2007-05-05	1987-06-07	Professor	402L01	KA07L001	402A
PU05AS005	Pujan	14500	2012-07-07	1980-01-01	Assistant Professor	102H05	DE95H001	102B
PU05AS005	Pujan	14500	2012-07-07	1980-01-01	Assistant Professor	200P02	JA09P003	200B
PU05AS005	Pujan	14500	2012-07-07	1980-01-01	Assistant Professor	304AS03	PU05AS005	304C
PU05AS005	Pujan	14500	2012-07-07	1980-01-01	Assistant Professor	401AC04	BI00AC004	401A
PU05AS005	Pujan	14500	2012-07-07	1980-01-01	Assistant Professor	402L01	KA07L001	402A

```
+------------+-----------+--------+--------------+-----------+--------------------+----------------
+------------+---------+
```
30 rows in set (0.00 sec)

Query OK, 0 rows affected (0.04 sec)

Query OK, 0 rows affected (0.03 sec)

Query OK, 0 rows affected (0.05 sec)

Query OK, 1 row affected (0.03 sec)
Rows matched: 1 Changed: 1 Warnings: 0

```
+------------+--------+------------+
| teacher_id | name   | avg_salary |
+------------+--------+------------+
| JS09P003   | Janesh |     180000 |
+------------+--------+------------+
```
1 row in set (0.00 sec)

```
+---------------------+----------------+
| position            | count_position |
+---------------------+----------------+
| Assistant Professor  |             2 |
| Assosciate Professor |             1 |
| Lecturer             |             2 |
| Professor            |             1 |
+---------------------+----------------+
```
4 rows in set (0.00 sec)