

Name : Junth Basnet

Roll.no : 05

Group : CE(2nd year/ 2nd semester)

Creating Database Junth_School;

```
MariaDB [(none)]> create database Junth_School;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> use Junth_School;
Database changed
MariaDB [Junth_School]>
```

Creating,describing and populating table payscale;

```
MariaDB [Junth_School]> create table payscale
-> (position      varchar(30),
-> salary         numeric(8,2) check (salary > 30000),
-> grade          varchar(15),
-> primary key(position)
-> );
Query OK, 0 rows affected (0.40 sec)
```

```
MariaDB [Junth_School]> describe payscale;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| position   | varchar(30)   | NO   | PRI | NULL    |       |
| salary     | decimal(8,2)  | YES  |     | NULL    |       |
| grade      | varchar(15)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.10 sec)
```

```
MariaDB [Junth_School]> insert into payscale
-> values ('Assistant Professor', 30000, 5),
-> ('Lecturer', 40000, 8),
-> ('Professor', 80000, 10),
-> ('Associate Professor', 100000, 12),
-> ('Head of Department', 150000, 15);
Query OK, 5 rows affected (0.08 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
MariaDB [Junth_School]> select * from payscale;
```

position	salary	grade
Assistant Professor	30000.00	5
Associate Professor	100000.00	12
Head of Department	150000.00	15
Lecturer	40000.00	8
Professor	80000.00	10

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

Creating,describing and populating table teacher;

```
MariaDB [Junth_School]> create table teacher
-> (teacher_id      varchar(15),
-> name             varchar(20) not null,
-> salary           numeric(8,2) check (salary > 30000),
-> joining_date     varchar(20),
-> birthdate        varchar(20),
-> position         varchar(30),
-> primary key (teacher_id),
-> foreign key (position) references payscale(position)
-> on delete cascade
-> );
Query OK, 0 rows affected (0.33 sec)
```

```
MariaDB [Junth_School]> describe teacher;
```

Field	Type	Null	Key	Default	Extra
teacher_id	varchar(15)	NO	PRI	NULL	
name	varchar(20)	NO		NULL	
salary	decimal(8,2)	YES		NULL	
joining_date	varchar(20)	YES		NULL	
birthdate	varchar(20)	YES		NULL	
position	varchar(30)	YES	MUL	NULL	

```
6 rows in set (0.01 sec)
```

```
MariaDB [Junth_School]> insert into teacher
-> values ('123ab', 'Clementine', 30000, '2015-12-13', '1990-12-13', 'Assistant Professor'),
-> ('101gb', 'James', 40000, '2016-08-09', '1991-06-07', 'Lecturer'),
-> ('102hj', 'Katherine', 80000, '2014-03-02', '1994-12-11', 'Professor'),
-> ('178sd', 'Supreme', 100000, '2010-01-07', '1989-07-04', 'Associate Professor'),
-> ('193sj', 'Sushmita', 150000, '2005-12-01', '1990-12-13', 'Head of Department');
Query OK, 5 rows affected (0.09 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
MariaDB [junth_school]> insert into teacher
-> values ('134ty', 'Leonardo', 80000, '2004-04-16', '1980-06-13', 'Professor'),
-> ('345er', 'Nishan', 100000, '2003-06-29', '1985-03-23', 'Associate Professor');
Query OK, 2 rows affected (0.18 sec)
Records: 2 Duplicates: 0 Warnings: 0
```

```
MariaDB [junth_school]> insert into teacher
-> values ('456er', 'Hisshina', 40000, '2017-12-13', '1995-05-12', 'Lecturer'),
-> ('345yu', 'Sanjay', 40000, '2014-11-23', '1989-03-24', 'Lecturer');
Query OK, 2 rows affected (0.09 sec)
Records: 2 Duplicates: 0 Warnings: 0
```

```
MariaDB [junth_school]> select * from teacher;
```

teacher_id	name	salary	joining_date	birthdate	position
101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
123ab	Clementine	30000.00	2015-12-13	1990-12-13	Assistant Professor
134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor
345yu	Sanjay	40000.00	2014-11-23	1989-03-24	Lecturer
456er	Hisshina	40000.00	2017-12-13	1995-05-12	Lecturer

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

Creating,describing and populating table class;

```
MariaDB [Junth_School]> create table class
-> (class_scheduleno varchar(15),
-> teacher_id varchar(15),
-> room_no varchar(15),
-> primary key (class_scheduleno, room_no),
-> foreign key (teacher_id) references teacher (teacher_id)
-> on delete set null
-> );
Query OK, 0 rows affected (0.25 sec)
```

```
MariaDB [Junth_School]> describe class;
```

Field	Type	Null	Key	Default	Extra
class_scheduleno	varchar(15)	NO	PRI	NULL	
teacher_id	varchar(15)	YES	MUL	NULL	
room_no	varchar(15)	NO	PRI	NULL	

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

```
MariaDB [Junth_School]> insert into class
-> values ('3', '101gb', 'CE402'),
-> ('2', '102hj', 'CS403'),
-> ('1', '123ab', 'CE402'),
-> ('4', '178sd', 'ME202'),
-> ('5', '101gb', 'CE403');
```

Query OK, 5 rows affected (0.07 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
MariaDB [Junth_School]> select * from class;
```

class_schulenno	teacher_id	room_no
3	101gb	CE402
5	101gb	CE403
2	102hj	CS403
1	123ab	CE402
4	178sd	ME202

5 rows in set (0.00 sec)

Questions:

Question(1) Display the name of the teacher who is oldest among all teachers.

```
MariaDB [junth_school]> select name from teacher where birthdate in
-> (select min(birthdate) from teacher);
+-----+
| name   |
+-----+
| Supreme |
+-----+
1 row in set (0.08 sec)
```

Question(2) Display teacher numbers and names of those teachers who are earning less than 'Katherine'.

```
MariaDB [junth_school]> select teacher_id, name from teacher where
-> salary < (select salary from teacher where name = 'Katherine');
+-----+-----+
| teacher_id | name      |
+-----+-----+
| 101gb      | James    |
| 123ab      | Clementine |
+-----+-----+
2 rows in set (0.06 sec)
```

Question(3) Display the list of all teachers who are earning equal to any teacher who have joined before '31-dec-2010'.

```
MariaDB [junth_school]> select * from teacher where salary in
-> (select salary from teacher group by salary having count(*) > 1
-> and joining_date < '2010-12-31');
+-----+-----+-----+-----+-----+-----+
| teacher_id | name      | salary  | joining_date | birthdate | position      |
+-----+-----+-----+-----+-----+-----+
| 134ty      | Leonardo  | 80000.00 | 2004-04-16   | 1980-06-13 | Professor     |
| 178sd      | Supreme   | 100000.00 | 2010-01-07   | 1989-07-04 | Associate Professor |
| 345er      | Nishan    | 100000.00 | 2003-06-29   | 1985-03-23 | Associate Professor |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.05 sec)
```

Question(4) Display the list of all those teachers whose salary is greater than any other teacher with job title 'Lecturer'.

```
MariaDB [junth_school]> select * from teacher where salary in
-> (select salary from teacher as t2 where t2.position != 'Lecturer' and
-> salary > (select min(salary) from teacher where position = 'Lecturer' limit 1));
```

teacher_id	name	salary	joining_date	birthdate	position
102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor

5 rows in set (0.04 sec)

Question(5) Display the list of all those teachers whose salary is greater than all the teachers with job title as 'Lecturer'.

```
MariaDB [junth_school]> select * from teacher where salary in
-> (select salary from teacher as t2 where t2.position != 'Lecturer' and
-> salary > (select max(salary) from teacher where position = 'Lecturer' limit 1));
```

teacher_id	name	salary	joining_date	birthdate	position
102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor

5 rows in set (0.00 sec)

Question(6) Display the list of all teachers whose job title and salary is same as that of the teacher whose name is 'James'.

```
MariaDB [junth_school]> select * from teacher
-> where position = (select position from teacher where name = 'James') and
-> salary = (select salary from teacher where name = 'James');
```

teacher_id	name	salary	joining_date	birthdate	position
101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
345yu	Sanjay	40000.00	2014-11-23	1989-03-24	Lecturer
456er	Hisshina	40000.00	2017-12-13	1995-05-12	Lecturer

3 rows in set (0.00 sec)

Question(7) Display names of all the teachers who are class teachers.

```

MariaDB [junth_school]> select name from teacher, class
  -> where teacher.teacher_id = class.teacher_id and class.class_scheduleno = 1;
+-----+
| name      |
+-----+
| Clementine |
+-----+
1 row in set (0.02 sec)

```

Question(8) Display names, salaries and salary grades of all teachers.

```

MariaDB [junth_school]> select distinct teacher.name, teacher.salary, payscale.grade
  -> from teacher, payscale
  -> where payscale.grade = (select grade from payscale where payscale.position = teacher.position);
+-----+-----+-----+
| name      | salary | grade |
+-----+-----+-----+
| James     | 40000.00 | 8      |
| Katherine | 80000.00 | 10     |
| Clementine | 30000.00 | 5      |
| Leonardo  | 80000.00 | 10     |
| Supreme   | 100000.00 | 12     |
| Sushmita  | 150000.00 | 15     |
| Nishan    | 100000.00 | 12     |
| Sanjay    | 40000.00 | 8      |
| Hisshina  | 40000.00 | 8      |
+-----+-----+-----+
9 rows in set (0.06 sec)

```

Question(9) Display names and class schedule numbers of all the teachers.

```

MariaDB [junth_school]> select name, class_scheduleno from teacher, class
  -> where teacher.teacher_id = class.teacher_id;
+-----+-----+
| name      | class_scheduleno |
+-----+-----+
| James     | 3                |
| James     | 5                |
| Katherine | 2                |
| Clementine | 1                |
| Supreme   | 4                |
+-----+-----+
5 rows in set (0.10 sec)

```

Question(10) Display teacher ID and names of all teachers who are going to be retired by next year.


```
MariaDB [junth_school]> select teacher_id, name from teacher
-> where datediff(curdate(), joining_date) > (3650-365);
```

teacher_id	name
134ty	Leonardo
193sj	Sushmita
345er	Nishan

3 rows in set (0.00 sec)

Question(11) Show all possible teacher – class values.

```
MariaDB [junth_school]> select * from class left outer join teacher
-> on class.teacher_id = teacher.teacher_id union all select * from class
-> right outer join teacher on
-> class.teacher_id = teacher.teacher_id;
```

class_schulenno	teacher_id	room_no	teacher_id	name	salary	joining_date	birthdate	position
3	101gb	CE402	101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
5	101gb	CE403	101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
2	102hj	CS403	102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
1	123ab	CE402	123ab	Clementine	30000.00	2015-12-13	1990-12-13	Assistant Professor
4	178sd	ME202	178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
3	101gb	CE402	101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
5	101gb	CE403	101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
2	102hj	CS403	102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
1	123ab	CE402	123ab	Clementine	30000.00	2015-12-13	1990-12-13	Assistant Professor
NULL	NULL	NULL	134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
4	178sd	ME202	178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
NULL	NULL	NULL	193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
NULL	NULL	NULL	345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor
NULL	NULL	NULL	345yu	Sanjay	40000.00	2014-11-23	1989-03-24	Lecturer
NULL	NULL	NULL	456er	Hisshina	40000.00	2017-12-13	1995-05-12	Lecturer

15 rows in set (0.04 sec)

Question(12) Create a View of above relational schema and do the following operations on it.

```
MariaDB [junth_school]> create view teacherView as select * from teacher;
Query OK, 0 rows affected (0.09 sec)

MariaDB [junth_school]> select * from teacherView;
```

teacher_id	name	salary	joining_date	birthdate	position
101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
123ab	Clementine	30000.00	2015-12-13	1990-12-13	Assistant Professor
134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor
345yu	Sanjay	40000.00	2014-11-23	1989-03-24	Lecturer
456er	Hisshina	40000.00	2017-12-13	1995-05-12	Lecturer

9 rows in set (0.00 sec)

Question(13) Hisshina has upgraded to Assistant professor from lecturer.

```
MariaDB [junth_school]> update teacherView set position = 'Assistant Professor'
-> where name = 'Hisshina';
Query OK, 1 row affected (0.09 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [junth_school]> select * from teacher;
```

teacher_id	name	salary	joining_date	birthdate	position
101gb	James	40000.00	2016-08-09	1991-06-07	Lecturer
102hj	Katherine	80000.00	2014-03-02	1994-12-11	Professor
123ab	Clementine	30000.00	2015-12-13	1990-12-13	Assistant Professor
134ty	Leonardo	80000.00	2004-04-16	1980-06-13	Professor
178sd	Supreme	100000.00	2010-01-07	1989-07-04	Associate Professor
193sj	Sushmita	150000.00	2005-12-01	1990-12-13	Head of Department
345er	Nishan	100000.00	2003-06-29	1985-03-23	Associate Professor
345yu	Sanjay	40000.00	2014-11-23	1989-03-24	Lecturer
456er	Hisshina	40000.00	2017-12-13	1995-05-12	Assistant Professor

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

Question(14) Find the average salary till now, earned by Janesh who has joined on January 01 2016.

```
MariaDB [junth_school]> select avg(salary) from teacher
-> where name = 'Janesh';
```

avg(salary)
80000.000000

```
1 row in set (0.00 sec)
```

Question(15) Find the number of lecturer, Assistant Professor, Associate Professor, Professor.

```
MariaDB [junth_school]> select count(position) as numberOfProfessor from teacherView
-> where position = 'Professor';
```

numberOfProfessor
3

```
1 row in set (0.00 sec)
```

```
MariaDB [junth_school]> select count(position) as numberOfAssistantProfessor from teacherView
-> where position = 'Assistant Professor';
+-----+
| numberOfAssistantProfessor |
+-----+
|                2         |
+-----+
1 row in set (0.00 sec)
```

```
MariaDB [junth_school]> select count(position) as numberOfAssociateProfessor from teacherView
-> where position = 'Associate Professor';
+-----+
| numberOfAssociateProfessor |
+-----+
|                2         |
+-----+
1 row in set (0.00 sec)
```

```
MariaDB [junth_school]> select count(position) as numberOfLecturer from teacherView
-> where position = 'Lecturer';
+-----+
| numberOfLecturer |
+-----+
|                2 |
+-----+
1 row in set (0.00 sec)
```