

## Assingment2

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### Consider the database Schema:

Employee(Eid, Name, Depid, Qualification, Age),  
Salary(Eid, Basic, D.A., HRA, Bonus, Total\_Salary) And  
Department(Depid, Desc, HoD, Location)

Write SQL queries for the following :

### Contains :

- Eid in Both the tables is the primary key.
- Age must be greater than 18 and less than 60.
- Eid is a 6-digit alphanumeric code stars with with 'EMP' followed by 3-digit number. (Maintain at insertion).
- Depid is 6-digit alphanumeric code stars with 'Dep' followed by 3-digit number. (Maintain at insertion).
- D.A. is 25% of the Basic Salary.
- HRA is 8% of the Basic Salary.
- Bonus is 5% of the Basic Salary.
- Depid is the primary key in the Department Table.
- HoD represents Head of the Department must be an Employee from Employee table, storees Eid.
- Desc is department description.

### Task:

- Create the Department table with the above-mentioned details.
- Insert all the Department Details in the Department Table.
- Add new Filed NoE in the Department table. NoE represents the number of employees present in the Employee Department for a specific Department.
- Update the NoE field values using a query by counting the number of employees from the Employees table.

### Queries:

1. Display the name and qualification of all the HoDs whose department is in Kolkata.
2. Display the name, department, and salary of all the employees that are HoD of some department.
3. Display the details of all the employees who are younger than average employee age.
4. Display the details of the highest-paid HoD.
5. Change the HoD of Dep003 to Emp006.
6. Display the Department details and average salary received by each Department.

### Solution:

```
mysql> create database A2mouli;  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> use A2mouli;  
Database changed
```

```
mysql> create table Employee ( eid varchar(6) primary key, name varchar(20), qualification varchar(15),  
age integer);  
Query OK, 0 rows affected (0.40 sec)
```

```
mysql> desc Employee;
```

Field	Type	Null	Key	Default	Extra
eid	varchar(6)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
qualification	varchar(15)	YES		NULL	
age	int(11)	YES		NULL	

4 rows in set (0.01 sec)

```
mysql> create table Salary( eid varchar(6) references Employee, basic integer, da_ decimal(10,2), hra decimal(10,2), bonus decimal(10,2), total_salary decimal(10,2), primary key(eid));
```

Query OK, 0 rows affected (0.32 sec)

```
mysql> desc Salary;
```

Field	Type	Null	Key	Default	Extra
eid	varchar(6)	NO	PRI	NULL	
basic	int(11)	YES		NULL	
da_	decimal(10,2)	YES		NULL	
hra	decimal(10,2)	YES		NULL	
bonus	decimal(10,2)	YES		NULL	
total_salary	decimal(10,2)	YES		NULL	

6 rows in set (0.00 sec)

```
mysql> create table Department ( depid varchar(6), desc_ varchar(20), hod varchar(6) references Employee, location varchar(20) );
```

Query OK, 0 rows affected (0.25 sec)

```
mysql> desc Department;
```

Field	Type	Null	Key	Default	Extra
depid	varchar(6)	YES		NULL	
desc_	varchar(20)	YES		NULL	
hod	varchar(6)	YES		NULL	
location	varchar(20)	YES		NULL	

4 rows in set (0.00 sec)

```
mysql> insert into Employee VALUES ('Emp001','Prof. Anup Karmarkar','M.Phil',34);
```

Query OK, 1 row affected (0.07 sec)

```
mysql> insert into Employee VALUES ('Emp002','Mr. Saikat Karmakar','Ph.D',45);
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into Employee VALUES ('Emp003','Mr. Soumyadeep Das','Post.Doc',36);
```

Query OK, 1 row affected (0.07 sec)

```
mysql> insert into Employee VALUES ('Emp004','Prof. Rohan Das','Ph.D',52);
```

Query OK, 1 row affected (0.12 sec)

```
mysql> insert into Employee VALUES ('Emp005','Mrs. Poulina Pal','M.Phil',35);
```

Query OK, 1 row affected (0.16 sec)

```
mysql> insert into Employee VALUES ('Emp006','Mrs. Aishwarya Ghosh','M.Phil',32);
```

Query OK, 1 row affected (0.01 sec)

```
mysql> insert into Employee VALUES ('Emp007','Prof. Sourav Saha','Ph.D',37);
```

Query OK, 1 row affected (0.06 sec)

```
mysql> select *from Employee;
```

eid	name	qualification	age
Emp001	Prof. Anup Karmarkar	M.Phil	34
Emp002	Mr. Saikat Karmarkar	Ph.D	45
Emp003	Mr. Soumyadeep Das	Post.Doc	36
Emp004	Prof. Rohan Das	Ph.D	52
Emp005	Mrs. Poulina Pal	M.Phil	35
Emp006	Mrs. Aishwarya Ghosh	M.Phil	32
Emp007	Prof. Sourav Saha	Ph.D	37

7 rows in set (0.00 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp001",100000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.11 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp002",200000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.06 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp003",75000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp004",60000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.06 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp005",70000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.01 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp006",50000,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into Salary (eid,basic,da,_hra,bonus,total_salary)VALUES  
("Emp007",85200,NULL,NULL,NULL,NULL);
```

Query OK, 1 row affected (0.04 sec)

```
mysql> select *from Salary;
```

eid	basic	da_	hra	bonus	total_salary
Emp001	100000	NULL	NULL	NULL	NULL
Emp002	200000	NULL	NULL	NULL	NULL
Emp003	75000	NULL	NULL	NULL	NULL
Emp004	60000	NULL	NULL	NULL	NULL
Emp005	70000	NULL	NULL	NULL	NULL
Emp006	50000	NULL	NULL	NULL	NULL
Emp007	85200	NULL	NULL	NULL	NULL

7 rows in set (0.00 sec)

```
mysql> insert into Department VALUES('Dep001','English','Emp001','Kolkata');
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into Department VALUES('Dep002','Physics','Emp002','Kalyani');
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into Department VALUES('Dep003','Physics','Emp003','Kanchrapara');
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into Department VALUES('Dep004','Botany','Emp004','Nabadwip');
```

Query OK, 1 row affected (0.07 sec)

```
mysql> insert into Department VALUES('Dep005','Computer science','Emp005','Kolkata');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into Department VALUES('Dep006','Bengali','Emp006','Murshidabad');
```

Query OK, 1 row affected (0.05 sec)

```
mysql> insert into Department VALUES('Dep007','Mathematics','Emp007','Kalyani');
```

Query OK, 1 row affected (0.09 sec)

```
mysql> select *from Department;
```

depid	desc_	hod	location
Dep001	English	Emp001	Kolkata
Dep002	Physics	Emp002	Kalyani
Dep003	Physics	Emp003	Kanchrapara
Dep004	Botany	Emp004	Nabadwip
Dep005	Computer science	Emp005	Kolkata
Dep006	Bengali	Emp006	Murshidabad
Dep007	Mathematics	Emp007	Kalyani

7 rows in set (0.00 sec)

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp001';
```

Query OK, 1 row affected (0.09 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp002';
```

Query OK, 1 row affected (0.03 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,  
bonus=0.05*basic, total_salary = basic + da_ + hra + bonus where eid= 'Emp003';
```

Query OK, 1 row affected (0.02 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp004';
```

Query OK, 1 row affected (0.05 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp005';
```

Query OK, 1 row affected (0.03 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp006';
```

Query OK, 1 row affected (0.13 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Salary set da_ = 0.25*basic,hra=0.08*basic,bonus=0.05*basic,  
total_salary = basic + da_ + hra + bonus where eid= 'Emp007';
```

Query OK, 1 row affected (0.03 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from Salary;
```

eid	basic	da_	hra	bonus	total_salary
Emp001	100000	25000.00	8000.00	5000.00	138000.00
Emp002	200000	50000.00	16000.00	10000.00	276000.00
Emp003	75000	18750.00	6000.00	3750.00	103500.00
Emp004	60000	15000.00	4800.00	3000.00	82800.00
Emp005	70000	17500.00	5600.00	3500.00	96600.00
Emp006	50000	12500.00	4000.00	2500.00	69000.00
Emp007	85200	21300.00	6816.00	4260.00	117576.00

7 rows in set (0.00 sec)

```
mysql> alter table Employee add Depid varchar(6) references Department;
```

Query OK, 0 rows affected (0.25 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> update Employee set depid = 'Dep001' where eid= 'Emp001';
```

Query OK, 1 row affected (0.73 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Employee set depid = 'Dep002' where eid= 'Emp002';
```

Query OK, 1 row affected (0.12 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> update Employee set depid = 'Dep003' where eid= 'Emp003';
```

Query OK, 1 row affected (0.17 sec)

Rows matched: 1 Changed: 1 Warnings: 0  
mysql> update Employee set depid = 'Dep004' where eid= 'Emp004';  
Query OK, 1 row affected (0.10 sec)  
Rows matched: 1 Changed: 1 Warnings: 0  
mysql> update Employee set depid = 'Dep005' where eid= 'Emp005';  
Query OK, 1 row affected (0.18 sec)  
Rows matched: 1 Changed: 1 Warnings: 0  
mysql> update Employee set depid = 'Dep006' where eid= 'Emp006';  
Query OK, 1 row affected (0.07 sec)  
Rows matched: 1 Changed: 1 Warnings: 0  
mysql> update Employee set depid = 'Dep007' where eid= 'Emp007';  
Query OK, 0 rows affected (0.07 sec)  
Rows matched: 1 Changed: 0 Warnings: 0

mysql> select \* from Employee;

eid	name	qualification	age	Depid
Emp001	Prof. Anup Karmarkar	M.Phil	34	Dep001
Emp002	Mr. Saikat Karmarkar	Ph.D	45	Dep002
Emp003	Mr. Soumyadeep Das	Post.Doc	36	Dep003
Emp004	Prof. Rohan Das	Ph.D	52	Dep004
Emp005	Mrs. Poulina Pal	M.Phil	35	Dep005
Emp006	Mrs. Aishwarya Ghosh	M.Phil	32	Dep006
Emp007	Prof. Sourav Saha	Ph.D	37	Dep007

7 rows in set (0.00 sec)

mysql> alter table Department ADD NoE varchar(6);  
Query OK, 0 rows affected (0.25 sec)  
Records: 0 Duplicates: 0 Warnings: 0

mysql> update Department set Department.NoE = (select count(Eid) from Employee where Department.Depid=Employee.Depid);  
Query OK, 7 rows affected (0.15 sec)  
Rows matched: 7 Changed: 7 Warnings: 0

mysql> select \*from Department;

depid	desc_	hod	location	NoE
Dep001	English	Emp001	Kolkata	1
Dep002	Physics	Emp002	Kalyani	1
Dep003	Physics	Emp006	Kanchrapara	1
Dep004	Botany	Emp004	Nabadwip	1
Dep005	Computer science	Emp005	Kolkata	1
Dep006	Bengali	Emp006	Murshidabad	1
Dep007	Mathematics	Emp007	Kalyani	1

7 rows in set (0.00 sec)

### Queries:

1). Display the name and qualification of all the HoDs whose department is in Kolkata.

```
mysql> select Name,qualification from Employee E,Department D where E.Eid=D.Hod and Location="Kolkata";
```

Name	qualification
Prof. Anup Karmarkar	M.Phil
Mrs. Poulina Pal	M.Phil

2 rows in set (0.11 sec)

2). Display the name, department, and salary of all the employees that are HoD of some department.

```
mysql> select Name, Desc_ as Department, Total_Salary as Salary from Employee E,Department D,Salary S where E.Eid=D.Hod and E.Eid=S.Eid;
```

Name	Department	Salary
Prof. Anup Karmarkar	English	138000.00
Mr. Saikat Karmarkar	Physics	276000.00
Mr. Soumyadeep Das	Physics	103500.00
Prof. Rohan Das	Botany	82800.00
Mrs. Poulina Pal	Computer science	96600.00
Mrs. Aishwarya Ghosh	Bengali	69000.00
Prof. Sourav Saha	Mathematics	117576.00

7 rows in set (0.00 sec)

3). Display the details of all the employees who are younger than average employee age.

```
mysql> select * from Employee where Age<(select avg(Age) from Employee);
```

eid	name	qualification	age	Depid
Emp001	Prof. Anup Karmarkar	M.Phil	34	Dep001
Emp003	Mr. Soumyadeep Das	Post.Doc	36	Dep003
Emp005	Mrs. Poulina pal	M.Phil	35	Dep005
Emp006	Mrs. Aishwarya Ghosh	M.Phil	32	Dep006
Emp007	Prof. Sourav Saha	Ph.D	37	Dep007

5 rows in set (0.11 sec)

4). Display the details of the highest-paid HoD.

```
mysql> select Name,Qualification,Age from Employee E, Salary S where E.Eid=S.Eid and  
Total_Salary=(select max(Total_Salary) from Salary);
```

Name	Qualification	Age
Mr. Saikat Karmakar	Ph.D	45

1 row in set (0.02 sec)

5). Change the HoD of Dep003 to Emp006.

```
mysql> update Department set Hod="Emp006" where Depid="Dep003";
```

Query OK, 1 row affected (0.05 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select *from department;
```

depid	desc_	hod	location
Dep001	English	Emp001	Kolkata
Dep002	Physics	Emp002	Kalyani
Dep003	Physics	Emp006	Kanchrapara
Dep004	Botany	Emp004	Nabadwip
Dep005	Computer science	Emp005	Kolkata
Dep006	Bengali	Emp006	Murshidabad
Dep007	Mathematics	Emp007	Kalyani

7 rows in set (0.00 sec)

6). Display the Department details and average salary received by each Department.

```
mysql>select D.Depid,Desc_,Hod,Location,NoE,avg(Total_Salary) as AvgSalary from Department D,  
Salary S, Employee E where D.Depid=E.Depid and E.Eid=S.Eid group by D.Depid;
```

Depid	Desc_	Hod	Location	NoE	AvgSalary
Dep001	English	Emp001	Kolkata	1	138000.000000
Dep002	Physics	Emp002	Kalyani	1	276000.000000
Dep003	Physics	Emp006	Kanchrapara	1	103500.000000
Dep004	Botany	Emp004	Nabadwip	1	82800.000000
Dep005	Computer science	Emp005	Kolkata	1	96600.000000
Dep006	Bengali	Emp006	Murshidabad	1	69000.000000
Dep007	Mathematics	Emp007	Kalyani	1	117576.000000

7 rows in set (0.10 sec)