



Atma Ram Sanatan Dharma Collage  
University Of Delhi



# DATABASE MANAGMENT SYSTEM

## PRACTICAL FILE

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29	Query to display the Highest, Lowest, Sum and Average Salaries of all the employees.
30	Query to display the number of employees performing the same Job type functions.

# DATABASE SCHEMA

## RELATION: EMPLOYEE

```
mysql> DESC EMPLOYEE;
```

Field	Type	Null	Key	Default	Extra
Eno	char(3)	NO	PRI	NULL	
Ename	varchar(50)	NO		NULL	
Job_type	varchar(50)	NO		NULL	
SupervisorEno	char(3)	YES	MUL	NULL	
Hire_date	date	NO		NULL	
Dno	int	YES	MUL	NULL	
Commission	decimal(10,2)	YES		NULL	
Salary	decimal(7,2)	NO		NULL	

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

## RELATION: DEPARTMENT

```
mysql> DESC DEPARTMENT;
```

Field	Type	Null	Key	Default	Extra
Dno	int	NO	PRI	NULL	
Dname	varchar(50)	YES		NULL	
Location	varchar(50)	YES		New Delhi	

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

## DDL

```
CREATE TABLE EMPLOYEE
```

```
(  
    Eno          CHAR(3)    NOT NULL,  
    Ename        VARCHAR(50) NOT NULL,  
    Job_type     VARCHAR(50) NOT NULL,  
    SupervisorEno CHAR(3),  
    Hire_date    DATE       NOT NULL,  
    Dno          INT,  
    Commission   DEC(10, 2),  
    Salary       DEC(7, 2)  NOT NULL,  
    PRIMARY KEY (Eno)  
);
```

```
CREATE TABLE DEPARTMENT
```

```
(  
    Dno      INT NOT NULL,  
    Dname    VARCHAR(50),  
    Location VARCHAR(50) DEFAULT 'New Delhi',  
    PRIMARY KEY (Dno)  
);
```

```
ALTER TABLE EMPLOYEE
```

```
ADD CONSTRAINT SupervisorConstraint  
FOREIGN KEY (SupervisorEno) REFERENCES EMPLOYEE (Eno);
```

```
ALTER TABLE EMPLOYEE
```

```
ADD CONSTRAINT DepartmentConstraint  
FOREIGN KEY (Dno) REFERENCES DEPARTMENT (Dno);
```

## DML

```
INSERT INTO DEPARTMENT
VALUES (10, 'Headquarters', 'Mumbai'),
      (45, 'Legal', 'Mumbai'),
      (30, 'IT', 'Bengaluru'),
      (20, 'Outreach', 'Dallas'),
      (95, 'Purchase', 'Dallas');
```

```
INSERT INTO DEPARTMENT (Dno, Dname)
VALUES (90, 'Sales'),
      (40, 'Administration'),
      (50, 'Research');
```

```
INSERT INTO EMPLOYEE
VALUES ('778', 'John Smith', 'Managing Director', NULL, '1980-06-12', 10, NULL, 5800.23),
      ('153', 'Andy Beaford', 'VP Accounting', '778', '2000-09-08', 40, NULL, 502.30),
      ('23', 'Sudipto Ghosh', 'SDE Manager', '778', '1981-11-21', 30, NULL, 2465.92),
      ('25', 'Anmol Gupta', 'Accounts Manager', '778', '1981-09-11', 40, NULL, 2865.92),
      ('86', 'Tania Chauhan', 'Sales Manager', '778', '1983-08-14', 90, 235.90, 2921.37),
      ('89', 'Alicia Jones', 'Purchase Manager', '778', '1982-10-26', 95, NULL, 980.35),
      ('232', 'Isa Jaques', 'Legal Manager', '778', '1996-07-23', 45, NULL, 651.05),
      ('520', 'King Hethron', 'Sales Manager', '778', '2015-10-13', 90, NULL, 497.18),
      ('188', 'Sherline Harbord', 'Audit Manager', '778', '1995-08-05', 40, NULL, 926.42),
      ('146', 'Donielle Tuite', 'Sales Representative', '520', '2016-06-12', 90, NULL, 171.60),
      ('125', 'Gurpreet Singh', 'Intern', NULL, '2008-05-15', NULL, NULL, 521.37),
      ('243', 'Marie Brahms', 'Systems Engineer', '23', '1983-06-22', 40, NULL, 876.78),
      ('299', 'Mahala Burtwhistle', 'Compensation Analyst', '89', '1990-07-20', 95, NULL, 602.86),
      ('354', 'Bryna McKenny', 'Financial Advisor', '153', '2001-10-11', 90, NULL, 693.63),
      ('421', 'Ulberto Gosz', 'Office Assistant', NULL, '2017-02-07', 10, NULL, 381.64),
      ('442', 'Netti Dellenbrok', 'Graphic Designer', '23', '2014-05-14', 30, NULL, 790.82),
      ('492', 'Salmon Gough', 'Marketing Assistant', '86', '2008-12-13', 90, 148.80, 998.32),
      ('504', 'Berny Bonas', 'Executive Secretary', '778', '2008-05-24', 40, NULL, 779.34),
      ('516', 'Lowell Paule', 'Systems Administrator', '23', '2008-03-31', 30, 324.39, 969.66),
      ('518', 'Nicholas Comelini', 'Tax Accountant', '188', '1997-03-20', 90, 546.04, 882.53);
```

```
INSERT INTO EMPLOYEE
VALUES ('528', 'Laurence Grosvener', 'Sales Intern', '520', '2019-09-06', 90, 950.33, 244.37),
      ('611', 'Brandtr Wildbore', 'Software Test Engineer', '23', '2000-04-14', 30, NULL, 704.23),
      ('697', 'Druci Sixsmith', 'Help Desk Technician', NULL, '2005-07-27', 10, 530.53, 387.43),
      ('718', 'Oneida Hicklingbottom', 'Payment Coordinator', '89', '2006-03-25', 95, NULL, 789.82),
      ('732', 'Gannie Quantrell', 'Automation Engineer', '23', '2019-04-29', 30, NULL, 174.12),
      ('783', 'Fran Lening', 'Analyst Programmer', '23', '1981-05-27', 30, NULL, 471.17),
      ('79', 'Rahul Sahay', 'SDE Intern', '23', '2004-08-14', 30, NULL, 2921.37),
      ('811', 'Shay Restieaux', 'Lawyer', '232', '1999-04-16', 45, 574.68, 500.22),
      ('823', 'Marcille Occleshaw', 'Lawyer', '232', '2003-12-27', 45, 453.52, 507.10),
      ('832', 'Desiri Allott', 'Payment Coordinator', '89', '1997-11-04', 95, 239.84, 683.09),
      ('87', 'Blake Lewis', 'Sales Intern', '86', '2008-05-02', 90, 125.45, 921.37),
      ('908', 'Gustav Waring', 'Software Engineer', '23', '2002-12-23', 30, NULL, 141.05),
      ('960', 'Virge Swancott', 'Web Developer', '23', '1984-01-23', 30, NULL, 292.48),
      ('969', 'Lee Prattin', 'Backend Developer', '23', '1986-01-23', 30, NULL, 296.48),
      ('997', 'Mag Giacomo', 'GIS Technical Architect', '23', '2002-12-23', 30, NULL, 427.98),
      ('785', 'Chandal McBrier', 'Software Consultant', '23', '1998-02-10', 30, NULL, 697.68),
      ('659', 'Martha Annies', 'Web Developer', '23', '2008-11-03', 30, NULL, 200.80),
      ('932', 'Selestina Herries', 'Software Engineer III', '23', '2013-05-23', 30, NULL, 239.27),
      ('837', 'Ashil Burney', 'Automation Engineer', '23', '1987-03-29', 30, NULL, 586.13);
```

```
INSERT INTO EMPLOYEE
VALUES ('763', 'Rodrick Haighton', 'Computer Systems Analyst', '23', '2000-05-08', 30, NULL, 627.74),
      ('981', 'Nina Fisby', 'Systems Administrator', '23', '2017-07-26', 30, 324.39, 920.84),
      ('498', 'Skell Woolerton', 'Software Test Engineer', '23', '2004-04-04', 30, NULL, 506.44),
      ('809', 'Cornie Munby', 'Software Consultant', '23', '1986-06-07', 30, NULL, 688.37),
      ('915', 'Layton Murrie', 'Graphic Designer', '23', '2006-06-24', 30, NULL, 640.31),
      ('842', 'Rivy Buzek', 'Help Desk Technician', NULL, '1982-05-25', 30, NULL, 295.31);
```

## QUERY - 21

### Description

Query to display Name, Hire Date and Day of the week on which the employee started.

### Query

```
-- Q21
SELECT Ename,
       Hire_date,
       DAYNAME(Hire_date)
FROM EMPLOYEE;
```

### Results

```
mysql> SELECT Ename,
→         Hire_date,
→         DAYNAME(Hire_date)
→ FROM EMPLOYEE
→ LIMIT 10;
```

Ename	Hire_date	DAYNAME(Hire_date)
Gurpreet Singh	2008-05-15	Thursday
Donielle Tuite	2016-06-12	Sunday
Andy Beaford	2000-09-08	Friday
Sherline Harbord	1995-08-05	Saturday
Sudipto Ghosh	1981-11-21	Saturday
Isa Jaques	1996-07-23	Tuesday
Marie Brahms	1983-06-22	Wednesday
Anmol Gupta	1981-09-11	Friday
Mahala Burtwhistle	1990-07-20	Friday
Bryna McKenny	2001-10-11	Thursday

10 rows in set (0.00 sec)

## QUERY - 22

### Description

Query to display Name, Department Name and Department No for all the employees.

### Query

```
-- Q22
SELECT Ename,
       Dno,
       Dname
FROM (EMPLOYEE
      NATURAL JOIN DEPARTMENT);
```

### Results

```
mysql> SELECT Ename,
→         Dno,
→         Dname
→ FROM (EMPLOYEE
→        NATURAL JOIN DEPARTMENT)
→ LIMIT 10;
```

Ename	Dno	Dname
Ulberto Gosz	10	Headquarters
Druci Sixsmith	10	Headquarters
John Smith	10	Headquarters
Sudipto Ghosh	30	IT
Netti Dellenbrok	30	IT
Skell Woolerton	30	IT
Lowell Paule	30	IT
Brandtr Wildbore	30	IT
Martha Annies	30	IT
Gannie Quantrell	30	IT

10 rows in set (0.00 sec)

## QUERY - 23

### Description

Query to display Unique Listing of all Jobs that are in Department number 30.

### Query

```
-- Q23
SELECT DISTINCT Job_type
FROM EMPLOYEE
WHERE Dno = 30;
```

### Results

```
mysql> SELECT DISTINCT Job_type
→ FROM EMPLOYEE
→ WHERE Dno = 30;
```

Job_type
SDE Manager
Graphic Designer
Software Test Engineer
Systems Administrator
Web Developer
Automation Engineer
Computer Systems Analyst
Analyst Programmer
Software Consultant
SDE Intern
Help Desk Technician
Software Engineer
Backend Developer
GIS Technical Architect

14 rows in set (0.00 sec)



## QUERY - 24

### Description

Query to display Name, Dept Name of all employees who have an 'A' in their name.

### Query

```
-- Q24
SELECT Ename,
       Dname
FROM (EMPLOYEE
      NATURAL JOIN DEPARTMENT)
WHERE Ename LIKE '%A%';
```

### Results

```
mysql> SELECT Ename,
→          Dname
→ FROM (EMPLOYEE
→        NATURAL JOIN DEPARTMENT)
→ WHERE Ename LIKE '%A%'
→ LIMIT 15;
```

Ename	Dname
Andy Beaford	Administration
Sherline Harbord	Administration
Isa Jaques	Legal
Marie Brahms	Administration
Anmol Gupta	Administration
Mahala Burtwhistle	Purchase
Bryna McKenny	Sales
Salmon Gough	Sales
Berny Bonas	Administration
Lowell Paule	IT
Nicholas Comelini	Sales
Laurence Grosvener	Sales
Brandtr Wildbore	IT
Martha Annies	IT
Oneida Hicklingbottom	Purchase

15 rows in set (0.00 sec)



## QUERY - 25

### Description

Query to display Name, Job, Department No. And Department Name for all the employees working at the Dallas location.

### Query

```
-- Q25
SELECT Ename,
       Job_type,
       Dno,
       Dname
FROM (EMPLOYEE
      NATURAL JOIN DEPARTMENT)
WHERE Location = 'Dallas';
```

### Results

```
mysql> SELECT Ename,
→          Job_type,
→          Dno,
→          Dname
→ FROM (EMPLOYEE
→        NATURAL JOIN DEPARTMENT)
→ WHERE Location = 'Dallas';
```

Ename	Job_type	Dno	Dname
Mahala Burtwhistle	Compensation Analyst	95	Purchase
Oneida Hicklingbottom	Payment Coordinator	95	Purchase
Desiri Allott	Payment Coordinator	95	Purchase
Alicia Jones	Purchase Manager	95	Purchase

4 rows in set (0.00 sec)

## QUERY - 26

### Description

Query to display Name and Employee no. Along with their supervisor's Name and the supervisor's employee no; along with the Employees' Name who do not have a supervisor.

### Query

```
-- Q26
SELECT E.Ename,
       E.Eno,
       S.Ename AS SupervisorName,
       S.Eno   AS SupervisorEno
FROM EMPLOYEE AS E
     LEFT OUTER JOIN EMPLOYEE AS S
                   ON E.SupervisorEno = S.Eno;
```

### Results

```
mysql> SELECT E.Ename,
→       E.Eno,
→       S.Ename AS SupervisorName,
→       S.Eno   AS SupervisorEno
→ FROM EMPLOYEE AS E
→       LEFT OUTER JOIN EMPLOYEE AS S
→                       ON E.SupervisorEno = S.Eno
→ LIMIT 15;
```

Ename	Eno	SupervisorName	SupervisorEno
Gurpreet Singh	125	NULL	NULL
Donielle Tuite	146	King Hethron	520
Andy Beaford	153	John Smith	778
Sherline Harbord	188	John Smith	778
Sudipto Ghosh	23	John Smith	778
Isa Jaques	232	John Smith	778
Marie Brahms	243	Sudipto Ghosh	23
Anmol Gupta	25	John Smith	778
Mahala Burtwhistle	299	Alicia Jones	89
Bryna McKenny	354	Andy Beaford	153
Ulberto Gosz	421	NULL	NULL
Netti Dellenbrok	442	Sudipto Ghosh	23
Salmon Gough	492	Tania Chauhan	86
Skell Woolerton	498	Sudipto Ghosh	23
Berny Bonas	504	John Smith	778

15 rows in set (0.00 sec)

## QUERY - 27

### Description

Query to display Name, Dept No. And Salary of any employee whose department No. and salary matches both the department no. And the salary of any employee who earns a commission.

### Query

```
-- Q27
SELECT L.Ename,
       L.Dno,
       L.Salary
FROM EMPLOYEE AS L,
     EMPLOYEE AS R
WHERE L.Dno = R.Dno
      AND L.Salary = R.Salary
      AND L.Eno <> R.Eno
      AND R.Commission IS NOT NULL;
```

### Results

```
mysql> SELECT L.Ename,
→       L.Dno,
→       L.Salary
→ FROM EMPLOYEE AS L,
→       EMPLOYEE AS R
→ WHERE L.Dno = R.Dno
→       AND L.Salary = R.Salary
→       AND L.Eno <> R.Eno
→       AND R.Commission IS NOT NULL;
```

Ename	Dno	Salary
Blake Lewis	90	244.37
Laurence Grosvener	90	244.37

2 rows in set (0.00 sec)

## QUERY - 28

### Description

Query to display Name and Salaries represented by asterisks, where each asterisk (\*) signifies \$100.

### Query

```
-- Q28
SELECT Ename,
       RPAD('*', Salary / 100, '*') AS Salary_Star
FROM EMPLOYEE;
```

### Results

```
mysql> SELECT Ename,
→          RPAD('*', Salary / 100, '*') AS Salary_Star
→ FROM EMPLOYEE
→ LIMIT 10;
```

Ename	Salary_Star
Gurpreet Singh	*****
Donielle Tuite	**
Andy Beaford	*****
Sherline Harbord	*****
Sudipto Ghosh	*****
Isa Jaques	*****
Marie Brahms	*****
Anmol Gupta	*****
Mahala Burtwhistle	*****
Bryna McKenny	*****

10 rows in set (0.00 sec)

## QUERY - 29

### Description

Query to display the Highest, Lowest, Sum and Average Salaries of all the employees.

### Query

```
-- Q29
SELECT MAX(Salary),
       MIN(Salary),
       SUM(Salary),
       AVG(Salary)
FROM EMPLOYEE;
```

### Results

```
mysql> SELECT MAX(Salary),
→          MIN(Salary),
→          SUM(Salary),
→          AVG(Salary)
→ FROM EMPLOYEE;
```

MAX(Salary)	MIN(Salary)	SUM(Salary)	AVG(Salary)
5800.23	141.05	39467.46	877.054667

1 row in set (0.00 sec)

## QUERY - 30

### Description

Query to display the number of employees performing the same Job type functions.

### Query

```
-- Q30
SELECT Job_type,
       COUNT(DISTINCT Eno)
FROM EMPLOYEE
GROUP BY Job_type;
```

### Results

```
mysql> SELECT Job_type,
→         COUNT(DISTINCT Eno)
→       FROM EMPLOYEE
→      GROUP BY Job_type;
```

Job_type	COUNT(DISTINCT Eno)
Accounts Manager	1
Analyst Programmer	1
Audit Manager	1
Automation Engineer	2
Backend Developer	1
Compensation Analyst	1
Computer Systems Analyst	1
Executive Secretary	1
Financial Advisor	1
GIS Technical Architect	1
Graphic Designer	2
Help Desk Technician	2
Intern	1
Lawyer	2
Legal Manager	1
Managing Director	1
Marketing Assistant	1
Office Assistant	1
Payment Coordinator	2
Purchase Manager	1
Sales Intern	2
Sales Manager	2
Sales Representative	1
SDE Intern	1
SDE Manager	1
Software Consultant	2
Software Engineer	2
Software Test Engineer	2
Systems Administrator	2
Systems Engineer	1
Tax Accountant	1
VP Accounting	1
Web Developer	2

33 rows in set (0.00 sec)

