PAYROLL MANAGEMENT SYSTEM

Project by

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Abstract

The Payroll Management System makes paying employees easier. It reduces mistakes and makes sure everything runs smoothly. By handling payroll tasks carefully, it helps companies manage money better.

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Payroll Management System

Description

Payroll management is a crucial task for any company as it guarantees that workers receive just compensation for their labor. Payroll procedures done by hand become more laborious and error-prone as businesses get bigger and more complicated. As a result, having a trustworthy and effective payroll administration system becomes essential.

The Payroll Management System project aims to address these challenges by leveraging the power of SQL databases to streamline payroll processes. This system will provide a centralized platform for storing, managing, and processing all payroll-related data, including employee information, attendance records, salary structures, tax deductions, and other relevant details.

Organizations interact with a multitude of employees on a daily basis, each with unique payroll requirements and considerations. By utilizing a relational database, this project seeks to simplify the complexities associated with payroll management, enabling HR departments to perform tasks such as calculating salaries, generating pay slips, and processing tax filings with ease and accuracy.

The Payroll Management System project will serve as a valuable tool for organizations of all sizes to effectively manage their payroll operations, enhance employee satisfaction, and achieve greater compliance with regulatory standards.

This database contains 5 tables:

1. Employees
2. Departments
3. Salaries
4. Timecards
5. Deductions

How these tables/entities are related to each other is shown on next page through ER diagram, i.e., Entity Relationship Diagram.

ER-Diagram (Entity Relation -Diagram) for Payroll Management System:

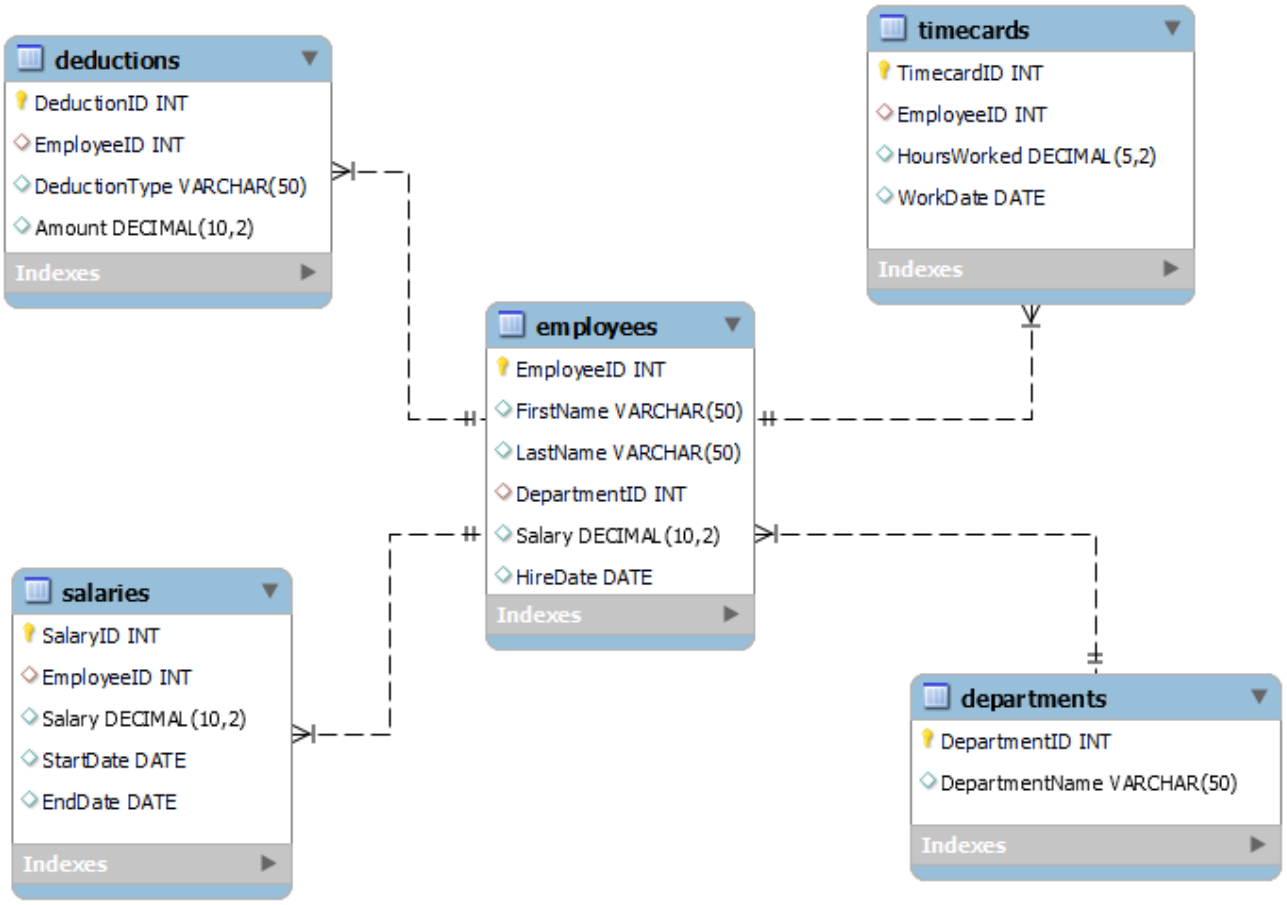

Table Descriptions:

1. Employees

Field	Type	Null	Key	Default
EmployeeID	int	NO	PRI	NULL
FirstName	varchar(50)	YES		NULL
LastName	varchar(50)	YES		NULL
DepartmentID	int	YES	MUL	NULL
Salary	decimal(10,2)	YES		NULL
HireDate	date	YES		NULL

2. Departments

Field	Type	Null	Key	Default
DepartmentID	int	NO	PRI	NULL
DepartmentName	varchar(50)	YES		NULL

3. Salaries

Field	Type	Null	Key	Default
SalaryID	int	NO	PRI	NULL
EmployeeID	int	YES	MUL	NULL
Salary	decimal(10,2)	YES		NULL
StartDate	date	YES		NULL
EndDate	date	YES		NULL

4. Timecards

Field	Type	Null	Key	Default
TimecardID	int	NO	PRI	NULL
EmployeeID	int	YES	MUL	NULL
HoursWorked	decimal(5,2)	YES		NULL
WorkDate	date	YES		NULL

5. Deductions

Field	Type	Null	Key	Default
DeductionID	int	NO	PRI	NULL
EmployeeID	int	YES	MUL	NULL
DeductionType	varchar(50)	YES		NULL
Amount	decimal(10,2)	YES		NULL

Commands

- ## Create Database

```
create database employee_info;
```

- ## Use Database

```
use employee_info;
```

- ## Create Table employees

```
CREATE TABLE Employees (
    EmployeeID INT PRIMARY KEY,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    DepartmentID INT,
    Salary DECIMAL(10, 2),
    HireDate DATE,
    FOREIGN KEY (DepartmentID) REFERENCES Departments(DepartmentID)
);
```

- ## Insert Rows

```
INSERT INTO Employees (EmployeeID, FirstName, LastName, DepartmentID, Salary, HireDate)
VALUES
    (1, 'abhay', 'kholi', 1, 50000.00, '2020-01-15'),
    (2, 'Ravi', 'Patel', 2, 60000.00, '2019-11-20'),
    (3, 'Priya', 'Sharma', 1, 55000.00, '2020-03-10'),
    (4, 'Amit', 'Singh', 3, 62000.00, '2018-07-05'),
    (5, 'Neha', 'Gupta', 1, 48000.00, '2021-02-18'),
    (6, 'Vivek', 'Kumar', 2, 58000.00, '2019-05-25'),
    (7, 'Anjali', 'Verma', 3, 63000.00, '2020-08-14'),
    (8, 'Sanjay', 'Joshi', 1, 51000.00, '2017-12-30'),
    (9, 'Pooja', 'Malhotra', 2, 59000.00, '2020-06-02'),
```

```
    (10, 'Rahul', 'Shah', 3, 64000.00, '2018-04-09'),
    (11, 'Deepak', 'Choudhary', 1, 52000.00, '2019-10-17'),
    (12, 'Sneha', 'Yadav', 2, 57000.00, '2021-01-28'),
    (13, 'Akash', 'Rao', 3, 66000.00, '2020-11-03'),
    (14, 'Swati', 'Iyer', 1, 49000.00, '2018-08-22'),
    (15, 'Harish', 'Sharma', 2, 60000.00, '2019-03-05'),
    (16, 'Kavita', 'Patil', 3, 65000.00, '2021-04-12'),
    (17, 'Rajesh', 'Chauhan', 1, 53000.00, '2017-07-19'),
    (18, 'Meera', 'Reddy', 2, 56000.00, '2020-09-23'),
    (19, 'Ashok', 'Mishra', 3, 67000.00, '2018-12-07'),
    (20, 'Aarti', 'Singhania', 1, 50000.00, '2019-01-30'),
    (21, 'Vikram', 'Gandhi', 2, 61000.00, '2021-02-14'),
    (22, 'Sunita', 'Jain', 3, 68000.00, '2017-11-26'),
    (23, 'Arun', 'Kulkarni', 1, 54000.00, '2020-05-18'),
    (24, 'Divya', 'Shukla', 2, 62000.00, '2018-10-31'),
    (25, 'Anil', 'Desai', 3, 69000.00, '2019-04-07'),
    (26, 'Jyoti', 'Gupta', 1, 55000.00, '2021-03-22'),
    (27, 'Ramesh', 'Rastogi', 2, 63000.00, '2018-06-14'),
    (28, 'Nisha', 'Mehra', 3, 70000.00, '2020-09-10'),
    (29, 'Vinod', 'Bhatia', 1, 56000.00, '2019-02-03'),
    (30, 'Shalini', 'Agarwal', 2, 64000.00, '2018-11-27');
```

- **Create Table deaprtments**

```
CREATE TABLE Departments (
    DepartmentID INT PRIMARY KEY,
    DepartmentName VARCHAR(50)
);
```

- **Insert rows**

```
INSERT INTO Departments (DepartmentID, DepartmentName)
VALUES
    (1, 'HR'),
    (2, 'Finance'),
    (3, 'Marketing'),
    (4, 'HR'),
    (5, 'Finance'),
    (6, 'Marketing'),
    (7, 'Sales'),
    (8, 'Engineering'),
    (9, 'Customer Service'),
    (10, 'Research and Development'),
    (11, 'Operations'),
    (12, 'Legal'),
    (13, 'Information Technology'),
    (14, 'Product Management'),
    (15, 'Quality Assurance'),
    (16, 'Public Relations'),
    (17, 'Supply Chain Management'),
    (18, 'Business Development'),
    (19, 'Data Analytics'),
    (20, 'Human Resources'),
    (21, 'Finance and Accounting'),
    (22, 'Marketing and Sales'),
    (23, 'IT Services'),
    (24, 'Consulting'),
    (25, 'Digital Marketing'),
    (26, 'Customer Support'),
    (27, 'Software Development'),
    (28, 'Project Management'),
```

(29, 'Legal Affairs'),

(30, 'Research');

- **Create Table salaries**

```
CREATE TABLE Salaries (
    SalaryID INT PRIMARY KEY,
    EmployeeID INT,
    Salary DECIMAL(10, 2),
    StartDate DATE,
    EndDate DATE,
    FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
);
```

- **Insert rows**

```
INSERT INTO Salaries (SalaryID, EmployeeID, Salary, StartDate, EndDate)
VALUES
    (1, 1, 50000.00, '2020-01-01', '2020-12-31'),
    (2, 2, 60000.00, '2019-01-01', '2019-12-31'),
    (3, 3, 55000.00, '2021-01-01', '2021-12-31'),
    (4, 4, 52000.00, '2020-01-01', '2020-12-31'),
    (5, 5, 48000.00, '2018-01-01', '2018-12-31'),
    (6, 6, 65000.00, '2019-01-01', '2019-12-31'),
    (7, 7, 54000.00, '2020-01-01', '2020-12-31'),
    (8, 8, 70000.00, '2017-01-01', '2017-12-31'),
    (9, 9, 51000.00, '2019-01-01', '2019-12-31'),
    (10, 10, 59000.00, '2021-01-01', '2021-12-31'),
    (11, 11, 49000.00, '2018-01-01', '2018-12-31'),
    (12, 12, 68000.00, '2020-01-01', '2020-12-31'),
    (13, 13, 48000.00, '2019-01-01', '2019-12-31'),
    (14, 14, 57000.00, '2020-01-01', '2020-12-31'),
```

```
    (15, 15, 52000.00, '2021-01-01', '2021-12-31'),
    (16, 16, 72000.00, '2018-01-01', '2018-12-31'),
    (17, 17, 56000.00, '2020-01-01', '2020-12-31'),
    (18, 18, 50000.00, '2019-01-01', '2019-12-31'),
    (19, 19, 69000.00, '2021-01-01', '2021-12-31'),
    (20, 20, 58000.00, '2018-01-01', '2018-12-31'),
    (21, 21, 53000.00, '2020-01-01', '2020-12-31'),
    (22, 22, 71000.00, '2019-01-01', '2019-12-31'),
    (23, 23, 55000.00, '2018-01-01', '2018-12-31'),
    (24, 24, 51000.00, '2021-01-01', '2021-12-31'),
    (25, 25, 73000.00, '2020-01-01', '2020-12-31'),
    (26, 26, 59000.00, '2019-01-01', '2019-12-31'),
    (27, 27, 54000.00, '2018-01-01', '2018-12-31'),
    (28, 28, 74000.00, '2021-01-01', '2021-12-31'),
    (29, 29, 60000.00, '2019-01-01', '2019-12-31'),
    (30, 30, 55000.00, '2020-01-01', '2020-12-31');
```

- **Create table timecards**

```
CREATE TABLE Timecards (
    TimecardID INT PRIMARY KEY,
    EmployeeID INT,
    HoursWorked DECIMAL(5, 2),
    WorkDate DATE,
    FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
);
```

- **Insert rows**

```
INSERT INTO Timecards (TimecardID, EmployeeID, HoursWorked, WorkDate)
VALUES
    (1, 1, 8.0, '2024-04-01'),
```

```
(2, 2, 7.5, '2024-04-01'),
(3, 3, 8.0, '2024-04-01'),
(4, 4, 8.0, '2024-04-01'),
(5, 5, 7.5, '2024-04-01'),
(6, 6, 8.0, '2024-04-01'),
(7, 7, 7.5, '2024-04-01'),
(8, 8, 8.0, '2024-04-01'),
(9, 9, 7.5, '2024-04-01'),
(10, 10, 8.0, '2024-04-01'),
(11, 11, 8.0, '2024-04-01'),
(12, 12, 7.5, '2024-04-01'),
(13, 13, 8.0, '2024-04-01'),
(14, 14, 8.0, '2024-04-01'),
(15, 15, 7.5, '2024-04-01'),
(16, 16, 8.0, '2024-04-01'),
(17, 17, 7.5, '2024-04-01'),
(18, 18, 8.0, '2024-04-01'),
(19, 19, 8.0, '2024-04-01'),
(20, 20, 7.5, '2024-04-01'),
(21, 21, 8.0, '2024-04-01'),
(22, 22, 8.0, '2024-04-01'),
(23, 23, 7.5, '2024-04-01'),
(24, 24, 8.0, '2024-04-01'),
(25, 25, 8.0, '2024-04-01'),
(26, 26, 7.5, '2024-04-01'),
(27, 27, 8.0, '2024-04-01'),
(28, 28, 8.0, '2024-04-01'),
(29, 29, 7.5, '2024-04-01'),
(30, 30, 8.0, '2024-04-01');
```

- **Create table deductions**

```
CREATE TABLE Deductions (
    DeductionID INT PRIMARY KEY,
    EmployeeID INT,
    DeductionType VARCHAR(50),
    Amount DECIMAL(10, 2),
    FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)
);
```

- **Insert rows**

```
INSERT INTO Deductions (DeductionID, EmployeeID, DeductionType, Amount)
VALUES
    (1, 1, 'Health Insurance', 100.00),
    (2, 2, '401(k) Contribution', 150.00),
    (3, 3, 'Health Insurance', 100.00),
    (4, 4, '401(k) Contribution', 150.00),
    (5, 5, 'Health Insurance', 100.00),
    (6, 6, '401(k) Contribution', 150.00),
    (7, 7, 'Health Insurance', 100.00),
    (8, 8, '401(k) Contribution', 150.00),
    (9, 9, 'Health Insurance', 100.00),
    (10, 10, '401(k) Contribution', 150.00),
    (11, 11, 'Health Insurance', 100.00),
    (12, 12, '401(k) Contribution', 150.00),
    (13, 13, 'Health Insurance', 100.00),
    (14, 14, '401(k) Contribution', 150.00),
    (15, 15, 'Health Insurance', 100.00),
    (16, 16, '401(k) Contribution', 150.00),
    (17, 17, 'Health Insurance', 100.00),
    (18, 18, '401(k) Contribution', 150.00),
```

(19, 19, 'Health Insurance', 100.00),

(20, 20, '401(k) Contribution', 150.00),

(21, 21, 'Health Insurance', 100.00),

(22, 22, '401(k) Contribution', 150.00),

(23, 23, 'Health Insurance', 100.00),

(24, 24, '401(k) Contribution', 150.00),

(25, 25, 'Health Insurance', 100.00),

(26, 26, '401(k) Contribution', 150.00),

(27, 27, 'Health Insurance', 100.00),

(28, 28, '401(k) Contribution', 150.00),

(29, 29, 'Health Insurance', 100.00),

(30, 30, '401(k) Contribution', 150.00);

- **Data Retrieval Using Select Statement**

SELECT * FROM Employees;

EmployeeID	FirstName	LastName	DepartmentID	Salary	HireDate
1	abhay	kholi	1	50000	15-01-2020
2	Ravi	Patel	2	60000	20-11-2019
3	Priya	Sharma	1	55000	10-03-2020
4	Amit	Singh	3	62000	05-07-2018
5	Neha	Gupta	1	48000	18-02-2021
6	Vivek	Kumar	2	58000	25-05-2019
7	Anjali	Verma	3	63000	14-08-2020
8	Sanjay	Joshi	1	51000	30-12-2017
9	Pooja	Malhotra	2	59000	02-06-2020
10	Rahul	Shah	3	64000	09-04-2018
11	Deepak	Choudhary	1	52000	17-10-2019
12	Sneha	Yadav	2	57000	28-01-2021
13	Akash	Rao	3	66000	03-11-2020
14	Swati	Iyer	1	49000	22-08-2018
15	Harish	Sharma	2	60000	05-03-2019
16	Kavita	Patil	3	65000	12-04-2021
17	Rajesh	Chauhan	1	53000	19-07-2017
18	Meera	Reddy	2	56000	23-09-2020
19	Ashok	Mishra	3	67000	07-12-2018
20	Aarti	Singhania	1	50000	30-01-2019
21	Vikram	Gandhi	2	61000	14-02-2021

22	Sunita	Jain	3	68000	26-11-2017
23	Arun	Kulkarni	1	54000	18-05-2020
24	Divya	Shukla	2	62000	31-10-2018
25	Anil	Desai	3	69000	07-04-2019
26	Jyoti	Gupta	1	55000	22-03-2021
27	Ramesh	Rastogi	2	63000	14-06-2018
28	Nisha	Mehra	3	70000	10-09-2020
29	Vinod	Bhatia	1	56000	03-02-2019
30	Shalini	Agarwal	2	64000	27-11-2018

SELECT * FROM Departments;

DepartmentID	DepartmentName
1	HR
2	Finance
3	Marketing
4	HR
5	Finance
6	Marketing
7	Sales
8	Engineering
9	Customer Service
10	Research and Development
11	Operations
12	Legal
13	Information Technology
14	Product Management
15	Quality Assurance
16	Public Relations
17	Supply Chain Management
18	Business Development
19	Data Analytics
20	Human Resources
21	Finance and Accounting
22	Marketing and Sales
23	IT Services
24	Consulting
25	Digital Marketing
26	Customer Support
27	Software Development
28	Project Management
29	Legal Affairs
30	Research

SELECT * FROM Salaries;

SalaryID	EmployeeID	Salary	StartDate	EndDate
1	1	50000	01-01-2020	31-12-2020
2	2	60000	01-01-2019	31-12-2019
3	3	55000	01-01-2021	31-12-2021
4	4	52000	01-01-2020	31-12-2020
5	5	48000	01-01-2018	31-12-2018
6	6	65000	01-01-2019	31-12-2019
7	7	54000	01-01-2020	31-12-2020
8	8	70000	01-01-2017	31-12-2017
9	9	51000	01-01-2019	31-12-2019
10	10	59000	01-01-2021	31-12-2021
11	11	49000	01-01-2018	31-12-2018
12	12	68000	01-01-2020	31-12-2020
13	13	48000	01-01-2019	31-12-2019
14	14	57000	01-01-2020	31-12-2020
15	15	52000	01-01-2021	31-12-2021
16	16	72000	01-01-2018	31-12-2018
17	17	56000	01-01-2020	31-12-2020
18	18	50000	01-01-2019	31-12-2019
19	19	69000	01-01-2021	31-12-2021
20	20	58000	01-01-2018	31-12-2018
21	21	53000	01-01-2020	31-12-2020
22	22	71000	01-01-2019	31-12-2019
23	23	55000	01-01-2018	31-12-2018
24	24	51000	01-01-2021	31-12-2021
25	25	73000	01-01-2020	31-12-2020
26	26	59000	01-01-2019	31-12-2019
27	27	54000	01-01-2018	31-12-2018
28	28	74000	01-01-2021	31-12-2021
29	29	60000	01-01-2019	31-12-2019
30	30	55000	01-01-2020	31-12-2020

SELECT * FROM Timecards;

1	1	8	01-04-2024
2	2	7.5	01-04-2024
3	3	8	01-04-2024
4	4	8	01-04-2024
5	5	7.5	01-04-2024
6	6	8	01-04-2024
7	7	7.5	01-04-2024
8	8	8	01-04-2024
8	9	7.5	01-04-2024

8	10	8	01-04-2024
8	11	8	01-04-2024
8	12	7.5	01-04-2024
8	13	8	01-04-2024
8	14	8	01-04-2024
8	15	7.5	01-04-2024
8	16	8	01-04-2024
8	17	7.5	01-04-2024
8	18	8	01-04-2024
8	19	8	01-04-2024
8	20	7.5	01-04-2024
8	21	8	01-04-2024
8	22	8	01-04-2024
8	23	7.5	01-04-2024
8	24	8	01-04-2024
8	25	8	01-04-2024
8	26	7.5	01-04-2024
8	27	8	01-04-2024
8	28	8	01-04-2024
8	29	7.5	01-04-2024
8	30	8	01-04-2024

SELECT * FROM Deductions;

1	1	Health Insurance	100
2	2	401(k) Contribution	150
3	3	Health Insurance	100
4	4	401(k) Contribution	150
5	5	Health Insurance	100
6	6	401(k) Contribution	150
7	7	Health Insurance	100
8	8	401(k) Contribution	150
9	9	Health Insurance	100
10	10	401(k) Contribution	150
11	11	Health Insurance	100
12	12	401(k) Contribution	150
13	13	Health Insurance	100
14	14	401(k) Contribution	150
15	15	Health Insurance	100
16	16	401(k) Contribution	150
17	17	Health Insurance	100
18	18	401(k) Contribution	150
19	19	Health Insurance	100
20	20	401(k) Contribution	150
21	21	Health Insurance	100
22	22	401(k) Contribution	150

23	23	Health Insurance	100
24	24	401(k) Contribution	150
25	25	Health Insurance	100
26	26	401(k) Contribution	150
27	27	Health Insurance	100
28	28	401(k) Contribution	150
29	29	Health Insurance	100
30	30	401(k) Contribution	150

- **Describe Statement**

desc employees;

desc departments;

desc salaries;

desc timecards;

desc Deductions;

- **SQL Query**

 # The first name and last name of each employee in the Marketing department.

```
SELECT E.FirstName, E.LastName
FROM Employees AS E
JOIN Departments AS D ON E.DepartmentID = D.DepartmentID
WHERE D.DepartmentName = 'Marketing';
```

Amit	Singh
Anjali	Verma
Rahul	Shah
Akash	Rao
Kavita	Patil
Ashok	Mishra
Sunita	Jain
Anil	Desai
Nisha	Mehra

 # find the employee names end with a.

```
SELECT FirstName, LastName
FROM Employees
WHERE LastName LIKE '%a';
```

Priya	Sharma
Neha	Gupta
Anjali	Verma
Pooja	Malhotra
Harish	Sharma
Ashok	Mishra
Aarti	Singhania
Divya	Shukla
Jyoti	Gupta
Nisha	Mehra
Vinod	Bhatia

 # find employees earning more than the average salary

```
SELECT EmployeeID, FirstName, LastName, Salary
FROM Employees
WHERE Salary > (SELECT AVG(Salary) FROM Employees);
```

2	Ravi	Patel	60000
4	Amit	Singh	62000
7	Anjali	Verma	63000
9	Pooja	Malhotra	59000
10	Rahul	Shah	64000
13	Akash	Rao	66000
15	Harish	Sharma	60000
16	Kavita	Patil	65000
19	Ashok	Mishra	67000
21	Vikram	Gandhi	61000
22	Sunita	Jain	68000
24	Divya	Shukla	62000
25	Anil	Desai	69000
27	Ramesh	Rastogi	63000
28	Nisha	Mehra	70000
30	Shalini	Agarwal	64000

 # find employees with the highest salary

```
SELECT *
FROM Employees
WHERE Salary = (
   SELECT MAX(Salary)
   FROM Employees
);
```

EmployeeID	FirstName	LastName	DepartmentID	Salary	HireDate
28	Nisha	Mehra	3	70000	10-09-2020

 # find the department with the highest average salary

```
SELECT DepartmentName, AVG(Salary) AS AvgSalary
FROM Departments
INNER JOIN Employees ON Departments.DepartmentID = Employees.DepartmentID
GROUP BY DepartmentName
HAVING AVG(Salary) = (SELECT MAX(AvgSalary) FROM (SELECT AVG(Salary) AS
AvgSalary FROM Departments INNER JOIN Employees ON
Departments.DepartmentID = Employees.DepartmentID GROUP BY DepartmentName)
AS DeptAvgSalary);
```

Marketing	66000

 # find employees with the highest salary in each department

```
SELECT EmployeeID, FirstName, LastName, Salary, DepartmentID
FROM Employees e1
WHERE Salary = (SELECT MAX(Salary) FROM Employees e2 WHERE
e1.DepartmentID = e2.DepartmentID);
```

28	Nisha	Mehra	70000	3
29	Vinod	Bhatia	56000	1
30	Shalini	Agarwal	64000	2

 # find employees with deductions greater than 200:

```
SELECT EmployeeID, FirstName, LastName
FROM Employees
WHERE EmployeeID IN (SELECT EmployeeID FROM Deductions GROUP BY
EmployeeID HAVING SUM(Amount) > 200);
```

EmployeeID	FirstName	LastName

- **Joins:**

1. Basic Join:

Retrieve the first name, last name, and department name of all employees.

```
SELECT e.FirstName, e.LastName, d.DepartmentName
FROM Employees e
JOIN Departments d ON e.DepartmentID = d.DepartmentID;
```

abhay	kholi	HR
Ravi	Patel	Finance
Priya	Sharma	HR
Amit	Singh	Marketing
Neha	Gupta	HR
Vivek	Kumar	Finance
Anjali	Verma	Marketing
Sanjay	Joshi	HR
Pooja	Malhotra	Finance
Rahul	Shah	Marketing
Deepak	Choudhary	HR
Sneha	Yadav	Finance
Akash	Rao	Marketing
Swati	Iyer	HR
Harish	Sharma	Finance
Kavita	Patil	Marketing
Rajesh	Chauhan	HR
Meera	Reddy	Finance
Ashok	Mishra	Marketing
Aarti	Singhania	HR
Vikram	Gandhi	Finance

Sunita	Jain	Marketing
Arun	Kulkarni	HR
Divya	Shukla	Finance
Anil	Desai	Marketing
Jyoti	Gupta	HR
Ramesh	Rastogi	Finance
Nisha	Mehra	Marketing
Vinod	Bhatia	HR
Shalini	Agarwal	Finance

2. Inner Join with Condition:

Retrieve the first name, last name, and salary of employees who work in the Finance department.

```
SELECT e.FirstName, e.LastName, s.Salary
FROM Employees e
JOIN Salaries s ON e.EmployeeID = s.EmployeeID
JOIN Departments d ON e.DepartmentID = d.DepartmentID
WHERE d.DepartmentName = 'Finance';
```

Ravi	Patel	60000
Vivek	Kumar	65000
Pooja	Malhotra	51000
Sneha	Yadav	68000
Harish	Sharma	52000
Meera	Reddy	50000
Vikram	Gandhi	53000
Divya	Shukla	51000
Ramesh	Rastogi	54000
Shalini	Agarwal	55000

3. Left Join:

Retrieve the first name, last name, and department name of all employees, including those who don't have a department assigned.

```
SELECT e.FirstName, e.LastName, COALESCE(d.DepartmentName, 'No Department Assigned') AS DepartmentName
FROM Employees e
LEFT JOIN Departments d ON e.DepartmentID = d.DepartmentID;
```

FirstName	LastName	DepartmentName
abhay	kholi	HR
Ravi	Patel	Finance
Priya	Sharma	HR
Amit	Singh	Marketing
Neha	Gupta	HR
Vivek	Kumar	Finance
Anjali	Verma	Marketing
Sanjay	Joshi	HR
Pooja	Malhotra	Finance
Rahul	Shah	Marketing
Deepak	Choudhary	HR
Sneha	Yadav	Finance
Akash	Rao	Marketing
Swati	Iyer	HR
Harish	Sharma	Finance
Kavita	Patil	Marketing
Rajesh	Chauhan	HR
Meera	Reddy	Finance
Ashok	Mishra	Marketing
Aarti	Singhania	HR
Vikram	Gandhi	Finance
Sunita	Jain	Marketing
Arun	Kulkarni	HR
Divya	Shukla	Finance
Anil	Desai	Marketing
Jyoti	Gupta	HR
Ramesh	Rastogi	Finance
Nisha	Mehra	Marketing
Vinod	Bhatia	HR
Shalini	Agarwal	Finance

4. right join

Retrieve the first name, last name, and department name of all departments, including those that don't have any employees assigned to them.

```
SELECT e.FirstName, e.LastName, d.DepartmentName
FROM Employees e
RIGHT JOIN Departments d ON e.DepartmentID = d.DepartmentID;
```

abhay	kholi	HR
Priya	Sharma	HR
Neha	Gupta	HR
Sanjay	Joshi	HR

Deepak	Choudhary	HR
Swati	Iyer	HR
Rajesh	Chauhan	HR
Aarti	Singhania	HR
Arun	Kulkarni	HR
Jyoti	Gupta	HR
Vinod	Bhatia	HR
Ravi	Patel	Finance
Vivek	Kumar	Finance
Pooja	Malhotra	Finance
Sneha	Yadav	Finance
Harish	Sharma	Finance
Meera	Reddy	Finance
Vikram	Gandhi	Finance
Divya	Shukla	Finance
Ramesh	Rastogi	Finance
Shalini	Agarwal	Finance
Amit	Singh	Marketing
Anjali	Verma	Marketing
Rahul	Shah	Marketing
Akash	Rao	Marketing
Kavita	Patil	Marketing
Ashok	Mishra	Marketing
Sunita	Jain	Marketing
Anil	Desai	Marketing
Nisha	Mehra	Marketing
NULL	NULL	HR
NULL	NULL	Finance
NULL	NULL	Marketing
NULL	NULL	Sales
NULL	NULL	Engineering
NULL	NULL	Customer Service
NULL	NULL	Research and Development
NULL	NULL	Operations
NULL	NULL	Legal
NULL	NULL	Information Technology
NULL	NULL	Product Management
NULL	NULL	Quality Assurance
NULL	NULL	Public Relations
NULL	NULL	Supply Chain Management
NULL	NULL	Business Development
NULL	NULL	Data Analytics
NULL	NULL	Human Resources
NULL	NULL	Finance and Accounting
NULL	NULL	Marketing and Sales
NULL	NULL	IT Services

NULL	NULL	Consulting
NULL	NULL	Digital Marketing
NULL	NULL	Customer Support
NULL	NULL	Software Development
NULL	NULL	Project Management
NULL	NULL	Legal Affairs
NULL	NULL	Research

5. Self Join:

Retrieve the first name, last name, and manager's first name and last name for each employee. Assume that the manager of an employee is another employee from the same department who has a higher EmployeeID.

```
SELECT e.FirstName, e.LastName, m.FirstName AS ManagerFirstName, m.LastName
AS ManagerLastName
FROM Employees e
LEFT JOIN Employees m ON e.DepartmentID = m.DepartmentID AND e.EmployeeID <
m.EmployeeID;
```

abhay	kholi	Priya	Sharma
abhay	kholi	Neha	Gupta
abhay	kholi	Sanjay	Joshi
abhay	kholi	Deepak	Choudhary
abhay	kholi	Swati	Iyer
abhay	kholi	Rajesh	Chauhan
abhay	kholi	Aarti	Singhania
abhay	kholi	Arun	Kulkarni
abhay	kholi	Jyoti	Gupta
abhay	kholi	Vinod	Bhatia
Ravi	Patel	Vivek	Kumar
Ravi	Patel	Pooja	Malhotra
Ravi	Patel	Sneha	Yadav
Ravi	Patel	Harish	Sharma
Ravi	Patel	Meera	Reddy
Ravi	Patel	Vikram	Gandhi
Ravi	Patel	Divya	Shukla
Ravi	Patel	Ramesh	Rastogi
Ravi	Patel	Shalini	Agarwal
Priya	Sharma	Neha	Gupta
Priya	Sharma	Sanjay	Joshi
Priya	Sharma	Deepak	Choudhary
Priya	Sharma	Swati	Iyer
Priya	Sharma	Rajesh	Chauhan

Priya	Sharma	Aarti	Singhania
Priya	Sharma	Arun	Kulkarni
Priya	Sharma	Jyoti	Gupta
Priya	Sharma	Vinod	Bhatia
Amit	Singh	Anjali	Verma
Amit	Singh	Rahul	Shah
Amit	Singh	Akash	Rao
Amit	Singh	Kavita	Patil
Amit	Singh	Ashok	Mishra
Amit	Singh	Sunita	Jain
Amit	Singh	Anil	Desai
Amit	Singh	Nisha	Mehra
Neha	Gupta	Sanjay	Joshi
Neha	Gupta	Deepak	Choudhary
Neha	Gupta	Swati	Iyer
Neha	Gupta	Rajesh	Chauhan
Neha	Gupta	Aarti	Singhania
Neha	Gupta	Arun	Kulkarni
Neha	Gupta	Jyoti	Gupta
Neha	Gupta	Vinod	Bhatia
Vivek	Kumar	Pooja	Malhotra
Vivek	Kumar	Sneha	Yadav
Vivek	Kumar	Harish	Sharma
Vivek	Kumar	Meera	Reddy
Vivek	Kumar	Vikram	Gandhi
Vivek	Kumar	Divya	Shukla
Vivek	Kumar	Ramesh	Rastogi
Vivek	Kumar	Shalini	Agarwal
Anjali	Verma	Rahul	Shah
Anjali	Verma	Akash	Rao
Anjali	Verma	Kavita	Patil
Anjali	Verma	Ashok	Mishra
Anjali	Verma	Sunita	Jain
Anjali	Verma	Anil	Desai
Anjali	Verma	Nisha	Mehra
Sanjay	Joshi	Deepak	Choudhary
Sanjay	Joshi	Swati	Iyer
Sanjay	Joshi	Rajesh	Chauhan
Sanjay	Joshi	Aarti	Singhania
Sanjay	Joshi	Arun	Kulkarni
Sanjay	Joshi	Jyoti	Gupta
Sanjay	Joshi	Vinod	Bhatia
Pooja	Malhotra	Sneha	Yadav
Pooja	Malhotra	Harish	Sharma
Pooja	Malhotra	Meera	Reddy
Pooja	Malhotra	Vikram	Gandhi

Pooja	Malhotra	Divya	Shukla
Pooja	Malhotra	Ramesh	Rastogi
Pooja	Malhotra	Shalini	Agarwal
Rahul	Shah	Akash	Rao
Rahul	Shah	Kavita	Patil
Rahul	Shah	Ashok	Mishra
Rahul	Shah	Sunita	Jain
Rahul	Shah	Anil	Desai
Rahul	Shah	Nisha	Mehra
Deepak	Choudhary	Swati	Iyer
Deepak	Choudhary	Rajesh	Chauhan
Deepak	Choudhary	Aarti	Singhania
Deepak	Choudhary	Arun	Kulkarni
Deepak	Choudhary	Jyoti	Gupta
Deepak	Choudhary	Vinod	Bhatia
Sneha	Yadav	Harish	Sharma
Sneha	Yadav	Meera	Reddy
Sneha	Yadav	Vikram	Gandhi
Sneha	Yadav	Divya	Shukla
Sneha	Yadav	Ramesh	Rastogi
Sneha	Yadav	Shalini	Agarwal
Akash	Rao	Kavita	Patil
Akash	Rao	Ashok	Mishra
Akash	Rao	Sunita	Jain
Akash	Rao	Anil	Desai
Akash	Rao	Nisha	Mehra
Swati	Iyer	Rajesh	Chauhan
Swati	Iyer	Aarti	Singhania
Swati	Iyer	Arun	Kulkarni
Swati	Iyer	Jyoti	Gupta
Swati	Iyer	Vinod	Bhatia
Harish	Sharma	Meera	Reddy
Harish	Sharma	Vikram	Gandhi
Harish	Sharma	Divya	Shukla
Harish	Sharma	Ramesh	Rastogi
Harish	Sharma	Shalini	Agarwal
Kavita	Patil	Ashok	Mishra
Kavita	Patil	Sunita	Jain
Kavita	Patil	Anil	Desai
Kavita	Patil	Nisha	Mehra
Rajesh	Chauhan	Aarti	Singhania
Rajesh	Chauhan	Arun	Kulkarni
Rajesh	Chauhan	Jyoti	Gupta
Rajesh	Chauhan	Vinod	Bhatia
Meera	Reddy	Vikram	Gandhi
Meera	Reddy	Divya	Shukla

Meera	Reddy	Ramesh	Rastogi
Meera	Reddy	Shalini	Agarwal
Ashok	Mishra	Sunita	Jain
Ashok	Mishra	Anil	Desai
Ashok	Mishra	Nisha	Mehra
Aarti	Singhania	Arun	Kulkarni
Aarti	Singhania	Jyoti	Gupta
Aarti	Singhania	Vinod	Bhatia
Vikram	Gandhi	Divya	Shukla
Vikram	Gandhi	Ramesh	Rastogi
Vikram	Gandhi	Shalini	Agarwal
Sunita	Jain	Anil	Desai
Sunita	Jain	Nisha	Mehra
Arun	Kulkarni	Jyoti	Gupta
Arun	Kulkarni	Vinod	Bhatia
Divya	Shukla	Ramesh	Rastogi
Divya	Shukla	Shalini	Agarwal
Anil	Desai	Nisha	Mehra
Jyoti	Gupta	Vinod	Bhatia
Ramesh	Rastogi	Shalini	Agarwal
Nisha	Mehra	NULL	NULL
Vinod	Bhatia	NULL	NULL
Shalini	Agarwal	NULL	NULL

6. Multiple Joins:

write sql querie to find the first name, last name, department name, and salary of all employees along with their respective timecards.

```
SELECT e.FirstName, e.LastName, d.DepartmentName, s.Salary, t.HoursWorked,
t.WorkDate
FROM Employees e
LEFT JOIN Departments d ON e.DepartmentID = d.DepartmentID
LEFT JOIN Salaries s ON e.EmployeeID = s.EmployeeID
LEFT JOIN Timecards t ON e.EmployeeID = t.EmployeeID;
```

FirstName	LastName	DepartmentName	Salary	HoursWorked	WorkDate
abhay	kholi	HR	50000	8	01-04-2024
Ravi	Patel	Finance	60000	7.5	01-04-2024
Priya	Sharma	HR	55000	8	01-04-2024
Amit	Singh	Marketing	52000	8	01-04-2024
Neha	Gupta	HR	48000	7.5	01-04-2024
Vivek	Kumar	Finance	65000	8	01-04-2024
Anjali	Verma	Marketing	54000	7.5	01-04-2024

Sanjay	Joshi	HR	70000	8	01-04-2024
Pooja	Malhotra	Finance	51000	7.5	01-04-2024
Rahul	Shah	Marketing	59000	8	01-04-2024
Deepak	Choudhary	HR	49000	8	01-04-2024
Sneha	Yadav	Finance	68000	7.5	01-04-2024
Akash	Rao	Marketing	48000	8	01-04-2024
Swati	Iyer	HR	57000	8	01-04-2024
Harish	Sharma	Finance	52000	7.5	01-04-2024
Kavita	Patil	Marketing	72000	8	01-04-2024
Rajesh	Chauhan	HR	56000	7.5	01-04-2024
Meera	Reddy	Finance	50000	8	01-04-2024
Ashok	Mishra	Marketing	69000	8	01-04-2024
Aarti	Singhania	HR	58000	7.5	01-04-2024
Vikram	Gandhi	Finance	53000	8	01-04-2024
Sunita	Jain	Marketing	71000	8	01-04-2024
Arun	Kulkarni	HR	55000	7.5	01-04-2024
Divya	Shukla	Finance	51000	8	01-04-2024
Anil	Desai	Marketing	73000	8	01-04-2024
Jyoti	Gupta	HR	59000	7.5	01-04-2024
Ramesh	Rastogi	Finance	54000	8	01-04-2024
Nisha	Mehra	Marketing	74000	8	01-04-2024
Vinod	Bhatia	HR	60000	7.5	01-04-2024
Shalini	Agarwal	Finance	55000	8	01-04-2024