Employee Management system

Final Project for SQL module by

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1. Description:

Following database schema is designed to function as a backend storage database for an employee management system.

By storing information in a relational database, all the tasks related to daily functioning of the Employee management system can be performed easily and much more efficiently. Some of the benefits of using this system to store data over traditional paper registers are as follows:

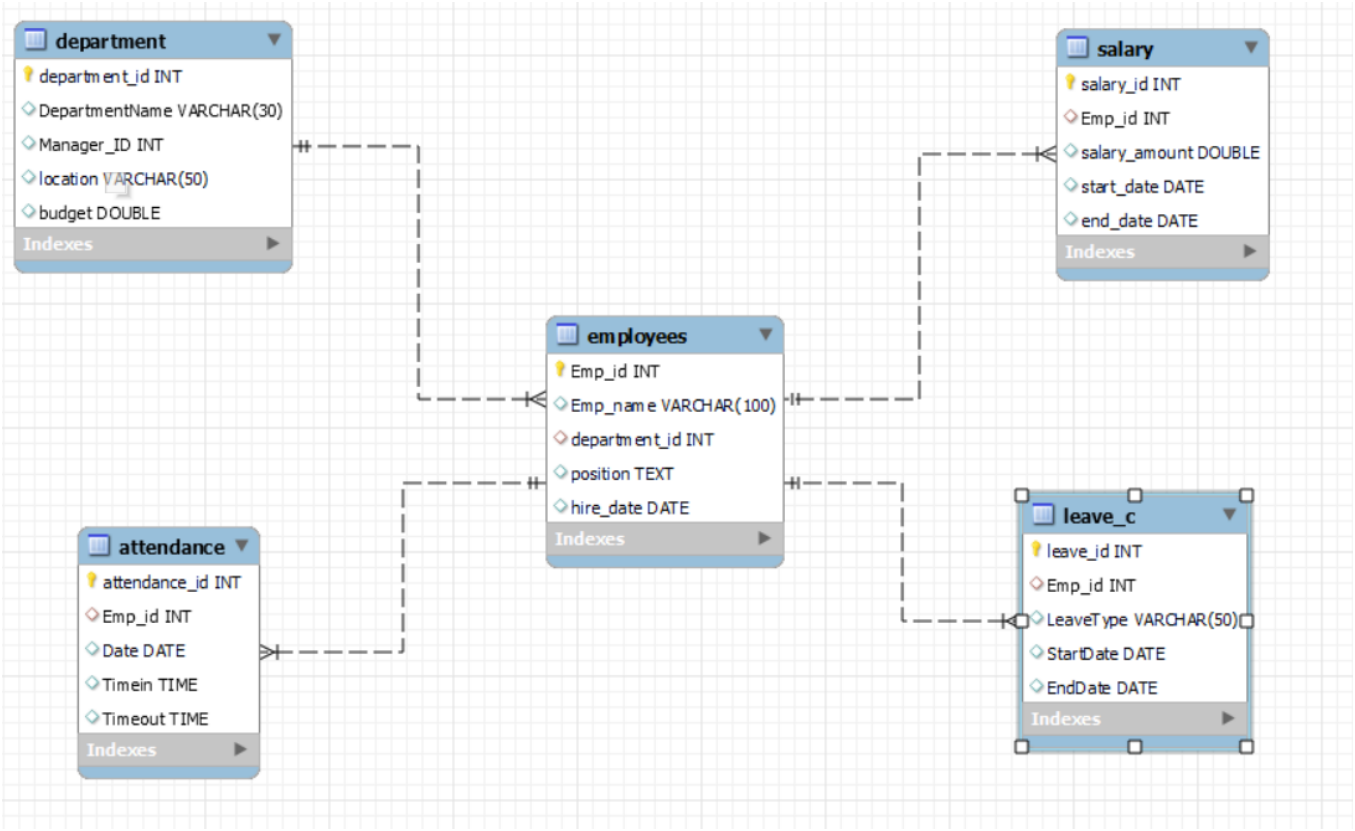
- Efficiency: Smoothly work for HR processes and reducing administrative tasks through automation.
- Accuracy: Minimizing errors and ensuring data consistency in employee records and payroll calculations.
- Visibility: Providing managers and HR professionals with real-time insights into workforce metrics and performance.
- Employee Satisfaction: Empowering employees with self-service tools, transparent communication, and opportunities for growth and development.
- Compliance: Ensuring being faithful to legal and regulatory requirements, reducing the risk of penalties and lawsuits.

This database contains 5 tables:

1. Department
2. Employees
3. Salary
4. Leave_C
5. Attendance

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

2. E-R diagram:



3. Table description:

1.Department

	Field	Type	Null	Key	Default	Extra
▶	department_id	int	NO	PRI	NULL	
	DepartmentName	varchar(30)	YES		NULL	
	Manager_ID	int	YES		NULL	
	location	varchar(50)	YES		NULL	
	budget	double	YES		NULL	

2.Employees

Field	Type	Null	Key	Default	Extra
Emp_id	int	NO	PRI	NULL	
Emp_name	varchar(100)	YES		NULL	
department_id	int	YES	MUL	NULL	
position	text	YES		NULL	
hire_date	date	YES		NULL	

3.Salary

Field	Type	Null	Key	Default	Extra
salary_id	int	NO	PRI	NULL	
Emp_id	int	YES	MUL	NULL	
salary_amount	double	YES		NULL	
start_date	date	YES		NULL	
end_date	date	YES		NULL	

4.leave_C

Field	Type	Null	Key	Default	Extra
leave_id	int	NO	PRI	NULL	
Emp_id	int	YES	MUL	NULL	
LeaveType	varchar(50)	YES		NULL	
StartDate	date	YES		NULL	
EndDate	date	YES		NULL	

5.Attendance

Field	Type	Null	Key	Default	Extra
attendance_id	int	NO	PRI	NULL	
Emp_id	int	YES	MUL	NULL	
Date	date	YES		NULL	
Timein	time	YES		NULL	
Timeout	time	YES		NULL	

4. Commands:

A) Create database:

Create database Employee_management_system ;

B) Select database:

use Employee_management_system;

C)Create table named department:

CREATE TABLE Department (department_id INT PRIMARY KEY,DepartmentName VARCHAR(30), Manager_ID INT, location VARCHAR(50), budget REAL);

D)Create table named Employees:

CREATE TABLE Employees (Emp_id INT PRIMARY KEY, Emp_name VARCHAR(100),department_id INT, position TEXT, hire_date DATE, FOREIGN KEY (department_id) REFERENCES Department(department_id));

E)Create table named salary:

CREATE TABLE Salary (salary_id INT PRIMARY KEY,Emp_id INT,salary_amount REAL, start_date DATE, end_date DATE,FOREIGN KEY (Emp_id) REFERENCES Employees(Emp_id));

F)Create table named leave_C:

CREATE TABLE Leave_C (leave_id INT PRIMARY KEY, Emp_id INT,LeaveType VARCHAR(50),StartDate DATE, EndDate DATE, FOREIGN KEY (Emp_id) REFERENCES Employees(Emp_id));

G)Create table attendance:

CREATE TABLE Attendance (attendance_id INT PRIMARY KEY,Emp_id INT, Date DATE,Timein TIME, Timeout TIME, FOREIGN KEY (Emp_id) REFERENCES Employees(Emp_id));

DATA INSERTION:

1}INSERT INTO Department VALUES

(1, 'HR', 101, 'nashik', 100000),
(2, 'Finance', 102, 'hyderabad', 150000),
(3, 'IT', 103, 'mumbai', 200000),
(4, 'Marketing', 104, 'kolkata', 120000),
(5, 'Operations', 105, 'delhi', 180000);

2}INSERT INTO Employees VALUES

(1, 'himashu tripathi', 1, 'Hr assistant', '2023-01-15'),

(2, 'virendra mishra', 2, 'accountant', '2022-08-20'),

(3, 'anuj singh', 3, 'IT specialist', '2024-08-10'),

(4, 'Vijay mishra', 4, 'Marketing Coordinator', '2022-08-20'),

(5, 'rohit shelar', 5, 'Operation manager', '2022-05-15'),

(6, 'asish kamble', 1, 'hr manager', '2021-12-10'),

(7, 'robert oral', 3, 'system administrator', '2023-09-18'),

(8, 'saud shaikh', 4, 'marketing assistant', '2024-06-25'),

(9, 'abhishek jagtap', 5, 'operation assistant', '2022-03-15'),

(10, 'subhash chauhan', 2, 'financial analyst', '2023-07-30');

3}INSERT INTO Salary VALUES

(1, 1, 50000, '2023-01-15', '2024-01-15'),

(2, 2, 60000, '2022-08-20', '2023-08-20'),

(3, 3, 70000, '2024-02-10', '2025-02-10'),

(4, 4, 55000, '2023-11-05', '2024-11-05'),

(5, 5, 80000, '2022-05-03', '2023-05-03');

4}INSERT INTO Leave_C VALUES

(1, 1, 'Vacation', '2023-07-01', '2023-07-05'),

(2, 2, 'Sick Leave', '2022-10-15', '2022-10-17'),

(3, 3, 'Maternity Leave', '2024-06-01', '2025-01-01'),

(4, 4, 'Personal Leave', '2023-12-20', '2023-12-21'),

(5, 5, 'Vacation', '2022-08-10', '2022-08-15');

5}INSERT INTO Attendance VALUES

(1, 1, '2023-07-01', '09:00:00', '17:00:00'),

(2, 2, '2022-10-15', '08:30:00', '16:30:00'),

(3, 3, '2024-06-01', '09:15:00', '18:00:00'),

(4, 4, '2023-12-20', '09:30:00', '16:00:00'),

(5, 5, '2022-08-10', '08:45:00', '17:15:00');

5.JOINS:

1.Query to retrieve employee information along with their department details.

SELECT Employees.Emp_id, Employees.Emp_name, Employees.position, Department.DepartmentName FROM Employees Employees

JOIN Department Department ON Employees.department_id = Department.department_id;

	Emp_id	Emp_name	position	DepartmentName
▶	1	himashu tripathi	Hr assistant	HR
	6	asish kamble	hr manager	HR
	2	virendra mishra	accountant	Finance
	10	subhash chauhan	financial analyst	Finance
	3	anuj singh	IT specialist	IT
	7	robert oral	system administrator	IT
	4	Vijay mishra	Marketing Coordinator	Marketing
	8	saud shaikh	marketing assistant	Marketing
	5	rohit shelar	Operation manager	Operations
	9	abhishek jagtap	operation assistant	Operations

2.Query to calculate total salary expenditure for a department.

SELECT Department.DepartmentName, SUM(salary.salary_amount) AS total_salary_expenditure FROM Department department

JOIN Employees employees ON department.department_id = employees.department_id

JOIN Salary salary ON employees.Emp_id = salary.Emp_id

GROUP BY department.DepartmentName;

	DepartmentName	total_salary_expenditure
▶	HR	50000
	Finance	60000
	IT	70000
	Marketing	55000
	Operations	80000

3.Query to find employees on leave during a specific period.

SELECT employees.Emp_id, employees.Emp_name, l.LeaveType, l.StartDate, l.EndDate

FROM Employees employees

JOIN Leave_C l ON employees.Emp_id = l.Emp_id

WHERE (l.StartDate BETWEEN '2023-07-01' AND '2023-07-05')

OR (l.EndDate BETWEEN '2023-07-05' AND '2023-07-05');

	Emp_id	Emp_name	LeaveType	StartDate	EndDate
▶	1	himashu tripathi	Vacation	2023-07-01	2023-07-05