

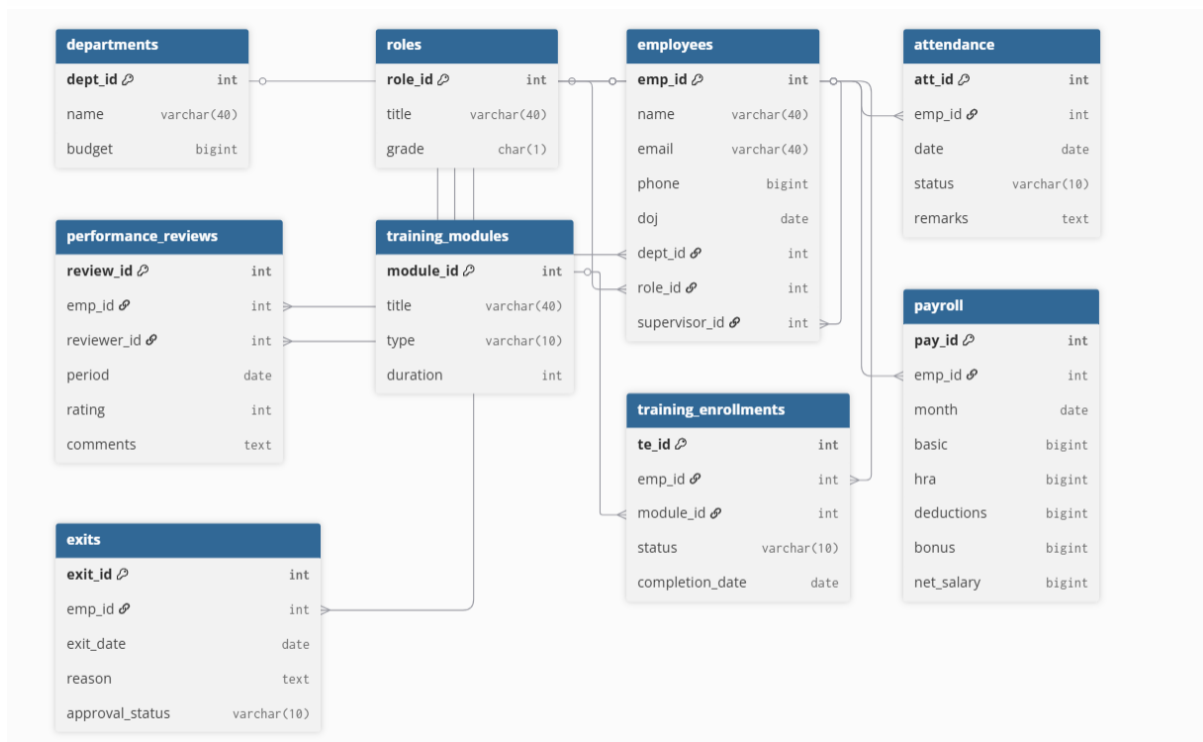
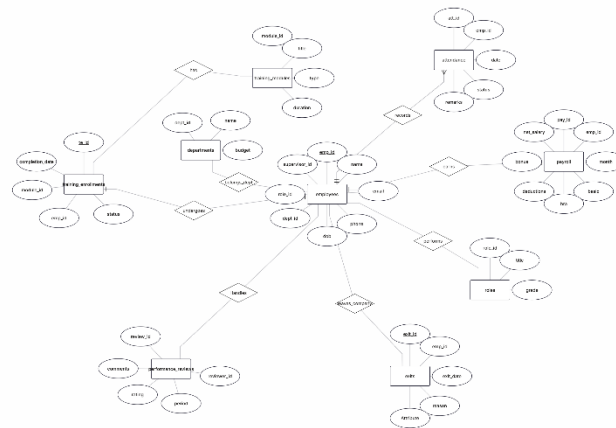
1. System Overview

WorkForcePro is an HR management system.

It manages employees, departments, roles, attendance, payroll, training, performance reviews, and exits.

The system helps HR teams track employee lifecycle from joining to exit.

2. ER Diagram



3. Tables and Attributes

3.1 departments

- dept_id (PK)
- name
- budget

Purpose: Stores department details.

3.2 roles

- role_id (PK)
- title
- grade

Purpose: Stores job roles and levels.

3.3 employees

- emp_id (PK)
- name
- email (UNIQUE)
- phone
- doj
- dept_id (FK)
- role_id (FK)
- supervisor_id (FK → employees.emp_id)

Purpose: Stores employee master data.

3.4 attendance

- att_id (PK)
- emp_id (FK)

- date
- status (present / absent / leave / wfh)
- remarks

Purpose: Tracks daily attendance.

3.5 performance_reviews

- review_id (PK)
- emp_id (FK)
- reviewer_id (FK → employees)
- period
- rating (1–5)
- comments

Purpose: Stores performance evaluations.

3.6 training_modules

- module_id (PK)
- title
- type (completed / pending / failed)
- duration

Purpose: Stores training courses.

3.7 training_enrollments

- te_id (PK)
- emp_id (FK)
- module_id (FK)
- status (mandatory / optional)

- completion_date

Purpose: Links employees to training modules.

3.8 payroll

- pay_id (PK)
- emp_id (FK)
- month
- basic
- hra
- deductions
- bonus
- net_salary

Purpose: Manages salary data.

3.9 exits

- exit_id (PK)
- emp_id (FK)
- exit_date
- reason
- approval_status

Purpose: Tracks employee exits.

4. Relationships

- One department → many employees
- One role → many employees
- One employee → many attendance records

- One employee → many payroll records
 - One employee → many reviews
 - One employee → many training enrollments
 - One employee → can supervise many employees
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5. Constraints Used

- PRIMARY KEY
 - FOREIGN KEY
 - UNIQUE(email)
 - CHECK(rating BETWEEN 1 AND 5)
 - ENUM for status fields
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6. Normalization

- All tables are in **BCNF**
 - No repeating groups
 - No partial dependency
 - Each table has a single responsibility
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7. Indexing Strategy:

- Index on emp_id
- Index on dept_id
- Index on reviewer_id
- Composite index on (emp_id, month) in payroll