

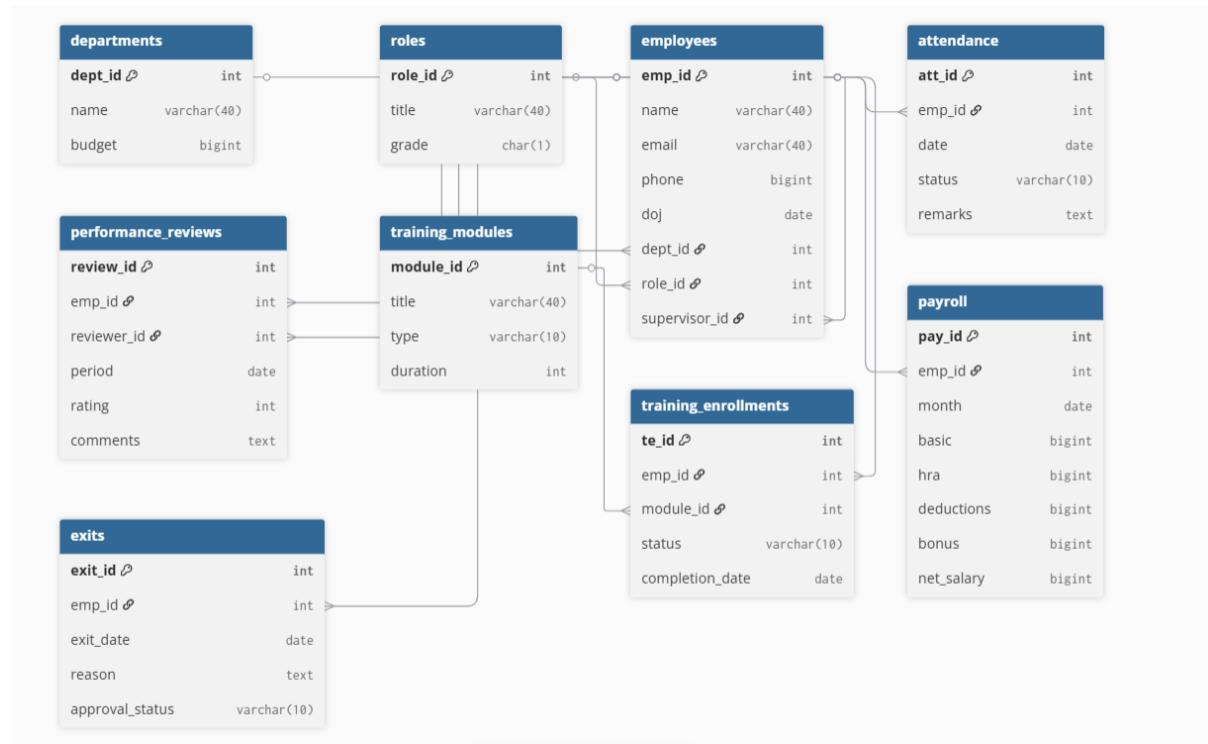
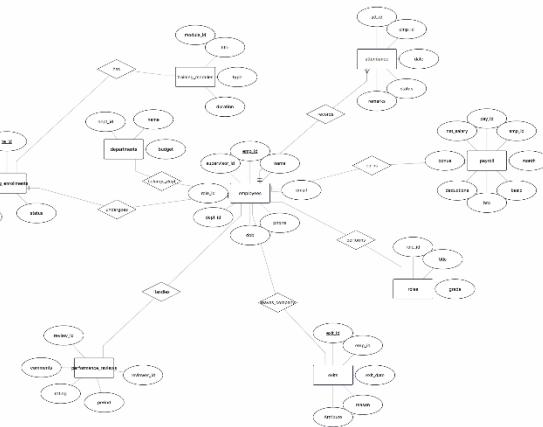
## 1. System Overview

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.

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### **3.2 roles**

- role\_id (PK)
- title
- grade

**Purpose:** Stores job roles and levels.

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### **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.

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### **3.4 attendance**

- att\_id (PK)
- emp\_id (FK)

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

**Purpose:** Tracks daily attendance.

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### **3.5 performance\_reviews**

- review\_id (PK)
- emp\_id (FK)
- reviewer\_id (FK → employees)
- period
- rating (1–5)
- comments

**Purpose:** Stores performance evaluations.

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### **3.6 training\_modules**

- module\_id (PK)
- title
- type (completed / pending / failed)
- duration

**Purpose:** Stores training courses.

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### **3.7 training\_enrollments**

- te\_id (PK)
- emp\_id (FK)
- module\_id (FK)
- status (mandatory / optional)

- completion\_date

**Purpose:** Links employees to training modules.

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### 3.8 payroll

- pay\_id (PK)
- emp\_id (FK)
- month
- basic
- hra
- deductions
- bonus
- net\_salary

**Purpose:** Manages salary data.

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### 3.9 exits

- exit\_id (PK)
- emp\_id (FK)
- exit\_date
- reason
- approval\_status

**Purpose:** Tracks employee exits.

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## 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