■ DATABASE DESIGN DOCUMENT – EMPLOYEE DIRECTORY SYSTEM

◆ Overview:

This document outlines the complete database structure for the multi-company Employee Directory System. It defines the core data entities, their relationships, keys, constraints, and normalization logic used to manage employees, roles, departments, projects, tasks, and company-level settings.

◆ Database Name:

employeedirectory

◆ 1. Core Tables:

 `employees`

Stores all employee information across companies.

Column	Type	Description
employee_id	SERIAL (PK)	Unique employee identifier
first_name, last_name	VARCHAR(100)	Basic personal info
email	VARCHAR(150)	Unique login email
phone	VARCHAR(20)	Contact number
address	TEXT	Short home address
profile_picture_url	TEXT	Profile photo URL
designation_id	INT (FK)	Linked to `designations`
role_id	INT (FK)	Linked to `roles`
sub_department_id	INT (FK)	Linked to `sub_departments`
main_department_id	INT (FK)	Linked to `main_departments`
gender	VARCHAR(10)	Gender ('Male', 'Female', 'Other')
birth_date	DATE	Birth date
joining_date	DATE	Company join date
leaving_date	DATE	Nullable, exit date
employment_status	VARCHAR(30)	Active, temporary, retired, etc.
availability_status	VARCHAR(30)	Available, on leave, in meeting, etc.
work_schedule	VARCHAR(30)	Day/Night/Remote/Flexible
company_id	INT	Foreign key to `companies`

Column	Type	Description
employee_unique_code	VARCHAR(50)	HR-generated company-unique identifier
previous_experience_years	INT	Years before current company
previous_companies_info	TEXT	Summary of past roles
completed_projects	INT	Count maintained by backend
active_projects	INT	Count maintained by backend
average_rating	DECIMAL(2,1)	Average rating out of 5
rating_count	INT	Total ratings received
tasks_assigned	INT	Summary stats only
tasks_completed	INT	Summary stats only
tasks_pending	INT	Summary stats only

◆ 2. Company Configuration

 `companies`

Stores basic information about each company using the directory.

Column	Type	Description
company_id	SERIAL (PK)	Unique ID
company_name	VARCHAR(150)	Company name
description	TEXT	About the company
location	VARCHAR(150)	City/Region
industry	VARCHAR(100)	IT, Cloud, SaaS, etc.
founded_year	INTEGER	Year founded
website	TEXT	Link to website
contact_email	VARCHAR(150)	Support or contact email
contact_phone	VARCHAR(20)	Optional
logo_url	TEXT	Optional
status	VARCHAR(50)	Active / Inactive / Former Partner

◆ 3. Role & Department Structure

 `designations`

id **designation_name**
PK Example: Junior Employee

 `main_departments`

id	main_department_name
PK	Example: Development

 `sub_departments`

id	sub_department_name	main_department_id (FK)
PK	UI/UX Testing	References `main_departments`

 `roles`

id	role_name
PK	Example: Backend Architect

 `role_department_mapping`

Maps each role to its valid department/sub-department/designation.

Column	Type
id	SERIAL PK
designation_id	INT FK
role_id	INT FK
sub_department_id	INT FK
main_department_id	INT FK

◆ 4. Additional Employee Profile Details

 `projects`

Column	Type
project_id	SERIAL PK
employee_id	INT FK
project_name	VARCHAR(150)
project_status	VARCHAR(30)
assigned_date	DATE
completed_date	DATE

 `certifications`

Column	Type
certification_id	SERIAL PK
employee_id	INT FK
certification_name	VARCHAR(150)
issuing_organization	VARCHAR(150)

Column	Type
issued_date	DATE
expiration_date	DATE
certification_url	TEXT

 `experience`

Column	Type
experience_id	SERIAL PK
employee_id	INT FK
company_name	VARCHAR(150)
role_held	VARCHAR(100)
duration_years	INTEGER
work_summary	TEXT
start_date	DATE
end_date	DATE

 `skills`

Column	Type
skill_id	SERIAL PK
employee_id	INT FK
skill_name	VARCHAR(100)
proficiency_level	VARCHAR(50)
years_of_experience	INTEGER

 `tasks`

Column	Type
task_id	SERIAL PK
employee_id	INT FK
task_title	VARCHAR(150)
task_description	TEXT
assigned_by	INT FK
assigned_date	DATE
due_date	DATE
status	VARCHAR(20)
completed_date	DATE

◆ 5. Relationships Summary

- Each `employee` belongs to a `company`, `designation`, `role`, `sub_department`, and `main_department`
- Each employee can have multiple `skills`, `projects`, `certifications`, `tasks`, and `experience` records
- All relationships are normalized using foreign keys to ensure clean filtering and controlled dropdowns for HR usage
- The `role_department_mapping` table supports dynamic form logic (e.g., filter sub-departments by role)

◆ Normalization:

- Design follows **3rd Normal Form (3NF)**
- Ensures no data duplication
- All lookups and controlled values (like roles and departments) are reference-based

---

✅ This structure supports:

- Multi-company access control
- Dynamic HR assignment forms
- Role-based employee filtering
- Analytics, statistics, and directory UI
