**Entity Relationship Diagram (ERD)**

**Main Entities & Relationships**

CLIENTS ─────< PROJECTS ─────< TASKS >──── EMPLOYEES

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>── PROJECT\_EMPLOYEES

**Supporting Entities**

PROJECTS >── PROJECT\_STATUS

TASKS >── TASK\_STATUS

EMPLOYEES >── DEPARTMENTS

**1. CLIENTS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| ClientID (PK) | AutoNumber | Unique client identifier |
| ClientName | Short Text | Name of the client or organization |
| ContactPerson | Short Text | Contact name |
| Email | Short Text | Contact email |
| Phone | Short Text | Contact number |
| Address | Long Text | Client address |
| DateAdded | Date/Time | When the client was added |
| Notes | Long Text | Additional details |

**Relationships:**

* One Client → Many Projects (1-to-many)

**2. PROJECTS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| ProjectID (PK) | AutoNumber | Unique project identifier |
| ClientID (FK) | Number (Long Integer) | Linked to Clients.ClientID |
| ProjectName | Short Text | Project title |
| Description | Long Text | Summary of project scope |
| StartDate | Date/Time | Planned start date |
| EndDate | Date/Time | Planned end date |
| Budget | Currency | Project budget |
| StatusID (FK) | Number | Linked to Project\_Status.StatusID |
| Priority | Short Text | High / Medium / Low |
| CreatedBy | Number | Employee who created record |
| DateCreated | Date/Time | Record creation date |

**Relationships:**

* One Project → Many Tasks
* One Client → Many Projects
* Many Projects ↔ Many Employees (via Project\_Employees)

**3. TASKS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| TaskID (PK) | AutoNumber | Unique task identifier |
| ProjectID (FK) | Number | Linked to Projects.ProjectID |
| AssignedTo (FK) | Number | Linked to Employees.EmployeeID |
| TaskName | Short Text | Task title |
| Description | Long Text | Task details |
| StartDate | Date/Time | Start date |
| DueDate | Date/Time | Due date |
| CompletionDate | Date/Time | Actual completion date |
| StatusID (FK) | Number | Linked to Task\_Status.StatusID |
| Progress | Number | % Complete |
| Priority | Short Text | High / Medium / Low |
| Remarks | Long Text | Comments or updates |

**Relationships:**

* Many Tasks → One Project
* Many Tasks → One Employee
* Many Tasks → One Task\_Status

**4. EMPLOYEES Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| EmployeeID (PK) | AutoNumber | Unique employee identifier |
| FirstName | Short Text | First name |
| LastName | Short Text | Last name |
| Email | Short Text | Email address |
| Phone | Short Text | Contact number |
| DepartmentID (FK) | Number | Linked to Departments.DepartmentID |
| JobTitle | Short Text | Role or designation |
| HireDate | Date/Time | Employment start date |
| IsActive | Yes/No | Current employment status |

**Relationships:**

* One Employee → Many Tasks
* Many Employees ↔ Many Projects (via Project\_Employees)

**5. PROJECT\_EMPLOYEES (Junction Table)**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| ProjectEmployeeID (PK) | AutoNumber | Unique ID |
| ProjectID (FK) | Number | Linked to Projects.ProjectID |
| EmployeeID (FK) | Number | Linked to Employees.EmployeeID |
| Role | Short Text | e.g., Project Manager, Developer, Tester |
| AssignedDate | Date/Time | Date assigned |

**Relationships:**

* Many-to-Many (Projects ↔ Employees)

**6. PROJECT\_STATUS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| StatusID (PK) | AutoNumber | Unique status identifier |
| StatusName | Short Text | e.g., “Planned”, “In Progress”, “Completed”, “On Hold”, “Cancelled” |

**7. TASK\_STATUS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| StatusID (PK) | AutoNumber | Unique status identifier |
| StatusName | Short Text | e.g., “Pending”, “In Progress”, “Completed”, “Overdue” |

**8. DEPARTMENTS Table**

| **Field** | **Data Type** | **Description** |
| --- | --- | --- |
| DepartmentID (PK) | AutoNumber | Unique department identifier |
| DepartmentName | Short Text | Department name (IT, HR, Finance, etc.) |
| Description | Long Text | Department details |

**Optional Add-On Tables (If Enhancements Are Chosen)**

| **Table** | **Purpose** |
| --- | --- |
| **Alerts** | For email notifications of overdue tasks |
| **UserRoles** | For access control (Admin, Manager, Developer) |
| **Attachments** | For storing related project/task files (path or hyperlink) |

**ERD Relationship Summary**

| **Relationship** | **Type** | **Description** |
| --- | --- | --- |
| Clients → Projects | 1-to-Many | One client can have multiple projects |
| Projects → Tasks | 1-to-Many | One project has many tasks |
| Employees → Tasks | 1-to-Many | One employee can handle many tasks |
| Projects ↔ Employees | Many-to-Many | Managed via Project\_Employees table |
| Departments → Employees | 1-to-Many | Each employee belongs to one department |
| Project\_Status → Projects | 1-to-Many | Each project has one status |
| Task\_Status → Tasks | 1-to-Many | Each task has one status |