Database Design Report – Athul V Nair

Overview

The aim of the assignment was to create a database for a project-workflow management system. Project Workflow Management refers to the systematic planning, coordination, and monitoring of tasks and activities within a project to achieve specific goals and objectives efficiently. It involves the design and implementation of processes and workflows that guide the project from initiation to completion. The primary aim is to ensure that tasks are executed in a logical sequence, resources are utilized effectively, and project timelines are met.

The database design aims to create a project workflow management system with a focus on projects, phases, tasks, employees, roles, and task dependencies.

Tables

1. Employees: Table to store employee details of a company.

EmployeeID INT(Primary Key)

EmployeeName VARCHAR(255)

EmployeeEmail VARCHAR(255)

EmployeeDesignation VARCHAR(255)

2. Projects: Table to store all the projects in a company.

ProjectID INT (Primary Key)

ProjectName VARCHAR(255)

ProjectDescription VARCHAR(255)

StartDate DATE

EndDate DATE

Status VARCHAR(255)

ProjectCreatedBy INT(Foreign Key referencing Employees.EmployeeID)

3. Phases: Table to store phases of a project.

PhaseID INT (Primary Key)

PhaseName VARCHAR(255)

StartDate DATE

EndDate DATE

Status VARCHAR(255)

ProjectID INT (Foreign Key referencing Projects.ProjectID)

PhaseCreatedBy INT (Foreign Key referencing Employees.EmployeeID)

4. Tasks: Table to store tasks to be done during different phases of a project.

TaskID INT (Primary Key)

TaskName VARCHAR(255)

TaskDescription VARCHAR(255)

StartDate DATE

EndDate DATE

Status VARCHAR(255)

PhaseID INT (Foreign Key referencing Phases.PhaseID)

AssignedTo INT (Foreign Key referencing Employees.EmployeeID)

CreatedBy INT (Foreign Key referencing Employees.EmployeeID)

Customers_customerID INT (Foreign Key referencing Customers.CustomerID)

5. Task Dependencies: Table to store all the tasks that are dependent on other tasks.

DependencyID INT (Primary Key)

TaskID INT (Foreign Key referencing Tasks.TaskID)

DependentTaskID INT (Foreign Key referencing Tasks.TaskID)

6. Roles: Table to store the role assigned to each employee.

RoleID INT (Primary Key)

RoleType VARCHAR(255)

EmployeeAssociated INT (Foreign Key referencing Employees.EmployeeID)

Relationships

Projects - Employees (ProjectCreatedBy) Relationship:

Projects are linked to employees through the ProjectCreatedBy foreign key.

Phases - Employees (PhaseCreatedBy) Relationship:

Phases are linked to employees through the PhaseCreatedBy foreign key.

Phases - Projects Relationship:

Phases are linked to projects through the ProjectID foreign key.

Tasks - Phases Relationship:

Tasks are connected to phases using the PhaseID foreign key.

Tasks - Employees (AssignedTo) Relationship:

Tasks are assigned to employees using the Tasks.AssignedTo with Employees.EmployeeID.

Tasks - Employees (CreatedBy) Relationship:

Tasks have a creator employee referenced by the Tasks.CreatedBy with Employees.EmployeeID.

Task - Task Dependencies Relationship:

Task dependencies and Task relationship are established by the TaskID and DependentTaskID foreign keys.

Roles - Employees Relationship:

Employees are associated with roles through the EmployeeAssociated foreign key.

E-R Diagram

phases

- PhaseID INT
- ProjectID INT
- PhaseName VARCHAR(255)
- StartDate DATE
- EndDate DATE
- Status VARCHAR(255)
- PhaseCreatedBy INT

Indexes

tasks

- TaskID INT
- PhaseID INT
- TaskName VARCHAR(255)
- TaskDescription VARCHAR(255)
- StartDate DATE
- EndDate DATE
- Status VARCHAR(255)
- AssignedTo INT
- CreatedBy INT
- Customers_customerID INT

Indexes

taskdependencies

- DependencyID INT
- TaskID INT
- DependentTaskID INT

Indexes

projects

- ProjectID INT
- ProjectName VARCHAR(255)
- ProjectDescription VARCHAR(255)
- StartDate DATE
- EndDate DATE
- Status VARCHAR(255)
- ProjectCreatedBy INT

Indexes

roles

- RoleID INT
- RoleType VARCHAR(45)
- EmployeeAssociated INT

Indexes

employees

- EmployeeID INT
- EmployeeName VARCHAR(255)
- EmployeeEmail VARCHAR(255)
- EmployeeDesignation VARCHAR(100)

Indexes