**Task Database for Lecture with Postgres SQL Create Tables**



The above ER Diagram shows the relationships between the entity types for the Task Database.

* The Employee entity type holds the information about employees. The primary key is EmpNo (Employee Number).
* The Department entity type holds the information about the departments in the company. The primary key is DNum (Department Number).
* The Task entity type holds the information about tasks that the company needs to complete. The primary key is TNum (Task Number).
* The TaskAssignment entity type holds the information about which tasks are assigned to which employee. Thus the primary key is a combination of EmpNo and TNum.
* An employee is employed in one department. A department can employ many employees, none if the department is new. The EDNum (Employee's Department Number) in Employee table is a foreign key referring to the DNum in the Department table, showing which department the employee belongs to.
* An employee may manage many employees or no employee if he/she is not a supervisory personnel. An employee is managed by only one employee, i.e., his/her supervisor. Some employees, like the CEO, do not have boss. BossEmpNo, containing the employee number of the boss, is the foreign key referring to the EmpNo of the Employee table.
* An employee can have many task assignments, i.e., an assignment to a task. A new employee may not have any task assignment yet. A task assignment relates to only one employee. The EmpNo in TaskAssignment is also the foreign key referencing the EmpNo in Employee. The Hours is the total hours that the employee worked for the task.
* A task assignment is related to only one task; a task can have many task assignments, none if no employee has assigned to a new task yet. The TNum in TaskAssignment is the foreign key referencing TNum in Task.
* A department can manage many tasks. Some supporting departments do not manage any task. A task is managed by at most one department. If it is a new task, it may not have a managing department yet. TDNum (Task Department Number) in the Task table is the foreign key referring to the DNum in the Department table showing which department is managing the Task. TLocation is the location of the tasks to be carried out.

**Task Database**

Employee

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EmpNo** | Name | Sex | Salary | EDNum | BossEmpNo |
| 444 | Cindy | F | 5000 | 5 |  |
| 666 | Paul | M | 3800 | 5 | 444 |
| 222 | Sheron | F | 5000 | 4 |  |
| 888 | Joe | M | 3500 | 4 | 222 |
| 987 | Tony | M | 2500 | 4 | 888 |
| 999 | Vivien | F | 3500 | 4 | 222 |

TaskAssignment Department

|  |  |  |
| --- | --- | --- |
| **EmpNo** | **TNum** | Hours |
| 666 | 3 | 40.5 |
| 999 | 3 | 50 |
| 987 | 10 | 35 |
| 987 | 30 | 5 |
| 999 | 10 | 10 |
| 999 | 30 | 30.5 |

|  |  |  |
| --- | --- | --- |
| **DNum** | DName | EstDate |
| 1 | HQ | 2005-10-01 |
| 4 | Admin | 2005-05-15 |
| 5 | RnD | 2005-06-20 |

Task

|  |  |  |  |
| --- | --- | --- | --- |
| **TNum** | TName | TLocation | TDNum |
| 3 | ProductZ | Taipo | 5 |
| 10 | Computer | Shatin | 4 |
| 30 | Benefits | Shatin | 4 |

/\* The following SQL statements create the tables and insert the data. \*/

Employee(EmpNo, Name, Sex, Salary, EDNum, BossEmpNo)

TaskjAssignment(EmpNo, TNum, Hours)

Task(TNum, TLocation, TDNum)

Department(DNum, DName, EstDate)

Relational Diagram

DROP TABLE IF EXISTS taskassignment;

DROP TABLE IF EXISTS task;

DROP TABLE IF EXISTS employee;

DROP TABLE IF EXISTS department;

CREATE TABLE Department(

DNum NUMERIC(5) PRIMARY KEY,

DName VARCHAR(5) NOT NULL UNIQUE,

EstDate DATE NOT NULL

);

CREATE TABLE Task (

TNum NUMERIC(4) PRIMARY KEY,

TName VARCHAR(8) NOT NULL UNIQUE,

TLocation VARCHAR(10) NOT NULL,

TDNum NUMERIC(5)

REFERENCES Department (DNum)

ON DELETE RESTRICT

);

CREATE TABLE Employee(

EmpNo NUMERIC(5) PRIMARY KEY,

Name VARCHAR(7) NOT NULL,

Sex CHAR(1) NOT NULL

CHECK(Sex in ('M', 'F')),

Salary NUMERIC(5) NOT NULL

CHECK (Salary BETWEEN 1000 and 6000),

EDNum NUMERIC(5) NOT NULL,

BossEmpNo NUMERIC(5),

FOREIGN KEY (EDNum)

REFERENCES Department (DNum)

ON DELETE RESTRICT,

FOREIGN KEY (BossEmpNo)

REFERENCES Employee (EmpNo)

ON DELETE RESTRICT

);

CREATE TABLE TaskAssignment(

EmpNo NUMERIC(5),

TNum NUMERIC(4),

Hours NUMERIC(3,1) DEFAULT 0,

PRIMARY KEY (EmpNo, TNum),

FOREIGN KEY (EmpNo)

REFERENCES EMPLOYEE (EmpNo)

ON DELETE RESTRICT,

FOREIGN KEY (TNum)

REFERENCES Task (TNum)

ON DELETE RESTRICT

);

/\* The following statements insert records into the tables \*/

INSERT INTO DEPARTMENT VALUES (1,'HQ', '2005-10-01');

INSERT INTO DEPARTMENT VALUES (4,'Admin', '2005-05-15');

INSERT INTO DEPARTMENT VALUES (5,'RnD', '2005-06-20');

INSERT INTO Task VALUES(3,'ProductZ','Taipo',5);

INSERT INTO Task VALUES(10,'Computer','Shatin',4);

INSERT INTO Task VALUES(30,'Benefits','Shatin',4);

INSERT INTO Employee VALUES (444,'Cindy', 'F', 5000,5,NULL);

INSERT INTO Employee VALUES (666,'Paul', 'M', 3800,5,444);

INSERT INTO Employee VALUES (222,'Sheron', 'F', 5000,4,NULL);

INSERT INTO Employee VALUES (888,'Joe', 'M', 3500,4,222);

INSERT INTO Employee VALUES (987,'Tony','M', 2500,4, 888);

INSERT INTO Employee VALUES (999,'Vivien','F', 3500,4, 222);

INSERT INTO TaskAssignment VALUES (666,3,40.5);

INSERT INTO TaskAssignment VALUES (999,3,50);

INSERT INTO TaskAssignment VALUES (987,10,35);

INSERT INTO TaskAssignment VALUES (987,30,5);

INSERT INTO TaskAssignment VALUES (999,10,10);

INSERT INTO TaskAssignment VALUES (999,30,30.5);