UAP CSE

**Database Management System Lab Project**

**Course ID:** CSE 212

**Course Title:** Database Management System Lab

**Project Name:** Rooppur Nuclear Power Plant

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**About the project:**

Rooppur Nuclear Power Plant is 2.4 GWe nuclear power plant. Here around 800 workers have deployed. Each worker has a Designation with a role and assigned in a work place. Worker’s Roles are divided in 4 major units. For every role here a minimum required number of workers. For each Designation here is a particular salary.

Each work place is under a sector. The power plant divided in 7 major sectors. A sector contains number of buildings, guard salters, watch towers and gate. In the power plant, here total 13 buildings, 4 gates, 4 watch towers and number of guard shelters.

Some of the workers have allocated with an apartment. Each worker has a particular working time slot.

For each worker here is a vacation history.

**Entities:**

|  |  |
| --- | --- |
| **1.Workers:** | Hold information about all workers. |
| **2.Designation:** | All Designations. And based on Designations and role hold salary information of workers. |
| **3.Role:** | Information about working role under which unit for a designation. And minimum required number of workers for that role. |
| **4.Work\_Place:** | Information about, where a worker is going to work. |
| **5.Vacation\_Date**: | Hold information about vacation dates of each worker. |
| **6.Time\_Slot:** | Time slot information for workers to work on that particular time. |
| **7.Apartment\_INFO:** | Information about apartment those are made for the workers. |

ER Diagram Description:

At first considering the tables ‘designation’ and ‘working role’ with the relation ‘working role’. Here each designation belongs to a role. Basically it’s a many to one relationship. Each designation must be under exactly one role. A role can contain zero or many designations.

Now considering the tables ‘workers’ and ‘designation’ with the relation ‘worker’s designation’. It’s a many to one relationship. Here each worker mast have exactly one designation. Many worker may work under a designation.

Considering tables ‘workers’ and ‘work place’ with the relationship ‘worker’s working place’. It’s a many to one relationship. Each worker mast have exactly one work place. Many workers can work at a work place.

Considering tables ‘workers’ and ‘vacation date’ with the relationship ‘Vacation history’. It’s a one to many relationship. Each vacation history is for exactly one worker. A worker may have many vacation history.

Considering tables ‘workers’ and ‘time slot’ with the relationship ‘working shift’. Each worker must have exactly one working shift. In a working shift many workers may allocated.

Considering tables ‘workers’ and ‘apartment INFO’ with the relationship ‘accommodation’. Here the relationship is one to one relation. In this relation, an apartment can be allocated for a worker. An apartment can’t be allocated for more than one worker.

E-R diagram for Rooppur Nuclear Power Plant:

**Vaction\_Date**

**Start\_Vac**

End\_Vac

**Time\_slot**

**Id**

Worker\_Name

Worker\_Age

Joining\_Date

Work\_place

Address1

Address2

Phone\_NO.

Working role

Workers

Accommodation

Working

Shift

Vacation History

**Designation**

**Designation**

Salary

**Shift\_ID**

Week\_1

Week\_2

Week\_1\_extra\_duty

Week\_2\_extra\_duty

Worker’s

Designation

Working\_Role

**Role\_Title**

Unit

Minimum\_Required\_Workers\_For\_The\_Role

Worker’s

Working Place

**Apartment\_INFO**

**Apartment No.**

Building\_No.

Block\_No.

**Work\_Place**

**Building\_No.\_Or\_Place**

Sector\_No.

Sector\_Name

**Schema Diagram:**

|  |
| --- |
| Vacation\_Date |
| **ID**  **Start\_Vac**  End\_Vac |

|  |
| --- |
| Designation |
| **Designation**  Working\_Role  Salary |

|  |
| --- |
| Working\_Role |
| **Role\_Title**  Unit  Minimum\_Required\_Workers\_For\_The\_Role |

|  |
| --- |
| Workers |
| **ID**  Worker\_Name  Designation  Shift\_ID  Work\_Place  Worker\_Age  Address1  Address2  Phone\_No.  Joining\_Date |

|  |
| --- |
| Accommodation |
| ID  **Apartment\_NO.** |

|  |
| --- |
| Time\_slot |
| **Shift\_ID**  Week 1  Week2  Week\_1\_extra\_duty  Week\_2\_extra\_duty |

|  |
| --- |
| Work\_place |
| **Building\_No.\_Or\_Place**  Sector\_No  Sector\_Name |

|  |
| --- |
| Accomodation\_INFO |
| **Apartment\_No.**  Building\_No.  Block\_No |

SQL Code:

create database [Rooppur Nuclear Power Plnat]

go

use [Rooppur Nuclear Power Plnat];

create table Working\_Role(

Role\_title varchar(30) constraint Pk\_Role primary key ,

Unit varchar(40),

Minimum\_Required\_Workers smallint,

);

create table Designation(

Designation varchar(40) constraint Pk\_Designation primary key,

Working\_Role varchar (30),

Salary int,

constraint Fk\_Role foreign key(Working\_Role) references Working\_Role,

);

create table Work\_Place(

Building\_No\_or\_Place varchar(30) constraint Pk\_place primary key ,

Sector\_No varchar(20),

Sector\_Name varchar(40),

);

create table Time\_slot(

Shift\_Id varchar(10) constraint Pk\_shift primary key ,

Week1 TIME,

Week2 TIME,

);

create table Accomodation\_INFO (

Apartment\_No varchar(15) constraint Pk\_Apartment\_Number primary key ,

Building\_No varchar(10),

Block\_No varchar(5),

);

create table Workers(

ID varchar(15) constraint Pk\_ID primary key ,

Worker\_Name varchar(50),

Designation varchar(40),

Shift\_ID varchar(10),

Work\_Place varchar(30),

Worker\_Age tinyint,

Address1 varchar(90),

Address2 varchar(90),

Phone\_No varchar(20),

Joining\_date DATE,

constraint Fk\_designation foreign key(Designation) references Designation,

constraint Fk\_Shift foreign key(Shift\_ID) references Time\_slot,

constraint Fk\_Work\_place foreign key(Work\_Place) references Work\_Place,

);

create table Accommodation (

Apartment\_No varchar(15) constraint Pk\_Apartment\_No primary key ,

ID varchar(15),

constraint Fk\_Apartment\_No foreign key(Apartment\_No) references Accomodation\_INFO,

constraint Fk\_ID foreign key(ID) references Workers,

);

create table Vacation\_Date (

ID varchar(15) ,

Start\_Vac DATE,

End\_Vac DATE,

constraint Pk\_ID\_start\_vac primary key (ID,Start\_Vac) ,

constraint Fk\_workr\_ID foreign key(ID) references Workers,

);

SQL Codes for Data Entry: