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.

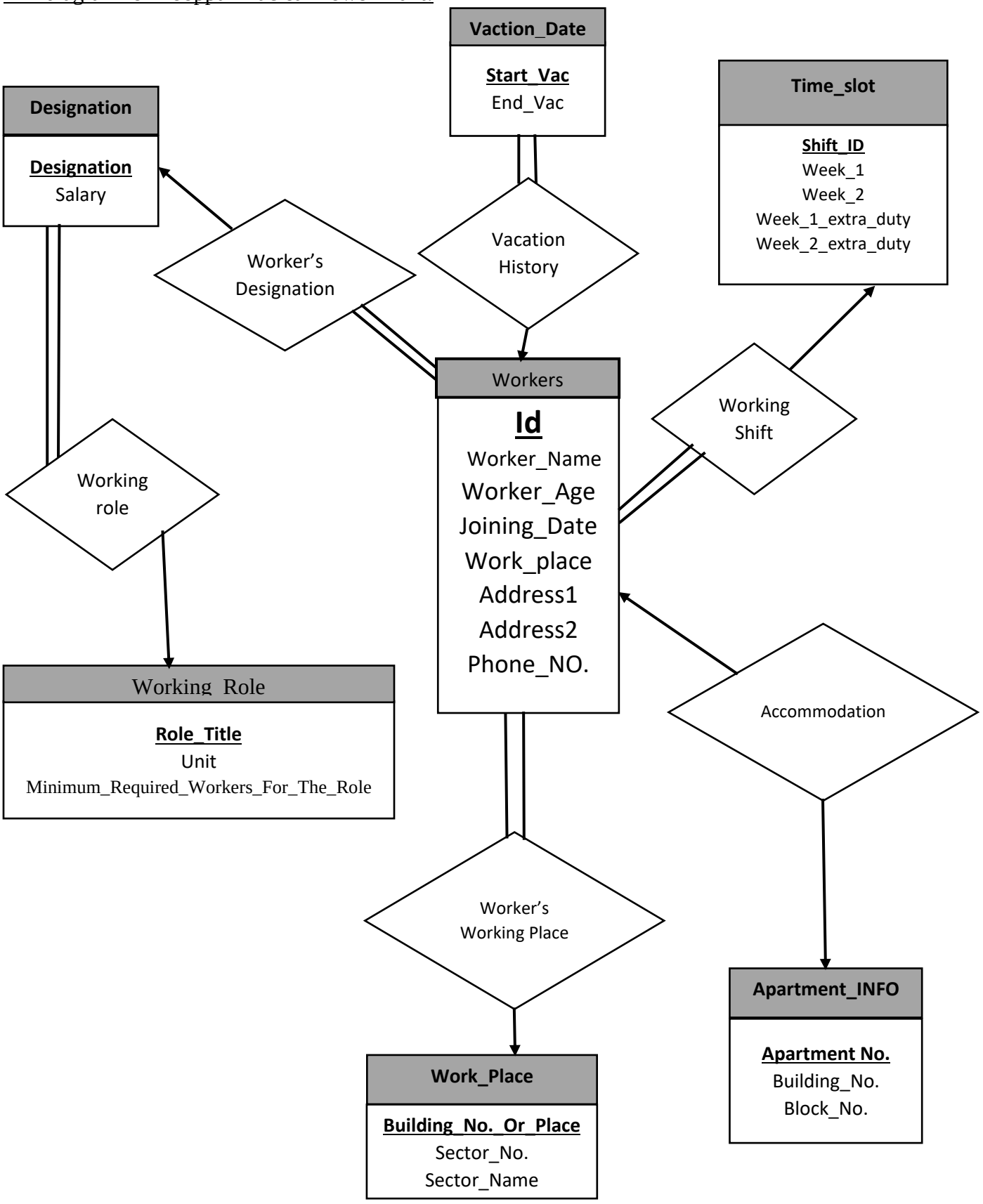
Considering tables ‘workers’ and ‘work place’ with the relationship ‘worker’s working place’. It’s a many to one relationship. Each worker mast have exactly one work place. Many workers can work at a work place.

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.

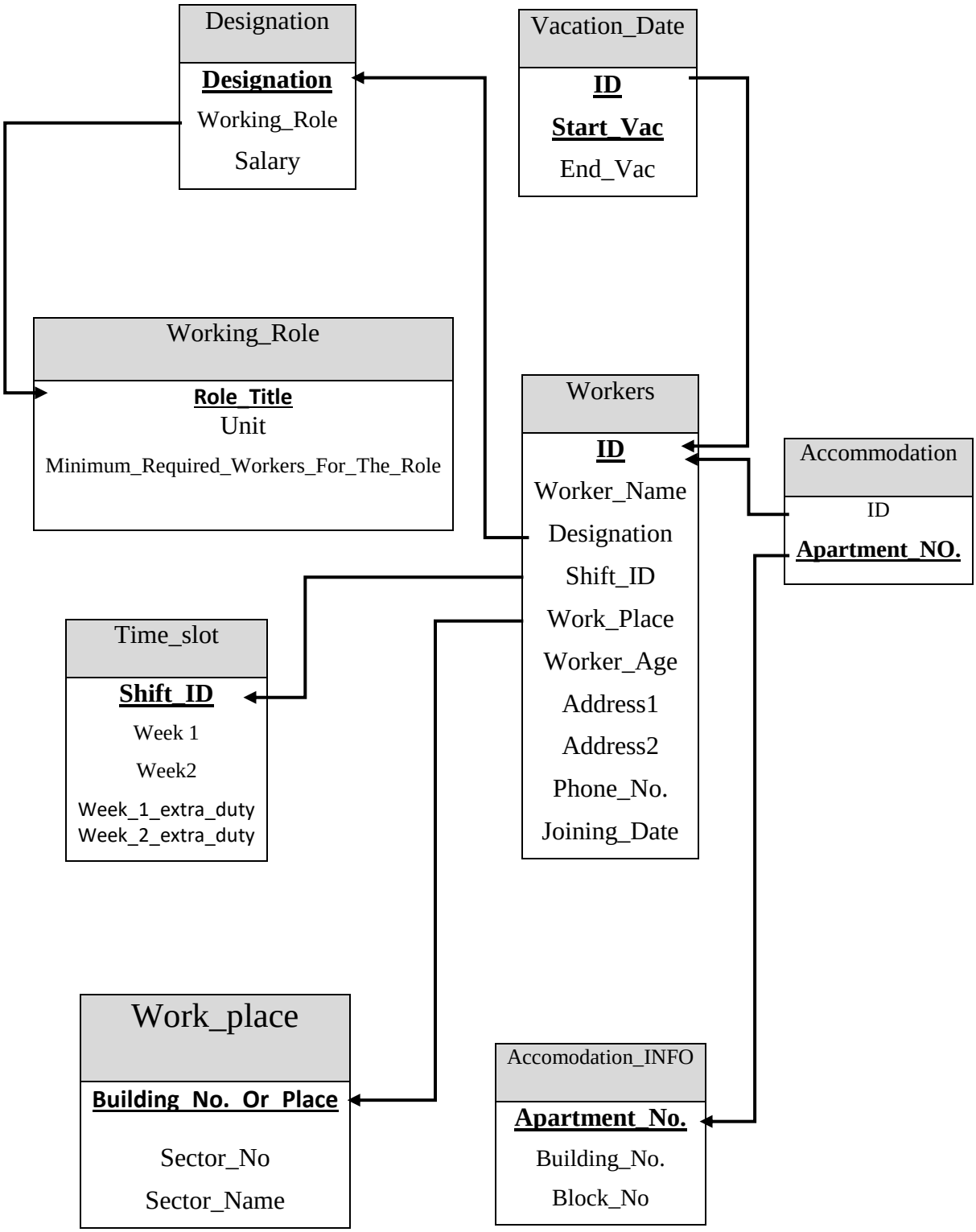
Considering tables ‘workers’ and ‘time slot’ with the relationship ‘working shift’. Each worker must have exactly one working shift. In a working shift many workers may allocated.

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:



Schema Diagram:



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: