DATABASE ASSIGNMENT 1

**QUESTION 1:**

Assumption: Considering this schema only and no other values can be added/ inserted in it.

1. BRANCH:

* Postcode is candidate key.

1. STAFF:

* Fname, lname, DOB is uniquely identified so it is a candidate key considering this schema.

1. PROPERTYFORRENT:

* Postcode is candidate key.

1. Client:

* Fname, lname, telNo and email are candidate keys.

1. Private Owner:

* Fname, lname, Email, telNo, address are candidate keys.

Assumption: Considering overall schema that other values can be inserted in the schema as well than only email and telNo from Client and PrivateOwner are candidate keys.

**QUESTION 2:**

1. The **BranchNo** in Staff, propertyforrent and registration are foreign key.
2. The **staffNo** in propertyforrent and registration is foreign.
3. The **OwnerNo** in propertyforrent is foreign.
4. The **clientNo** in viewing is foreign key.
5. The **Propertyno** in viewing is foreign key.

**QUESTION 3:**

1. Insert <SA9, 'Scott', 'Jeff', 'Clerk', 1, '1977-10-01', 58000, B007> into STAFF

* This operation will give error as in the sex column the value can be varchar value only but here, they are giving it an integer value.
* It violates the key constraints because another tuple with same staffNo already exist in staff relation and so is rejected.
* The date datatype inserted is also incorrect.

1. Insert <CR56, '', '', '1990-12-07'> into REGISTRATION

* This statement will give and error because BranchNo is a primary key so it can never be null.

Entity integrity constraint violation.

1. Delete the Branch tuple with BranchNo = ‘B002’.

* No error, because considering this schema BranchNo is a foreign key but there is no foreign key value referencing to B002 value.

1. Delete the PrivateOwner tuple with the Name = ‘Tony Shaw’

* This will give an error because the when we delete the tony Shaw tuple its primary key is referencing to OwnerNo in propertyforrent So there is a rule that the foreign key should always have its primary key value and If we delete it this will give an error. Referential integrity constraint violation.

1. Modify the clientNo of the VIEWING tuple with clientNo = ‘CR62’ to ‘CR97’

* Client no is already a foreign key in another relation so this will create an error. Because the keys referencing to cr62 will be left with no key value as foreign key value is created if the primary key value exists. Referential integrity constraint violation.

1. Modify the Propertyno attribute of the Propertyforrent tuple with property No = ‘PA14’ to ‘PA16’

* No error.

1. Modify the BranchNo attribute of the Propertyforrent tuple with BranchNo= ‘B007’ to NULL

* No error.

**QUESTION 4:**

1. Create table staff (

staffNo STRING (5) PRIMARY KEY,

name VARCHAR2(10) NOTNULL,

position VARCHAR2 (10) NOTNULL,

SEX VARCHAR2 (1) NOT NULL,

DOB DATE check (extract (year from DATEDIFF (YY, DOB, GETDATE()) < 60)) NOT NULL,

Salary int (6) check (salary between 9000 and 3000),

BranchNo varchar2(20) not null,

foreign key (BranchNo) references Branch (branch No));

1. Create table propertyforrent (

Propertyno string (5) Primary KEY,

name varchar2(10),

city varchar2(10),

type varchar2(10) DEAFAULT ‘House’,

rooms int (1) check(rooms > 2),

rent int(5),

OwnerNo string(5),

StaffNo string(5),

BranchNo string(5),

foreign key (BranchNo) references Branch (BranchNo),

foreign key (staffNo) references staff (staffNo),

foreign key (OwnerNo) references PrivateOwner (OwnerNo));

1. Create table PrivateOwner (

OwnerNo string(5) Primary Key,

name varchar(10),

address varchar(30),

telNo int (10) UNIQUE ,

email varchar(15) UNIQUE);

**QUESTION 5:**

1. Select Propertyno from propertyforrent where staffNo in(select staffNo from staff where sex=’F’);
2. Select \* from PrivateOwner where OwnerNo = (select OwnerNo from propertyforrent where type = ‘house’)
3. Select staffNo, salary=(salary\*0.15) from staff where BranchNo in (Select BranchNo from Branch where city=’London’);
4. Select Propertyno from Viewing where extract(month from viewDate)=’May’ and extract(year from view Date)=2013;
5. Select \* from staff where fname = ‘D%’ and lname =’W%’;