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DATABASE MANAGEMENT SYSTEMS

22AIE303 – Labsheet 1

Question 1

Write SQL commands to create the following table along with the constraints given and write the given queries.

EMP

Column name	Datatype	Constraint
Eno	Varchar	PK
Ename	Varchar	Not null
Basic-sal	Integer	Default value 5000
incentive	Integer	Should not be greater than basic_sal
dept_no	Varchar	Refers to dno of Dept table
mgr_id	Varchar	Refers to eno

DEPT

Column name	Datatype	Constraint
Dno	Varchar	PK
Dname	Varchar	Not null
No. of emp	Integer	

```
CREATE TABLE EMP ( eno VARCHAR PRIMARY KEY,
                   ename VARCHAR NOT NULL,
                   basic-sal INT DEFAULT '5000',
                   incentive INT CHECK(incentive <= basic_sal),
                   dept_no VARCHAR,
                   mgr_id VARCHAR,
                   FOREIGN KEY dept_no REFERENCES DEPT(dno),
                   FOREIGN KEY mgr_id REFERENCES EMP(eno) );
```

```
CREATE TABLE DEPT( dno VARCHAR PRIMARY KEY,
                   dname VARCHAR NOT NULL,
                   no_of_employees INT );
```

QUERIES

1. Add a column **'JoiningDate'** to the emp table with the constraint that **JoiningDate** is not null.
2. Add a column **HOD** in DEPT table with proper referential integrity.
3. Find the **eno** of those employees who work in the dept with dept_no **'D1'**
4. Select all data from the DEPT table
5. Create a query to display the name, joining date, and employee number for each employee, with employee number appearing first.

```
ALTER TABLE EMP ADD JoiningDate DATE NOT NULL;
ALTER TABLE DEPT ADD HOD VARCHAR, ADD FOREIGN KEY (HOD) REFERENCES EMP(eno);
SELECT eno FROM EMP WHERE dept_no = 'D1';
SELECT * FROM DEPT;
SELECT eno, ename, joiningdate FROM EMP;
```

Question 2

Create the following table along with the constraints given and write the given queries in SQL.

Student

Column name	Datatype	Constraint
sno	Varchar	PK
Sname	Varchar	Not null
age	Integer	Must be >0
gender	char	Should contain 'M' or "F as values

```
CREATE TABLE STUDENT( sno VARCHAR PRIMARY KEY,
                      sname VARCHAR NOT NULL,
                      age INT CHECK(age > 0),
                      gender CHAR CHECK(gender IN ('M','F')) )
```

Course

Column name	Datatype	Constraint
Cno	Varchar	PK
Cname	char(10)	Notnull
Credits	Integer	

```
CREATE TABLE COURSE( cno VARCHAR PRIMARY KEY,
                     canme CHAR(10) NOT NULL,
                     credits INT );
```

Student_Course

Set primary key as combination of sno,cno

Column name	Datatype	Constraint
Sno	Varchar	Refers to sno of student table
Cno	Varchar	Refers to cno of Course table

```
CREATE TABLE Student_Course ( sno VARCHAR,
                              cno VARCHAR,
                              PRIMARY KEY (sno, cno),
                              FOREIGN KEY (sno) REFERENCES STUDENT(sno),
                              FOREIGN KEY (cno) REFERENCES COURSE(cno) );
```

QUERIES

1. Change the datatype of **cname** to varchar.
2. Add a constraint to the column **'credits'** of Course table so that the credit should be >0
3. Add two columns **'dob', 'cgpa'** to Student table.
4. Delete column '**age**' from Student table.
5. Retrieve the **dob** and **Sno** of the student(s) whose name is 'Rahul'

```
ALTER TABLE COURSE ALTER COLUMN cname TYPE VARCHAR;
ALTER TABLE COURSE ADD CONSTRAINT check_credits CHECK(credits > 0);
ALTER TABLE Student ADD COLUMN dob DATE, ADD COLUMN cgpa DECIMAL;
ALTER TABLE STUDENT DROP COLUMN age;
SELECT dob, sno FROM STUDENT WHERE sname = 'Rahul';
```

Question 3

Create the following table along with the constraints given and write the given queries in SQL.

Supplier

Column name	Datatype	Constraint
Sno	Varchar	PK
Sname	Varchar	Not null
City	Varchar	

```
CREATE TABLE supplier( sno VARCHAR PRIMARY KEY,
                       sname VARCHAR NOT NULL,
                       CITY VARCHAR );
```

Parts

Column name	Datatype	Constraint
Pno	Varchar	PK
Pname	Varchar	Should not be left blank
Color	Char(10)	
Weight	Numeric	

```
CREATE TABLE parts( pno VARCHAR PRIMARY KEY,
                    pname VARCHAR NOT NULL,
                    color CHAR(10),
                    weight NUMERIC );
```

Supplier_Parts

Column name	Datatype	Constraint
Sno	Varchar	Refers to sno of Supplier table
Pno	Varchar	Refers to pno of Parts table
qty	Numeric	Should be >0

```
CREATE TABLE supplier_parts( sno VARCHAR,
                             pno VARCHAR,
                             qty NUMERIC CHECK (qty > 0),
                             FOREIGN KEY (sno) REFERENCES supplier(sno),
                             FOREIGN KEY (pno) REFERENCES parts(pno) );
```

Queries

1. Add a column '**date**' to the Supplier_Parts table.
2. Change the name of table '**Supplier_Parts**' to '**Parts_Supplied**'
3. Find the suppliers coming from the city which starts with letter 'T' and 'A' as the last character.
4. Delete table '**Parts_Supplied**'
5. Change the size of **Sname** column in Supplier table to 25.

```
ALTER TABLE supplier_parts ADD COLUMN date DATE;
ALTER TABLE supplier_parts RENAME TO parts_supplied;
SELECT sname FROM supplier WHERE city LIKE 'T%A';
DROP TABLE parts_supplied;
ALTER TABLE supplier ALTER COLUMN sname TYPE VARCHAR(25);
```

Question 4

Create the following tables along with the constraints given and write the given queries in SQL.

Programmer

Column name	Datatype	Constraint
pno	varchar	PK
Pname	Varchar	Not null
Dob	Date	Not null
Doj	Date	Must be > dob
Gender	Char	Must contain 'M' or 'F'
Sal	Numeric	

```
CREATE TABLE programmer( pno VARCHAR PRIMARY KEY,
                         pname VARCHAR NOT NULL,
                         dob DATE NOT NULL,
                         doj DATE NOT NULL,
                         gender CHAR,
                         sal NUMERIC,
                         CONSTRAINT doj_check CHECK(doj > dob),
                         CONSTRAINT gender_check CHECK(gender IN('M','F')) );
```

Studies

Column name	Datatype	Constraint
pno	Varchar	Foreign key
study_place	Varchar	Not null
course	Varchar	
course_fee	Numeric	

```
CREATE TABLE studies( pno VARCHAR,
                      study_place VARCHAR,
                      course VARCHAR,
                      course_fee NUMERIC,
                      FOREIGN KEY(pno) REFERENCES programmer(pno) );
```

Software

Column name	Datatype	Constraint
Pno	Varchar	Foreign key
Title	Varchar	Not null
development_cost	integer	Not null
selling_cost	integer	Must be >development_cost

```
CREATE TABLE software( pno VARCHAR,
                       title VARCHAR NOT NULL,
                       development_cost INT NOT NULL,
                       selling_cost INT,
                       FOREIGN KEY (pno) REFERENCES programmer(pno),
                       CONSTRAINT selling_check CHECK(selling_cost > development_cost) );
```

Queries

1. Add columns **Sw_id** and **developed_in** to the software table which should not left blank.
2. Add primary key on the **Sw_id** column.
3. Drop the constraint on the **selling cost** column.
4. Change the name of column '**Doj**' to '**hire_date**' in **Programmer** table
5. Add foreign key on the column **Pname** in Studies table that refers to Programmer table.

```
ALTER TABLE software ADD COLUMN sw_id VARCHAR NOT NULL, ADD COLUMN developed_in VARCHAR NOT NULL;
ALTER TABLE software ADD CONSTRAINT prime PRIMARY KEY(sw_id);
ALTER TABLE software DROP CONSTRAINT selling_check;
ALTER TABLE programmer RENAME COLUMN doj TO hire_date;
```