**Assignment#01**

**Database Systems**

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**Question#01**

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**Primary Keys:**

* Airport\_code
* Type\_name
* Airplane\_id
* Number
* No\_of\_avail\_seats

**Foreign Keys:**

* Leg\_no
* Seat\_no
* Code

**DDL commands**

**CREATE Commands**

CREATE TABLE AIRPORT(

Airport\_code INT,

City varchar(50),

State varchar(50),

Name varchar(50)

);

CREATE TABLE AIRPLANE\_TYPE(

Type\_name varchar(50),

Max\_seats INT,

Company varchar(50)

);

CREATE TABLE AIRPLANE(

Airplane\_id INT,

Total\_no\_of\_seats INT,

);

CREATE TABLE FLIGHT(

Number INT,

Airline varchar(50),

Weekdays varchar(50)

);

CREATE TABLE FARE(

Amount INT,

Code varchar(50),

Restrictions varchar(50)

);

CREATE TABLE FLIGHT\_LEG(

Leg\_no INT,

Scheduled\_dep\_time time,

Scheduled\_arr\_time time

);

CREATE TABLE LEG\_INSTANCE(

No\_of\_avail\_seats INT,

Date Date,

Arr\_time time,

Dep\_time time

);

CREATE TABLE SEAT(

Seat\_no INT,

Customer\_name varchar(50),

Cphone nvarchar(11)

);

**Alter Commands(To Apply Constraints)**

Alter Table AIRPORT alter column Airport\_code int NOT NULL;

Alter Table AIRPORT add constraint PK\_AIRPORT primary key(Airport\_code);

Alter Table AIRPLANE\_TYPE alter column Type\_name int NOT NULL;

Alter Table AIRPLANE\_TYPE add constraint PK\_AIRPLANE\_TYPE primary key(Type\_name);

Alter Table AIRPLANE alter column Airplane\_id int NOT NULL;

Alter Table AIRPLANE add constraint PK\_AIRPLANE primary key(Airplane\_id);

Alter Table FLIGHT alter column Number int NOT NULL;

Alter Table FLIGHT add constraint PK\_FLIGHT primary key(Number);

Alter Table LEG\_INSTANCE alter column No\_of\_avail\_seats int NOT NULL;

Alter Table LEG\_INSTANCE add constraint PK\_LEG\_INSTANCE primary key(No\_of\_avail\_seats);

Alter Table FLIGHT\_LEG add constraint FK\_FLIGHT\_LEG foreign key (Leg\_no) references FLIGHT (Number)

Alter Table SEAT add constraint FK\_SEAT foreign key (Seat\_no) references LEG\_INSTANCE (No\_of\_avail\_seats)

Alter Table FARE add constraint FK\_FARE foreign key (Code) references FLIGHT (Number)

**Drop Commands**

DROP TABLE AIRPORT;

DROP TABLE AIRPLANE\_TYPE;

DROP TABLE AIRPLANE;

DROP TABLE FLIGHT;

DROP TABLE FARE;

DROP TABLE FARE\_LEG;

DROP TABLE LEG\_INSTANCE;

DROP TABLE SEAT;

**Question#02**

**Create database using the following relational schema. Please define primary and foreign keys as well. Also, take sensible assumption if need (for constraints and data type).**

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CREATE TABLE StaffMember(

F\_Name varchar(50),

L\_Name varchar(50),

User\_No INT PRIMARY KEY

);

CREATE TABLE Project(

Proj\_No INT PRIMARY KEY,

Project\_Name varchar(50),

Level INT,

Keywords varchar(50),

Description varchar(50)

);

CREATE TABLE Student(

F\_Name varchar(50),

L\_Name varchar(50),

User\_No INT PRIMARY KEY,

Project\_No INT,

Super\_No INT,

Assessor1 varchar(50),

Assessor2 varchar(50),

FOREIGN KEY(Project\_No) REFERENCES Project(Proj\_No) ON UPDATE CASCADE ON DELETE CASCADE,

FOREIGN KEY(Super\_No) REFERENCES StaffMember(User\_No) ON UPDATE CASCADE ON DELETE CASCADE,

);

CREATE TABLE Exam(

Stud\_User\_No INT,

Exam\_No INT,

Time TIME(0),

Day varchar(50),

Room\_No INT,

PRIMARY KEY(Stud\_User\_No,Exam\_No),

FOREIGN KEY(Stud\_User\_No) REFERENCES Student(User\_No) ON UPDATE CASCADE ON DELETE CASCADE

);

1. **Populate sensible data in the following database. Using Insert statement to insert 3 rows per table.**

INSERT INTO StaffMember

VALUES ('Ammara','Adnan',1),

('Ahmer','Usman',2),

('Imran','Ahmed',3);

INSERT INTO Project

VALUES(1,'Weather App',2,'Web','Shows Weather'),

(9,'Library Management System',3,'System','Shows books in Library'),

(10,'Bubble shooter',4,'Android','Game');

INSERT INTO Exam

VALUES(1008,1,'8:00:00','Monday',003),

(1009,2,'10:00:00','Tuesday',004),

(1010,3,'1:00:00','Wednesday',005);

INSERT INTO Student

VALUES ('Abdul Ahad','Tariq',1008,1,1,'Subhan','Ali'),

('Fazeel','Ahmed',1009,9,2,'Ahmed','Wasif'),

('Arslan','Khan',1010,10,3,'Hassan','Fahad');

1. Delete the records of all students who are working on project no 10.

DELETE FROM Student WHERE Project\_No=10;

1. Change the level of projects from 4 to 5 which have ‘Android’ in their keywords.

UPDATE Project SET Level=5

WHERE Level=4 AND Keywords='Android';

1. Find exam time and day of student user no: 1010 and Room\_no = 005

SELECT Time,DAY FROM Exam

WHERE Stud\_User\_No=1010 AND Room\_No=005;

1. Show all Projects names of Student names.

SELECT p.Project\_Name FROM Project p,Student s

WHERE s.Project\_No=p.Proj\_No;

1. Show fname of staff member with L\_Name starting with A and ending with A.

SELECT F\_Name,L\_Name FROM StaffMember

WHERE F\_Name like 'A%A';

1. Show name of student who has not been assigned any supervisor as yet.

SELECT F\_Name,L\_Name FROM Student

WHERE Super\_No IS NULL;

1. Show user no who are sitting between room 005 and 009 during exam.

SELECT Stud\_User\_No FROM Exam WHERE Room\_No BETWEEN 005 AND 009;

1. Show students name with its supervisor name and project number.

SELECT s.F\_Name,s.L\_Name,m.F\_Name,m.L\_Name,s.Project\_No

FROM Student s,StaffMember m

WHERE s.Super\_No=m.User\_No