- -- RollNo: 21MA60R39
- -- Name: Mohammed Kashif Mohammed Moizuddin
- -- DBMS_ASSIGNMENT_02
- -- Assumptions Made:
- -- 1. Along with students, faculties and staff members also taking courses from academics.
- -- 2. There are faculties from departments other than 'CS' but still they are teaching courses
- -- of 'CS' department, such as CN, C++, DSA, OS.
- -- 3. Basic subjects are prerequisite for advanced subjects.
- -- 4. Highest qualification of STAFF is 'BTECH' and that of faculties is 'PHD'.
- -- 5. Courses from 'CS' department can be taken by other department students.

CREATE database college;

create table RegUser(RNo int, RName varchar(20), ROccu varchar(10),

Age int, HighestQual varchar(5), PRIMARY KEY(RNo));

create table Faculty (Fld int, ResearchArea varchar(4),

FDept varchar(3), PRIMARY KEY(Fld),

FOREIGN KEY fk_std_0(FId) REFERENCES RegUser(RNo));

create table Course(Cld int, CName varchar(10), CDuration varchar(10),

CDept varchar(3), Fld int, PRIMARY KEY(Cld),

FOREIGN KEY fk_std_1(FId) REFERENCES Faculty(FId));

create table Prerequisite (Cld int, PreqCld int,

FOREIGN KEY fk_std2(CId) REFERENCES Course (CId),

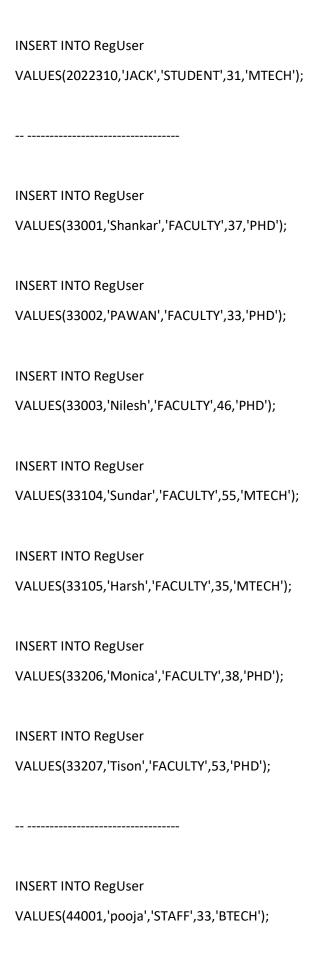
FOREIGN KEY fk_std3(PreqCId) REFERENCES Course (CId),

PRIMARY KEY(Cld, PreqCld));

create table CourseReg(RNo int, Cld int, Score int, PRIMARY KEY(RNo, Cld),

FOREIGN KEY fk_std4(RNo) REFERENCES RegUser (RNo),

```
FOREIGN KEY fk_std5(Cld) REFERENCES Course (Cld));
use college;
show tables;
INSERT INTO RegUser
VALUES(2022001, 'Ravi', 'STUDENT', 23, 'BTECH');
INSERT INTO RegUser
VALUES(2022002, 'Hari', 'STUDENT', 24, 'BTECH');
INSERT INTO RegUser
VALUES(2022003, 'shami', 'STUDENT', 22, 'BTECH');
INSERT INTO RegUser
VALUES(2022104, 'John', 'STUDENT', 25, 'MTECH');
INSERT INTO RegUser
VALUES(2022105, 'Viraj', 'STUDENT', 25, 'MTECH');
INSERT INTO RegUser
VALUES(2022206, 'Raj', 'STUDENT', 28, 'PHD');
INSERT INTO RegUser
VALUES(2022207, 'Mike', 'STUDENT', 27, 'PHD');
INSERT INTO RegUser
VALUES(2022308, 'Munna', 'STUDENT', 30, 'PHD');
INSERT INTO RegUser
VALUES(2022309, 'Michel', 'STUDENT', 31, 'PHD');
```



```
INSERT INTO RegUser
VALUES(44002,'Imad','STAFF',36,'BTECH');
INSERT INTO RegUser
VALUES(44003, 'Dhoni', 'STAFF', 34, 'BTECH');
select * FROM RegUser;
INSERT INTO Faculty
VALUES(33001, 'ALGO', 'ECE');
INSERT INTO Faculty
VALUES(33002, 'ML', 'CS');
INSERT INTO Faculty
VALUES(33003, 'AI', 'CS');
INSERT INTO Faculty
VALUES(33104, 'DBMS', 'ME');
INSERT INTO Faculty
VALUES(33105, 'ML', 'EE');
INSERT INTO Faculty
VALUES(33206, 'AI', 'ECE');
INSERT INTO Faculty
VALUES(33207, 'ALGO', 'ME');
```

```
select * FROM Faculty;
INSERT INTO Course
Values (55001, 'LA for AI', 'MEDIUM', 'ECE', 33206);
INSERT INTO Course
Values (55002, 'LA for AI', 'MEDIUM', 'CS', 33003);
INSERT INTO Course
Values (55003, 'LA for ML', 'MEDIUM', 'CS', 33002);
INSERT INTO Course
Values (55004, 'ADV AI', 'MEDIUM', 'ECE', 33206);
INSERT INTO Course
Values (55005, 'ADV AI', 'LONG', 'CS', 33003);
INSERT INTO Course
Values (55006, 'ADV ML','LONG','CS',33002);
INSERT INTO Course
Values (55007, 'ADV ALGO', 'LONG', 'ECE', 33001);
INSERT INTO Course
Values (55008, 'BASIC ALGO', 'SHORT', 'ECE', 33001);
INSERT INTO Course
Values (55009, 'ADV ALGO', 'LONG', 'ME', 33207);
INSERT INTO Course
Values (55010, 'BASIC ALGO', 'SHORT', 'ME', 33207);
```

```
INSERT INTO Course
Values (55011, 'BASICS ML', 'MEDIUM', 'EE', 33105);
INSERT INTO Course
Values (55012, 'DSA', 'MEDIUM', 'CS', 33206);
INSERT INTO Course
Values (55013, 'C++', 'LONG', 'CS', 33206);
INSERT INTO Course
Values (55014, 'CN', 'MEDIUM', 'CS', 33105);
INSERT INTO Course
Values (55013, 'OS', 'LONG', 'CS', 33105);
SELECT * FROM Course;
INSERT INTO Prerequisite
VALUES (55005,55002);
INSERT INTO Prerequisite
VALUES (55004,55001);
INSERT INTO Prerequisite
VALUES (55005,55003);
INSERT INTO Prerequisite
VALUES (55007,55008);
```

```
INSERT INTO Prerequisite
VALUES (55009,55010);
SELECT * FROM Prerequisite;
INSERT INTO CourseReg
VALUES (2022001,55001,95);
INSERT INTO CourseReg
VALUES (2022001,55008,89);
INSERT INTO CourseReg
VALUES (2022001,55006,65);
INSERT INTO CourseReg
VALUES (2022002,55002,58);
INSERT INTO CourseReg
VALUES (2022002,55003,93);
INSERT INTO CourseReg
VALUES (2022002,55006,79);
INSERT INTO CourseReg
VALUES (2022002,55011,99);
INSERT INTO CourseReg
VALUES (2022003,55010,86);
INSERT INTO CourseReg
VALUES (2022003,55003,87);
INSERT INTO CourseReg
VALUES (2022003,55004,77);
INSERT INTO CourseReg
```

VALUES (2022104,55010,78);

```
INSERT INTO CourseReg
VALUES (2022104,55001,88);
INSERT INTO CourseReg
VALUES (2022104,55005,63);
INSERT INTO CourseReg
VALUES (2022105,55001,59);
INSERT INTO CourseReg
VALUES (2022105,55008,62);
INSERT INTO CourseReg
VALUES (2022105,55006,68);
INSERT INTO CourseReg
VALUES (2022206,55004,78);
INSERT INTO CourseReg
VALUES (2022206,55006,74);
INSERT INTO CourseReg
VALUES (2022206,55009,99);
INSERT INTO CourseReg
VALUES (2022207,55002,100);
INSERT INTO CourseReg
VALUES (2022207,55003,89);
INSERT INTO CourseReg
VALUES (2022207,55007,77);
INSERT INTO CourseReg
VALUES (44003,55004,93);
INSERT INTO CourseReg
VALUES (44003,55006,95);
INSERT INTO CourseReg
```

```
VALUES (44003,55007,98);
INSERT INTO CourseReg
VALUES (33206,55005,96);
INSERT INTO CourseReg
VALUES (33206,55006,92);
INSERT INTO CourseReg
VALUES (33206,55009,88);
INSERT INTO CourseReg
VALUES (33207,55002,99);
INSERT INTO CourseReg
VALUES (33207,55003,82);
INSERT INTO CourseReg
VALUES (33207,55011,93);
INSERT INTO CourseReg
VALUES (33203,55002,89);
INSERT INTO CourseReg
VALUES (33203,55003,92);
INSERT INTO CourseReg
VALUES (33203,55011,83);
INSERT INTO CourseReg
VALUES (2022308,55012,89);
INSERT INTO CourseReg
VALUES (2022308,55013,91);
INSERT INTO CourseReg
VALUES (2022308,55015,73);
```

INSERT INTO CourseReg

VALUES (2022309,55012,100);

INSERT INTO CourseReg

VALUES (2022309,55014,95);

INSERT INTO CourseReg

VALUES (2022309,55015,84);

INSERT INTO CourseReg

VALUES (2022310,55013,74);

--_______

------ Q1 -----

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

RId	RName	FId	FName	Cld	CName
					ADV
33206	Monica	33207	Tison	55009	ALGO
33206	Monica	33003	Nilesh	55005	ADV AI
33206	Monica	33002	PAWAN	55006	ADV ML
33207	Tison	33003	Nilesh	55002	LA for AI
33207	Tison	33002	PAWAN	55003	LA for ML
					BASICS
33207	Tison	33105	Harsh	55011	ML
44003	Dhoni	33206	Monica	55004	ADV AI
					ADV
44003	Dhoni	33001	Shankar	55007	ALGO
44003	Dhoni	33002	PAWAN	55006	ADV ML
2022001	Ravi	33206	Monica	55001	LA for Al
					BASIC
2022001	Ravi	33001	Shankar	55008	ALGO
2022001	Ravi	33002	PAWAN	55006	ADV ML

Hari	33002	PAWAN	55006	ADV ML
Hari	33003	Nilesh	55002	LA for AI
Hari	33002	PAWAN	55003	LA for ML
				BASICS
Hari	33105	Harsh	55011	ML
shami	33002	PAWAN	55003	LA for ML
shami	33206	Monica	55004	ADV AI
				BASIC
shami	33207	Tison	55010	ALGO
John	33206	Monica	55001	LA for AI
John	33003	Nilesh	55005	ADV AI
				BASIC
John	33207	Tison	55010	ALGO
Viraj	33002	PAWAN	55006	ADV ML
				BASIC
Viraj	33001	Shankar	55008	ALGO
Viraj	33206	Monica	55001	LA for AI
				ADV
Raj	33207	Tison	55009	ALGO
Raj	33206	Monica	55004	ADV AI
Raj	33002	PAWAN	55006	ADV ML
Mike	33003	Nilesh	55002	LA for AI
				ADV
Mike	33001	Shankar	55007	ALGO
Mike	33002	PAWAN	55003	LA for ML
Munna	33206	Monica	55012	DSA
Munna	33206	Monica	55013	C++
Munna	33105	Harsh	55015	OS
Michel	33206	Monica	55012	DSA
Michel	33105	Harsh	55014	CN
Michel	33105	Harsh	55015	OS
JACK	33206	Monica	55013	C++
	Hari Shami Shami Shami John John Viraj Viraj Viraj Raj Raj Raj Raj Mike Mike Mike Munna Munna Munna Munna Michel Michel	Hari 33003 Hari 33002 Shami 33002 shami 33206 Shami 33207 John 33206 John 33003 John 33002 Viraj 33001 Viraj 33206 Raj 33206 Raj 33002 Mike 33003 Mike 33001 Mike 33002 Mike 33005 Munna 33206 Munna 33206 Munna 33105 Michel 33105 Michel 33105	Hari 33003 Nilesh Hari 33002 PAWAN Hari 33105 Harsh shami 33206 Monica shami 33207 Tison John 33206 Monica John 33207 Tison Viraj 33002 PAWAN Viraj 33206 Monica Raj 33207 Tison Raj 33206 Monica Raj 33206 Monica Raj 33002 PAWAN Mike 33003 Nilesh Mike 33001 Shankar Mike 33002 PAWAN Mike 33003 Nilesh Mike 33001 Shankar Mike 33002 PAWAN Muna 33206 Monica Munna 33206 Monica Michel 33105 Harsh Michel 33105 Harsh	Hari 33003 Nilesh 55002 Hari 33002 PAWAN 55003 Hari 33105 Harsh 55011 shami 33206 Monica 55004 shami 33207 Tison 55010 John 33206 Monica 55001 John 33207 Tison 55010 John 33207 Tison 55010 Viraj 33002 PAWAN 55006 Viraj 33001 Shankar 55008 Viraj 33206 Monica 55001 Raj 33207 Tison 55009 Raj 33206 Monica 55009 Raj 33206 Monica 55004 Raj 33002 PAWAN 55006 Mike 33003 Nilesh 55002 Mike 33001 Shankar 55007 Mike 33002 PAWAN 55003 Munna 33206

-- ----- Q2 -----

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName FROM RegUser x,RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND x.ROccu = 'STUDENT'

^{-- (}RId, RName, FId, FName, CId, CName)

ORDER BY x.RNo;

RId	RName	FId	FName	Cld	CName
2022001	Ravi	33206	Monica	55001	LA for AI
2022001	Ravi	33002	PAWAN	55006	ADV ML
					BASIC
2022001	Ravi	33001	Shankar	55008	ALGO
2022002	Hari	33003	Nilesh	55002	LA for AI
2022002	Hari	33002	PAWAN	55003	LA for ML
2022002	Hari	33002	PAWAN	55006	ADV ML
					BASICS
2022002	Hari	33105	Harsh	55011	ML
2022003	shami	33002	PAWAN	55003	LA for ML
2022003	shami	33206	Monica	55004	ADV AI
					BASIC
2022003	shami	33207	Tison	55010	ALGO
2022104	John	33206	Monica	55001	LA for Al
2022104	John	33003	Nilesh	55005	ADV AI
					BASIC
2022104	John	33207	Tison	55010	ALGO
2022105	Viraj	33206	Monica	55001	LA for Al
2022105	Viraj	33002	PAWAN	55006	ADV ML
					BASIC
2022105	Viraj	33001	Shankar	55008	ALGO
2022206	Raj	33206	Monica	55004	ADV AI
2022206	Raj	33002	PAWAN	55006	ADV ML
					ADV
2022206	Raj	33207	Tison	55009	ALGO
2022207	Mike	33003	Nilesh	55002	LA for AI
2022207	Mike	33002	PAWAN	55003	LA for ML
	_				ADV
2022207	Mike	33001	Shankar	55007	ALGO
2022308	Munna	33206	Monica	55012	DSA
2022308	Munna	33206	Monica	55013	C++
2022308	Munna	33105	Harsh	55015	OS
2022309	Michel	33206	Monica	55012	DSA
2022309	Michel	33105	Harsh	55014	CN
2022309	Michel	33105	Harsh	55015	OS
2022310	JACK	33206	Monica	55013	C++

-- ----- Q3 ------

 ${\sf SELECT}\ x. {\sf RNo}\ {\sf AS}\ {\sf RId}, x. {\sf RName}, f. {\sf FId}, y. {\sf RName}\ {\sf AS}\ {\sf FName}, cr. {\sf CId}, c. {\sf CName}$

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

^{-- (}RId, RName, FId, FName, Cld, CName)

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND x.HighestQual = 'BTECH'

ORDER BY x.RNo;



-- ----- Q4 ------

-- (RId, RName, FId, FName, Cld, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

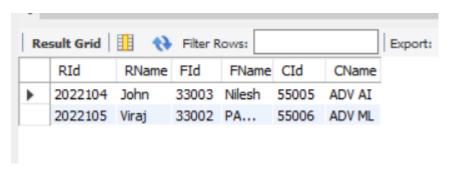
AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND x.HighestQual = 'MTECH'

AND f.FDept = 'CS'



-- ------ Q5 ------

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

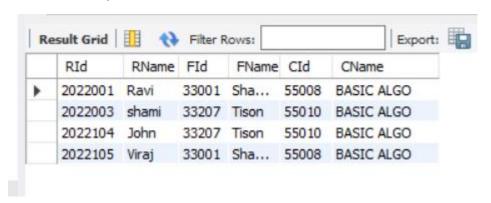
AND c.Fid = f.Fid

AND y.RNo = f.Fld

AND x.ROccu <> 'STAFF'

AND c.CDuration = 'SHORT'

ORDER BY x.RNo;



-- ----- Q6 -----

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

```
AND x.HighestQual <> 'PHD'

AND f.ResearchArea in (

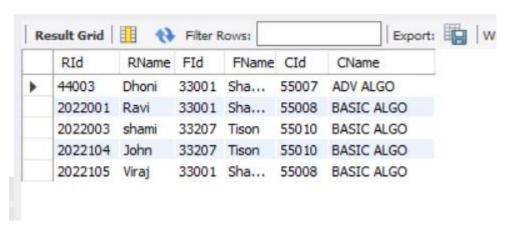
SELECT ff.ResearchArea

FROM faculty ff

WHERE (ff.ResearchArea = 'Al' AND ff.ResearchArea = 'ML')

OR(ff.ResearchArea = 'ALGO')
)
```

ORDER BY x.RNo;



-- ----- Q7 ------

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName, c.Cdept,f.FDept

FROM RegUser x, RegUSer y, RegUSer z, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND c.CDept='CS'

AND f.FDept <>'CS'

AND (SELECT COUNT(*) FROM RegUser WHERE x.RNo = z.RNo)>1

GROUP BY x.RNo, c.CName



-- ----- Q8 -----

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

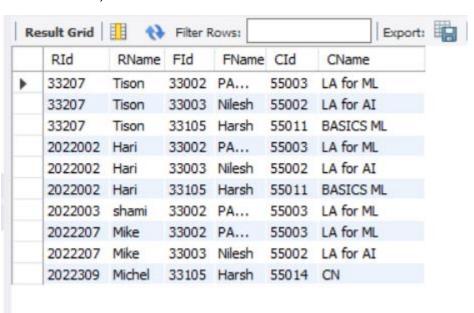
AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND c.CDuration<> 'LONG'

AND (f.FDept = 'EE' OR f.FDept = 'CS')



-- ----- Q9 -----

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName, c.CDept

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND x.HighestQual = 'BTECH'

AND f.ResearchArea <> 'DBMS'

AND (C.CDept <> 'EE' AND c.CDept <> 'ME')

ORDER BY x.RNo;

RId	RName	FId	FName	CId	CName	CDept
44003	Dhoni	33206	Monica	55004	ADV AI	ECE
44003	Dhoni	33002	PA	55006	ADV ML	CS
44003	Dhoni	33001	Sha	55007	ADV ALGO	ECE
2022001	Ravi	33206	Monica	55001	LA for AI	ECE
2022001	Ravi	33002	PA	55006	ADV ML	CS
2022001	Ravi	33001	Sha	55008	BASIC ALGO	ECE
2022002	Hari	33003	Nilesh	55002	LA for AI	CS
2022002	Hari	33002	PA	55003	LA for ML	CS
2022002	Hari	33002	PA	55006	ADV ML	CS
2022003	shami	33002	PA	55003	LA for ML	CS
2022003	shami	33206	Monica	55004	ADV AI	ECE

-- ----- Q10 -----

-- (RId, RName, FId, FName, CId, CName)

SELECT x.RNo AS RId, x.RName, f.Fld,y.RName AS FName, cr.Cld, c.CName

FROM RegUser x, RegUSer y, Faculty f, CourseReg cr, course c

WHERE x.RNo = cr.RNo

AND cr.Cld = c.Cld

AND c.Fld = f.Fld

AND y.RNo = f.Fld

AND x.HighestQual<> 'PHD'

AND c.CDuration = 'MEDIUM'

AND (f.FDept = 'EE' OR f.FDept = 'ECE')

AND c.CDept <> 'ME'

AND (f.ResearchArea = 'AI' OR f.ResearchArea = 'ML')

ORDER BY x.RNo;



......