

-- RollNo: 21MA60R39  
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-- DBMS\_ASSIGNMENT\_02

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-- 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 (FId int, ResearchArea varchar(4),  
FDept varchar(3), PRIMARY KEY(FId),  
FOREIGN KEY fk\_std\_0(FId) REFERENCES RegUser(RNo));

create table Course(CId int, CName varchar(10), CDuration varchar(10),  
CDept varchar(3), FId int, PRIMARY KEY(CId),  
FOREIGN KEY fk\_std\_1(FId) REFERENCES Faculty(FId));

create table Prerequisite (CId int, PreqCId int,  
FOREIGN KEY fk\_std2(CId) REFERENCES Course (CId),  
FOREIGN KEY fk\_std3(PreqCId) REFERENCES Course (CId),  
PRIMARY KEY(CId, PreqCId));

create table CourseReg(RNo int, CId int, Score int, PRIMARY KEY(RNo, CId),  
FOREIGN KEY fk\_std4(RNo) REFERENCES RegUser (RNo),

```
FOREIGN KEY fk_std5(CId) REFERENCES Course (CId));
```

```
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(2022310,'JACK','STUDENT',31,'MTECH');
```

-- -----

```
INSERT INTO RegUser  
VALUES(33001,'Shankar','FACULTY',37,'PHD');
```

```
INSERT INTO RegUser  
VALUES(33002,'PAWAN','FACULTY',33,'PHD');
```

```
INSERT INTO RegUser  
VALUES(33003,'Nilesh','FACULTY',46,'PHD');
```

```
INSERT INTO RegUser  
VALUES(33104,'Sundar','FACULTY',55,'MTECH');
```

```
INSERT INTO RegUser  
VALUES(33105,'Harsh','FACULTY',35,'MTECH');
```

```
INSERT INTO RegUser  
VALUES(33206,'Monica','FACULTY',38,'PHD');
```

```
INSERT INTO RegUser  
VALUES(33207,'Tison','FACULTY',53,'PHD');
```

-- -----

```
INSERT INTO RegUser  
VALUES(44001,'pooja','STAFF',33,'BTECH');
```

```
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.FId,y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

AND cr.CId = c.CId

AND c.FId = f.FId

AND y.RNo = f.FId

ORDER BY x.RNo;

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

2022002	Hari	33002	PAWAN	55006	ADV ML
2022002	Hari	33003	Nilesh	55002	LA for AI
2022002	Hari	33002	PAWAN	55003	LA for ML
2022002	Hari	33105	Harsh	55011	BASICS ML
2022003	shami	33002	PAWAN	55003	LA for ML
2022003	shami	33206	Monica	55004	ADV AI
2022003	shami	33207	Tison	55010	BASIC ALGO
2022104	John	33206	Monica	55001	LA for AI
2022104	John	33003	Nilesh	55005	ADV AI
2022104	John	33207	Tison	55010	BASIC ALGO
2022105	Viraj	33002	PAWAN	55006	ADV ML
2022105	Viraj	33001	Shankar	55008	BASIC ALGO
2022105	Viraj	33206	Monica	55001	LA for AI
2022206	Raj	33207	Tison	55009	ADV ALGO
2022206	Raj	33206	Monica	55004	ADV AI
2022206	Raj	33002	PAWAN	55006	ADV ML
2022207	Mike	33003	Nilesh	55002	LA for AI
2022207	Mike	33001	Shankar	55007	ADV ALGO
2022207	Mike	33002	PAWAN	55003	LA for ML
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++

----- Q2 -----

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

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

AND cr.CId = c.CId

AND c.FId = f.FId

AND y.RNo = f.FId

AND x.ROccu = 'STUDENT'

ORDER BY x.RNo;

RId	RName	FId	FName	CId	CName
2022001	Ravi	33206	Monica	55001	LA for AI
2022001	Ravi	33002	PAWAN	55006	ADV ML
2022001	Ravi	33001	Shankar	55008	BASIC ALGO
2022002	Hari	33003	Nilesh	55002	LA for AI
2022002	Hari	33002	PAWAN	55003	LA for ML
2022002	Hari	33002	PAWAN	55006	ADV ML
2022002	Hari	33105	Harsh	55011	BASICS ML
2022003	shami	33002	PAWAN	55003	LA for ML
2022003	shami	33206	Monica	55004	ADV AI
2022003	shami	33207	Tison	55010	BASIC ALGO
2022104	John	33206	Monica	55001	LA for AI
2022104	John	33003	Nilesh	55005	ADV AI
2022104	John	33207	Tison	55010	BASIC ALGO
2022105	Viraj	33206	Monica	55001	LA for AI
2022105	Viraj	33002	PAWAN	55006	ADV ML
2022105	Viraj	33001	Shankar	55008	BASIC ALGO
2022206	Raj	33206	Monica	55004	ADV AI
2022206	Raj	33002	PAWAN	55006	ADV ML
2022206	Raj	33207	Tison	55009	ADV ALGO
2022207	Mike	33003	Nilesh	55002	LA for AI
2022207	Mike	33002	PAWAN	55003	LA for ML
2022207	Mike	33001	Shankar	55007	ADV 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 -----

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

SELECT x.RNo AS RId, x.RName, f.FId, y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

```

AND          cr.CId = c.CId
AND          c.FId = f.FId
AND          y.RNo = f.FId
AND          x.HighestQual = 'BTECH'

ORDER BY x.RNo;

```

Result Grid						
Filter Rows:						
Export:						
RId	RName	FId	FName	CId	CName	
44003	Dhoni	33206	Monica	55004	ADV AI	
44003	Dhoni	33002	PA...	55006	ADV ML	
44003	Dhoni	33001	Sha...	55007	ADV ...	
2022001	Ravi	33206	Monica	55001	LA f...	
2022001	Ravi	33002	PA...	55006	ADV ML	
2022001	Ravi	33001	Sha...	55008	BASI...	
2022002	Hari	33003	Nilesh	55002	LA f...	
2022002	Hari	33002	PA...	55003	LA f...	
2022002	Hari	33002	PA...	55006	ADV ML	
2022002	Hari	33105	Harsh	55011	BASI...	
2022003	shami	33002	PA...	55003	LA f...	
2022003	shami	33206	Monica	55004	ADV AI	
2022003	shami	33207	Tison	55010	BASI...	

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

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

```

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName
FROM RegUser x,RegUser y, Faculty f, CourseReg cr, course c
WHERE x.RNo = cr.RNo

AND          cr.CId = c.CId
AND          c.FId = f.FId
AND          y.RNo = f.FId
AND          x.HighestQual = 'MTECH'
AND          f.FDept = 'CS'

ORDER BY x.RNo;

```

Result Grid						
Filter Rows: <input type="text"/>						
	RId	RName	FId	FName	CId	CName
▶	2022104	John	33003	Nilesh	55005	ADV AI
	2022105	Viraj	33002	PA...	55006	ADV ML

----- Q5 -----

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

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

AND cr.CId = c.CId

AND c.FId = f.FId

AND y.RNo = f.FId

AND x.ROccu <> 'STAFF'

AND c.CDuration = 'SHORT'

ORDER BY x.RNo;

Result Grid						
Filter Rows: <input type="text"/>						
	RId	RName	FId	FName	CId	CName
▶	2022001	Ravi	33001	Sha...	55008	BASIC ALGO
	2022003	shami	33207	Tison	55010	BASIC ALGO
	2022104	John	33207	Tison	55010	BASIC ALGO
	2022105	Viraj	33001	Sha...	55008	BASIC ALGO

----- Q6 -----

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

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

AND cr.CId = c.CId


AND c.FId = f.FId

AND y.RNo = f.FId

```

AND          x.HighestQual <> 'PHD'
AND          f.ResearchArea in (
              SELECT ff.ResearchArea
              FROM faculty ff
              WHERE (ff.ResearchArea = 'AI' AND ff.ResearchArea = 'ML')
              OR(ff.ResearchArea = 'ALGO')
            )
ORDER BY x.RNo;

```

Result Grid						
Filter Rows: <input type="text"/>						
Export:  <input type="text"/>						
	RId	RName	FId	FName	CId	CName
▶	44003	Dhoni	33001	Sha...	55007	ADV ALGO
	2022001	Ravi	33001	Sha...	55008	BASIC ALGO
	2022003	shami	33207	Tison	55010	BASIC ALGO
	2022104	John	33207	Tison	55010	BASIC ALGO
	2022105	Viraj	33001	Sha...	55008	BASIC ALGO

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

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

```

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, 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.CId = c.CId
AND          c.FId = f.FId
AND          y.RNo = f.FId
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
ORDER BY x.RNo;

```

Result Grid								
		Filter Rows:		Export:		Wrap Cell Content:		
	RId	RName	FId	FName	CId	CName	Cdept	FDept
▶	2022308	Munna	33206	Monica	55013	C++	CS	ECE
	2022308	Munna	33206	Monica	55012	DSA	CS	ECE
	2022308	Munna	33105	Harsh	55015	OS	CS	EE
	2022309	Michel	33105	Harsh	55014	CN	CS	EE
	2022309	Michel	33206	Monica	55012	DSA	CS	ECE
	2022309	Michel	33105	Harsh	55015	OS	CS	EE
	2022310	JACK	33206	Monica	55013	C++	CS	ECE

----- Q8 -----

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

SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName

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

WHERE x.RNo = cr.RNo

AND cr.CId = c.CId

AND c.FId = f.FId

AND y.RNo = f.FId

AND c.CDuration<>'LONG'

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

ORDER BY x.RNo;

Result Grid						
		Filter Rows:		Export:		
	RId	RName	FId	FName	CId	CName
▶	33207	Tison	33002	PA...	55003	LA for ML
	33207	Tison	33003	Nilesh	55002	LA for AI
	33207	Tison	33105	Harsh	55011	BASICS ML
	2022002	Hari	33002	PA...	55003	LA for ML
	2022002	Hari	33003	Nilesh	55002	LA for AI
	2022002	Hari	33105	Harsh	55011	BASICS ML
	2022003	shami	33002	PA...	55003	LA for ML
	2022207	Mike	33002	PA...	55003	LA for ML
	2022207	Mike	33003	Nilesh	55002	LA for AI
	2022309	Michel	33105	Harsh	55014	CN



----- Q9 -----

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

```
SELECT x.RNo AS RId, x.RName, f.FId,y.RName AS FName, cr.CId, c.CName, c.CDept
```

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

```
WHERE x.RNo = cr.RNo
```

```
AND          cr.CId = c.CId
```

```
AND          c.FId = f.FId
```

```
AND          y.RNo = f.FId
```



```
AND          x.HighestQual = 'BTECH'
```

```
AND          f.ResearchArea <> 'DBMS'
```


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

```
ORDER BY x.RNo;
```

Result Grid



Filter Rows:

Export:



Wrap Cell Content

	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.FId,y.RName AS FName, cr.CId, c.CName
```

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



```
WHERE x.RNo = cr.RNo
```

```
AND          cr.CId = c.CId
```

```
AND          c.FId = f.FId
```

```
AND          y.RNo = f.FId
```

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;

Result Grid						
Filter Rows: <input type="text"/>						
Export:  Wrap Cell Content: 						
	RId	RName	FId	FName	CId	CName
	44003	Dhoni	33206	Monica	55004	ADV AI
	2022001	Ravi	33206	Monica	55001	LA for AI
	2022002	Hari	33105	Harsh	55011	BASICS ML
	2022003	shami	33206	Monica	55004	ADV AI
	2022104	John	33206	Monica	55001	LA for AI
	2022105	Viraj	33206	Monica	55001	LA for AI

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