



(Established under Karnataka Act No. 16 of 2013)  
100 Feet Ring Road, BSK III Stage, Bengaluru-560 085  
Department of Computer Science and Engineering  
Session: Aug – Dec, 2021  
SEMESTER – 5

## **Database Management System( UE19CS301)**

### **Assignment - 2**

## Team Details

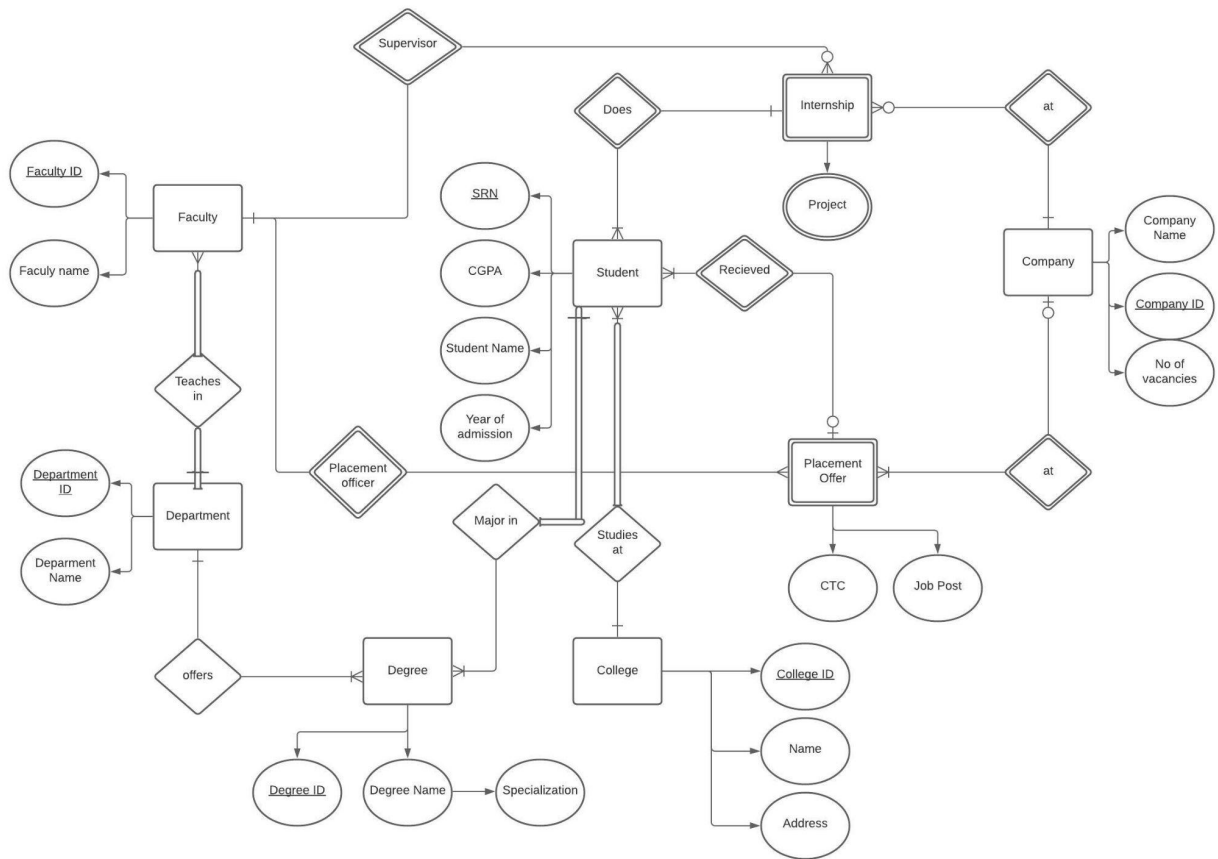
Team Number-5

	NAME	SRN
1	Prachi Sengar	PES2UG19CS285
2	Raeesa Tanseen	PES2UG19CS310
3	Ria Singh	PES2UG19CS326

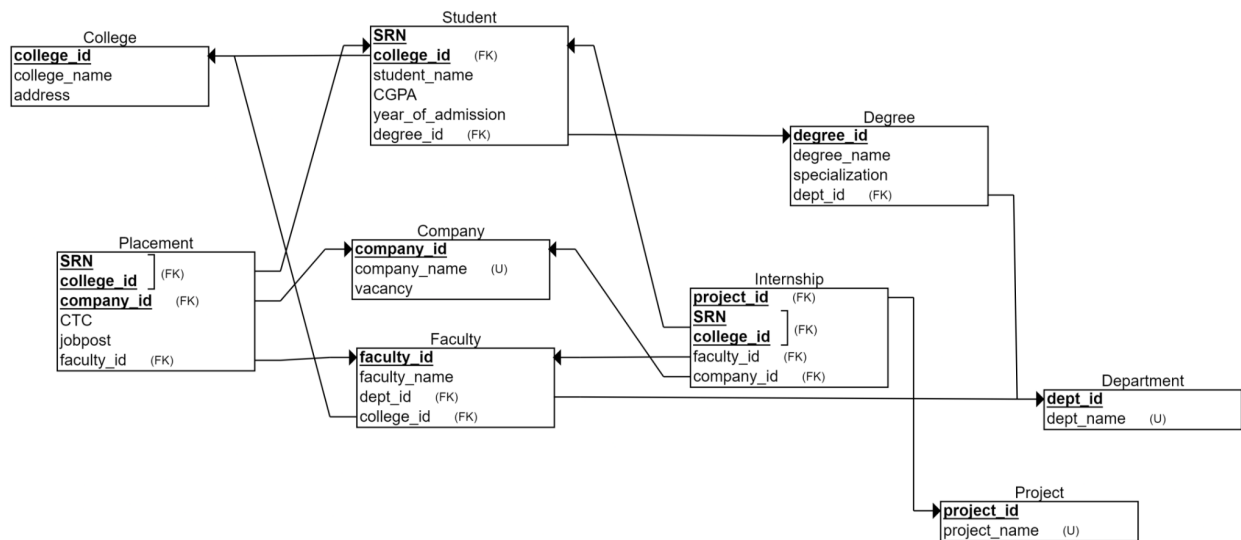
## Problem Statement

Our aim is to design management software and build a relational database for efficiently organizing, storing, managing, and using the data kept by a placement cell with details about students, colleges, and companies in order to make the placement process hassle-free.

# E-R Diagram



# Relational Schema



# Justification for PostgreSQL

We have chosen PostgreSQL for our database implementation because:

1. Regarding PostgreSQL as Open Source DBMS, users themselves can develop modules and propose the module to the community.
2. SQL functions called 'Store Procedure' can be used for server environment. Also, it supports languages similar to PL/SQL in Oracle such as PL/pgSQL, PL/Python, PL/Perl, C/C++, and PL/R.
3. ACID and Transaction PostgreSQL support ACID(Atomicity, Consistency, Isolation, Durability).
4. PostgreSQL not only provides B+ tree index techniques, but various kinds of techniques such as GIN(Generalized Inverted Index), and GiST(Generalized Search Tree), etc as well.
5. Full-text search is available when searching for strings with execution of vector operation and string search.
6. PostgreSQL supports a variety of replication methods such as Streaming Replication , Slony-I, and cascading.
7. PostgreSQL supports different kinds of techniques for geographic data storage such as PostGIS, Key-Value Store, and DBLink.

## Constraints

PostgreSQL constraints are used to specify rules for the data in a table. Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the table. If there is any violation between the constraint and the data action, the action is aborted. Constraints can be column level or table level. Column-level constraints apply to a column, and table-level constraints apply to the whole table. The following constraints are commonly used in SQL:

- NOT NULL - Ensures that a column cannot have a NULL value.
- UNIQUE - Ensures that all values in a column are different.
- PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table.
- FOREIGN KEY - Prevents actions that would destroy links between tables.
- DEFAULT - Sets a default value for a column if no value is specified.

## Create Statements in .sql file

```
DROP TABLE IF EXISTS Student, College, Degree, Department, Faculty, Company, Placement, Internship, Project;
```

```
CREATE TABLE College(college_id VARCHAR(50) NOT NULL,college_name VARCHAR(100) NOT NULL,addr VARCHAR(100),PRIMARY KEY (college_id));
```

```
CREATE TABLE Department(dept_id VARCHAR(50) NOT NULL,dept_name VARCHAR(100) NOT NULL UNIQUE,PRIMARY KEY (dept_id));
```

```
CREATE TABLE Degree(degree_id VARCHAR(50) NOT NULL,degree_name VARCHAR(100) NOT NULL,dept_id
VARCHAR(50) NOT NULL,specialization VARCHAR(20) NOT NULL DEFAULT 'None', FOREIGN
KEY(dept_id) REFERENCES Department(dept_id),PRIMARY KEY (degree_id));
```

```
CREATE TABLE Student(SRN INT NOT NULL ,student_name VARCHAR(100) NOT NULL,cgpa FLOAT NOT
NULL DEFAULT 0.0,year_of_admission DATE NOT NULL,college_id VARCHAR(50) NOT NULL,degree_id
VARCHAR(50) NOT NULL,FOREIGN KEY(college_id) REFERENCES College(college_id),FOREIGN
KEY(degree_id) REFERENCES Degree(degree_id),PRIMARY KEY (SRN,college_id));
```

```
CREATE TABLE Faculty(faculty_id VARCHAR(50) NOT NULL,faculty_name VARCHAR(100) NOT
NULL,dept_id VARCHAR(50) NOT NULL,college_id VARCHAR(50) NOT NULL,FOREIGN KEY(college_id)
REFERENCES College(college_id),FOREIGN KEY(dept_id) REFERENCES Department(dept_id),PRIMARY
KEY (faculty_id));
```

```
CREATE TABLE Company(company_id VARCHAR(50) NOT NULL, company_name VARCHAR(100) NOT NULL
UNIQUE, vacancy INT,PRIMARY KEY(company_id));
```

```
CREATE TABLE Placement(CTC DECIMAL(32, 2),jobpost VARCHAR(100) NOT NULL DEFAULT 'Freshman',
SRN INT NOT NULL,faculty_id VARCHAR(50) NOT NULL,company_id VARCHAR(50) NOT NULL,college_id
VARCHAR(50) NOT NULL,FOREIGN KEY(SRN,college_id) REFERENCES Student(SRN,college_id),FOREIGN
KEY(faculty_id) REFERENCES Faculty(faculty_id),PRIMARY KEY(SRN,college_id, company_id));
```

```
CREATE TABLE Project(project_id INT NOT NULL,project_name VARCHAR(50) NOT NULL UNIQUE
DEFAULT 'Intern',PRIMARY KEY (project_id));
```

```
CREATE TABLE Internship(SRN INT NOT NULL,faculty_id VARCHAR(50) NOT NULL,company_id
VARCHAR(50) NOT NULL,college_id VARCHAR(50) NOT NULL,project_id INT NOT NULL,FOREIGN
KEY(SRN,college_id) REFERENCES Student(SRN,college_id),FOREIGN KEY(project_id) REFERENCES
Project(project_id),FOREIGN KEY(faculty_id) REFERENCES Faculty(faculty_id),FOREIGN
KEY(company_id) REFERENCES Company(company_id),PRIMARY KEY (SRN, college_id, project_id));
```

## Insert Statements in .sql file

```
INSERT INTO College VALUES ('PES', 'PEOPLES EDUCATION SOCIETY', 'HOSUR ROAD,
BENGALURU'),('XIE', 'XAVIER INSTITUTE OF ENGINEERING', 'PALM BEACH ROAD, MUMBAI'),('MIT',
'MIT COLLEGE OF ENGINEERING', 'LONAVLA, PUNE'),('BITP', 'BITS PILANI', 'SADASHIV NAGAR,
PILANI'),('BITH', 'BITS PILANI', 'K R PURAM, HYDERABAD');
```

```
INSERT INTO Department VALUES ('CSE','COMPUTER SCIENCE'),('ECE','ELECTRONICS AND
COMMUNICATION'),('MECH','MECHANICAL ENGINEERING');
```

```
INSERT INTO Degree VALUES('UECS','BACHELORS','CSE','CYBERSECURITY' ),('UEEC','BACHELORS',
'ECE','IMAGE PROCESSING'),('UEME','BACHELORS','MECH','FLUID
MECHANICS'),('MECS','MASTERS','CSE','DATA SCIENCE'),('MEEC','MASTERS','ECE','SIGNAL
PROCESSING'),('MEME','MASTERS','MECH','THERMODYNAMICS'),('DECS','DOCTORATE','CSE','MACHINE
LEARNING'),('DEEC','DOCTORATE','ECE','VLSI'),('DEME','DOCTORATE','MECH','BIOMECHANICS');
```

```
INSERT INTO Student VALUES (326, 'RIA SINGH', 8.3, '2020-6-1', 'PES', 'UECS'),(310, 'RAEESA
TANSEEN', 9.5, '2019-6-1', 'PES', 'MECS'),(286, 'PRACHI SENGAR', 9.7, '2018-6-1', 'PES',
'DECS'),(354, 'SHLOK GUPTA', 8.5, '2020-5-1', 'XIE', 'MEME'),(145, 'RITU KUMAR', 7.8,
'2019-5-15', 'BITH', 'MECS'),(298, 'AAKANSHA AGARWAL', 6.0, '2020-7-1', 'BITP',
'DEEC'),(109, 'RAJ MALHOTRA', 8.7, '2018-8-1', 'MIT', 'UEEC'),(286, 'BHUMI PADREKAR', 7.6,
'2019-5-1', 'MIT', 'UEME');
```

```
INSERT INTO Faculty VALUES('XIECS101', 'Vandana M', 'CSE', 'XIE'),('PESEC111', 'Archana S', 'ECE', 'PES'),('PESME121', 'Aishwarya S', 'MECH', 'PES'),('BITPME103', 'Satish HM', 'MECH', 'BITP'),('BITPEC002', 'Sarathak G', 'ECE', 'BITP'),('BITHCS105', 'Anand BV', 'CSE', 'BITH'),('BITHME112', 'Sriram K', 'MECH', 'BITH'),('XIEME111', 'Priya K', 'MECH', 'XIE'),('MITEC123', 'Priya K', 'ECE', 'MIT'),('MITME023', 'Narayan N', 'MECH', 'MIT'),('PESCS115', 'Jeet P', 'CSE', 'PES');
```

```
INSERT INTO Company VALUES('A1', 'XORIAN', 5),('A2', 'QUINNOX', 3),('B3', 'AMAZON', 2),('B4', 'IGATE', 10),('C5', 'MICROSOFT', 8),('C6', 'MAQ SOFTWARE', 4),('D7', 'DIRECTI', 11),('D8', 'ATOS', 5);
```

```
INSERT INTO Placement VALUES (150405.50, 'Junior Assistant', 326, 'PESCS115', 'A1', 'PES'),(60405.50, 'Research Assistant', 145, 'BITHCS105', 'A3', 'BITH'),(130434.50, 'Junior Manager', 286, 'MITME023', 'B4', 'MIT'),(150435.50, 'Junior Manager', 310, 'PESCS115', 'C5', 'PES'),(67405.50, 'Junior Software Executive', 354, 'XIEME111', 'D8', 'XIE'),(96042.50, 'Project Manager', 286, 'PESCS115', 'B3', 'PES'), (157392.50, 'Software Architect', 298, 'BITPEC002', 'C6', 'BITP'), (86948.50, 'Big Data Engineer', 109, 'MITEC123', 'A2', 'MIT');
```

```
INSERT INTO Project VALUES (1001, 'E-Commerce website'),(1002, 'Blogging App'), (1003, 'Library Management App'),(1004, 'Machine Learning'),(1005, 'Event Management website'),(1006, 'Shooting game'),(1007, 'Robot automation'),(1008, 'Big data');
```

```
INSERT INTO Internship VALUES (326, 'PESCS115', 'A1', 'PES', 1008), (354, 'XIEME111', 'D7', 'XIE', 1001), (109, 'MITEC123', 'C6', 'MIT', 1002), (286, 'PESCS115', 'B3', 'PES', 1003), (286, 'MITME023', 'A2', 'MIT', 1004), (310, 'PESCS115', 'B3', 'PES', 1005), (354, 'XIEME111', 'D8', 'XIE', 1006), (145, 'BITHCS105', 'C6', 'BITH', 1007);
```

## Screenshots

```
[placements=# select * from college;
college_id | college_name | addr
-----+-----+-----
PES        | PEOPLES EDUCATION SOCIETY | HOSUR ROAD, BENGALURU
XIE        | XAVIER INSTITUTE OF ENGINEERING | PALM BEACH ROAD, MUMBAI
MIT        | MIT COLLEGE OF ENGINEERING | LONAVLA, PUNE
BITP       | BITS PILANI | SADASHIV NAGAR, PILANI
BITH       | BITS PILANI | K R PURAM, HYDERABAD
(5 rows)
```

```
[placements=# select * from company;
company_id | company_name | vacancy
-----+-----+-----
A1         | XORIANT      | 5
A2         | QUINNOX     | 3
B3         | AMAZON      | 2
B4         | IGATE       | 10
C5         | MICROSOFT   | 8
C6         | MAQ SOFTWARE | 4
D7         | DIRECTI     | 11
D8         | ATOS        | 5
(8 rows)
```

```
[placements=# select * from degree;
degree_id | degree_name | dept_id | specialization
-----+-----+-----+-----
UECS      | BACHELORS  | CSE     | CYBERSECURITY
UEEC      | BACHELORS  | ECE     | IMAGE PROCESSING
UEME      | BACHELORS  | MECH    | FLUID MECHANICS
MECS      | MASTERS    | CSE     | DATA SCIENCE
MEEC      | MASTERS    | ECE     | SIGNAL PROCESSING
MEME      | MASTERS    | MECH    | THERMODYNAMICS
DECS      | DOCTORATE  | CSE     | MACHINE LEARNING
DEEC      | DOCTORATE  | ECE     | VLSI
DEME      | DOCTORATE  | MECH    | BIOMECHANICS
(9 rows)
```

```
[placements=# select * from department;
dept_id | dept_name
-----+-----
CSE     | COMPUTER SCIENCE
ECE     | ELECTRONICS AND COMMUNICATION
MECH    | MECHANICAL ENGINEERING
(3 rows)
```

```
[placements=# select * from faculty;
faculty_id | faculty_name | dept_id | college_id
-----+-----+-----+-----
XIECS101   | Vandana M   | CSE     | XIE
PESEC111   | Archana S   | ECE     | PES
PESME121   | Aishwarya S | MECH    | PES
BITPME103  | Satish HM   | MECH    | BITP
BITPEC002  | Sarthak G   | ECE     | BITP
BITHCS105  | Anand BV    | CSE     | BITH
BITHME112  | Sriram K    | MECH    | BITH
XIEME111   | Priya K     | MECH    | XIE
MITEC123   | Priya K     | ECE     | MIT
MITME023   | Narayan N   | MECH    | MIT
PESCS115   | Jeet P      | CSE     | PES
(11 rows)
```

```
placements=# select * from internship;
```

srn	faculty_id	company_id	college_id	project_id
326	PESCS115	A1	PES	1008
354	XIEME111	D7	XIE	1001
109	MITEC123	C6	MIT	1002
286	PESCS115	B3	PES	1003
286	MITME023	A2	MIT	1004
310	PESCS115	B3	PES	1005
354	XIEME111	D8	XIE	1006
145	BITHCS105	C6	BITH	1007

```
(8 rows)
```

```
placements=# select * from placement;
```

ctc	jobpost	srn	faculty_id	company_id	college_id
150405.50	Junior Assistant	326	PESCS115	A1	PES
60405.50	Research Assistant	145	BITHCS105	A3	BITH
130434.50	Junior Manager	286	MITME023	B4	MIT
150435.50	Junior Manager	310	PESCS115	C5	PES
67405.50	Junior Software Executive	354	XIEME111	D8	XIE
96042.50	Project Manager	286	PESCS115	B3	PES
157392.50	Software Architect	298	BITPEC002	C6	BITP
86948.50	Big Data Engineer	109	MITEC123	A2	MIT

```
(8 rows)
```

```
placements=# select * from project;
```

project_id	project_name
1001	E-Commerce website
1002	Blogging App
1003	Library Management App
1004	Machine Learning
1005	Event Management website
1006	Shooting game
1007	Robot automation
1008	Big data

```
(8 rows)
```

```
placements=# select * from student;
```

srn	student_name	cgpa	year_of_admission	college_id	degree_id
326	RIA SINGH	8.3	2020-06-01	PES	UECS
310	RAEESA TANSEEN	9.5	2019-06-01	PES	MECS
286	PRACHI SENGAR	9.7	2018-06-01	PES	DECS
354	SHLOK GUPTA	8.5	2020-05-01	XIE	MEME
145	RITU KUMAR	7.8	2019-05-15	BITH	MECS
298	AAKANSHA AGARWAL	6	2020-07-01	BITP	DEEC
109	RAJ MALHOTRA	8.7	2018-08-01	MIT	UEEC
286	BHUMI PADREKAR	7.6	2019-05-01	MIT	UEME

```
(8 rows)
```

```
placements=#
```

```
raeesatanseen@Raeesas-MacBook-Air ~ % psql -U postgres
```

```
psql (14.0)
```

```
Type "help" for help.
```

```
postgres=# \l
```

Name	Owner	Encoding	Collate	Ctype	Access privileges
placements	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	
postgres	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	
raeesatanseen	raeesatanseen	UTF8	en_US.UTF-8	en_US.UTF-8	
template0	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres +
template1	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	postgres=Ctc/postgres +
					=c/postgres +
					postgres=Ctc/postgres

```
(5 rows)
```

```
postgres=# \c placements
```

```
You are now connected to database "placements" as user "postgres".
```

```
placements=# \d
```

Schema	Name	Type	Owner
public	college	table	postgres
public	company	table	postgres
public	degree	table	postgres
public	department	table	postgres
public	faculty	table	postgres
public	internship	table	postgres
public	placement	table	postgres
public	project	table	postgres
public	student	table	postgres

```
(9 rows)
```

```
placements=#
```

# Contribution

We all have discussed each and every detail of our project and came to an approach contributing equally.

- **Prachi Sengar:** Code Files and Relational Schema
- **Raeesa Tanseen:** Code Files and Debugging/Screenshots
- **Ria Singh:** Code Files and Report writing