KLE Technological University
Creating Value
Leveraging Knowledge

Earlier known as
B. V. B. College of Engineering & Technology

School of Computer Science and Engineering

Design Phase Report

Category: Application Development

Title: **KEA – Engineering Seats Allotment**

List of Team Members:

USN	ROLL NO	NAME
01FE20BCS095	230	Mayuri Kalmat
01FE20BCS096	231	Parag Hegde
01FE20BCS099	234	Pranav Jadhav
01FE20BCS098	233	Yashvardhan Diwan

Team Leader: Yashvardhan Diwan

Responsibilities:

Mayuri Kalmat	ER diagram 1, Problem Statement, Documentation
Parag Hegde	ER diagram 3, Relational schema
Pranav Jadhav	ER diagram 2, Data dictionary
Yashvardhan Diwan	Normalization, Table creation

All four members have done the **finalized ER diagram**.

Problem Description: We have chosen KCET counselling as the real-world problem. In Karnataka, KEA is the authority that manages the counselling and admission of students to the professional courses after their class XII. During these Covid times, it is nearly impossible for the students to take part in the offline counselling. So, to overcome this problem, we have designed an online KEA counselling database in the favor of students, using SQL.

Requirements Specification: There are no any specific changes in our previous and current Entity Relationship (ER) diagrams.

Design Questions to be answered

Question 1: From the problem description, identify the entities that need to be represented in the database, the attributes of each entity, the relationships between the entities, and the cardinality ratios of each relationship.

STUDENT: App_no, S_Ph_no, S_state, Address, S_name, Age, Gender, email

STUDENT_CREDENTIALS: CET_No, Rank, Quota, Password

COLLEGE: C_id, C_Name, C_City, C_Ph_No

BRANCH: B_id, B_Name, Category _Seats

CHOICE: User_id, Ch1, Ch2, Ch3, Ch4

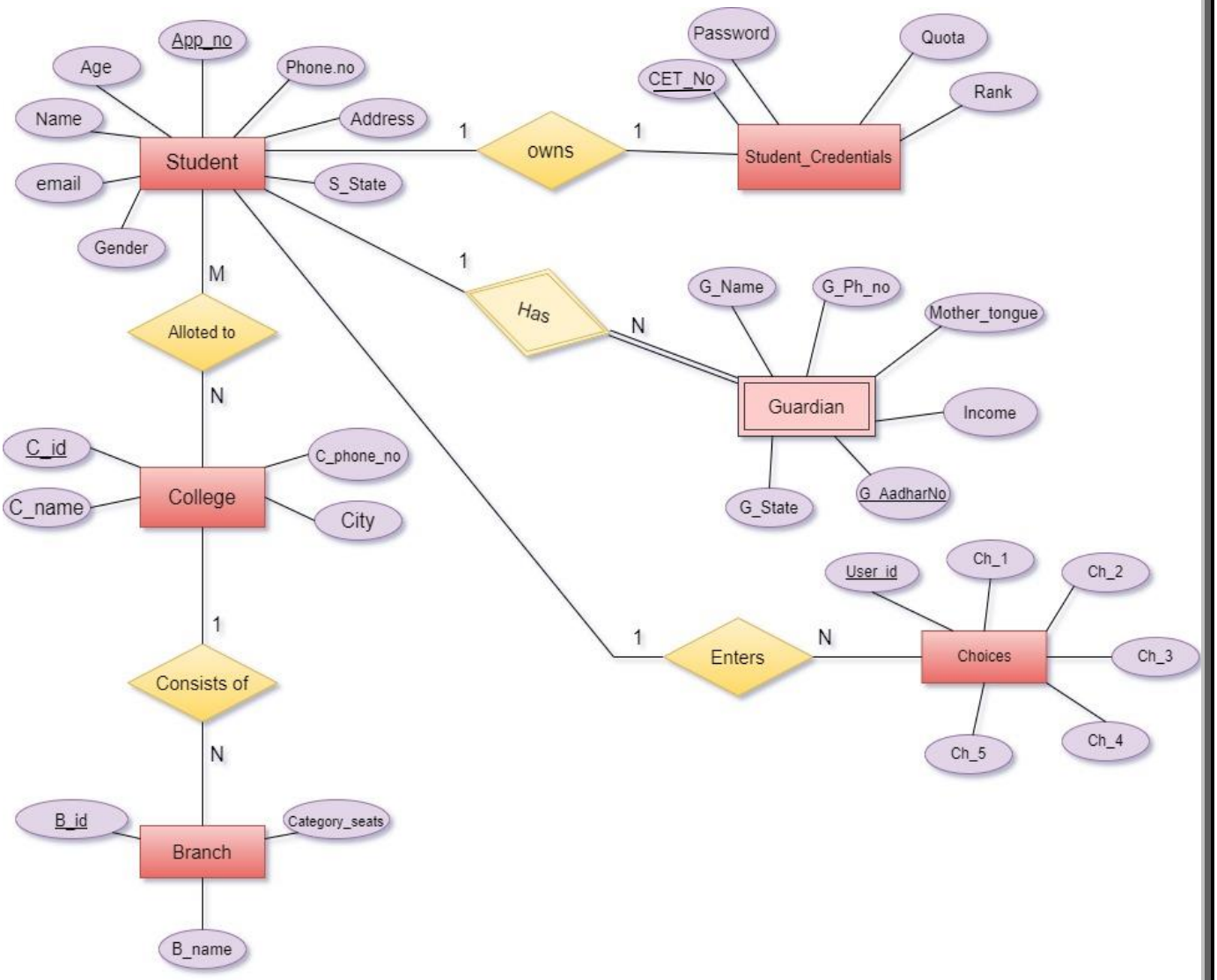
GUARDIAN: G_Name, Income, G_Ph_No, G_Aadhar_No, G_State, Mtr_Tongue

ADMITTED: Fees, App_No, C_id,

Relationships with cardinality ratio (Relationship underlined)

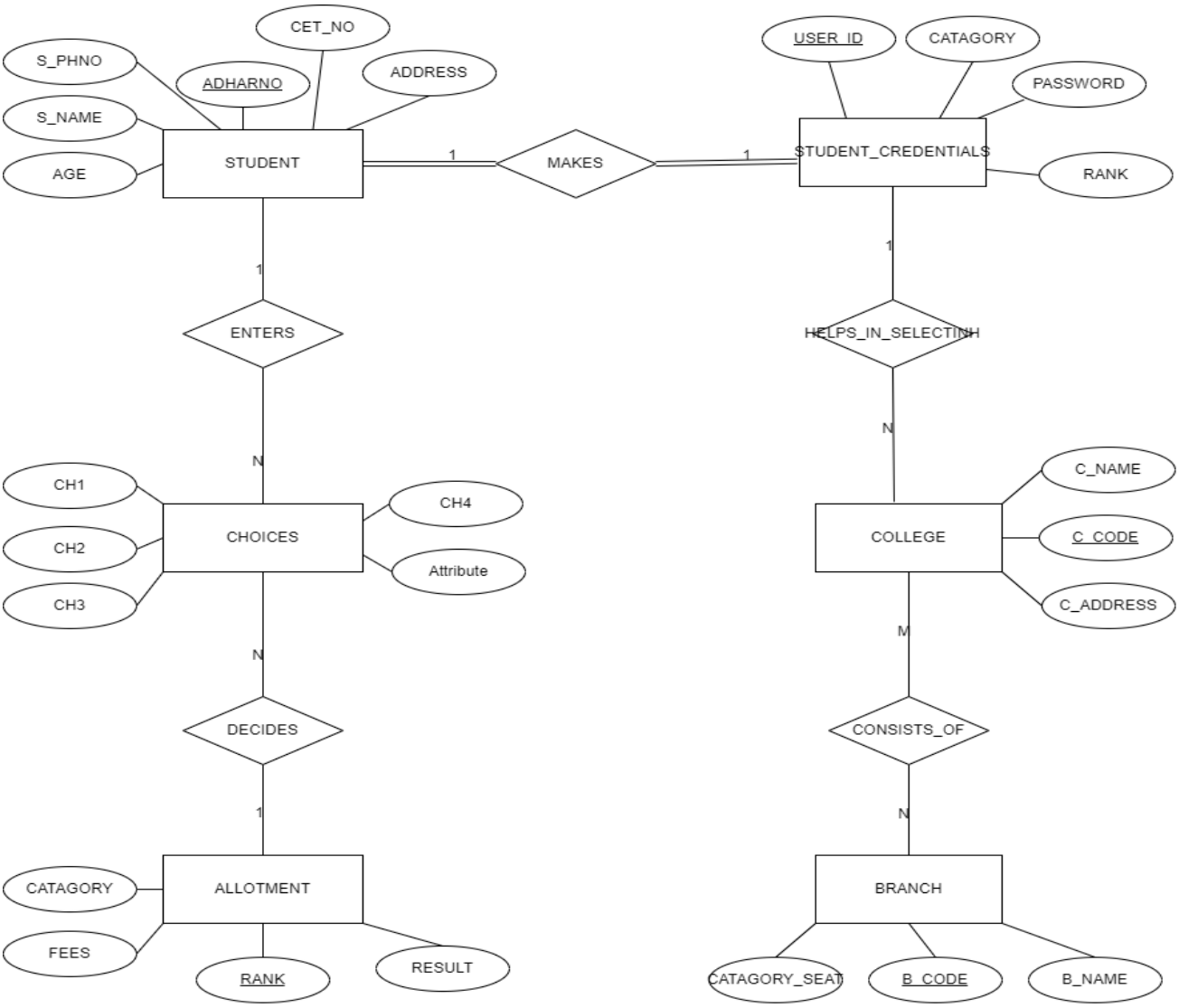
1. Student owns Student credentials. (1:1)
2. Student allotted to college. (M: N)
3. College consists of branch. (1: N)
4. Student has Guardian. (1: N)
5. Student enters Choices. (1: N)

Question 2: Draw an Entity-Relationship Diagram illustrating the information you have identified in Question 1.

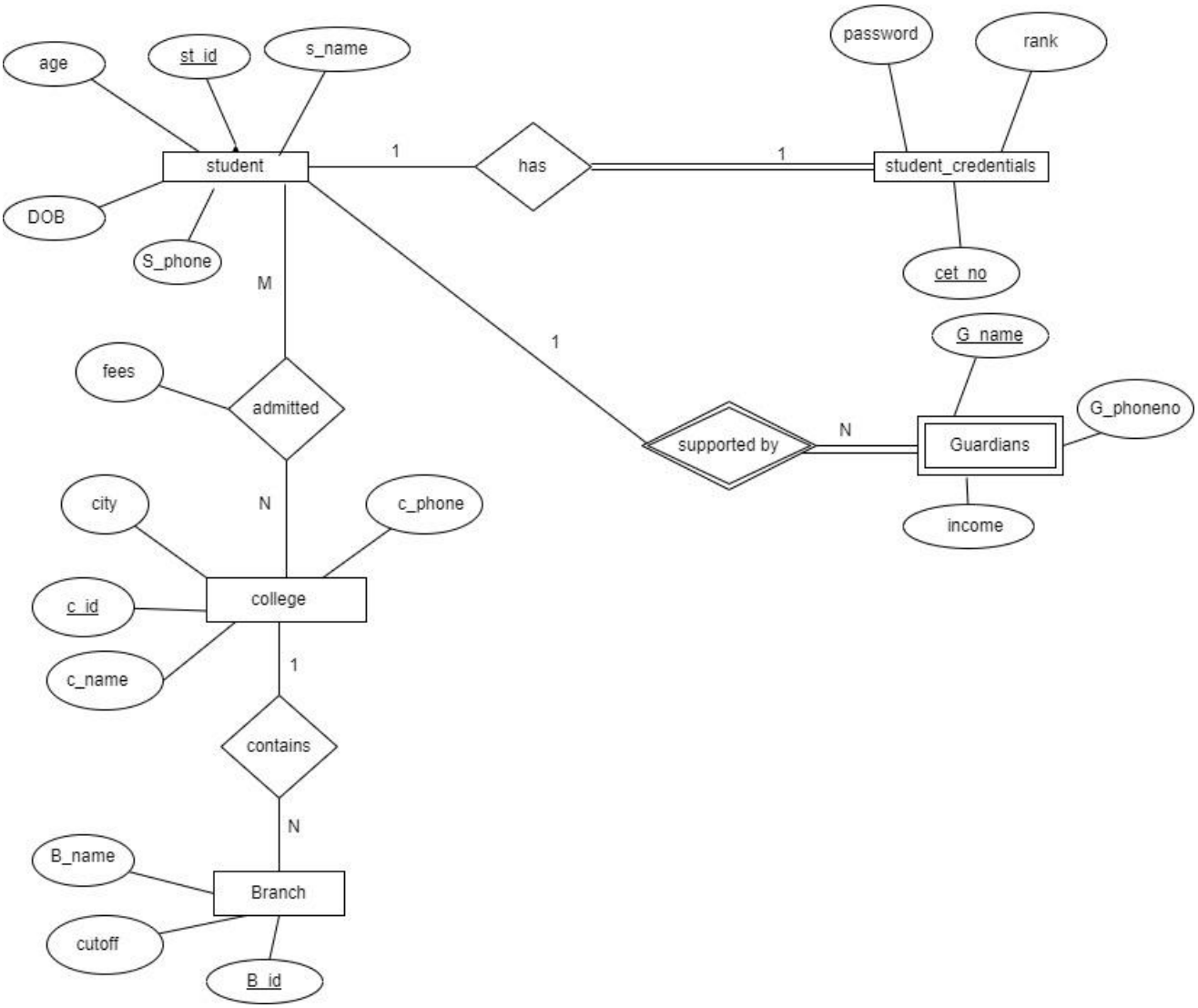


ER Diagram 1

Question 3: Draw **alternate** Entity-Relationship Diagram illustrating the information you have identified in Question 1 that you think are most likely to occur.



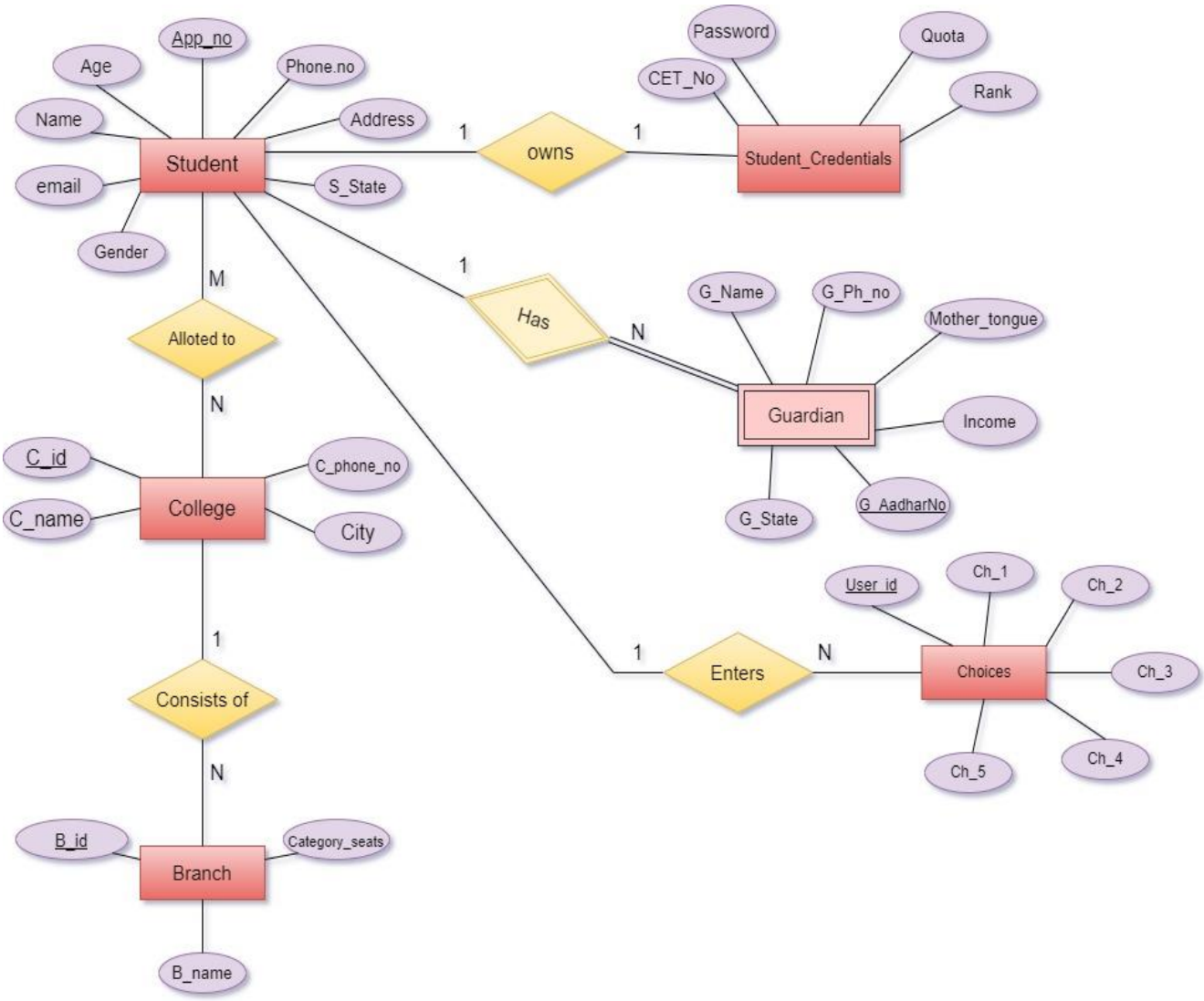
ER diagram 2


age
st_id
s_name
password
rank
student
1
has
1
student_credentials
DOB
S_phone
cet_no
M
1
G_name
fees
admitted
supported by
N
Guardians
G_phoneno
city
N
c_phone
income
c_id
college
c_name
1
contains
N
B_name
Branch
cutoff
B_id

ER diagram 3

Question 4: Choose the **optimal** Entity-Relationship Diagram from the designs provided above and justify why you think this is an optimal solution for your identified problem specification.

ANSWER FOR CHOICE AND JUSTIFICATION



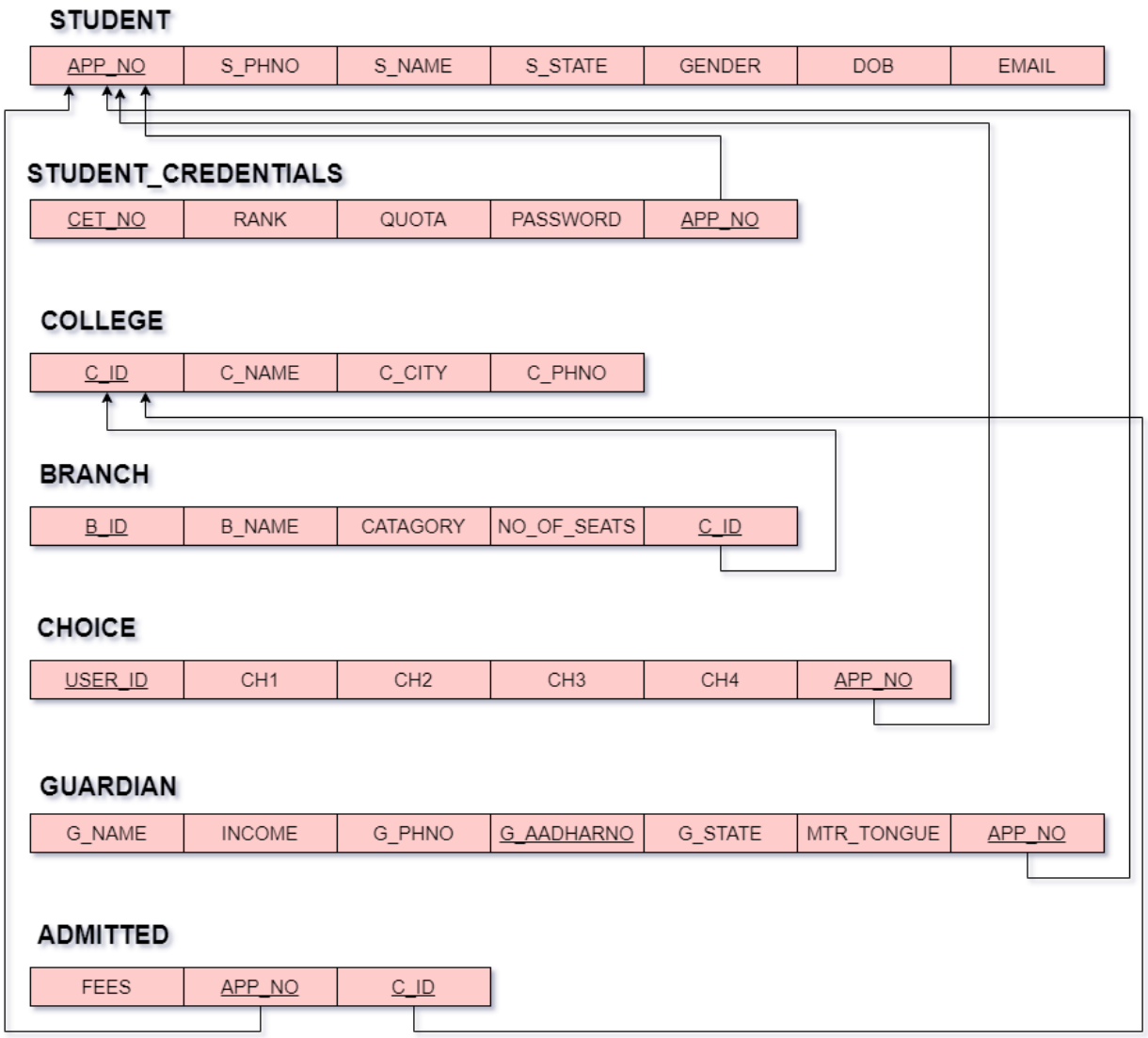
OPTIMAL ER DIAGRAM

JUSTIFICATION-: Clear mention of all cardinality ratios, use of appropriate entities , proper participation types, clear description of the relationship.

[Optional] Question 5: Draw an Object Model illustrating the information you have identified in Question 2.

DRAW YOUR OBJECT MODEL DIAGRAM HERE

Question 6: Draw an ER to Relation Mapping illustrating the information you have identified in Question 4.



ER TO RELATIONAL MAPPING DIAGRAM

Question 7: Draw a Data Dictionary illustrating the information you have identified in Question 6.

Object (Entity)	Name (Attribute)	Type	Description	Primary Key	Foreign Key
STUDENT	App_No	Varchar	Student's CET Application number	**YES**	NO
	S_Name	Varchar	Name of student	NO	NO
	S_Phno	Integer	Student's contact number	NO	NO
	S_State	Varchar	State name where the student resides.	NO	NO
	Gender	Varchar	States the gender of the student.	NO	NO
	DOB	Date	Student's date of birth.	NO	NO
	Email	Varchar	Student's email address.	NO	NO
STUDENT_CREDENTIALS	CET_No	Varchar	Student's CET Hall-ticket number.	**YES**	NO
	Rank	Integer	Rank obtained by the student in the CET exam.	NO	NO
	Quotas	Varchar	Specifies the privileged quota such as NCC, army, rural etc, (If any)	NO	NO
	Passwords	Varchar	Password used by the	NO	NO

STUDENT_CREDENTIALS			students to log into their accounts.		
	App_No	Varchar	Student's CET Application number. It references the STUDENTS table.	NO	**YES**
COLLEGE	C_ID	Varchar	It is a unique id assigned to each college.	**YES**	NO
	C_Name	Varchar	Official name of the college.	NO	NO
	C_City	Varchar	Specifies the location where the college is situated.	NO	NO
	C_Phno	Integer	Contact number of college office.	NO	NO
BRANCH	B_ID	Varchar	A unique id assigned to each branch.		NO
	B_Name	Varchar	Branch Name.	NO	NO
	Category	Varchar	Specifies the category to which the student's caste belongs.	NO	NO
	No_of_seats	Integer	Specifies the number of seats distributed according to the categories.	NO	NO
	C_ID	Varchar	It is a unique id assigned to each college. It references COLLEGE table.		**YES**
CHOICE	User_ID	Varchar	Student's user id to	NO	NO

			log-in.		
CHOICE	Ch_1	Varchar	Choice of colleges entered by the student in the choice entry.	NO	NO
	Ch_2				
	Ch_3				
	Ch_4				
	Ch_5				
	App_No	Varchar	Student's CET Application number. It references the STUDENTS table.	YES	YES
GUARDIAN	G_Name	Varchar	Guardian's Name.	NO	NO
	Income	Integer	Specifies the income as per the income tax certificate.	NO	NO
	G_Phno	Integer	Guardian's Contact Number.	NO	NO
	G_AadhaarNo	Varchar	Guardian's Aadhaar Number.	YES	NO
	MTR_Tongue	Varchar	Specifies the student's mother tongue.	NO	NO
	G_state	Varchar	Specifies the domicile.	NO	NO
	App_No	Varchar	Student's CET Application number. It references the STUDENTS table.	YES	YES

ADMITTED	Fees	Integer	Specifies the fees for every college.	NO	NO
	App_No	Varchar	Student's CET Application number. It references the STUDENTS table. Denotes which student has been allocated which college	YES (Both together)	YES
	C_ID	Varchar	It is a unique id assigned to each college. It references COLLEGE table.		YES

Question 9: Normalization: Are all the relations in your chosen schema in 3NF? Are they in BCNF? Explain your answers. If any of your relations are not in BCNF, normalize them to BCNF. If you choose to normalize your relations only till 2NF or 3NF, explain your reasons (e.g., the amount of redundancy introduced is limited or some other valid reason).

1.STUDENT

(App_no, S_name, S_state, Phone_no, age, DOB, E-mail)

- The relation is in 1NF because there are no attributes that can hold more than one values. The attributes are holding only atomic values.
- The relation is in 2NF as the primary key contains only one attribute, hence every attribute in the relation is fully functionally dependent on the primary key.
- The given relation is in 3NF because there are no any transitive functional

dependency.

- The given relation is in BCNF there are no non-prime attributes determining non-prime attribute.

2.STUDENT_CREDENTIAL

(Cet_no, App_no , password , rank, quota)

- The relation is in 1NF because there are no attribute having multiple values. The attributes are holding only atomic values.
- As the primary key (set_no,app_no) can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there are no any transitive functional dependency.

*The given relation is in BCNF there are no non-key attributes determining non-key attribute.

3. COLLEGE

(C_id, C_name, C_city, C_phone)

- The relation is in 1NF because there are no attribute having multiple values. The attributes are holding only atomic values.
- As the primary key can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there are no any transitive functional dependency.
- Similarly given relation is in BCNF there are no non-key attributes determining non-key attribute.

4. BRANCH

(B_id,C_id,B_name,GEN,OBC,SC)

- The relation is in 1NF because there are no attribute having multiple values. The attributes are holding only atomic values.
- As the primary key can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there are no any transitive functional dependency.
- The given relation is in BCNF there are no non-key attributes determining non-key attribute.

5.CHOICE

(User_id, App_no, ch_1, ch_2, ch_3, ch_4)

- The relation is in 1NF because there are no attribute having multiple values. The attributes are holding only atomic values.
- As the primary key can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there are no any transitive functional dependency.
- The given relation is in BCNF there are no non-key attributes determining non-key attribute.

6. GUARDIAN

(App_no, G_Adharno, G_state, income, G_phno, Mother_tongue)

- The relation is in 1NF because there are no attribute having multiple values.
  The attributes are holding only atomic values.
- As the primary key can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there is no any transitive functional dependency.
- The given relation is in BCNF there are no non-key attributes determining non-key attribute.

7.ADMITTED

(App_no, C_id, fees)

- The relation is in 1NF because there are no attribute having multiple values.
  The attributes are holding only atomic values.
- As the primary key can determine all other attributes and there is no any partial dependency hence the relation is in 2NF.
- The given relation is in 3NF because there are no any transitive functional dependency.
- The given relation is in BCNF there are no non-key attributes determining non-key attribute.

References: We have made use of designing websites like:

draw.io (https://www.draw.io/)

Diagrams.net (https://app.diagrams.net/)

MS Word and SQL database

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Yashvardhan Diwan	01FE20BCS095 (233)

Team Leader: Yashvardhan Diwan

Responsibilities:

Mayuri Kalmat - ER diagram 1, Problem statement, Final Documentation of the project.
Parag Hegde - ER diagram 3, Relational schema, Table creation
Pranav Jadhav - ER diagram 2, Data dictionary
Yashvardhan Diwan – Normalization, Table formation.

All four members have done the finalized ER diagram and Queries.

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Requirements:

* We can get the list of students who entered in the particular branch.
* We can get the list of colleges at the particular location.
* Get the details of students below the particular rank.
* Total number of seats available for the particular category.
* Students who belong to the particular category.

Implementation Phase

STUDENT:

```
CREATE TABLE STUDENT
(
APP_NO VARCHAR (20),
S_NAME VARCHAR (20),
S_PHNO INT,
S_STATE VARCHAR (20),
GENDER VARCHAR (20),
DOB DATE,
EMAIL VARCHAR (20),
PRIMARY KEY(APP_NO)
);
```

STUDENT_CREDENTIALS:

```
CREATE TABLE STUDENT_CREDENTIALS
(
CET_NO VARCHAR (20),
RANKS INT,
QUOTAS VARCHAR (20),
PASSWORDS VARCHAR (20),
APP_NO VARCHAR (20),
PRIMARY KEY (CET_NO, APP_NO),
FOREIGN KEY(APP_NO) REFERENCES STUDENT
);
```

COLLEGE:

```
CREATE TABLE COLLEGE
(
C_ID VARCHAR (20),
C_NAME VARCHAR (20),
C_CITY VARCHAR (20),
```

```
C_PHNO INT,
PRIMARY KEY(C_ID)
);
```

BRANCH:

```
CREATE TABLE BRANCH
(
B_ID VARCHAR (10),
B_NAME VARCHAR (40),
GEN INT,
OBC INT,
SC INT,
C_ID VARCHAR (20),
PRIMARY KEY (B_ID, C_ID),
FOREIGN KEY(C_ID) REFERENCES COLLEGE
);
```

CHOICE:

```
CREATE TABLE CHOICE
(
USER_ID VARCHAR (20),
CH1 VARCHAR (20),
CH2 VARCHAR (20),
CH3 VARCHAR (20),
CH4 VARCHAR (20),
APP_NO VARCHAR (20),
PRIMARY KEY (USER_ID, APP_NO),
FOREIGN KEY(APP_NO) REFERENCES STUDENT
);
```

GUARDIAN:

```
CREATE TABLE GUARDIAN
(
G_NAME VARCHAR (20),
INCOME INT,
G_PHNO INT,
G_AADHARNO VARCHAR (20),
G_STATE VARCHAR (20),
MTR_TONGUE VARCHAR (20),
APP_NO VARCHAR (20),
PRIMARY KEY (G_AADHARNO, APP_NO),
FOREIGN KEY(APP_NO) REFERENCES STUDENT
);
```

ADMITTED:

```
CREATE TABLE ADMITTED
(
FEES INT,
APP_NO VARCHAR (20),
C_ID VARCHAR (20),
PRIMARY KEY (APP_NO, C_ID),
FOREIGN KEY(C_ID) REFERENCES COLLEGE,
FOREIGN KEY(APP_NO) REFERENCES STUDENT
);
```

INSERTING VALUES INTO STUDENT TABLE:

```
INSERT INTO STUDENT VALUES ('202011072001','Parag Hegade','9844323211','Karnataka','male','12-07-2002','parag@gmail.com');
INSERT INTO STUDENT VALUES ('202011072002','Pranav Jadhav','6363528974','Karnataka','male','13-08-2002','pranav@gmail.com');
INSERT INTO STUDENT VALUES ('202011072003','Mayuri Kalmat','9735627290','Maharashtra','female','15-04-2000','mayo@gmail.com');
INSERT INTO STUDENT VALUES ('202011072004','Yashvardhan Diwan','9837243567','Karnataka','male','18-01-2003','yash@gmail.com');
INSERT INTO STUDENT VALUES ('202011072005','Srujan Akkera','8107399821','Andra Pradesh','male','12-07-2002','srujan@gmail.com');
INSERT INTO STUDENT VALUES ('202011072006','Karthik M','6363928756','Tamil Nadu','male','12-07-2002','karthik@gmail.com');
INSERT INTO STUDENT VALUES ('202011072007','Mayur Verma','8971129844','Uttar Pradesh','male','12-07-2002','mayur@gmail.com');
INSERT INTO STUDENT VALUES ('202011072008','Rohan Gowda','7234780012','Karnataka','male','12-07-2002','rohan@gmail.com');
INSERT INTO STUDENT VALUES ('202011072009','Faraz','6971123456','Telangana','male','12-07-2001','faraz@hotmail.com');
INSERT INTO STUDENT VALUES ('202011072010','Cyril Joseph','971126543','Karnataka','male','12-07-2002','cyril@gmail.com');
INSERT INTO STUDENT VALUES ('202011072011','Subramanya','979926573','Karnataka','male','12-07-2002','subbu@gmail.com');
INSERT INTO STUDENT VALUES ('202011072012','Srishti Kadam','9823456120','Maharashtra','12-07-2002','','srishti@gmail.com');
INSERT INTO STUDENT VALUES ('202011072013','Sushir Meti','7378656789','Karnataka','male','12-07-2002','messi@gmail.com');
INSERT INTO STUDENT VALUES ('202011072014','Samhith Kumar','6364789072','Goa','male','12-07-2002','samhith@yahoo.com');
INSERT INTO STUDENT VALUES ('202011072015','Sushanth Hawaldar','8779134092','Karnataka','male','12-07-2002','sushanth@gmail.com');
INSERT INTO STUDENT VALUES ('202011072016','Nitish Kulkarni','8732097621','Karnataka','male','12-07-2002','sonu@gmail.com');
```

```
INSERT INTO STUDENT VALUES ('202011072017','Chinmay Javalagi','7372892786','Karnataka','male','12-07-2002','chinya@gmail.com');
INSERT INTO STUDENT VALUES ('202011072018','Gagandeep L','9876340912','Maharashtra','male','12-07-2002','gdeep@gmail.com');
INSERT INTO STUDENT VALUES ('202011072019','Pranavi Kulkarni','8686543490','Karnataka','female','12-07-2002','pnv@gmail.com');
INSERT INTO STUDENT VALUES ('202011072020','Shreya Sosle','8972365743','Karnataka','female','12-07-2002','shry@gmail.com');
```

INSERTING VALUES INTO STUDENT_CREDENTIALS TABLE:

```
INSERT INTO STUDENT_CREDENTIALS VALUES ('PH111','2235','Rural','1111','202011072001');
INSERT INTO STUDENT_CREDENTIALS VALUES ('PJ111','2256','','2222','202011072002');
INSERT INTO STUDENT_CREDENTIALS VALUES ('MK111','3652','','1212','202011072003');
INSERT INTO STUDENT_CREDENTIALS VALUES ('YD111','1145','CRPF','3333','202011072004');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SA111','2285','','1010','202011072005');
INSERT INTO STUDENT_CREDENTIALS VALUES ('KM111','8235','Rural','0101','202011072006');
INSERT INTO STUDENT_CREDENTIALS VALUES ('MV111','3275','','0000','202011072007');
INSERT INTO STUDENT_CREDENTIALS VALUES ('RG111','8235','Rural','8888','202011072008');
INSERT INTO STUDENT_CREDENTIALS VALUES ('FM111','4235','Rural','1978','202011072009');
INSERT INTO STUDENT_CREDENTIALS VALUES ('CJ111','9235','Kannada Medium','1221','202011072010');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SB111','2035','Sports','1811','202011072011');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SK111','235','Rural','1171','202011072012');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SM111','2350','Rural','2112','202011072013');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SR111','2235','Kannada Medium','1631','202011072014');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SH111','2935','SNQ','1189','202011072015');
INSERT INTO STUDENT_CREDENTIALS VALUES ('NK111','6237','Rural','9211','202011072016');
INSERT INTO STUDENT_CREDENTIALS VALUES ('CV111','2635','Kannada Medium','1561','202011072017');
INSERT INTO STUDENT_CREDENTIALS VALUES ('GL111','7235','Rural','1125','202011072018');
INSERT INTO STUDENT_CREDENTIALS VALUES ('PK111','8225','SNQ','1331','202011072019');
INSERT INTO STUDENT_CREDENTIALS VALUES ('SS111','10235','Sports','1881','202011072020');
DESC STUDENT_CREDENTIALS;
```

INSERTING VALUES INTO COLLEGE TABLE:

```
INSERT INTO COLLEGE VALUES ('U001','KLE TECH','HUBBALLI','0836515173');
INSERT INTO COLLEGE VALUES ('U002','PES UNIVERSITY','BENGALURU','0802349871');
INSERT INTO COLLEGE VALUES ('U003','DAYANANDSAGAR','BENGALURU','0807338902');
INSERT INTO COLLEGE VALUES ('U004','MS RAMAIAH IT','BENGALURU','0805643420');
INSERT INTO COLLEGE VALUES ('U005','JSS CET','MYSURU','0821568944');
INSERT INTO COLLEGE VALUES ('U006','SDMCET','DHARWAD','0836615788');
INSERT INTO COLLEGE VALUES ('U007','BAPUJI CET','DAVANGERE','0819223234');
INSERT INTO COLLEGE VALUES ('U008','GMIT CET','DAVANGERE','0819223234');
INSERT INTO COLLEGE VALUES ('U009','BMS CET','BENGALURU','0803457891');
INSERT INTO COLLEGE VALUES ('U010','BITCET','BENGALURU','0806543120');
```

INSERTING VALUES INTO BRANCH TABLE:

```
INSERT INTO BRANCH VALUES('KLECSE','COMPUTER SCIENCE','90','80','30','U001');
INSERT INTO BRANCH VALUES('KLEECE','ELECTRONIC AND COMMUNICATION','20','140','30','U001');
INSERT INTO BRANCH VALUES('KLEMECH','MECHANICAL ENGINEERING','50','46','40','U001');
INSERT INTO BRANCH VALUES('PESCSE','COMPUTER SCIENCE','68','72','30','U002');
INSERT INTO BRANCH VALUES('PESECE','ELECTRONIC AND COMMUNICATION','72','40','50','U002');
INSERT INTO BRANCH VALUES('PESMECH','MECHANICAL ENGINEERING','34','46','44','U002');
INSERT INTO BRANCH VALUES('DSCSE','COMPUTER SCIENCE','54','64','45','U003');
INSERT INTO BRANCH VALUES('DSCE','ELECTRONIC AND COMMUNICATION','34','45','23','U003');
INSERT INTO BRANCH VALUES('DSECH','MECHANICAL ENGINEERING','54','45','37','U003');
INSERT INTO BRANCH VALUES('MSRCSE','COMPUTER SCIENCE','43','54','34','U004');
INSERT INTO BRANCH VALUES('MSRECE','ELECTRONIC AND COMMUNICATION','87','76','45','U004');
INSERT INTO BRANCH VALUES('MSRMECH','MECHANICAL ENGINEERING','76','56','41','U004');
INSERT INTO BRANCH VALUES('JSSCSE','COMPUTER SCIENCE','80','43','21','U005');
INSERT INTO BRANCH VALUES('JSSECE','ELECTRONIC AND COMMUNICATION','74','54','41','U005');
INSERT INTO BRANCH VALUES('JSSMECH','MECHANICAL ENGINEERING','34','53','23','U005');
INSERT INTO BRANCH VALUES('SDCSE','COMPUTER SCIENCE','90','80','30','U006');
INSERT INTO BRANCH VALUES('SDECE','ELECTRONICS AND COMMUNICATION','80','70','60','U006');
INSERT INTO BRANCH VALUES('SDISE','INFORMATION SCIENCE','100','80','30','U006');
INSERT INTO BRANCH VALUES('BPCSE','COMPUTER SCIENCE','120','100','90','U007');
INSERT INTO BRANCH VALUES('BPECE','ELECTRONICS AND COMMUNICATION','60','50','30','U007');
INSERT INTO BRANCH VALUES('BPISE','INFORMATION SCIENCE','85','75','32','U007');
INSERT INTO BRANCH VALUES('GMCSE','COMPUTER SCIENCE','70','60','40','U008');
INSERT INTO BRANCH VALUES('GMECE','ELECTRONICS AND COMMUNICATION','75','65','31','U008');
INSERT INTO BRANCH VALUES('GMISE','INFORMATION SCIENCE','78','67','56','U008');
INSERT INTO BRANCH VALUES('BMCSE','COMPUTER SCIENCE','101','90','89','U009');
INSERT INTO BRANCH VALUES('BMECE','ELECTRONICS AND COMMUNICATION','110','74','63','U009');
INSERT INTO BRANCH VALUES('BMISE','INFORMATION SCIENCE','115','75','40','U009');
INSERT INTO BRANCH VALUES('BITCSE','COMPUTER SCIENCE','120','100','80','U010');
INSERT INTO BRANCH VALUES('BITECE','ELECTRONICS AND COMMUNICATION','118','103','20','U010');
INSERT INTO BRANCH VALUES('BITISE','INFORMATION SCIENCE','122','101','70','U010');
```

INSERTING VALUES INTO CHOICE TABLE:

```
INSERT INTO CHOICE VALUES('01FE2266','KLETECH','BMSCET','SDMCET','JSSCET','202011072001');
INSERT INTO CHOICE VALUES('01FR2587','JSSCET','SDMCET','BMSCET','KLETECH','202011072002');
INSERT INTO CHOICE VALUES('01RT2230','DAYANANDSAGAR','KLETECH','KLETECH','SDMCET','202011072003');
INSERT INTO CHOICE VALUES('20FG0265','JSSCET','BITCET','RVCJ','NULL','202011072004');
INSERT INTO CHOICE VALUES('056FFD61','PES
UNIVERSITY','BMSCET','DAYANANDSAGAR','MSRAMAIAHIT','202011072005');
INSERT INTO CHOICE VALUES('DF666898','BAPUJICET','DAYANANDSAGAR','GMITCET','BITCET','202011072006');
INSERT INTO CHOICE VALUES('568FDF88','KLETECH','MSRAMAIAHIT','SDMCET','BMSCET','202011072007');
INSERT INTO CHOICE VALUES('235DDF81','GMITCET','BAPUJICET','SDMCET','JSSCET','202011072008');
INSERT INTO CHOICE VALUES('25DFG865','BITCET','BMSCET','NULL','NULL','202011072009');
INSERT INTO CHOICE VALUES('6FDD8868','PES UNIVERSITY','BMSCET','KLETECH','NULL','202011072010');
```

```
INSERT INTO CHOICE VALUES('D58868D0','MSRAMAIAHIT','JSSCET','KLETECH','PES UNIVERSITY','202011072011');
INSERT INTO CHOICE VALUES('28889GTY','BMSCET','BITCET','MSRAMAIAHIT','KLETECH','202011072012');
INSERT INTO CHOICE VALUES('AD43X221','JSSCET','SDMCET','BMSCET','KLETECH','202011072013');
INSERT INTO CHOICE VALUES('98BZ0912','BMSCET','BITCET','JSSCET','JSSCET','202011072014');
INSERT INTO CHOICE VALUES('LO5421KG','KLETECH','PES
UNIVERSITY','DAYANANDSAGAR','MSRAMAIAHIT','202011072015');
INSERT INTO CHOICE VALUES('QO0234KL','JSSCET','SDMCET','BAPUJICET','GMITCET','202011072016');
INSERT INTO CHOICE VALUES('92AG82RT','BITCET','BMSCET','GMITCET','BAPUJICET','202011072017');
INSERT INTO CHOICE VALUES('PB34GH09','KLETECH','BMSCET','SDMCET','JSSCET','202011072018');
INSERT INTO CHOICE VALUES('LQ54N923','MSRAMAIAHIT','DAYANANDSAGAR','PES
UNIVERSITY','KLETECH','202011072019');
INSERT INTO CHOICE
VALUES('LK09BM34','DAYANANDSAGAR','MSRAMAIAHIT','JSSCET','GMITCET','202011072020');
```

INSERTING VALUES INTO GUARDIAN TABLE:

```
INSERT INTO GUARDIAN
VALUES('GEETA','300000','94821110','102502400','KARNATAKA','KANNADA','202011072001');
INSERT INTO GUARDIAN
VALUES('RAMESH','200000','94821111','102502401','KARNATAKA','KANNADA','202011072002');
INSERT INTO GUARDIAN
VALUES('BHARATI','900000','94821112','102502402','MAHARASHTRA','MARATHI','202011072003');
INSERT INTO GUARDIAN
VALUES('RAM','90000','94821113','102502403','MAHARASHTRA','MARATHI','202011072003');
INSERT INTO GUARDIAN VALUES('SITA','50000','94821114','102502404','GOA','KONKANI','202011072014');
INSERT INTO GUARDIAN VALUES('PRAKASH','600000','94821115','102502405','ANDRA
PRADESH','TELUGU','202011072005');
INSERT INTO GUARDIAN VALUES('PRADEEP','250000','94821116','102502406','TAMIL
NADU','TAMIL','202011072006');
INSERT INTO GUARDIAN VALUES('RAJEEV','300000','94821117','102502407','UTTAR
PRADESH','HINDI','202011072007');
INSERT INTO GUARDIAN
VALUES('DHANALAXMI','470000','94821118','102502408','KARNATAKA','KANNADA','202011072008');
INSERT INTO GUARDIAN VALUES('VEENA','','94821119','102502409','TELANGANA','TELUGU','202011072009');
INSERT INTO GUARDIAN
VALUES('DILEEP','200000','94821120','1025024010','KARNATAKA','KANNADA','202011072010');
INSERT INTO GUARDIAN
VALUES('KULDEEP','67000','94821121','102502411','KARNATAKA','KANNADA','202011072011');INSERT INTO
GUARDIAN VALUES('PRASHANT','600500','9988556644','102502400012','ANDRA
PRADESH','TELUGU','202011072013');
INSERT INTO GUARDIAN VALUES('RAJDEEP','250000','9988775544','102502400013','TAMIL
NADU','TAMIL','202011072014');
INSERT INTO GUARDIAN VALUES('BHARAT','300000','9966332255','102502400014','UTTAR
PRADESH','HINDI','202011072015');
INSERT INTO GUARDIAN
VALUES('JAYALAXMI','470000','9955223311','102502400015','KARNATAKA','KANNADA','202011072016');
INSERT INTO GUARDIAN
VALUES('MEENA','','9911223366','102502400016','TELANGANA','TELUGU','202011072017');
```

```
INSERT INTO GUARDIAN
VALUES('RANDEEP','200000','9900112233','102502400017','KARNATAKA','KANNADA','202011072018');
INSERT INTO GUARDIAN
VALUES('KARANVIR','67000','9944778855','102502400018','KARNATAKA','KANNADA','202011072019');
INSERT INTO GUARDIAN
VALUES('ARJUN','70000','9900112200','102502400019','KARNATAKA','KANNADA','202011072020');
```

INSERTING VALUES INTO ADMITTED TABLE:

```
INSERT INTO ADMITTED VALUES ('62537','202011072001','U001');
INSERT INTO ADMITTED VALUES ('50000','202011072002','U002');
INSERT INTO ADMITTED VALUES ('62537','202011072003','U001');
INSERT INTO ADMITTED VALUES ('50000','202011072004','U003');
INSERT INTO ADMITTED VALUES ('19654','202011072005','U004');
INSERT INTO ADMITTED VALUES ('62537','202011072006','U001');
INSERT INTO ADMITTED VALUES ('50000','202011072007','U005');
INSERT INTO ADMITTED VALUES ('62537','202011072008','U002');
INSERT INTO ADMITTED VALUES ('62537','202011072009','U004');
INSERT INTO ADMITTED VALUES ('19654','202011072010','U006');
INSERT INTO ADMITTED VALUES ('62537','202011072011','U005');
INSERT INTO ADMITTED VALUES ('50000','202011072012','U007');
INSERT INTO ADMITTED VALUES ('19654','202011072013','U002');
INSERT INTO ADMITTED VALUES ('50000','202011072014','U008');
INSERT INTO ADMITTED VALUES ('4999','202011072015','U009');
INSERT INTO ADMITTED VALUES ('62537','202011072016','U010');
INSERT INTO ADMITTED VALUES ('19654','202011072017','U009');
INSERT INTO ADMITTED VALUES ('50000','202011072018','U002');
INSERT INTO ADMITTED VALUES ('4999','202011072019','U010');
INSERT INTO ADMITTED VALUES ('19654','202011072020','U003');
```

Question 2: Give the actual data stored in each table of the Database:

App_no	S_name	S_Phno	S_State	Gender	DOB	Email
202011072001	Parag Hegade	9844323211	Karnataka	male	12-07-02	parag@gmail.com
202011072002	Pranav Jadhav	6363528974	Karnataka	male	13-08-02	pranav@gmail.com
202011072003	Mayuri Kalmat	9735627290	Maharashtra	female	15-04-00	mayo@gmail.com
202011072004	Yashvardhan Diwan	9837243567	Karnataka	male	18-01-03	yash@gmail.com
202011072005	Srujan Akkera	8107399821	Andra Pradesh	male	12-07-02	srujan@gmail.com

202011072006	Karthik M	6363928756	Tamil Nadu	male	12-07-02	karthik@gmail.com
202011072007	Mayur Verma	8971129844	Uttar Pradesh	male	12-07-02	mayur@gmail.com
202011072008	Rohan Gowda	7234780012	Karnataka	male	12-07-02	rohan@gmail.com
202011072009	Faraz	6971123456	Telangana	male	12-07-01	faraz@hotmail.com
202011072010	Cyril Joseph	971126543	Karnataka	male	12-07-02	cyril@gmail.com
202011072011	Subramanya	979926573	Karnataka	male	12-07-02	subbu@gmail.com
202011072012	Srishti Kadam	9823456120	Maharashtra	female	12-07-2002	srishti@gmail.com
202011072013	Sushir Meti	7378656789	Karnataka	male	12-07-02	messi@gmail.com
202011072014	Samhith Kumar	6364789072	Goa	male	12-07-02	samhith@yahoo.com
202011072015	Sushanth Hawaldar	8779134092	Karnataka	male	12-07-02	sushanth@gmail.com
202011072016	Nitish Kulkarni	8732097621	Karnataka	male	12-07-02	sonu@gmail.com
202011072017	Chinmay Javalagi	7372892786	Karnataka	male	12-07-02	chinya@gmail.com
202011072018	Gagandeep L	9876340912	Maharashtra	male	12-07-02	gdeep@gmail.com
202011072019	Pranavi Kulkarni	8686543490	Karnataka	female	12-07-02	pnv@gmail.com
202011072020	Shreya Sosle	8972365743	Karnataka	female	12-07-02	shry@gmail.com

CET_no	Rank	Quota	Passwords	App_no
PH111	2235	Rural	1111	202011072001
PJ111	2256		2222	202011072002

MK111	3652		1212	202011072003
YD111	1145	CRPF	3333	202011072004
SA111	2285		1010	202011072005
KM111	8235	Rural	0101	202011072006
MV111	3275		0000	202011072007
RG111	8235	Rural	8888	202011072008
FM111	4235	Rural	1978	202011072009
CJ111	9235	Kannada Medium	1221	202011072010
SB111	2035	Sports	1811	202011072011
SK111	235	Rural	1171	202011072012
SM111	2350	Rural	2112	202011072013
SR111	2235	Kannada Medium	1631	202011072014
SH111	2935	SNQ	1189	202011072015
NK111	6237	Rural	9211	202011072016
CV111	2635	Kannada Medium	1561	202011072017
GL111	7235	Rural	1125	202011072018
PK111	8225	SNQ	1331	202011072019
SS111	10235	Sports	1881	202011072020

C_id	C_name	C_city	C_phno
U001	KLE TECH	HUBBALLI	836515173
U002	PES UNIVERSITY	BENGALURU	802349871

U003	DAYANANDSAGAR	BENGALURU	807338902
U004	MS RAMAIAH IT	BENGALURU	805643420
U005	JSS CET	MYSURU	821568944
U006	SDMCET	DHARWAD	836615788
U007	BAPUJI CET	DAVANGERE	819223234
U008	GMIT CET	DAVANGERE	819223234
U009	BMS CET	BENGALURU	803457891
U010	BITCET	BENGALURU	806543120

B_id	B_name	Gen	Obc	Sc	C_id
KLECSE	COMPUTER SCIENCE	90	80	30	U001
KLEECE	ELECTRONIC AND COMMUNICATION	20	140	30	U001
KLEMECH	MECHANICAL ENGINEERING	50	46	40	U001
PESCSE	COMPUTER SCIENCE	68	72	30	U002
PESECE	ELECTRONIC AND COMMUNICATION	72	40	50	U002
PESMECH	MECHANICAL ENGINEERING	34	46	44	U002
DSCSE	COMPUTER SCIENCE	54	64	45	U003
DSCE	ELECTRONIC AND COMMUNICATION	34	45	23	U003
DSECH	MECHANICAL ENGINEERING	54	45	37	U003
MSRCSE	COMPUTER SCIENCE	43	54	34	U004
MSRECE	ELECTRONIC AND	87	76	45	U004

	COMMUNICATION				
MSRMECH	MECHANICAL ENGINEERING	76	56	41	U004
JSSCSE	COMPUTER SCIENCE	80	43	21	U005
JSSECE	ELECTRONIC AND COMMUNICATION	74	54	41	U005
JSSMECH	MECHANICAL ENGINEERING	34	53	23	U005
SDCSE	COMPUTER SCIENCE	90	80	30	U006
SDECE	ELECTRONICS AND COMMUNICATION	80	70	60	U006
SDISE	INFORMATION SCIENCE	100	80	30	U006
BPCSE	COMPUTER SCIENCE	120	100	90	U007
BPECE	ELECTRONICS AND COMMUNICATION	60	50	30	U007
BPISE	INFORMATION SCIENCE	85	75	32	U007
GMCSE	COMPUTER SCIENCE	70	60	40	U008
GMECE	ELECTRONICS AND COMMUNICATION	75	65	31	U008
GMISE	INFORMATION SCIENCE	78	67	56	U008
BMCSE	COMPUTER SCIENCE	101	90	89	U009
BMECE	ELECTRONICS AND COMMUNICATION	110	74	63	U009
BMISE	INFORMATION SCIENCE	115	75	40	U009
BITCSE	COMPUTER SCIENCE	120	100	80	U010
BITECE	ELECTRONICS AND COMMUNICATION	118	103	20	U010

KLE Technological University
Creating Value
Leveraging Knowledge

Earlier known as
B. V. B. College of Engineering & Technology

School of Computer Science and Engineering

BITISE	INFORMATION SCIENCE	122	101	70	U010

User_id	Ch_1	Ch_2	Ch_3	Ch_4	App_no
01FE2266	KLETECH	BMSCET	SDMCET	JSSCET	202011072001
01FR2587	JSSCET	SDMCET	BMSCET	KLETECH	202011072002
01RT2230	DAYANANDSAGAR	KLETECH	KLETECH	SDMCET	202011072003
20FG0265	JSSCET	BITCET	RVCJ	NULL	202011072004
056FFD61	PES UNIVERSITY	BMSCET	DAYANAND SAGAR	MSRAMAIAHIT	202011072005
DF666898	BAPUJICET	DAYANAND SAGAR	GMITCET	BITCET	202011072006
568FDF88	KLETECH	MSRAMAIAHIT	SDMCET	BMSCET	202011072007
235DDF81	GMITCET	BAPUJICET	SDMCET	JSSCET	202011072008
25DFG865	BITCET	BMSCET	NULL	NULL	202011072009
6FDD8868	PES UNIVERSITY	BMSCET	KLETECH	NULL	202011072010
D58868D0	MSRAMAIAHIT	JSSCET	KLETECH	PES UNIVERSITY	202011072011
28889GTY	BMSCET	BITCET	MSRAMAIAHIT	KLETECH	202011072012
AD43X221	JSSCET	SDMCET	BMSCET	KLETECH	202011072013
98BZ0912	BMSCET	BITCET	JSSCET	JSSCET	202011072014
LO5421KG	KLETECH	PES UNIVERSITY	DAYANAND SAGAR	MSRAMAIAHIT	202011072015
QO0234KL	JSSCET	SDMCET	BAPUJICET	GMITCET	202011072016
92AG82RT	BITCET	BMSCET	GMITCET	BAPUJICET	202011072017

PB34GH09	KLETECH	BMSCET	SDMCET	JSSCET	202011072018
LQ54N923	MSRAMAIAHIT	DAYANAND SAGAR	PES UNIVERSITY	KLETECH	202011072019
LK09BM34	DAYANANDSAGAR	MSRAMAIAHIT	JSSCET	GMITCET	202011072020

G_name	income	G_Phno	G_aadharno	G_state	Mtr_tongue	App_no
GEETA	300000	94821110	102502400	KARNATAKA	KANNADA	202011072001
RAMESH	200000	94821111	102502401	KARNATAKA	KANNADA	202011072002
BHARATI	900000	94821112	102502402	MAHARASHTRA	MARATHI	202011072003
RAM	90000	94821113	102502403	MAHARASHTRA	MARATHI	202011072003
SITA	50000	94821114	102502404	GOA	KONKANI	202011072014
PRAKASH	600000	94821115	102502405	ANDRA PRADESH	TELUGU	202011072005
PRADEEP	250000	94821116	102502406	TAMIL NADU	TAMIL	202011072006
RAJEEV	300000	94821117	102502407	UTTAR PRADESH	HINDI	202011072007
DHANALAXMI	470000	94821118	102502408	KARNATAKA	KANNADA	202011072008
VEENA		94821119	102502409	TELANGANA	TELUGU	202011072009
DILEEP	200000	94821120	1025024010	KARNATAKA	KANNADA	202011072010
KULDEEP	67000	94821121	102502411	KARNATAKA	KANNADA	202011072011
PRASHANT	600500	9988556644	102502400012	ANDRA	TELUGU	202011072013

				PRADESH		
RAJDEEP	250000	9988775544	102502400013	TAMIL NADU	TAMIL	202011072014
BHARAT	300000	9966332255	102502400014	UTTAR PRADESH	HINDI	202011072015
JAYALAXMI	470000	9955223311	102502400015	KARNATAKA	KANNADA	202011072016
MEENA		9911223366	102502400016	TELANGANA	TELUGU	202011072017
RANDEEP	200000	9900112233	102502400017	KARNATAKA	KANNADA	202011072018
KARANVIR	67000	9944778855	102502400018	KARNATAKA	KANNADA	202011072019
ARJUN	70000	9900112200	102502400019	KARNATAKA	KANNADA	202011072020

Fees	App_no	C_id
62537	202011072001	U001
50000	202011072002	U002
62537	202011072003	U001
50000	202011072004	U003
19654	202011072005	U004
62537	202011072006	U001
50000	202011072007	U005
62537	202011072008	U002
62537	202011072009	U004
19654	202011072010	U006
62537	202011072011	U005
50000	202011072012	U007

19654	202011072013	U002
50000	202011072014	U008
4999	202011072015	U009
62537	202011072016	U010
19654	202011072017	U009
50000	202011072018	U002
4999	202011072019	U010
19654	202011072020	U003

-->display guardian details of a student using plsql

```
declare
a guardian.g_name%type;
b guardian.income%type;
c guardian.g_phno%type;
f guardian.g_aadharno%type;
d guardian.g_state%type;
e guardian.mtr_tongue%type;
cursor cur is
select g_name, income, g_phno,g_aadharno,g_state,mtr_tongue
from guardian
where app_no=202011072003;
begin
```

```
open cur;

loop

fetch cur into a,b,c,f,d,e;

exit when cur%notfound;

dbms_output.put_line('gaurdian name:'||a||' income:'||b||' phone no:'||c||' aadhar no:'||f||' state:'||d||' mother tongue:'||e);

end loop;

close cur;

end;

/
```

-->Display student name his rank and the college along with branch he is admitted in using plsql

```
create or replace procedure p(ap_no in student.app_no%type)

as

name1 varchar(20);

clg varchar(20);

rannk number;

begin

select student.s_name,college.c_name,student_credentials.ranks into name1,clg,rannk

from student,college,admitted,student_credentials

where student.app_no=admitted.app_no and admitted.c_id=college.c_id and student.app_no=student_credentials.app_no and student.app_no=ap_no;

dbms_output.put_line('Student Name: '||name1||' Rank: '||rannk||' College: '||clg);

end;

/
```

```
execute p('202011072001');
```

-->Display the application number,name and date of birth of Students who's name starts with letter p

```
declare
a student.app_no%type;
d student.dob%type;
n student.s_name%type;
cursor cur is
select app_no, dob ,s_name
from student
where s_name like 'P%';
begin
open cur;
loop
fetch cur into a,d,n;
exit when cur%notfound;
dbms_output.put_line('Application Number = '||a||'Name = '||n||'Date of Birth = '||d);
end loop;
close cur;
end;
/
```

-->Display the Student name along with the College preference/choice List

```
create or replace procedure c(usid in choice.user_id%type)

as

name1 varchar(20);

c1 varchar(20);

c2 varchar(20);

c3 varchar(20);

c4 varchar(20);

begin

select student.s_name, choice.ch1, choice.ch2, choice.ch3, choice.ch4 into name1,c1,c2,c3,c4

from student,choice

where student.app_no=choice.app_no and choice.user_id=usid;

dbms_output.put_line('Name '||name1||' choice 1 = '||C1||' choice 2 = '||C2||' choice 3 = '||C3||'
choice 4 = '||C4);

end;

/

execute c('01FE2266');
```

-->Print the students application number,name and rank in increasing order of their rank

```
declare

s student_credentials.ranks%type;

n student.s_name%type;

m student.app_no%type;

cursor rank_cur is select ranks,s_name,student.app_no

from student_credentials,student

where student.app_no=student_credentials.app_no;
```

```
begin
open rank_cur;
loop
fetch rank_cur into s,n,m;
dbms_output.put_line('Rank:'||s||' Name: '||n||' Application Number: '||m);
exit when rank_cur%notfound;
end loop;
close rank_cur;
end;
/
```

-->Display student name ,Application number ,allocated college and fees paid

```
declare
cursor cur is select s.s_name,s.app_no,a.fees,a.c_id
from student s,admitted a
where s.app_no=a.app_no and fees>60000;
a student.app_no%type;
sn student.s_name%type;
f admitted.fees%type;
c admitted.c_id%type;
begin
open cur;
loop
fetch cur into a,sn,f,c;
```

```
exit when cur%notfound;

dbms_output.put_line('Student Name = '||sn||' Student Application Number = '||a||' College fees = '||f||' Alloted college id = '||c);

end loop;

close cur;

end;

/


//TOPPER NAME IN THE STATE


CREATE OR REPLACE FUNCTION HIGHEST_RANK

RETURN VARCHAR IS

ST_NAME VARCHAR(20);

BEGIN

SELECT S_NAME INTO ST_NAME

FROM STUDENT

WHERE APP_NO=(SELECT APP_NO

            FROM STUDENT_CREDENTIALS

             WHERE RANKS=(SELECT MIN(RANKS)

            FROM STUDENT_CREDENTIALS));

RETURN ST_NAME;

END;

/

DECLARE

  STUDENT VARCHAR(20);

BEGIN
```

```
  STUDENT := HIGHEST_RANK();
  DBMS_OUTPUT.PUT_LINE('THE HIGHEST RANK IN STATE IS  '||STUDENT);
END;
/

SET SERVEROUTPUT ON

//DISPLAY THE NAME OF THE STUDENT OF ID 202011072002
DECLARE
TYPE T_NAME IS RECORD(
 STU_NAME  VARCHAR(20)
 );
 R_NAME T_NAME;
 STU_ID STUDENT.APP_NO%TYPE :=202011072002;
 BEGIN
 SELECT S_NAME INTO R_NAME.STU_NAME
 FROM STUDENT
 WHERE APP_NO=STU_ID;
 DBMS_OUTPUT.PUT_LINE(R_NAME.STU_NAME);
 END;
/

//DISPLAY THE STUDENT NAMES AND THEIR RANKS
```

```
DECLARE
  CURSOR STUDENT_CUR IS
    SELECT CET_NO,RANKS,S_NAME
    FROM STUDENT S,STUDENT_CREDENTIALS SC
    WHERE S.APP_NO=SC.APP_NO;
  STUDENT_REC  STUDENT_CUR%ROWTYPE;
BEGIN
  OPEN STUDENT_CUR;
  LOOP
    FETCH STUDENT_CUR INTO STUDENT_REC;
    EXIT WHEN STUDENT_CUR%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE(STUDENT_REC.CET_NO||'--'||STUDENT_REC.RANKS||'--
'||STUDENT_REC.S_NAME);
  END LOOP;
END;
/



//NAME OF STUDENT WO ASSIGNED TO PARTICULAR COLLEGE
CREATE OR REPLACE FUNCTION COLLEGE_NAME
RETURN VARCHAR IS
ST_NAME VARCHAR(20);
BEGIN
SELECT S_NAME INTO ST_NAME
FROM STUDENT
WHERE APP_NO IN (SELECT APP_NO
```

```
            FROM ADMITTED
             WHERE C_ID IN (SELECT C_ID
                    FROM COLLEGE
                    WHERE C_NAME LIKE 'GMITCET'));
RETURN ST_NAME;
END;
/


DECLARE
  STUDENT VARCHAR(20);
BEGIN
  STUDENT := COLLEGE_NAME;
  DBMS_OUTPUT.PUT_LINE(STUDENT);
END;
/
```