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Registration Number: 20BAI1154

Slot : L47 + L48

1. Create the following tables with suitable constraints:

a. STUDENT (REG_NO, NAME, GENDER, AGE, DID,SEMESTER). Make REG_NO as

the primary key and DID as foreign key to DEPARTMENT table. NAME cannot

be null.

b. DEPARTMENT (DEPT_ID, DEPT_NAME, STUDENT_CNT). Make DEPT_ID as the

primary key and DEPT_NAME cannot be null.

Ans 1.

a.

```
SQL> CREATE TABLE STUDENT_20BAI1154(
  2  REG_NO INT PRIMARY KEY,
  3  NAME VARCHAR2(30) NOT NULL,
  4  GENDER VARCHAR2(10) NOT NULL,
  5  AGE INT NOT NULL,
  6  DID INT,
  7  SEMESTER INT NOT NULL,
  8  FOREIGN KEY (DID) REFERENCES DEPARTMENT_20BAI1154(DEPT_ID));

Table created.

SQL> DESC STUDENT_20BAI1154;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 REG_NO                                    NOT NULL NUMBER(38)
 NAME                                      NOT NULL VARCHAR2(30)
 GENDER                                    NOT NULL VARCHAR2(10)
 AGE                                       NOT NULL NUMBER(38)
 DID                                                NUMBER(38)
 SEMESTER                                  NOT NULL NUMBER(38)

SQL>
```

b.

```
SQL> CREATE TABLE DEPARTMENT_20BAI1154(
  2  DEPT_ID INT PRIMARY KEY,
  3  DEPT_NAME VARCHAR2(30) NOT NULL,
  4  STUDENT_CNT INT);

Table created.
```

2. Insert suitable records into the STUDENT & DEPARTMENT tables.

Ans 2.

```
SQL> INSERT ALL
  2   INTO DEPARTMENT_20BAI1154 VALUES(100, 'CSE',5)
  3   INTO DEPARTMENT_20BAI1154 VALUES(101,'EEE',4)
  4   INTO DEPARTMENT_20BAI1154 VALUES(102,'ECE',3)
  5  SELECT * FROM DUAL;

3 rows created.
```

```
SQL> INSERT ALL
  2  INTO STUDENT_20BAI1154 VALUES(1021,'KEVIN','MALE',20,100,3)
  3  INTO STUDENT_20BAI1154 VALUES(1022,'ADAM','MALE',21,100,6)
  4  INTO STUDENT_20BAI1154 VALUES(1023,'MAISIE','FEMALE',18,100,1)
  5  INTO STUDENT_20BAI1154 VALUES(1024,'WILLIAM','MALE',19,100,3)
  6  INTO STUDENT_20BAI1154 VALUES(1025,'JEREMIAH','MALE',20,100,4)
  7  INTO STUDENT_20BAI1154 VALUES(1026,'OLIVIA','FEMALE',20,101,5)
  8  INTO STUDENT_20BAI1154 VALUES(1027,'EMMA','FEMALE',21,101,6)
  9  INTO STUDENT_20BAI1154 VALUES(1028,'AVA','FEMALE',18,101,2)
 10  INTO STUDENT_20BAI1154 VALUES(1029,'CHARLOTTE','FEMALE',19,101,3)
 11  INTO STUDENT_20BAI1154 VALUES(1030,'CONRAD','MALE',20,102,4)
 12  INTO STUDENT_20BAI1154 VALUES(1031,'DANIEL','MALE',19,102,3)
 13  INTO STUDENT_20BAI1154 VALUES(1032,'CHARMAINE','FEMALE',21,102,7)
 14  SELECT * FROM DUAL;

12 rows created.
```

3. Retrieve all the details of department table.

Ans 3.

```
SQL> desc DEPARTMENT_20BAI1154;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPT_ID                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(30)
 STUDENT_CNT                                        NUMBER(38)

SQL> SELECT * FROM DEPARTMENT_20BAI1154;

   DEPT_ID DEPT_NAME                      STUDENT_CNT
---------- ------------------------------ -----------
       100 CSE                                      5
       101 EEE                                      4
       102 ECE                                      3

SQL>
```

4. Fetch the names of all departments that exists in your college.

Ans 4.

```
SQL> SELECT DEPT_NAME FROM DEPARTMENT_20BAI1154;

DEPT_NAME
------------------------------
CSE
EEE
ECE

SQL>
```

5. Fetch the department id and department name of all departments.

Ans 5.

```
SQL> SELECT DEPT_ID,DEPT_NAME FROM DEPARTMENT_20BAI1154;

   DEPT_ID DEPT_NAME
---------- ------------------------------
       100 CSE
       101 EEE
       102 ECE

SQL>
```

6. Retrieve the registration number and names of students belonging to CSE

department.

Ans 6.

```
SQL> SELECT REG_NO,NAME FROM STUDENT_20BAI1154 WHERE DID=100;

    REG_NO NAME
---------- ------------------------------
      1021 KEVIN
      1022 ADAM
      1023 MAISIE
      1024 WILLIAM
      1025 JEREMIAH

SQL>
```

7. Retrieve the registration number and names of female students belonging to CSE

department.

Ans 7.

```
SQL> SELECT REG_NO,NAME FROM STUDENT_20BAI1154 WHERE DID=100 AND GENDER='FEMALE';

    REG_NO NAME
---------- ------------------------------
      1023 MAISIE

SQL>
```

8. Find the number of male students belonging to CSE department.

Ans 8.

```
SQL> SELECT COUNT(NAME) AS No_of_Male_Students_in_CSE FROM STUDENT_20BAI1154 WHERE DID=100 AND GENDER='MALE';

NO_OF_MALE_STUDENTS_IN_CSE
--------------------------
                         4

SQL>
```

9. Retrieve the registration number and names of students whose age is > 19.

Ans 9.

```
SQL> SELECT REG_NO,NAME FROM STUDENT_20BAI1154 WHERE AGE>19;

    REG_NO NAME
---------- ----------------------------
      1021 KEVIN
      1022 ADAM
      1025 JEREMIAH
      1026 OLIVIA
      1027 EMMA
      1030 CONRAD
      1032 CHARMAINE

7 rows selected.

SQL>
```

10. List the names of students whose names start with letter 'A'.

Ans 10.

```
SQL> SELECT NAME FROM STUDENT_20BAI1154 WHERE NAME LIKE 'A%';

NAME
----------------------------
ADAM
AVA

SQL>
```

11. List the names of students whose names end with letter 'a'.

Ans 11.

```
SQL> SELECT NAME FROM STUDENT_20BAI1154 WHERE NAME LIKE '%A';

NAME
----------------------------
OLIVIA
EMMA
AVA

SQL>
```

12. List the names of students whose names contain the letter 'm'.

Ans 12.

```
SQL> SELECT NAME FROM STUDENT_20BAI1154 WHERE NAME LIKE '%M%';

NAME
------------------------------
ADAM
MAISIE
WILLIAM
JEREMIAH
EMMA
CHARMAINE

6 rows selected.

SQL>
```

13. List the names of students whose names contain the letter 'm' but not at the start or

at the end of their names.

Ans 13.

```
SQL> SELECT NAME FROM STUDENT_20BAI1154 WHERE NAME NOT LIKE 'M%' AND NAME NOT LIKE '%M' AND NAME LIKE '%M%';

NAME
------------------------------
JEREMIAH
EMMA
CHARMAINE

SQL>
```

14. List the registration numbers and names of students belonging to ECE & EEE

departments.

Ans 14.

```
SQL> SELECT REG_NO,NAME FROM STUDENT_20BAI1154 WHERE DID=101 OR DID=102;

    REG_NO NAME
---------- ------------------------------
      1026 OLIVIA
      1027 EMMA
      1028 AVA
      1029 CHARLOTTE
      1030 CONRAD
      1031 DANIEL
      1032 CHARMAINE

7 rows selected.

SQL>
```

15. What is the maximum count of students in a department?

Ans 15.

```
SQL> SELECT DEPT_NAME, MAX(STUDENT_CNT) AS MAXIMUM_COUNT_OF_STUDENTS FROM DEPARTMENT_20BAI1154 GROUP BY DEPT_NAME HAVING DEPT_NAME='CSE';

DEPT_NAME                     MAXIMUM_COUNT_OF_STUDENTS
----------------------------- -------------------------
CSE                                                   5
```

16. What is the minimum count of students in a department?
Ans 16.

```
SQL> SELECT DEPT_NAME, MIN(STUDENT_CNT) AS MINIMUM_COUNT_OF_STUDENTS FROM DEPARTMENT_20BAI1154 GROUP BY DEPT_NAME HAVING DEPT_NAME='ECE';

DEPT_NAME                     MINIMUM_COUNT_OF_STUDENTS
----------------------------- -------------------------
ECE                                                   3

SQL>
```

17. What is the average student count per department in your college?

Ans 17.

```
SQL> SELECT DEPT_NAME,AVG(STUDENT_CNT) AS AVERAGE_STUDENT_COUNT FROM DEPARTMENT_20BAI1154 GROUP BY DEPT_NAME ORDER BY DEPT_NAME;

DEPT_NAME                     AVERAGE_STUDENT_COUNT
----------------------------- ---------------------
CSE                                               5
ECE                                               3
EEE                                               4

SQL>
```

18. List the students who study 3rd year in your college using Between.

Ans 18.

```
SQL> SELECT NAME AS STUDENTS_IN_THIRD_YEAR FROM STUDENT_20BAI1154 WHERE SEMESTER BETWEEN 5 AND 6;

STUDENTS_IN_THIRD_YEAR
------------------------------
ADAM
OLIVIA
EMMA

SQL>
```

19. List the different departments which have students.

Ans 19.

```
SQL> SELECT DEPT_NAME FROM DEPARTMENT_20BAI1154 WHERE STUDENT_CNT IS NOT NULL;

DEPT_NAME
-------------------------------
CSE
EEE
ECE
```

20. Display the count of students enrolled in CSE department.

Ans 20.

```
SQL> SELECT COUNT(NAME) AS NUMBER_OF_STUDENTS_IN_CSE FROM STUDENT_20BAI1154 WHERE DID=100;

NUMBER_OF_STUDENTS_IN_CSE
-------------------------
                        5

SQL>
```

21. Display the contents of courses table in ascending order of Students count.

Ans 21.

```
SQL> SELECT * FROM DEPARTMENT_20BAI1154 ORDER BY STUDENT_CNT ASC;

   DEPT_ID DEPT_NAME                          STUDENT_CNT
---------- ------------------------------ -----------
       102 ECE                                      3
       101 EEE                                      4
       100 CSE                                      5

SQL>
```

22. Display the contents of courses table in descending order of Students count.

Ans 22.

```
SQL> SELECT * FROM DEPARTMENT_20BAI1154 ORDER BY STUDENT_CNT DESC;

   DEPT_ID DEPT_NAME                         STUDENT_CNT
---------- ------------------------------- -----------
       100 CSE                                       5
       101 EEE                                       4
       102 ECE                                       3

SQL>
```

23. Determine the average student count across courses run by each department.

Ans 23.

```
SQL> SELECT DEPT_NAME,AVG(STUDENT_CNT) AS AVERAGE_STUDENT_COUNT FROM DEPARTMENT_20BAI1154 GROUP BY DEPT_NAME ORDER BY AVG(STUDENT_CNT) DESC;

DEPT_NAME                    AVERAGE_STUDENT_COUNT
--------------------------- --------------------
CSE                                            5
EEE                                            4
ECE                                            3

SQL>
```