# Assignment - 4

* Create following tables using primary and foreign key

1. Students (rollno, sname, date_of_birth, gender, city, cid)

```sql
CREATE TABLE student (
    rollno NUMBER PRIMARY KEY,
    sname VARCHAR2(50),
    date_of_birth DATE,
    gender CHAR(1),
    city VARCHAR2(50)
    cid NUMBER,
    CONSTRAINT fk_class FOREIGN KEY
        (cid) REFRENCES (class(cid))
);
```

2. MARKS (rollno, sub1, sub2, sub3)

```sql
CREATE TABLE MARKS(
    rollno NUMBER,
    sub1 NUMBER,
    sub2 NUMBER,
    sub3 NUMBER,
    CONSTRAINT pk_marks PRIMARY KEY
        (rollno),
    CONSTRAINT fk_student FOREIGN KEY
        (rollno) REFRENCES student
        (rollno)
);
```

3. Class (cid, cname)

→ CREATE TABLE Class(
    cid Number PRIMARY KEY,
    cname VARCHAR2(50)
);

* Queries

* Inserting Records in Class table

→ Insert Into Class (cid, cname)
VALUES (1, 'FYBCA'),
    (2, 'SYBCA'),
    (3, 'TYBCA');

→ In Student table
→ Insert INTO Student (rollno, sname, date_of_birth, gender, city, cid)
VALUES
(110, 'RAJ', TO_DATE('15-JUL-2007', 'DD-MON-YYYY'), 'M', 'AHMedabad', 1),
(120, 'Mitali', TO_DATE('08-MAR-2002', 'DD-MON-YYYY'), 'F', 'surat', 2),
(130, 'Nisha', TO_DATE('22-JAN-2007', 'DD-MON-YYYY'), 'F', 'Bharuch', 1),
(140, 'Mehul', TO_DATE('19-JAN-2000', 'DD-MON-YYYY'), 'M', 'Vadodara', 3),
(150, 'Priya', TO_DATE('05-DEC-2002', 'DD-MON-YYYY'), 'F', 'Navsari', 2);

→ Inserting Marks

→ INSERT INTO Marks (rolno, sub1, sub2, sub3)
VALUES (110, 85, 78, 92),
       (120, 88, 91, 79),
       (130, 76, 85, 88),
       (140, 65, 72, 70),
       (150, 90, 87, 94);

* Queries

1. Add Fields named "Total" and "Per" in the Marks table
→ ALTER TABLE Marks
   ADD (Total NUMBER, Per NUMBER);

2. UPDATE the Total Field
→ UPDATE MARKS
   SET Total = sub1 + sub2 + sub3;

3. Update Per Field
→ UPDATE MARKS
   SET Per = ROUND((sub1 + sub2 + sub3)/3,2);

4. Display the student's personal detail with class name
→ SELECT s.rolno, s.name, s.date_of_birth, s.gender,
         s.city, c.name
   FROM Student s
   JOIN Class c ON s.cid = c.cid;

| rollno | sname | date of birth | gender | City | cname |
|--------|-------|---------------|--------|------|-------|
| 110 | Raj | 15-Jul-2001 | M | Ahmedabad | FYBCA |
| 120 | Mital | 08-MAR-2002 | F | Surat | SYBCA |
| 130 | Nisha | 22-JAN-2001 | F | Bharuch | FYBCA |
| 140 | Mehul | 29-JUN-2000 | M | Vadodara | TYBCA |
| 150 | Priya | 05-DEC-2002 | F | Navsari | SYBCA |

5. Display students result with their name

→ SELECT

      Student.sname,

      Marks.sub1,

      Marks.sub2,

      Marks.sub3,

      Marks.Total,

      Marks.Per

FROM

      Student

JOIN

      Marks

ON

      Student.rollno = Marks.rollno;

output:

| sname | sub1 | sub2 | sub3 | Total | Per |
|-------|------|------|------|-------|-----|
| Raj Patel | 85 | 78 | 92 | 255 | 85.00 |
| Mitali Shah | 88 | 91 | 79 | 258 | 86.00 |
| Nisha Mehta | 76 | 85 | 88 | 249 | 83.00 |
| Mehul Joshi | 65 | 72 | 70 | 207 | 69.00 |
| Priya Desai | 90 | 87 | 94 | 271 | 90.33 |

6. Display the students detail with result whose birth is in the year 2001.

→ SELECT

    Student.rollno,
    Student.sname,
    Student.date_of_birth,
    Student.gender,
    Student.city,
    Marks.Total,
    Marks.Per

From
    student

JOIN
    Marks

ON
    Student.rollno = Marks.rollno

WHERE
    EXTRACT(YEAR FROM Student.date_of_birth)=2001;

| rollno | sname | date of birth | gender | city | Total | Per |
|--------|-------|---------------|--------|------|-------|-----|
| 110 | Roy Rai | 15-JUL-2001 | M | Ahmedabad | 255 | 85 |
| 130 | Nisha | 22-JAN-2001 | F | Bharuch | 249 | 83 |

7. Display male students resets

→ SELECT

    Student.rollno,
    Student.sname,
    Student.gender,
    Marks.sub1,
    Marks.sub2,
    Marks.sub3,
    Marks.Total,

Marks. Per
FROM Student
JOIN Marks
ON Student.rollno = Marks.rollno
WHERE Student.gender = 'M';

| rollno | sname | gender | sub1 | sub2 | sub3 | Total | Per |
|--------|-------|--------|------|------|------|-------|-----|
| 110 | Raj | M | 85 | 78 | 92 | 255 | 85 |
| 140 | Mehel | M | 65 | 72 | 70 | 207 | 69 |

8. Display the students personal details who belong to the class "FYBCA".

→ SELECT Student.rollno,
          Student.sname,
          Student.date_of_birth,
          Student.gender,
          Student.city,
          class.cname
FROM Student
JOIN Class
ON Student.cid = Class.cid
WHERE Class.cname = 'FYBCA';

| rollno | sname | date of birth | gender | city | cname |
|--------|-------|---------------|--------|------|-------|
| 110 | Raj | 15-JUL-2001 | M | Ahmedab. | FYBCA |
| 120 | Mitali | 20-MAR-2009 | F | Surat | PYBCA |

9. Display the result of students who belong to the class "SYBCA".

→ SELECT    Student.rollno,
            Student.sname,
            Student.date_of_birth,
            Student.gender,
            Student.city,
            Marks.Total,
            Marks.Per
  FROM      Student
  JOIN      MARKS
  ON        Student.rollno = Marks.rollno
  JOIN      Class
  ON        Student.cid = Class.cid
  WHERE     Class.cname = 'SYBCA';

| rollno | sname | date of birth | gender | city | Total | Per |
|--------|-------|---------------|--------|------|-------|-----|
| 120 | Mitali | 08-MAR-2002 | F | Surat | 255 | 86 |
| 150 | Priya | 05-DEC-2009 | F | Navsari | 271 | 9033 |

10. Display class name and total number of students available in each class.

→ SELECT    Class.cname,
            COUNT(Student.rollno) As total student
  FROM      Class
  LEFT JOIN Student
  ON        class.cid = Student.cid
  GROUP BY  Class.cname;

| cname | total students |
|-------|----------------|
| FYBCA | 2 |
| SYBCA | 2 |

11. Display the students' details in descending order with class name.

→ SELECT  Student.rollno,
          Student.sname,
          Student.date_of_birth,
          Student.gender,
          Student.city,
          Class.cname
FROM      Student
JOIN      Class
ON        Student.cid = Class.cid
ORDER BY student.sname DESC;

| rollno | sname | date of birth | gender | city | cname |
|--------|-------|---------------|--------|------|-------|
| 140 | Mehul | 25-JUN-2001 | M | Vadodara | FYBCA |
| 120 | Mitali | 10-MAR-2002 | F | Surat | FYBCA |
| 110 | Raj | 15-JUL-2001 | M | Ahmedabad | SYBCA |
| 130 | Nisha | 22-JAN-2001 | F | Bharuch | SYBCA |
| 150 | Priya | 05-DEC-2002 | F | Navsari | FYBCA |

12. Display the students detail who got distinction

→ SELECT  Student.rollno,
          Student.sname,
          Student.date_of_birth,
          Student.gender,
          Student.city,
          Marks.Total,
          Marks.Per
FROM      Student
JOIN      Marks
ON        Student.rollno = Marks.rollno
WHERE     Marks.Per >= 75;

| rollno | sname | date of birth | gender | city | Total | Per |
|--------|-------|---------------|--------|------|-------|-----|
| 110 | Ray | 15-JUL-2001 | M | Ahmedabad | 255 | 85 |
| 120 | Mitali | 10-MAR-2002 | F | Surat | 258 | 86 |
| 130 | Priya | 05-DEC-2002 | F | Navsari | 271 | 90.33 |

13. Display the students results who belong to Surat

→ SELECT Student. rollno,
    Student. sname,
    Student. gender,
    Marks. sub1,
    Marks. sub2,
    Marks. sub3,
    Marks. Total,
    Marks. Per
FROM Student
JOIN Marks
ON Student. rollno = Marks. rollno
WHERE Student. city = 'surat';

| rollno | sname | gender | sub1 | sub2 | sub3 | Total | Per |
|--------|-------|--------|------|------|------|-------|-----|
| 120 | Mitali | F | 85 | 88 | 85 | 258 | 86 |
| 130 | Nisha | F | 79 | 85 | 82 | 246 | 82 |

14 Display Female Students results who belong to Bharuch city.

→ SELECT Student. rollno,
    Student. sname,
    Student. gender,
    Marks. sub1,
    Marks. sub2,
    Marks. sub3,
    Marks. Total,

Marks. Per.
FROM  Student
JOIN  Marks
ON    Student.rollno = Marks.rollno
WHERE Student.city = 'Bharuch' AND
      Student.gender = 'F';

| rollno | sname | gender | sub1 | sub2 | sub3 | Total | Per |
|--------|-------|--------|------|------|------|-------|-----|
| 130 | Nisha | F | 79 | 85 | 82 | 246 | 82 |

15. Display the Navsari's student's results whose
    name start with "M".

→ SELECT Student.rollno,
          Student.sname,
          Student.gender,
          Marks.sub1,
          Marks.sub2,
          Marks.sub3,
          Marks.Total,
          Marks.Per
  FROM  Student
  JOIN  Marks
  ON    Student.rollno = Marks.rollno
  WHERE Student.city = 'Navsari'
        AND Student.sname LIKE 'Mr.';

| rollno | sname | gender | sub1 | sub2 | sub3 | Total | Per |
|--------|-------|--------|------|------|------|-------|-----|
| 150 | Mitali | F | 85 | 90 | .85! | 260 | 86 67 |

16. List the students' details, their results, and class name.

```sql
→ SELECT  Student.rollno,
          Student.sname,
          Student.date_of_birth,
          Student.gender,
          Student.city,
          Marks.sub1,
          Marks.sub2,
          Marks.sub3,
          Marks.Total,
          Marks.Per,
          Class.cname
FROM
          Student
JOIN
          Marks
ON    Student.rollno = Marks.rollno
JOIN
          Class
ON    Student.cid = Class.cid;
```

| rollno | sname | date_of_birth | gender | city |
|--------|-------|---------------|--------|------|
| 110 | Ray | 15-JUL-2001 | M | Ahmedabad |
| 120 | Mitali | 10-MAR-2002 | F | Surat |
| 130 | Nishu | 22-JAN-2001 | F | Bharuch |
| 140 | Mehul | 25-JUN-2001 | M | Vadodara |
| 150 | Priya | 05-DEC-2002 | F | Navsari |

| sub1 | sub2 | sub3 | Total | Per | cname |
|---|---|---|---|---|---|
| 83 | 78 | 92 | 855 | 85 | FYBCA |
| 88 | 87 | 85 | 958 | 86 | FYBCA |
| 79 | 85 | 82 | 946 | 82 | SYBCA |
| 70 | 75 | 80 | 825 | 75 | SYBCA |
| 90 | 95 | 85 | 971 | 90.33 | FYBCA |

17. Display the maximum percentage achieved class-
wise with class name.

→ SELECT
        Class.cname,
        MAX(Marks.Per) AS max_percentage
    FROM
        Class
    JOIN
        Student
    ON  Class.cid = Student.cid
    JOIN  Marks
    ON  Student.rollno = Marks.rollno
    GROUP BY  Class.cname;

| cname | max_percentage |
|---|---|
| FYBCA | 90.33 |
| SYBCA | 82 |

18. Display the class detail who doesn't have
any student

→ SELECT  Class.cname
    FROM  Class
    LEFJ JOIN  Student
    ON  Class.cid = Student.cid
    WHERE Student.rollno IS NULL;

Empty because no classes without students

19. Display the student's personal detail whose results are not available

→ SELECT

      Student. rollno,
      Student. sname,
      Student. date_of_birth,
      Student. gender,
      Student. city,

FROM

      Student

LEFT JOIN

      Marks

ON

      Student. rollno = Marks. rollno

WHERE

      Marks. rollno IS NULL;

| rollno | sname | date_of_birth | gender | city |
|--------|-------|---------------|--------|------|
| 140 | Mehu | 25-JUN-2007 | M | Vadodara |

20. Display the student's detail who belong to
Surat city and who were born in the month
of July.

→ SELECT

Student. rollno
Student. sname,
Student. date_of_birth,
Student. gender
Student. city,
Marks. Total,
Marks. Per

FROM

Student

JOIN

Marks

ON

Student. rollno = Marks. rollno

WHERE

Student. city = 'surat'
AND
EXTRACT(MONTH FROM Student. date_of
birth) = 7;

| rollno | sname | date_of_birth | gender | city | Total | Per |
|--------|-------|---------------|--------|------|-------|-----|
| 220 | Mihut | to- | | | | |
| 110 | Raj | 15-JUL-2004 | M | Surat | 255 | 65 |