```sql
--create table
create table students(
roll_no int constraint roll_pk primary key,
stu_name varchar(50) not null,
branch varchar(20),
date_of_birth DATE not null
);

--insert values
INSERT INTO students VALUES
(10001, 'karuppa','IT','2007-02-15'),
(10002, 'tamil','IT','2005-12-31'),
(10003, 'mari','IT','2007-06-12'),
(20001, 'adithya','CSE','2007-09-10'),
(20002, 'anand', 'CSE','2006-01-25'),
(20003, 'pravin','CSE','2006-10-07'),
(30001, 'vasanth','ECE','2007-09-04'),
(30002, 'mani', 'ECE','2006-11-28'),
(30003, 'guna','ECE','2007-06-20'),
(40001, 'vijay', 'EEE','2005-05-05'),
(40002, 'viswa','EEE','2006-09-27'),
(40003, 'ganesh','EEE','2007-02-28'),
(50001, 'muthu', 'MECH','2005-02-03'),
(50002, 'vignesh', 'MECH','2007-01-21'),
(50003, 'siva', 'MECH','2005-04-19'),
(60001, 'santhosh','CIVIL','2006-07-19'),
(60002, 'thiru', 'CIVIL','2005-02-15'),
(60003, 'ragul','CIVIL','2007-11-20')

 (70001,'kishore','BME','2006-07-09')
(70002,'rishitha','BME','2005-04-03');
```

```
 roll_no | stu_name | branch | date_of_birth
---------+----------+--------+---------------
   10001 | karuppa  | IT     | 2007-02-15
   10002 | tamil    | IT     | 2005-12-31
   10003 | mari     | IT     | 2007-06-12
   20001 | adithya  | CSE    | 2007-09-10
   20002 | anand    | CSE    | 2006-01-25
   20003 | pravin   | CSE    | 2006-10-07
   30001 | vasanth  | ECE    | 2007-09-04
   30002 | mani     | ECE    | 2006-11-28
   30003 | guna     | ECE    | 2007-06-20
   40001 | vijay    | EEE    | 2005-05-05
   40002 | viswa    | EEE    | 2006-09-27
   40003 | ganesh   | EEE    | 2007-02-28
   50001 | muthu    | MECH   | 2005-02-03
   50002 | vignesh  | MECH   | 2021-01-07
   50003 | siva     | MECH   | 2005-04-19
   60001 | santhosh | CIVIL  | 2006-07-19
   60002 | thiru    | CIVIL  | 2005-02-15
```

```sql
create table marks(
roll_no INT constraint roll_pk references students(roll_no),
s1 INT check(s1<100),
s2 INT  check(s2<100),
s3 INT  check(s3<100),
s4 INT  check(s4<100),
s5 INT check(s5<100)
);

--insert values
INSERT INTO marks (roll_no, s1, s2, s3, s4, s5) VALUES
(10001, 85, 78, 90, 88, 76),
(10002, 80, 70, 75, 68, 72),
(10003, 90, 88, 84, 79, 85),
(20001, 77, 82, 86, 80, 78),
(20002, 88, 91, 87, 85, 83),
(20003, 69, 73, 70, 75, 72),
(30001, 92, 89, 90, 93, 91),
(30002, 65, 70, 68, 72, 74),
(30003, 78, 82, 85, 80, 79),
(40001, 86, 84, 88, 82, 80),
(40002, 90, 89, 87, 91, 88),
(40003, 75, 78, 80, 74, 76),
(50001, 85, 87, 89, 83, 88),
(50002, 92, 94, 91, 93, 95),
(50003, 70, 72, 68, 74, 73),
(60001, 88, 86, 90, 85, 87),
(60002, 81, 80, 79, 83, 82),
(60003, 76, 75, 78, 77, 74),
(70001, 90, 85, 76, 94, 92),
(70002, 89, 87, 67, 73, 92);
```

roll_no	s1	s2	s3	s4	s5
10001	85	78	90	88	76
10002	80	70	75	68	72
10003	90	88	84	79	85
20001	77	82	86	80	78
20002	88	91	87	85	83
20003	69	73	70	75	72
30001	92	89	90	93	91
30002	65	70	68	72	74
30003	78	82	85	80	79
40001	86	84	88	82	80
40002	90	89	87	91	88
40003	75	78	80	74	76
50001	85	87	89	83	88
50002	92	94	91	93	95
50003	70	72	68	74	73
60001	88	86	90	85	87
60002	81	80	79	83	82
60003	76	75	78	77	74s

```
--query1 join two tables
select s.roll_no,s.stu_name,m.s1,m.s2 from students as s

join marks as m

on s.roll_no=m.roll_no;

 roll_no | stu_name | s1 | s2
---------+----------+----+----
   10001 | karuppa  | 85 | 78
   10002 | tamil    | 80 | 70
   10003 | mari     | 90 | 88
   20001 | adithya  | 77 | 82
   20002 | anand    | 88 | 91
   20003 | pravin   | 69 | 73
   30001 | vasanth  | 92 | 89
   30002 | mani     | 65 | 70
   30003 | guna     | 78 | 82
   40001 | vijay    | 86 | 84
   40002 | viswa    | 90 | 89
   40003 | ganesh   | 75 | 78
   50001 | muthu    | 85 | 87
   50002 | vignesh  | 92 | 94
   50003 | siva     | 70 | 72
   60001 | santhosh | 88 | 86
   60002 | thiru    | 81 | 80
   60003 | ragul    | 76 | 75
   70001 | kishore  | 90 | 87
   70002 | rishitha | 89 | 87

--query2 find avg marks for all subjects
select round(avg(s1),2) as avg_s1, round(avg(s2),2) as avg_s2, round(avg(s3),2) as avg_s3, round(avg(s4),2) as avg_s4, round(avg(s5),2) as avg_s5 from marks;

 avg_s1 | avg_s2 | avg_s3 | avg_s4 | avg_s5
--------+--------+--------+--------+--------
  82.30 |  82.10 |  81.40 |  81.45 |  81.85

--query3  select students from IT and CSE
select * from students
where age=18 and branch in('IT','CSE');

 roll_no | stu_name | branch | date_of_birth |  cur_date  | age
---------+----------+--------+---------------+------------+-----
   10001 | karuppa  | IT     | 2007-02-15    | 2025-08-01 |  18
   10003 | mari     | IT     | 2007-06-12    | 2025-08-01 |  18
   20001 | adithya  | CSE    | 2007-09-10    | 2025-08-01 |  18
```

```
--query4 find max marks
select max(avg_marks) as max from marks;

   max
-------
 93.00

--query5 count no_of_students in each department
select branch,count(*) from students
 group by branch;

 branch | count
--------+-------
 CSE    |     3
 BME    |     2
 MECH   |     3
 EEE    |     3
 CIVIL  |     3
 IT     |     3
 ECE    |     3

--query6 find max mark in each subject in each department
select s.branch,max(m.s1) as max_s1,max(m.s2) as max_s2,max(m.s3) as max_s3,max(m.s4) as max_s4,max(m.s5) as max_s5
from students as s
join marks as m
on s.roll_no=m.roll_no
group by branch;

 branch | max_s1 | max_s2 | max_s3 | max_s4 | max_s5
--------+--------+--------+--------+--------+--------
 CSE    |     88 |     91 |     87 |     85 |     83
 BME    |     90 |     87 |     76 |     94 |     92
 MECH   |     92 |     94 |     91 |     93 |     95
 EEE    |     90 |     89 |     88 |     91 |     88
 CIVIL  |     88 |     86 |     90 |     85 |     87
 IT     |     90 |     88 |     90 |     88 |     85
 ECE    |     92 |     89 |     90 |     93 |     91

--query7 find max marks in each department
select s.branch,max(m.tot_marks) from students as s
join marks as m
on s.roll_no=m.roll_no
group by branch;

 branch | max
--------+-----
 CSE    | 434
 BME    | 439
 MECH   | 465
 EEE    | 445
 CIVIL  | 436
 IT     | 426
```

```
--query 8 find oldest student
select * from students
order by date_of-birth asc
limit 1;

 roll_no | stu_name | branch | date_of_birth |  cur_date  | age
---------+----------+--------+---------------+------------+-----
   50001 | muthu    | MECH   | 2005-02-03    | 2025-08-01 |  20


--query 9 find 1st mark student
select s.roll_no, s.stu_name, s.branch, m.tot_marks, m.avg_marks
from student s
join marks m
on s.roll_no = m.roll_no
where m.tot_marks = (
    select max(tot_marks) from marks
);


 roll_no | stu_name | branch | tot_marks | avg_marks
---------+----------+--------+-----------+-----------
   50002 | vignesh  | MECH   |       465 |     93.00

--query 10 find student details where name start with a
select * from students
where stu_name like 'a%';

 roll_no | stu_name | branch | date_of_birth |  cur_date  | age
---------+----------+--------+---------------+------------+-----
   20001 | adithya  | CSE    | 2007-09-10    | 2025-08-01 |  18
   20002 | anand    | CSE    | 2006-01-25    | 2025-08-01 |  19

--query 11 find students details where name start and end with a
select * from students
where stu_name like 'a%' and  stu_name like '%a';

 roll_no | stu_name | branch | date_of_birth |  cur_date  | age
---------+----------+--------+---------------+------------+-----
   20001 | adithya  | CSE    | 2007-09-10    | 2025-08-01 |  18
```

```sql
--query 12 find oldest student in each department
select s.roll_no, s.stu_name, s.branch, s.date_of_birth, s.age
from student s
join (
    select branch, MIN(date_of_birth) as oldest_dob
    from student
    group by branch
) oldest_student
ON s.branch = oldest_student.branch and          s.date_of_birth = oldest_student.oldest_dob;
```

```
 roll_no | stu_name | branch | date_of_birth | age
---------+----------+--------+---------------+-----
   10002 | tamil    | IT     | 2005-12-31    |  20
   20002 | anand    | CSE    | 2006-01-25    |  19
   30002 | mani     | ECE    | 2006-11-28    |  19
   40001 | vijay    | EEE    | 2005-05-05    |  20
   50001 | muthu    | MECH   | 2005-02-03    |  20
   60002 | thiru    | CIVIL  | 2005-02-15    |  20
   70002 | rishitha | BME    | 2005-04-03    |  20
```

```sql
--query 13 find whose born on feb
select * from students
where extract(month from date_of_birth) = 2;
```

```
 roll_no | stu_name | branch | date_of_birth |  cur_date  | age
---------+----------+--------+---------------+------------+-----
   10001 | karuppa  | IT     | 2007-02-15    | 2025-08-01 |  18
   40003 | ganesh   | EEE    | 2007-02-28    | 2025-08-01 |  18
   50001 | muthu    | MECH   | 2005-02-03    | 2025-08-01 |  20
   60002 | thiru    | CIVIL  | 2005-02-15    | 2025-08-01 |  20
```

```sql
--query 14 find students whose avgmarks is greater than dept avgmarks
select s.roll_no, s.stu_name, s.branch, m.avg_marks from students s
join marks m on s.roll_no = m.roll_no
where m.avg_marks > (
  select AVG(m2.avg_marks)
  from marks m2
  join students s2 on m2.roll_no = s2.roll_no
  where s2.branch = s.branch
);
```

```
 roll_no | stu_name | branch | avg_marks
---------+----------+--------+-----------
   10001 | karuppa  | IT     |     83.00
   10003 | mari     | IT     |     85.00
   20001 | adithya  | CSE    |     80.00
   20002 | anand    | CSE    |     86.00
   30001 | vasanth  | ECE    |     91.00
   40001 | vijay    | EEE    |     84.00
   40002 | viswa    | EEE    |     89.00
   50001 | muthu    | MECH   |     86.00
```

```sql
--give a students age in years,months an       d days
select roll_no, stu_name, branch,
       extract(year from age(cur_date, date_of_birth)) || ' years ' ||
       extract(month from age(cur_date, date_of_birth)) || ' months ' ||
       extract(day from age(cur_date, date_of_birth)) || ' days' as age
from students;
```

```
 roll_no | stu_name | branch |              age
---------+----------+--------+----------------------------
   10001 | karuppa  | IT     | 18 years 5 months 14 days
   10002 | tamil    | IT     | 19 years 7 months 1 days
   10003 | mari     | IT     | 18 years 1 months 19 days
   20001 | adithya  | CSE    | 17 years 10 months 21 days
   20002 | anand    | CSE    | 19 years 6 months 7 days
   20003 | pravin   | CSE    | 18 years 9 months 25 days
   30001 | vasanth  | ECE    | 17 years 10 months 27 days
   30002 | mani     | ECE    | 18 years 8 months 3 days
   30003 | guna     | ECE    | 18 years 1 months 11 days
   40001 | vijay    | EEE    | 20 years 2 months 27 days
   40002 | viswa    | EEE    | 18 years 10 months 4 days
   40003 | ganesh   | EEE    | 18 years 5 months 1 days
   50001 | muthu    | MECH   | 20 years 5 months 26 days
   50003 | siva     | MECH   | 20 years 3 months 12 days
   60001 | santhosh | CIVIL  | 19 years 0 months 13 days
   60002 | thiru    | CIVIL  | 20 years 5 months 14 days
   60003 | ragul    | CIVIL  | 17 years 8 months 11 days
   70001 | kishore  | BME    | 19 years 0 months 23 days
   70002 | rishitha | BME    | 20 years 3 months 28 days
   50002 | vignesh  | MECH   | 18 years 6 months 25 days
```

```sql
--get input from user
\prompt 'Enter Roll Number: ' roll
\prompt 'Enter Name: ' name
\prompt 'Enter Branch: ' branch
\prompt 'Enter Date of Birth: ' dob
\prompt 'Enter Current Date: ' cur
```

```
Enter Roll Number: 70003
Enter Name: moni
Enter Branch: BME
Enter Date of Birth: 06-09-2007
Enter Current Date: 07-08-2025
```

```sql
insert into students (roll_no, stu_name, branch, date_of_birth, cur_date, age)
values (:roll, :'name', :'branch', :'dob', :'cur',
       extract((year from age(:'cur', :'dob')));
```