

College Of Engineering Trivandrum

Application Software Development Lab



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Cycle 1

Exp No 4

AGGREGATE FUNCTIONS

1 Aim

Introduction to Aggregate functions

- 1. AVG()
- 2. MAX()
- 3. MIN()
- 4. SUM()
- 5. COUNT()

2 Questions

Create a table named student and populate the table.

The table contains the marks of 10 students for 3 subjects(Physics, Chemistry, Mathematics).The total marks for physics and chemistry is 25.

while for mathematics it is 50.

The pass mark for physics and chemistry is 12 and for mathematics it is 25.

A student is awarded a 'Pass' if he has passed all the subjects.

```
create table student(rollno int not null,name varchar(10),physics int,chemistry  
int , maths int,primary key(rollno));
```

```
insert into student values('1','Adam','20','20','33');  
insert into student values('2','Bob','18','9','41');  
insert into student values('3','Bright','22','7','31');  
insert into student values('4','Duke','13','21','20');  
insert into student values('5','Elvin','14','22','23');  
insert into student values('6','Fetcher','2','10','48');  
insert into student values('7','Georgina','22','12','22');  
insert into student values('8','Mary','24','14','31');  
insert into student values('9','Tom','19','15','24');  
insert into student values('10','Zack','8','20','36');
```

0. Display the Table

```
select * from student;
```

```
asdlab=# select * from student;
 rollno |   name   | physics | chemistry | maths
-----+-----+-----+-----+-----
      1 | Adam     |      20 |         20 |      33
      2 | Bob      |      18 |          9 |      41
      3 | Bright   |      22 |          7 |      31
      4 | Duke     |      13 |         21 |      20
      5 | Elvin    |      14 |         22 |      23
      6 | Fetcher  |       2 |         10 |      48
      7 | Georgina |      22 |         12 |      22
      8 | Mary     |      24 |         14 |      31
      9 | Tom      |      19 |         15 |      24
     10 | Zack     |       8 |         20 |      36
(10 rows)

asdlab=#
```

Figure 1: Student Table

1 Find the class average for the subject 'Physics'

```
select avg(physics) from student;
```

```
asdlab=# select avg(physics) from student;
      avg
-----
16.2000000000000000
(1 row)

asdlab=#
```

Figure 2: Average for physics

2 Find the highest marks for mathematics (To be displayed as highest_marks_maths).

```
select max(maths) as highest_marks_maths from student;
```

```
asdlab=# select max(maths) as highest_marks_maths from student;
 highest_marks_maths
-----
                  48
(1 row)

asdlab=#
```

Figure 3: Max maths

3 Find the lowest marks for chemistry (To be displayed as lowest_mark_chemistry)

```
select min(chemistry) as lowest_marks_chemistry from student;
```

```
asdlab=# select min(chemistry) as lowest_marks_chemistry from student;
lowest_marks_chemistry
-----
7
(1 row)
asdlab=#
```

Figure 4: Minimum for chemistry

4 Find the total number of students who has got a 'pass' in physics.

```
select count(*) from student where physics>='12';
```

```
asdlab=# select count(*) from student where physics>='12';
count
-----
8
(1 row)
asdlab=#
```

Figure 5: Physics Pass

5 Generate the list of students who have passed in all the subjects

```
select * from student where physics>='12' and chemistry>='12' and maths>='25';
```

```
asdlab=# select * from student where physics>='12' and chemistry>='12' and maths>='25';
rollno | name | physics | chemistry | maths
-----+-----+-----+-----+-----
1 | Adam | 20 | 20 | 33
8 | Mary | 24 | 14 | 31
(2 rows)
asdlab=#
```

Figure 6: All Pass

6. Generate a rank list for the class. Indicate Pass/Fail.
Ranking based on total marks obtained by the students.

```
alter table student add column total int ;
alter table student add column p_or_f char(1) ;
update student set total=physics+chemistry+maths;
update student set p_or_f='p' where physics>=12 and chemistry>=12 and maths>=25;
update student set p_or_f='f' where physics<12 or chemistry<12 or maths<25;
select * from student order by total desc;
```

```
asdlab=# alter table student add column total int ;
ALTER TABLE
asdlab=# alter table student add column p_or_f char(1) ;
ALTER TABLE
asdlab=# update student set total=physics+chemistry+maths;
UPDATE 10
asdlab=# update student set p_or_f='p' where physics>=12 and chemistry>=12 and maths>=25;
UPDATE 2
asdlab=# update student set p_or_f='f' where physics<12 or chemistry<12 or maths<25;
UPDATE 8
asdlab=# select * from student order by total desc;
 rollno |  name  | physics | chemistry | maths | total | p_or_f
-----+-----+-----+-----+-----+-----+-----
      1 | Adam   |      20 |         20 |      33 |      73 | p
      8 | Mary   |      24 |         14 |      31 |      69 | p
      2 | Bob    |      18 |          9 |      41 |      68 | f
     10 | Zack   |       8 |         20 |      36 |      64 | f
      6 | Fetcher |       2 |         10 |      48 |      60 | f
      3 | Bright |      22 |          7 |      31 |      60 | f
      5 | Elvin  |      14 |         22 |      23 |      59 | f
      9 | Tom    |      19 |         15 |      24 |      58 | f
      7 | Georgina |      22 |         12 |      22 |      56 | f
      4 | Duke   |      13 |         21 |      20 |      54 | f
(10 rows)

asdlab=#
```

Figure 7: Rank list
labelinsert

7. Find pass percentage of the class for mathematics.

```
select count(rollno)*100/(select count(rollno) from student) as maths_pass_percentage
from student where maths>='25';
```

```
asdlab=# select count(rollno)*100/(select count(rollno) from student) as maths_pass_percentage
from student where maths>='25';
-----
                        60
(1 row)

asdlab=#
```

Figure 8: Maths Pass percent

8 Find the overall pass percentage for all class.

```
select count(rollno)*100/(select count(rollno) from student) as pass_percentage  
from student where p_or_f='p';
```

```
asdlab=# select count(rollno)*100/  
pass_percentage  
-----  
20  
(1 row)  
asdlab=#
```

Figure 9: Overall Pass percentage

9 Find the class average.

```
select avg(total) from student;
```

```
asdlab=# select avg(total) from student;  
avg  
-----  
62.1000000000000000  
(1 row)  
asdlab=#
```

Figure 10: Class average

10 Find the total number of students who have got a Pass.

```
select count(*) from student where p_or_f='p';
```

```
asdlab=# select count(*) from student where p_or_f='p';  
count  
-----  
2  
(1 row)  
asdlab=#
```

Figure 11: Total Pass students

3 Result

The query was executed and the output was obtained.