Experiment No 6 Database Management System Lab 2021-22 Faculty: Sana Shaikh

Class: SE Comp Experiment No: 6

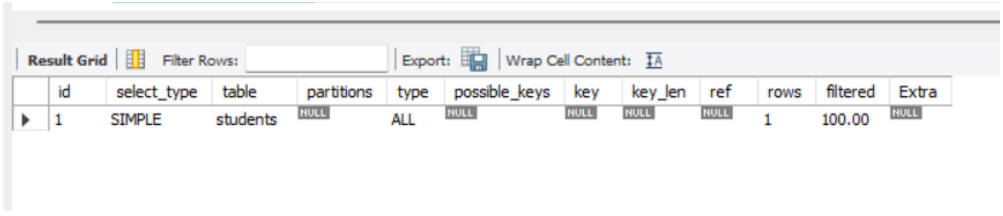
Ashish Jha Roll No. 27 Batch : B

Topic:	Implement SQL Functions (string case and manipulation operations, Numeric, Date & Time functions), Group By, Having Clause and Order By clause.
Prerequisite :	Knowledge of SQL syntax.
Mapping With COs:	CSL402.2, CSL402.3
Objective:	- To explore and implement single-row functions and Aggregate functions available in SQL. - To apply various functions within the query statement. - Practice Queries using Single-row functions, Aggregate functions (COUNT, SUM, AVG, MAX and MIN) - Apply ORDER BY, GROUP BY, and HAVING clauses.
Outcome:	After completion of this lab, the student should be able to: - Implement Single row functions in SQL statements - Implement Aggregate functions in SQL statements - Implement Order by, Group by and Having clause in SQL statements - Explain and use SQL functions to manipulate dates, strings, and other data. - Describe various types of functions available in SQL - Use character, number, and date functions in SELECT statements - Describe the use of conversion functions
Instructions:	1. This experiment is a compulsory experiment. All the students are required to perform this experiment individually. 2. Implement all the types of single row and multiple row functions. Implement Order by, Group By and having clauses. Also implement Nested Grouping and nested aggregate functions.

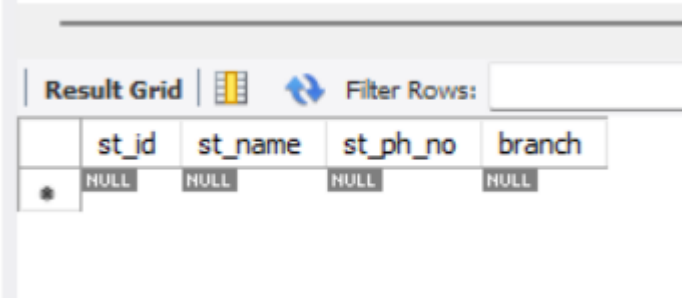
Deliverables:	**1. COUNT FUNCTION** **- COUNT function is used to Count the number of rows in a database table. It can work on both numeric and non-numeric data types.** **- COUNT function uses the COUNT(*) that returns the count of all the rows in a specified table. COUNT(*) considers duplicate and Null.** **2. SUM Function** **- Sum function is used to calculate the sum of all selected columns. It works on numeric fields only.** **3. AVG function** **- The AVG function is used to calculate the average value of the numeric type. AVG function returns the average of all non-Null values.** **4. MAX Function** **- MAX function is used to find the maximum value of a certain column. This function determines the largest value of all selected values of a column.** **5. MIN Function** **- MIN function is used to find the minimum value of a certain column. This function determines the smallest value of all selected values of a column.** use mysql CREATE TABLE students(st_id int primary key, st_name varchar(100), st_ph_no varchar(100),branch varchar(5)); CREATE TABLE marks(mr_id int, mark int, foreign key(mr_id) references students(st_id)); insert into students values(11,'AAA','111...','comps'); insert into students values(12,'BBB','222...','it'); insert into students values(13,'CCC','333...','comps'); insert into students values(14,'DDD','444...','it'); insert into marks values(11,80); insert into marks values(12,50); insert into marks values(13,70); insert into marks values(14,90); desc table students; desc table marks; select * from students; select * from marks;

```
select min(mark) from marks;

select max(mark) from marks;

select avg(mark) from marks;

select count(mark) from marks;

select count(st_id) from students;
where st_id > 102;

select *from marks
order by mark;

select branch from students
group by branch;

drop table students;
drop table marks;
```

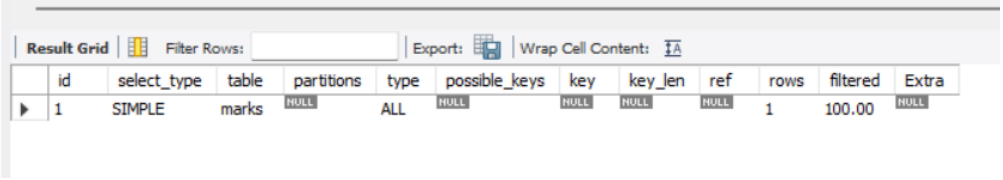
Output :



id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	students	NULL	ALL	NULL	NULL	NULL	NULL	1	100.00	NULL



st_id	st_name	st_ph_no	branch
NULL	NULL	NULL	NULL



id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	marks	NULL	ALL	NULL	NULL	NULL	NULL	1	100.00	NULL

Result Grid | Filter Rows: | Export:

mr_id	mark

Result Grid | Filter Rows:

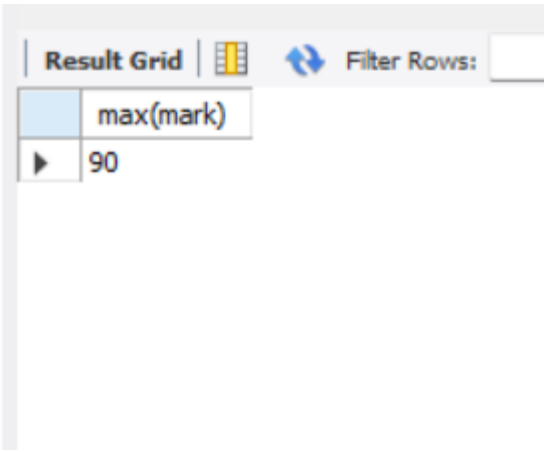
st_id	st_name	st_ph_no	branch
11	AAA	111...	comps
12	BBB	222...	it
13	CCC	333...	comps
14	DDD	444...	it
NULL	NULL	NULL	NULL

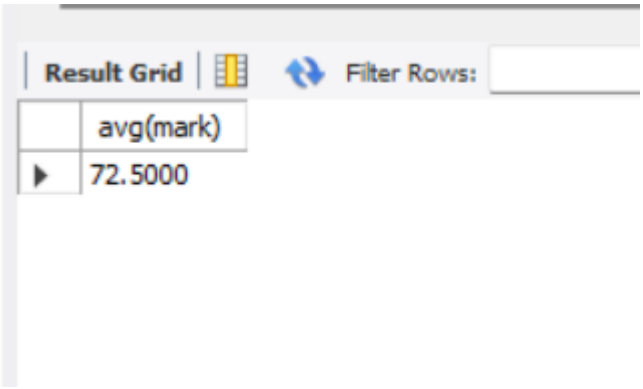
Result Grid | Filter Row

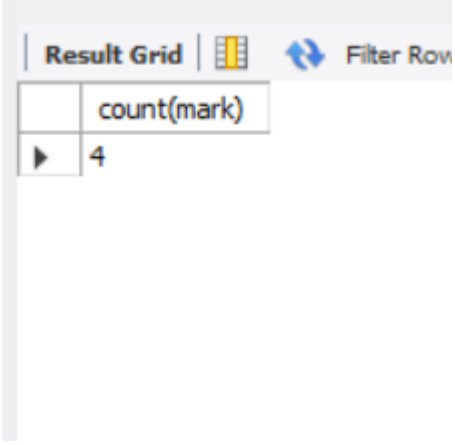
mr_id	mark
11	80
12	50
13	70
14	90

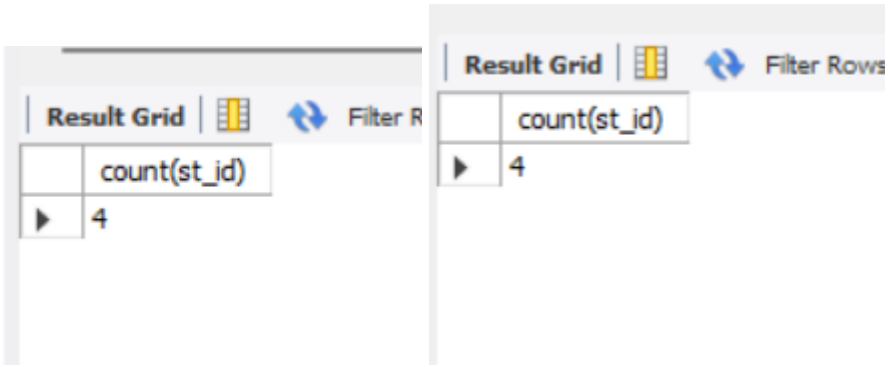
Result Grid | Filter Rows:

min(mark)
50


Result Grid
Filter Rows:
max(mark)
90


Result Grid
Filter Rows:
avg(mark)
72.5000


Result Grid
Filter Row
count(mark)
4



Result Grid | Filter R

	count(st_id)
▶	4

Result Grid | Filter Rows

	count(st_id)
▶	4

Result Grid | Filter Rows:

	count(st_id)
▶	4

Result Grid | Filter Rows:

	mr_id	mark
▶	12	50
	13	70
	11	80
	14	90

Result Grid | Filter R

	branch
▶	comps
	it

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Conclusion:	- Single row functions in SQL statements - Aggregate functions in SQL statements - Order by, Group by and Having clause in SQL statements
References:	Class notes nad moodle

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Class: SE Comp

Don Bosco Institute of Technology

Department of Computer Engineering

Assessment Rubric for Experiment No. 6

Title of Experiment : Implement SQL Functions, Group By, havin and order by clause

Performance Date :

Year and Semester : 2nd Year and IV[th] Semester **Submission Date : Name: Batch : Roll No. :**

	. Criteria	1 Marks	2 Marks	3 Marks 4 Marks	5 Marks
1	Execution	Executed 10-30% queries based on following: - All single row functions - All Aggregate functions Nested Aggregate functions - Order by - Group by - Having clause - Nested Grouping	Executed 31-50% queries based on following: - All single row functions - All Aggregate functions Nested Aggregate functions - Order by - Group by - Having clause - Nested Grouping	Executed 51-70% queries based on following: - All single row functions - All Aggregate functions Nested Aggregate functions - Order by - Group by - Having clause - Nested Grouping	Executed 90-100% queries based on following: - All single row functions - All Aggregate functions Nested Aggregate functions - Order by - Group by - Having clause - Nested Grouping
2	Documentati	20-39% of solutions are documented properly.	40-59% of solutions are documented properly.	60-79% of	
3	on Viva	Students hardly answered.	Students have problems while answering.		

				80-100% of solutions are documented properly. Questions are answered fairly well.	the solution is documented properly. Questions are answered completely and correctly.
4	Submission on Time	Submitted after the given deadline	Submitted before the given deadline		