EAST WEST UNIVERSITY

Lab-4

CSE302

Database Systems

Sec :05

Submitted To:

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SQL Functions

SQL aggregate function performs calculation on multiple values and returns a single value.

SQL Average () Function:

The AVG () function is used for averaging value of a numeric column.

We have the following “Student” table:

last_name	first_name	id	major	Marks
Rahman	Nadia	12	Biology	76
Islam	Sadia	15	English	66
Islam	Samia	18	Biology	78
Nilhaat	Fiana	203	English	81
Hossain	Zaima	210	English	88

To average the number:

```
1 SELECT AVG(Marks) as AVGMARKS
2 FROM student
```

AVGMARKS
79.5000

SQL COUNT () Function:

The COUNT () function is an aggregate function that returns number of rows in a table.

```
1 SELECT COUNT(*) as NumberOfId
2 FROM student
```

NumberOfId
5

SQL COUNT (DISTINCT column_name):

```
1 SELECT COUNT(DISTINCT major) as NumberOfMajor
2 FROM student
3
```

NumberOfMajor
2

SQL MAX () Function:

This function returns the largest value of the selected column.

```
1 SELECT MAX(Marks) as HighestMark
2 FROM student
```

HighestMark
88

SQL MIN () Function:

This function returns the smallest value of the selected column.

```
SELECT MIN(Marks) as lowestMark
FROM student
```

lowestMark
66

The SUM () Function:

This function returns the total sum of a numeric column.

```
SELECT SUM(Marks) as TotalMarks
FROM student
```

TotalMarks
389

SQL GROUP BY STATEMENT:

The GROUP BY statement in SQL is used for arranging identical data intogroups with the help of some functions.

```
SELECT major, AVG(Marks) as AVGMARKS
FROM student
GROUP BY major;
```

major	AVGMARKS
Biology	77.0000
English	78.3333

SQL HAVING Clause:

The HAVING Clause is used with GROUP clause and returns the rows where condition is true.

```sql
SELECT major, SUM(Marks)
FROM student
GROUP BY major
HAVING SUM(Marks)>85
```

major	SUM(Marks)
Biology	154
English	235

Conclusion:

SQL function provides many aggregate functions that include avg, count, sum, max, min. An aggregate function ignores null values while performing calculation expect for the count function. The group by clause is often used with aggregate function to show one value per group shift to collect multiple type of information. And the having clause is used because the where key word cannot be used with aggregate functions. This function represents an easy way to significantly improve applications performance.