ROLL NUMBER : 19131A05P1 V SATYA SIVA LALITHA GAYATHRI BODA
SEC: CSE4

Part A

Aim:SQL commands:

i) To perform SQL Aggregate Functions
ii) Group by Clause
iii) Having Clause

Prerequisite: Oracle.

Outcome: Understanding and use of various Oracle functions.

Theory:

Aggregate Functions

AVG: returns average value
Avg(<ColumnName>)

MIN: returns minimum value
min(<ColumnName>)

COUNT: returns no of rows where expression is not NULL
count(<ColumnName>)

COUNT(*): returns no of rows in the table including duplicates and those with NULL
count(*)

MAX: returns maximum value
max(<ColumnName>)

SUM: returns sum of the values
sum(<ColumnName>)

Group by clause: this optional clause tells Oracle to group rows based on distinct values that exists for specified columns.

Select <columnname 1><columnname 2>...<columnname n>,
Aggregate_function(<expression>) from tablename Where <condition>
Group by <columnname 1><columnname 2>...<columnname n>;

Having clause: imposes a condition on group by clause.

Select <columnname 1><columnname 2>...<columnname n>,
Aggregate_function(<expression>) from tablename Where <condition>
Group by <columnname 1><columnname 2>...<columnname n>
Having <condition>;

Example

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Procedure:

1. Formulate the query for given problem.
2. Write the SQL query with proper input.
3. Execute the query.

Practice Exercise:

1. Give one example query to demonstrate each function.
2. Display the total expenditure of company on the salary of employees.
3. Find average salary of clerks.
4. Find average salary of managers and salesman.
5. Find employees with maximum annual income.
6. Find the employee with minimum monthly income.
7. Find the number of employees earning more than the average salary of employees.
8. List the details of the department where maximum number of emps are working.
9. Find the total salary department wise.
10. Find total salary average salary Job wise.
11. Find the name of department taking maximum salary.
12. Find name of department taking minimum salary.

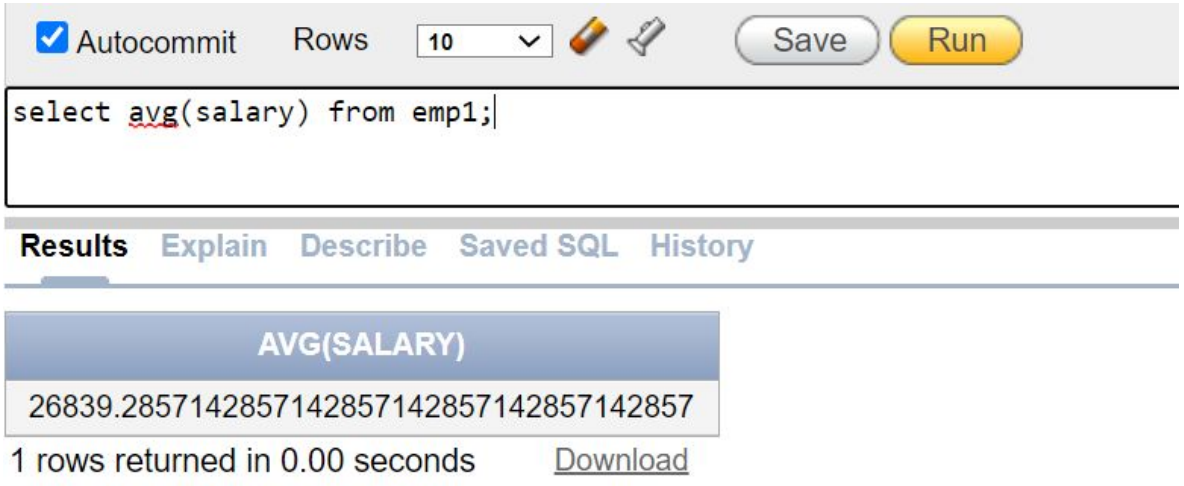
Instructions:

1. Write and execute the query in Oracle SQL server.
2. Paste the snapshot of the output in input & output section.

Part B

Code and Output:

1)select avg(salary) from emp1;



select min(salary) from emp1;

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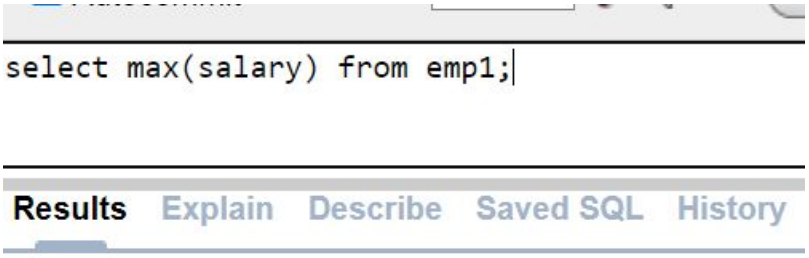
select max(salary) from emp1;



select count(salary) from emp1;

select sum(salary) from emp1;

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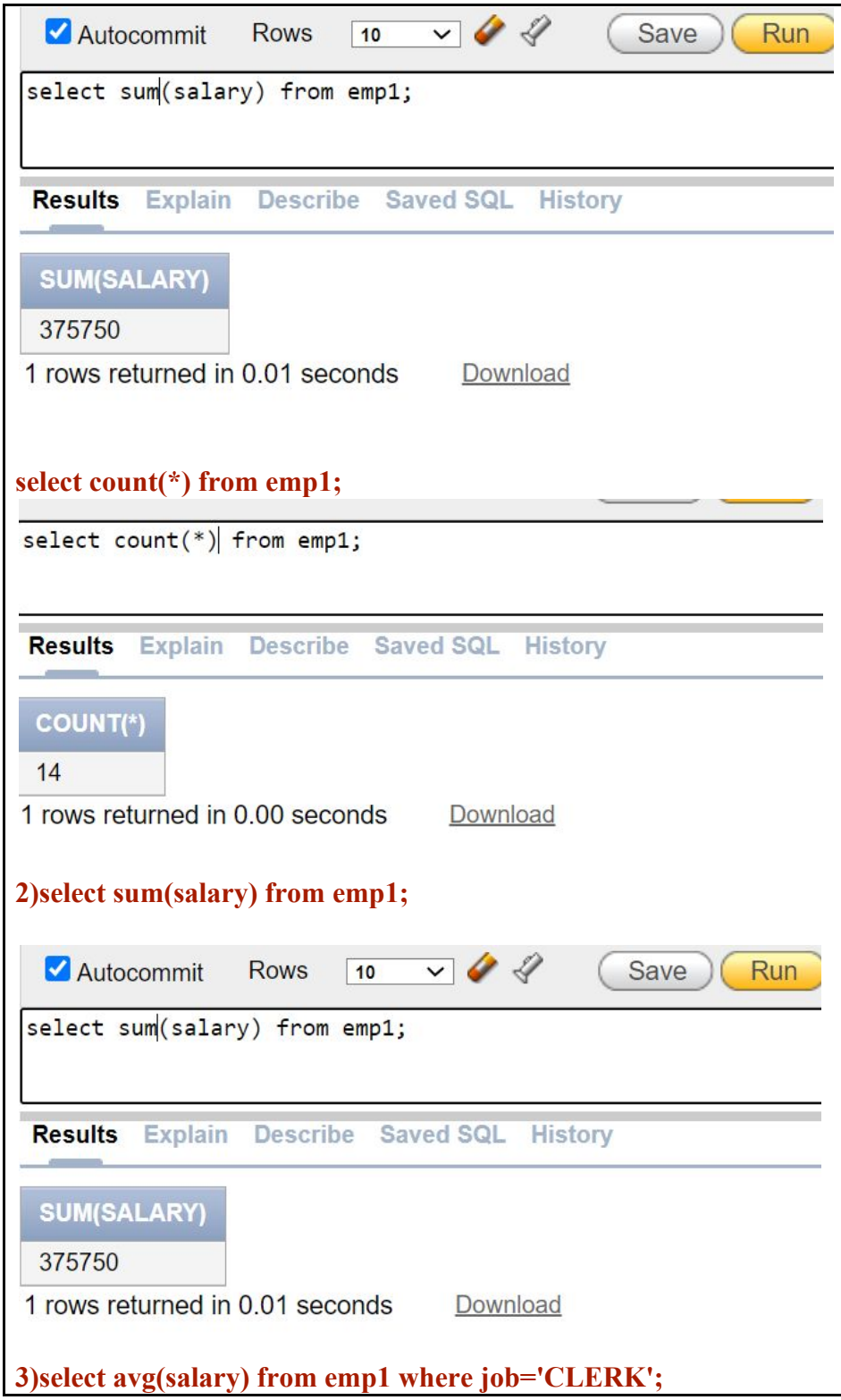

select count(*) from emp1;

2)select sum(salary) from emp1;

3)select avg(salary) from emp1 where job='CLERK';

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```
select avg(salary) from emp1 where job='CLERK';
```

Results Explain Describe Saved SQL History

AVG(SALARY)
31750

1 rows returned in 0.00 seconds Download

4)select avg(salary) from emp1 group by job having job='MANAGER' or job='SALESMAN';

```
select avg(salary) from emp1 group by job having job='MANAGER' or job='SALESMAN';
```

Results Explain Describe Saved SQL History

AVG(SALARY)
14000
27583.333333333333333333333333333333333

2 rows returned in 0.00 seconds Download

5)select ename from emp1 where salary=(select max(salary) from emp1);

```
select ename from emp1 where salary=(select max(salary) from emp1);
```

Results Explain Describe Saved SQL History

ENAME
James

1 rows returned in 0.00 seconds Download

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6)select ename from emp1 where salary=(select min(salary) from emp1);

```
select ename from emp1 where salary=(select min(salary) from emp1);
```

Results Explain Describe Saved SQL History

ENAME
Smith

1 rows returned in 0.01 seconds Download

7)select count(ename) from emp1 where salary>=(select avg(salary) from emp1);

```
select count(ename) from emp1 where salary>=(select avg(salary) from emp1);
```

Results Explain Describe Saved SQL History

COUNT(ENAME)
6

1 rows returned in 0.00 seconds Download

8)

select * from department where dept_no in (select dept_no from emp1 group by dept_no having count(dept_no)= (select max(count(dept_no)) from emp1 group by dept_no)) ;

```
select * from department where dept_no in (select dept_no from emp1 group by dept_no having count(dept_no)= (select max(count(dept_no)) from emp1 group by dept_no)) ;
```

Results Explain Describe Saved SQL History

DEPT_NO	DNAME	LOCATION
30	SALES	CHICAGO

1 rows returned in 0.00 seconds Download

9)select dept_no,sum(salary) from emp1 group by dept_no;

```
select dept_no,sum(salary) from emp1 group by dept_no;
```

Results Explain Describe Saved SQL History

DEPT_NO	SUM(SALARY)
30	179500
20	108750
10	87500

3 rows returned in 0.00 seconds Download

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10)select sum(salary),avg(salary) from emp1 group by dept_no;

```
select sum(salary),avg(salary) from emp1 group by dept_no;
```

Results Explain Describe Saved SQL History

SUM(SALARY)	AVG(SALARY)
179500	29916.666666666666666666666666666666667
108750	21750
87500	29166.666666666666666666666666666666667

3 rows returned in 0.01 seconds Download

11)select d.dname from department d, emp1 e where d.dept_no=e.dept_no and e.salary in(select max(salary) from emp1);

```
select distinct d.dname from department d,emp1 e where d.dept_no=e.dept_no and e.salary in(select max(salary) from emp1);
```

Results Explain Describe Saved SQL History

DNAME
SALES

1 rows returned in 0.01 seconds Download

12)select d.dname from department d, emp1 e where d.dept_no=e.dept_no and e.salary in(select min(salary) from emp1);

```
select d.dname from department d, emp1 e where d.dept_no=e.dept_no and e.salary in(select min(salary) from emp1);
```

Results Explain Describe Saved SQL History

DNAME
RESEARCH

1 rows returned in 0.01 seconds Download

Observation & Learning:

Executed simple queries on SQL Aggregate Functions,Having clause,Group by Clause

Conclusion:
Learned and understood aggregate functions,groupby ,having clause perfectly .

Questions:

1. What is the use of aggregate function?
2. How different number of rows can be counted?

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3. What is the difference between having and where clause?
4. Dose WHERE clause work with aggregate functions?

Answers:

1. **An aggregate function performs a calculation one or more values and returns a single value.**
2. **Using count(*) aggregate function,distinct rows can be counted.**
3. **The WHERE clause is used in the selection of rows according to given conditions whereas the HAVING Clause enables you to specify conditions that filter which group results**
4. **Aggregate functions cannot be used with a WHERE clause.**