PRACTICAL – 6

Aim: To solve various queries related to grouping and aggregate functions by manipulating data in the product and emp_company tables.

Constraints –

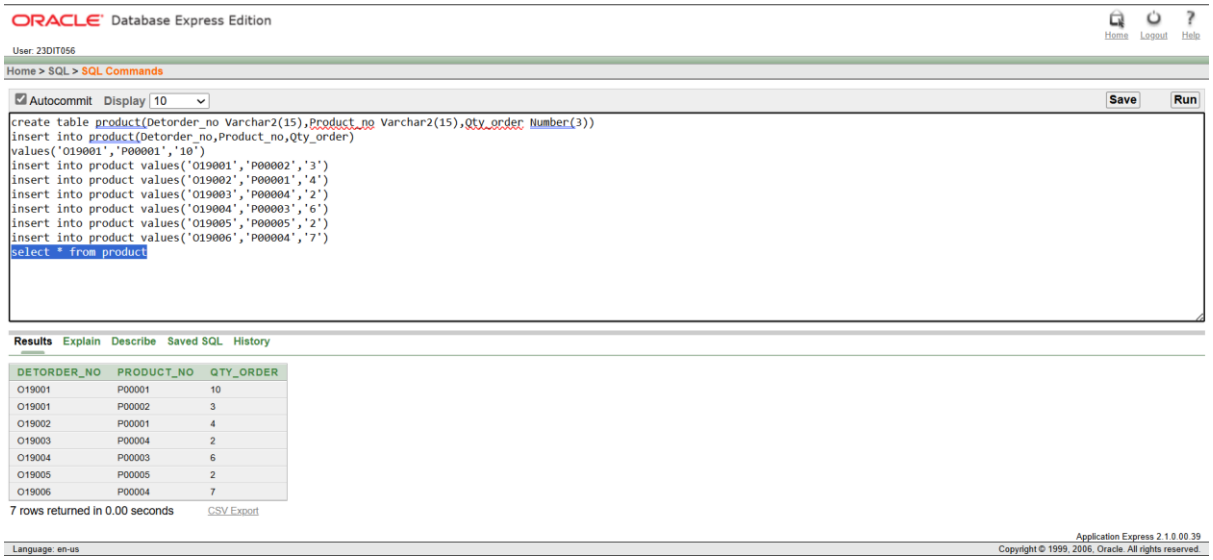
- **Not Null Constraints: Ensure critical fields are not null.**
- **Unique Constraints: Ensure data integrity by limiting column values.**
- **Check Constraints: Ensure columns have unique values where required.**

Test Cases –

1) Insert the following values into the product table.

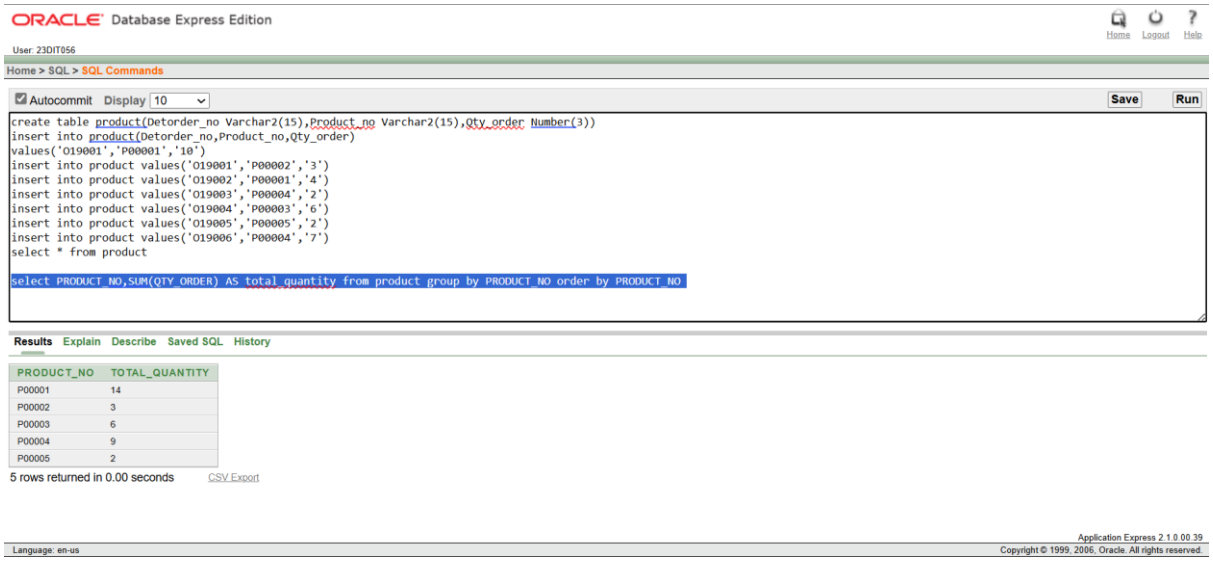
Test Case: Verify that the values are inserted correctly into the product table.

Detorder _no	Product_no	Qty_order
O19001	P00001	10
O19001	P00002	3
O19002	P00001	4
O19003	P00004	2
O19004	P00003	6
O19005	P00005	2
O19006	P00004	7



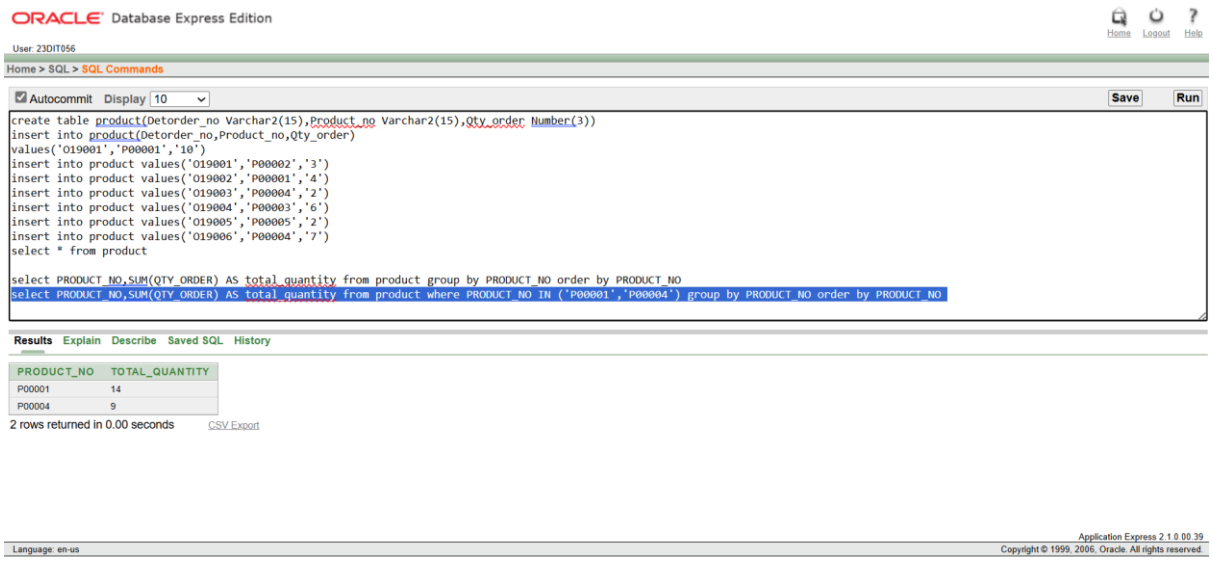
2) Retrieve the product numbers and total quantity ordered for each product from the product table.

Test Case: Verify that the sum of quantities ordered for each product number is calculated correctly.



3) Retrieve the product no and the total quantity ordered for product's 'P00001' and 'P00004' from product table.

Test Case: Verify that the sum of quantities ordered for product numbers 'P00001' and 'P00004' is calculated correctly.

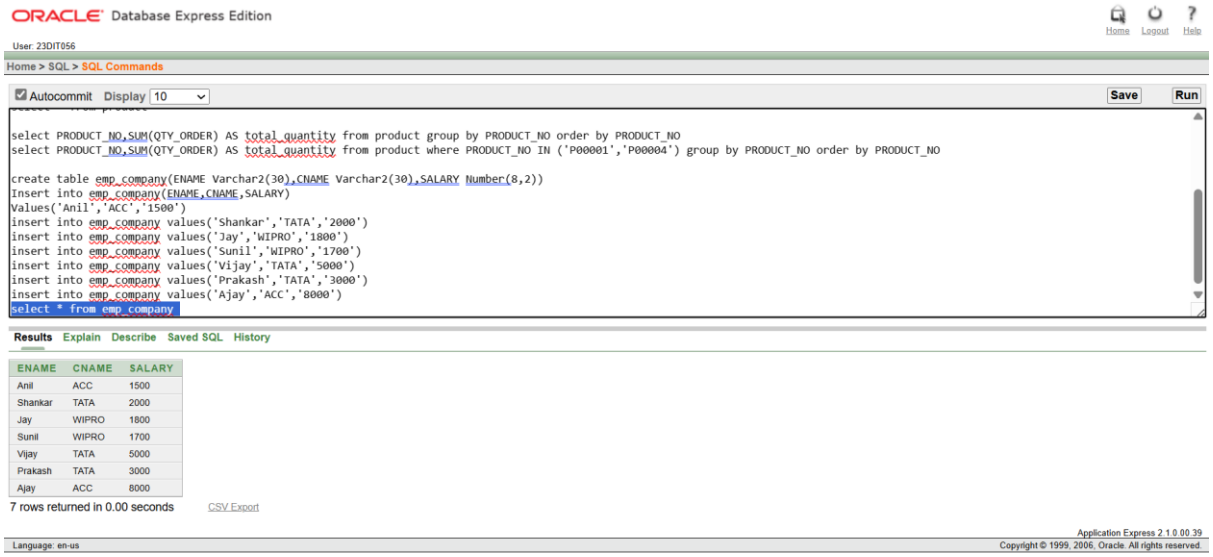


4) Insert the following values into emp_company

ENAME	CNAME	SALARY
Anil	ACC	1500
Shankar	TATA	2000
Jay	WIPRO	1800
Sunil	WIPRO	1700
Vijay	TATA	5000
Prakash	TATA	3000
Ajay	ACC	8000

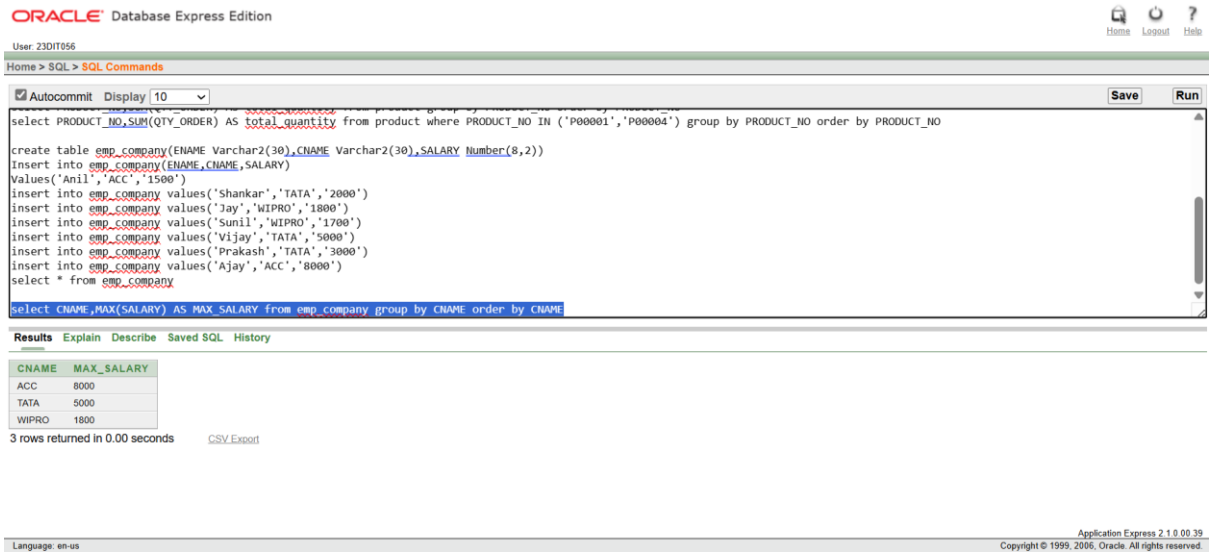
Abhay	ACC	1800

Test Case: Verify that the values are inserted correctly into the emp_company table.



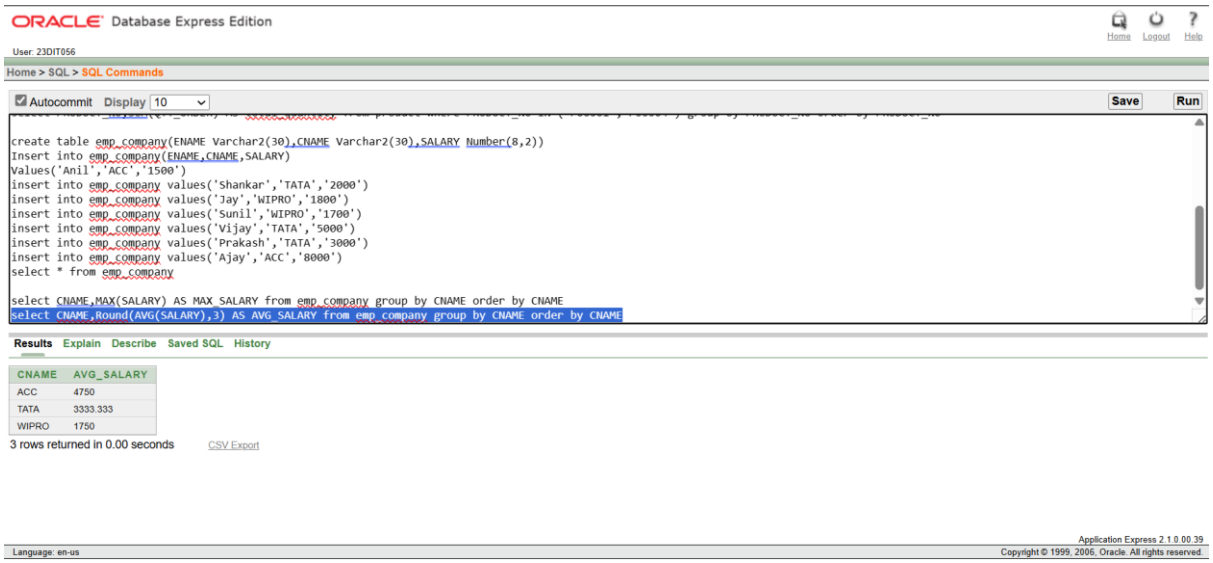
5) List the name of the company and the maximum salary in that company.

Test Case: Verify that the maximum salary for each company is calculated correctly.



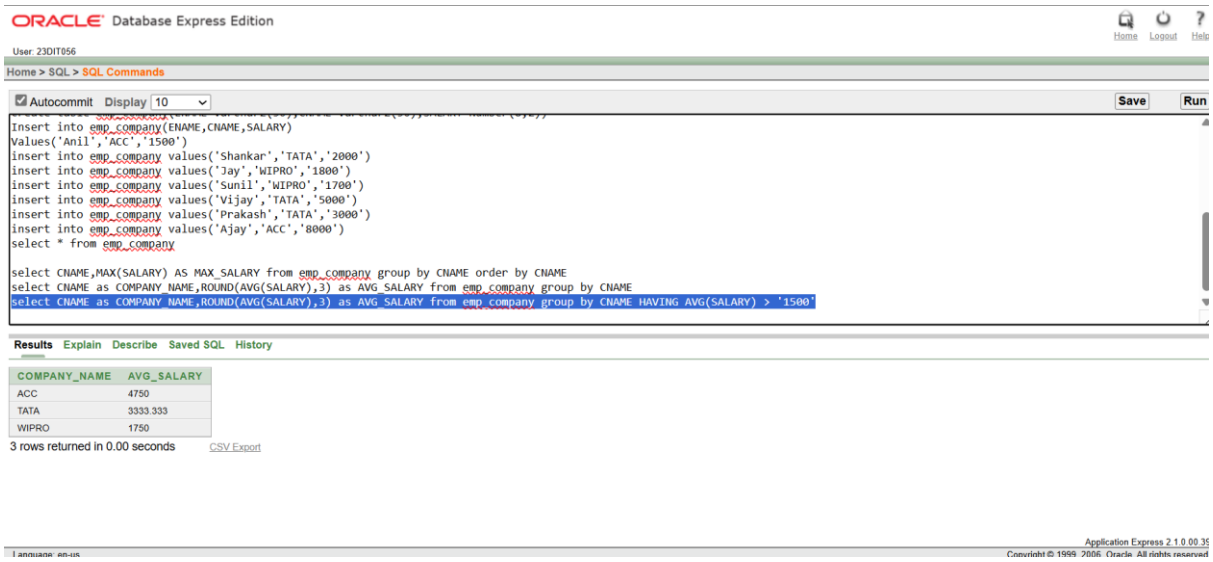
6) Find out the average salary of each company.

Test Case: Verify that the average salary for each company is calculated correctly.



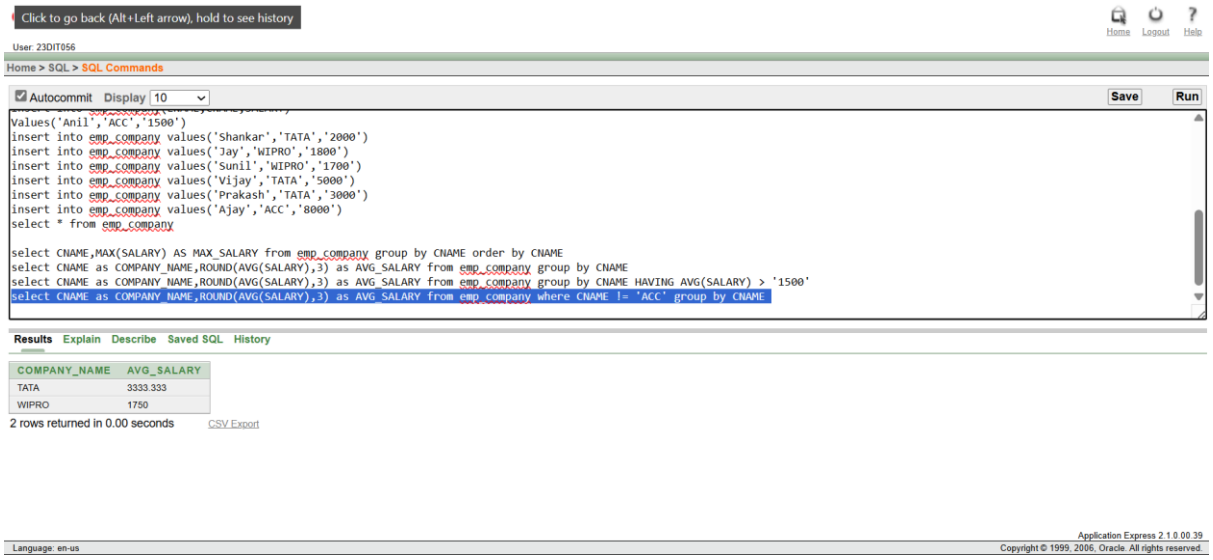
7) Find out the names of companies having an average salary of more than 1500.

Test Case: Verify that the companies with an average salary greater than 1500 are listed correctly.



8) Find out the average salary of each company except ‘ACC’.

Test Case: Verify that the average salary for each company, excluding 'ACC', is calculated correctly.



- **DESCRIPTION (Theory):**

SUM(): Calculates the total sum of a numeric column. Used to get the total quantity ordered for each product.

AVG(): Computes the average value of a numeric column. Used to find the average salary for each company.

MAX(): Determines the maximum value in a numeric column. Used to get the highest salary in each company.

GROUP BY: The GROUP BY clause groups rows that have the same values in specified columns into aggregated data. It's used with aggregate functions to perform calculations on each group.

HAVING: The HAVING clause is used to filter groups of rows that meet certain conditions after aggregation. It’s similar to the WHERE clause but operates on aggregated data.

- **CONCLUSION:**

From this practical 6, I learn about SQL skills by perform some functions like `SUM()`, `AVG()`, and `MAX()`, and `GROUP BY` and `HAVING` clauses for advanced data analysis. solve most of queries related to grouping and aggregate functions by manipulating data in the product and emp_company tables that s the learn.