



Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology (CSPIT)

Department of Computer Science & Engineering

Date: / /

Laboratory Manual

Academic Year	:	2024-25	Semester	:	4
Course code	:	CSE206	Course name	:	DATABASE MANAGEMENT SYSTEM

Practical - 6

AIM: You are a database administrator for a manufacturing and consulting company. The company maintains two primary tables: Product and Employee Company (emp_company). You are tasked with solving business queries related to order quantities, employee salaries, and company analysis using SQL grouping and aggregate functions. To manipulate and retrieve meaningful insights using grouping and aggregate functions in SQL while adhering to database constraints and integrity rules.

- **Not Null Constraints:** Critical fields such as product numbers, employee names, and salaries must not contain null values.
- **Unique Constraints:** Ensure the integrity of unique fields like Product_no and ENAME.
- **Check Constraints:** Validate that quantities and salaries have valid positive values

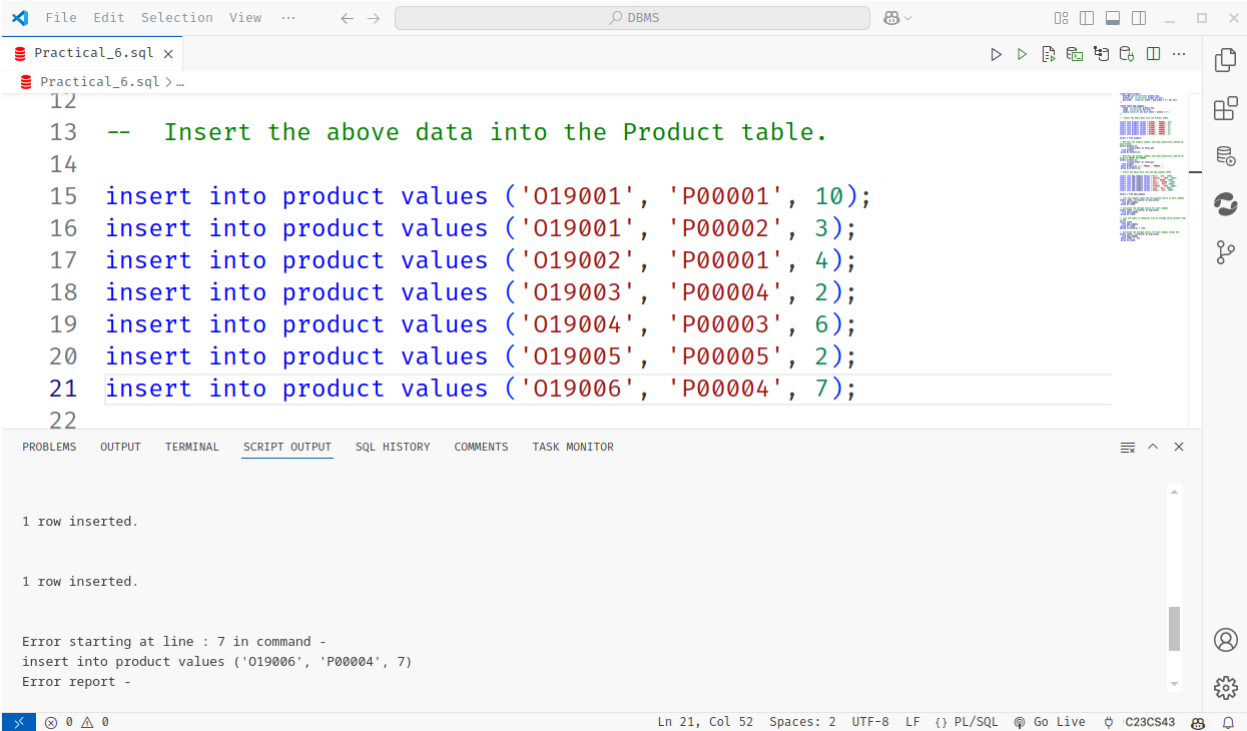
1. Product Table: Tracks order details for various products.

- Detorder_no (Primary Key)
- Product_no (Not Null, Unique)
- Qty_order (Not Null, Check: Greater than zero)

1. emp_company Table: Tracks employees, their companies, and salaries.

- ENAME (Not Null, Unique)
- CNAME (Not Null)
- SALARY (Not Null, Check: Greater than zero)

1. Insert the above data into the Product table.



The screenshot shows an IDE window with a file named 'Practical_6.sql'. The code contains a comment and six INSERT statements for the 'product' table. The output pane shows two successful insertions and an error for the last statement. The error message is: 'Error starting at line : 7 in command - insert into product values ('019006', 'P00004', 7) Error report -'. The status bar at the bottom indicates 'Ln 21, Col 52 Spaces: 2 UTF-8 LF {} PL/SQL Go Live C23CS43'.

```
12
13 -- Insert the above data into the Product table.
14
15 insert into product values ('019001', 'P00001', 10);
16 insert into product values ('019001', 'P00002', 3);
17 insert into product values ('019002', 'P00001', 4);
18 insert into product values ('019003', 'P00004', 2);
19 insert into product values ('019004', 'P00003', 6);
20 insert into product values ('019005', 'P00005', 2);
21 insert into product values ('019006', 'P00004', 7);
22
```

PROBLEMS OUTPUT TERMINAL SCRIPT OUTPUT SQL HISTORY COMMENTS TASK MONITOR

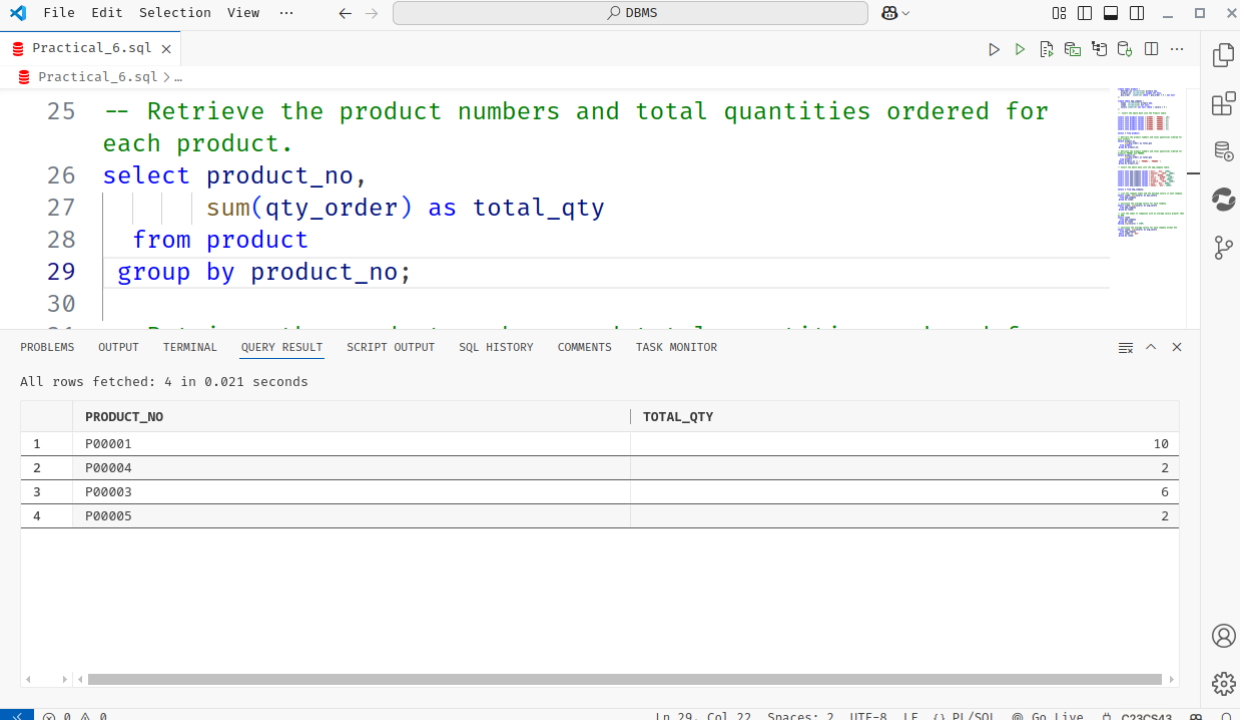
1 row inserted.

1 row inserted.

Error starting at line : 7 in command -
insert into product values ('019006', 'P00004', 7)
Error report -

Ln 21, Col 52 Spaces: 2 UTF-8 LF {} PL/SQL Go Live C23CS43

2. Retrieve the product numbers and total quantities ordered for each product.



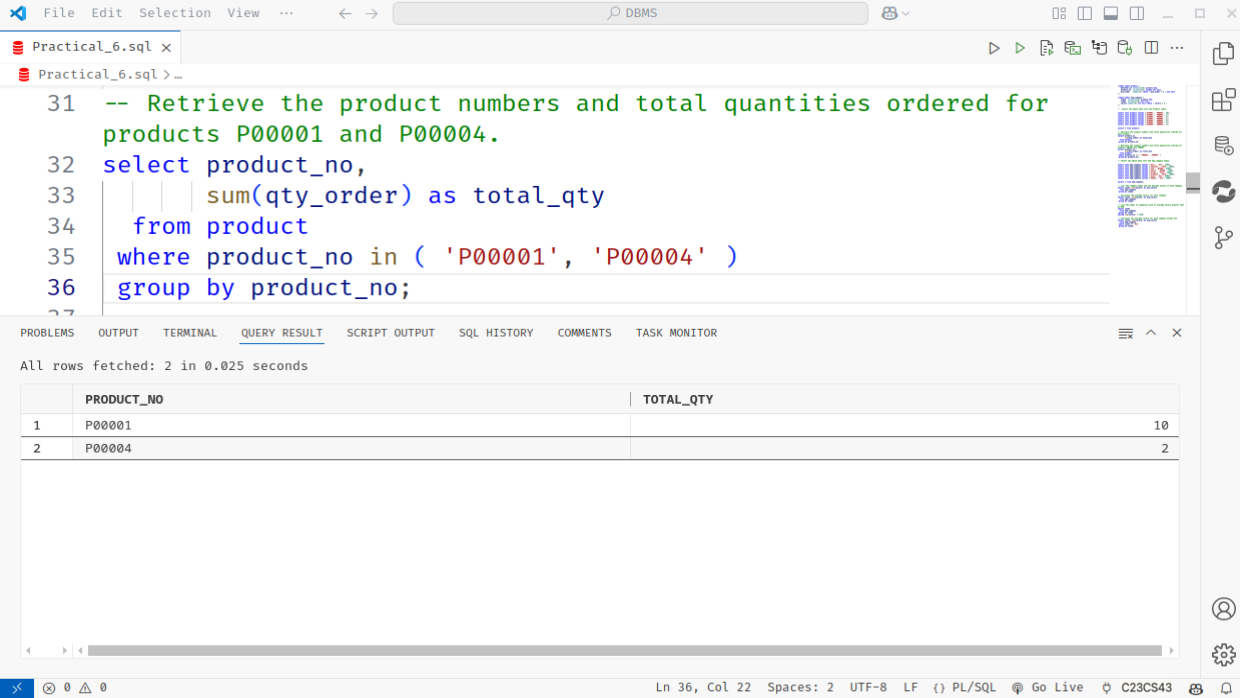
The screenshot shows the SQL Developer interface with a query window open. The query is as follows:

```
25 -- Retrieve the product numbers and total quantities ordered for
26 each product.
27 select product_no,
28        sum(qty_order) as total_qty
29 from product
30 group by product_no;
```

The query results are displayed in the 'QUERY RESULT' tab, showing 4 rows fetched in 0.021 seconds. The results are as follows:

	PRODUCT_NO	TOTAL_QTY
1	P00001	10
2	P00004	2
3	P00003	6
4	P00005	2

3. Retrieve the product numbers and total quantities ordered for products P00001 and P00004.



The screenshot shows the SQL Developer interface with a query window open. The query is as follows:

```
31 -- Retrieve the product numbers and total quantities ordered for
32 products P00001 and P00004.
33 select product_no,
34        sum(qty_order) as total_qty
35 from product
36 where product_no in ( 'P00001', 'P00004' )
37 group by product_no;
```

The query results are displayed in the 'QUERY RESULT' tab, showing 2 rows fetched in 0.025 seconds. The results are as follows:

	PRODUCT_NO	TOTAL_QTY
1	P00001	10
2	P00004	2

4. Insert the above data into the emp_company table.



The screenshot shows a DBMS IDE with a file named 'Practical_6.sql'. The editor contains SQL insert statements for the 'emp_company' table. The statements are as follows:

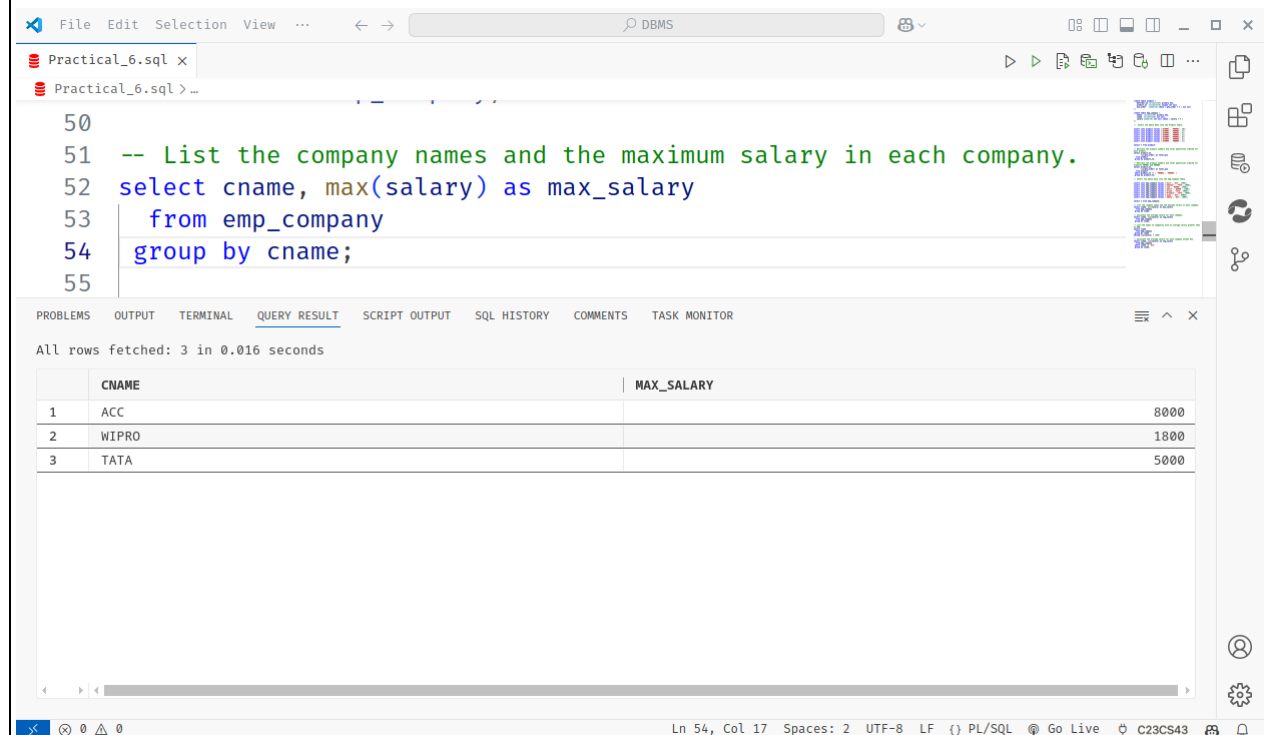
```
38 -- Insert the above data into the emp_company table.
39
40 insert into emp_company values ('Anil', 'ACC', 1500);
41 insert into emp_company values ('Shankar', 'TATA', 2000);
42 insert into emp_company values ('Jay', 'WIPRO', 1800);
43 insert into emp_company values ('Sunil', 'WIPRO', 1700);
44 insert into emp_company values ('Vijay', 'TATA', 5000);
45 insert into emp_company values ('Prakash', 'TATA', 3000);
46 insert into emp_company values ('Ajay', 'ACC', 8000);
47 insert into emp_company values ('Abhay', 'ACC', 1800);
```

The bottom panel shows the 'SCRIPT OUTPUT' tab with the following output:

```
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.
```

The status bar at the bottom indicates: Ln 47, Col 55 Spaces: 2 UTF-8 LF {} PL/SQL Go Live C23CS43.

5. List the company names and the maximum salary in each company.



The screenshot shows the same DBMS IDE with a new SQL query in 'Practical_6.sql'.

```
50
51 -- List the company names and the maximum salary in each company.
52 select cname, max(salary) as max_salary
53 from emp_company
54 group by cname;
```

The bottom panel shows the 'QUERY RESULT' tab with the following output:

```
All rows fetched: 3 in 0.016 seconds
```

	CNAME	MAX_SALARY
1	ACC	8000
2	WIPRO	1800
3	TATA	5000

The status bar at the bottom indicates: Ln 54, Col 17 Spaces: 2 UTF-8 LF {} PL/SQL Go Live C23CS43.

6. Calculate the average salary for each company.

7. List the names of companies with an average salary greater than ₹1,500.

```
61 -- List the names of companies with an average salary greater than
62 ₹1,500.
63 select cname
64 from emp_company
65 group by cname
66 having avg(salary) > 1500;
```

PROBLEMS OUTPUT TERMINAL QUERY RESULT SCRIPT OUTPUT SQL HISTORY COMMENTS TASK MONITOR

All rows fetched: 3 in 0.060 seconds

	CNAME
1	ACC
2	WIPRO
3	TATA

Ln 65, Col 27 Spaces: 2 UTF-8 LF {} PL/SQL Go Live C23CS43

8. Calculate the average salary for each company except ACC.

[illegible]