# **ORACLE LAB**

BCA-DS-552

# Manay Rachna International Institute of Research and Studies

# **School of Computer Applications**

# **Department of Computer Applications**

Submitted By				
Student Name	ADITI CHAUHAN			
Roll No	22/FCA/BCA(AIML)/003			
Program	Bachelor of Computer Applications			
Semester	5 <sup>th</sup> Semester			
Section	E			
Department	Computer Applications			
Batch	2022-25			
·				
Submitted To				
Faculty Name	Ms. Iram Fatima			



**SCHOOL OF COMPUTER APPLICATIONS** 

# **AIM**: Create the following table.

#### **Customer**

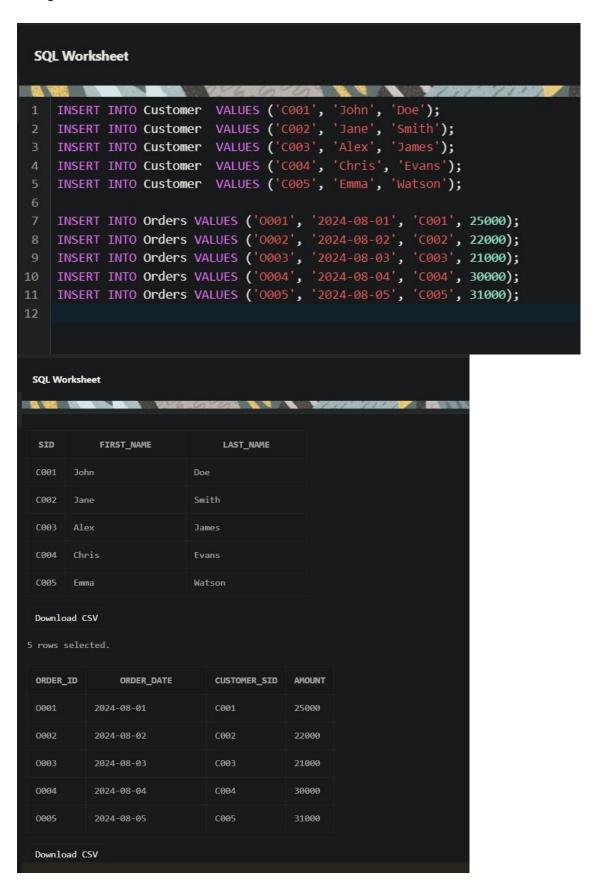
Column_name	Data type	<u>Size</u>	Constraint
SID	Varchar2	4	Primary Key
First_Name	Char	20	
Last_name	Char	20	

#### Orders

Column_name	<u>Data type</u>	<u>Size</u>	Constraint
Order_ID	Varchar2	4	Primary Key
Order_date	Char	20	
Customer_SID	Varchar2	20	Foreign Key
Amount	Number		Check > 20000

```
SQL Worksheet
1 v CREATE TABLE Customer
        SID VARCHAR2(4) PRIMARY KEY,
        First_Name CHAR(20),
        Last_name CHAR(20)
    );
8 v CREATE TABLE Orders
        Order_ID VARCHAR2(4) PRIMARY KEY,
        Order_date CHAR(20),
11
        Customer SID VARCHAR2(4),
12
        Amount NUMBER CHECK (Amount > 20000),
13
        FOREIGN KEY (Customer_SID) REFERENCES Customer(SID)
15
    );
Table created.
Table created.
```

**AIM:** Insert 5 records for each table.



**AIM:** Customer SID column in the ORDERS table is a foreign key pointing to the SIDcolumn in the CUSTOMER table.

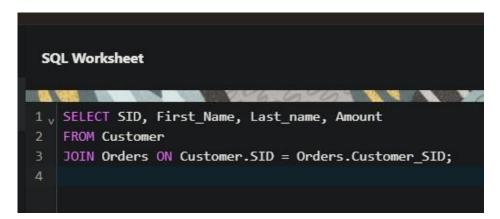
# **Output:**

```
CREATE TABLE Orders

(
   Order_ID VARCHAR2(4) PRIMARY KEY,
   Order_date CHAR(20),
   Customer_SID VARCHAR2(4),
   Amount NUMBER CHECK (Amount > 20000),
   FOREIGN KEY (Customer_SID) REFERENCES Customer(SID)
);
```

#### **EXERCISE 4**

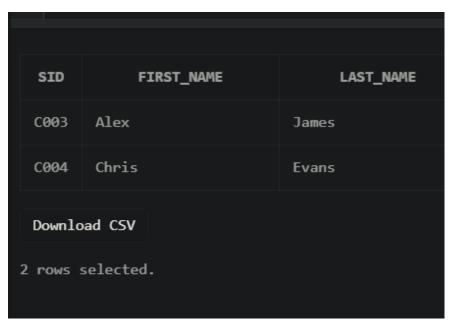
AIM: List the details of the customers along with the amount.



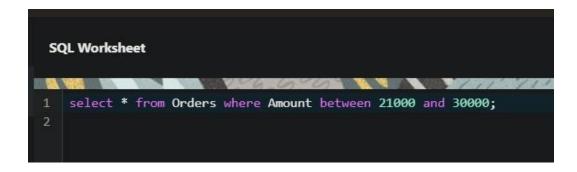
SID	FIRST_NAME	LAST_NAME	AMOUNT	
C001	John	Doe	25000	
C002	Jane	Smith	22000	
C003	Alex	James	21000	
C004	Chris	Evans	30000	
C005	Emma	Watson	31000	
Download CSV				

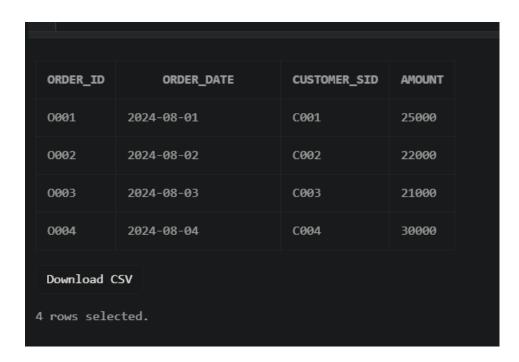
AIM: List the customers whose names end with "s".





AIM: List the orders where amount is between 21000 and 30000





**AIM:** List the orders where amount is increased by 500 and replace with name "newamount".

```
SQL Worksheet

1 update Orders set Amount = Amount + 500;
2 select Order_ID, Amount as "New Amount" from Orders;
4
```



**AIM:** Display the order\_id and total amount of orders.

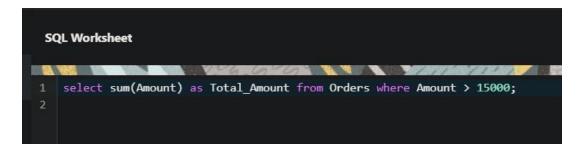
```
SQL Worksheet

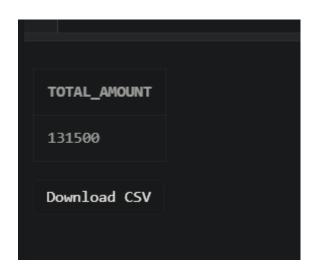
1 v SELECT Order_ID, SUM(Amount) AS Total_Amount
FROM Orders
GROUP BY Order_ID;

4
```



**AIM:** Calculate the total amount of orders that has more than 15000.





**AIM:** 10isplay all the string functions used in SQL.

#### **SELECT**

LOWER('ORACLE') AS "Lowercase", -- Converts string to lowercase

UPPER('oracle') AS "Uppercase", -- Converts string to uppercase

SUBSTR('ORACLE', 2, 3) AS "Substring", -- Extracts substring

LENGTH('ORACLE') AS "Length", -- Returns length of string

INSTR('ORACLE', 'A') AS "Position", -- Returns position of a character

LPAD('123', 5, '0') AS "Left Padding", -- Pads a string on the left

RPAD('123', 5, '0') AS "Right Padding", -- Pads a string on the right

TRIM('O' FROM 'ORACLE') AS "Trimmed" -- Trims a specified character

FROM DUAL;

**AIM:** Create the following tables.

#### **Student**

Column_name	Data type	<u>Size</u>	Constraint
RollNo	Varchar2	20	Primary Key
Name	Char	20	
Class	Varchar2	20	
Marks	Number	6,2	

#### Student1

Column_name	Data type	<u>Size</u>	<u>Constraint</u>
R_No	Varchar2	20	Primary Key
Name	Char	20	
Class	Varchar2	20	
Marks	Number	6,2	

```
SQL Worksheet
 1, create table Student
    (
        RollNo varchar(20) primary key,
        Name char(20),
        Class varchar(20),
        Marks number(6,2)
    );
9 v create table Student1
        R_No varchar(20) primary key,
11
        Name char(20),
12
13
        Class varchar(20),
        Marks number(6,2)
14
15
    );
Table created.
Table created.
```

**AIM:** Display all the contents of student and student1 using union clause. First insert 5 records in each table i.e. Student and Student1

```
-- Insert 5 records into the Student table

INSERT INTO Student (RollNo, Name, Class, Marks)

VALUES

('S101', 'John', '10th', 85.50),
('S102', 'Alice', '11th', 90.00),
('S103', 'Bob', '12th', 75.75),
('S104', 'Charlie', '10th', 88.00),
('S105', 'David', '11th', 92.50);

-- Insert 5 records into the Student1 table (with some common entries)

INSERT INTO Student1 (R_No, Name, Class, Marks)

VALUES

('S201', 'Eve', '10th', 80.25),
('S202', 'Frank', '12th', 70.50),
('S103', 'Bob', '12th', 75.75), -- Common entry with Student
('S104', 'Charlie', '10th', 88.00), -- Common entry with Student
('S205', 'Isaac', '12th', 85.00);
```

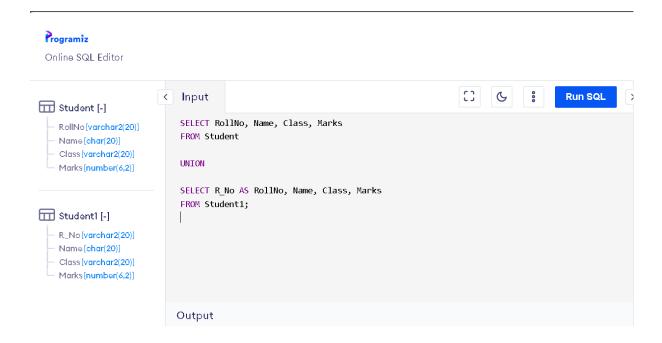
# **Output:**

#### Student

RollNo	Name	Class	Marks
S101	John	10th	85.5
S102	Alice	llth	90
\$103	Bob	12th	75,75
S104	Charlie	10th	88
\$105	David	11th	92.5

#### Student1

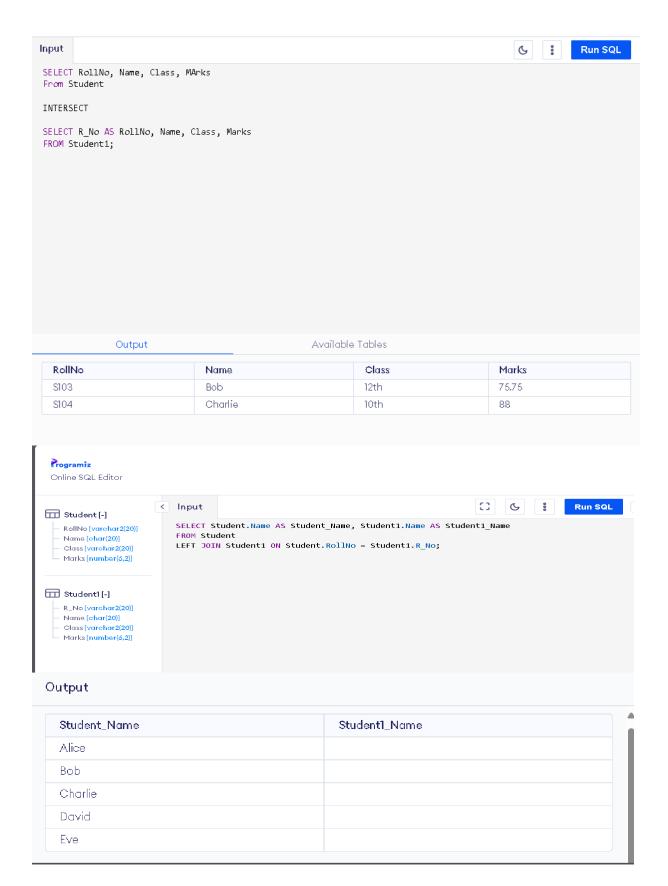
R_No	Name	Class	Marks
S201	Eve	10th	80,25
S202	Frank	12th	70.5
S103	Bob	12th	75.75
S104	Charlie	10th	88
S205	Isaac	12th	85



# Now union:

RollNo	Name	Class	Marks
S101	John	10th	85.5
S102	Alice	11th	90
S103	Bob	12th	75.75
S104	Charlie	10th	88
S105	David	11th	92.5
S201	Eve	10th	80.25
S202	Frank	12th	70.5
S205	Isaac	12th	85

AIM: Find out the intersection of student and student1 tables.



**AIM**: Display the names of student and student1 tables using left, right, inner and full join.

#### **INNER JOIN**

```
-- INNER JOIN to display names of students from both tables where there's a match
SELECT S.Name AS Student_Name, S1.Name AS Student1_Name
FROM Student S
INNER JOIN Student1 S1
ON S.Name = S1.Name;

Output

Student_Name
Bob
Bob
Charlie
Charlie
```

# **LEFT JOIN AND RIGHT JOIN**

```
-- LEFT JOIN to display names from Student and corresponding names from Student1 (if any)

SELECT S.Name AS Student_Name, S1.Name AS Student1_Name

FROM Student S

LEFT JOIN Student1 S1

ON S.Name = S1.Name;

-- RIGHT JOIN simulation: Swap tables and use LEFT JOIN to simulate RIGHT JOIN

SELECT S.Name AS Student_Name, S1.Name AS Student1_Name

FROM Student S

LEFT JOIN Student1 S1

ON S.Name = S1.Name;
```

Student_Name	Student1_Name
John	
Alice	
Bob	Bob
Charlie	Charlie
David	

# **FULL JOIN**

```
-- FULL JOIN simulation: Combine LEFT JOIN and RIGHT JOIN results

SELECT S.Name AS Student_Name, S1.Name AS Student1_Name

FROM Student S

LEFT JOIN Student1 S1

ON S.Name = S1.Name

UNION

SELECT S.Name AS Student_Name, S1.Name AS Student1_Name

FROM Student S

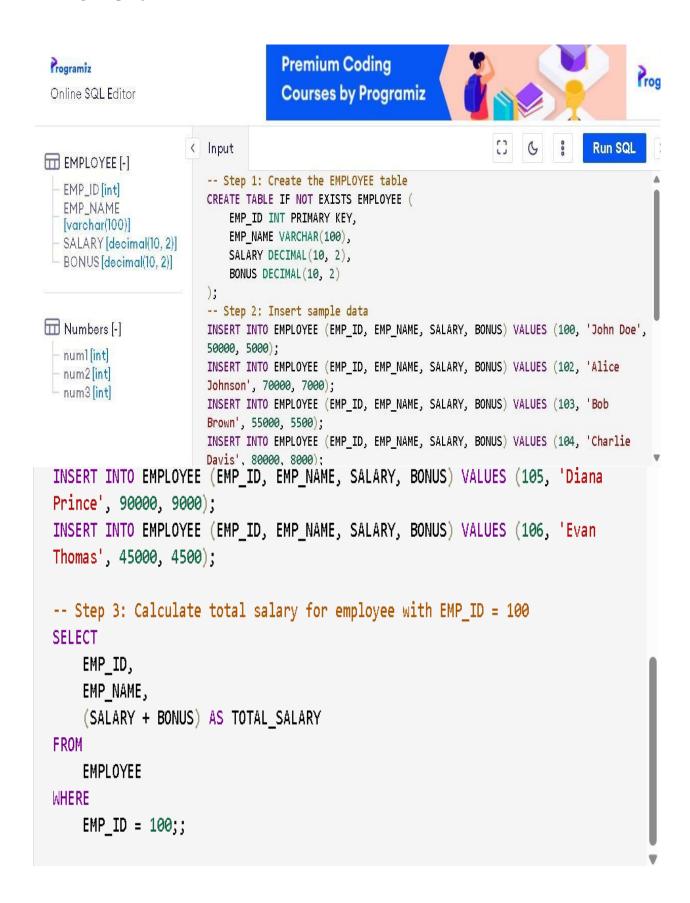
LEFT JOIN Student1 S1

ON S.Name = S1.Name;
```

Student_Name	Student1_Name
Alice	
Bob	Bob
Charlie	Charlie
David	
John	

#### Exercise 15

**AIM:** To Write a PL/SQL block to calculate total salary of employee having employee number 100.



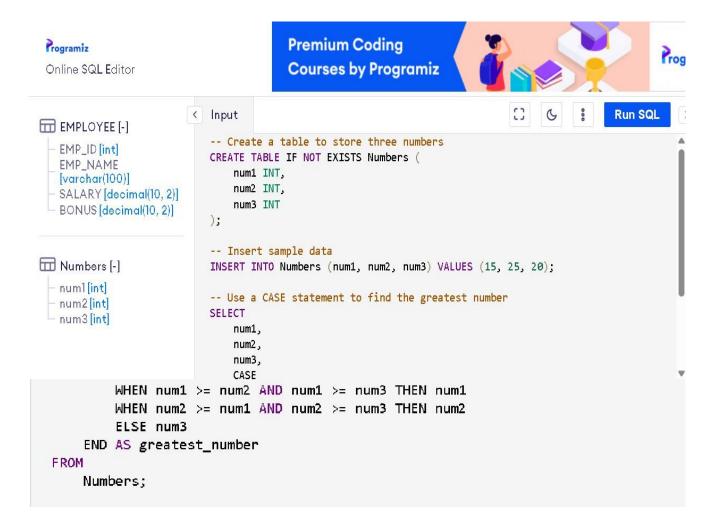
# **OUTPUT:**

# **EMPLOYEE**

EMP_ID	EMP_NAME	SALARY	BONUS
100	John Doe	50000	5000
102	Alice Johnson	70000	7000
103	Bob Brown	55000	5500
104	Charlie Davis	80000	8000
105	Diana Prince	90000	9000
106	Evan Thomas	45000	4500

EMP_ID	EMP_NAME	TOTAL_SALARY
100	John Doe	55000

**AIM:** To Write a PL/SQL code to find the greatest of three numbers.



#### **OUTPUT:**

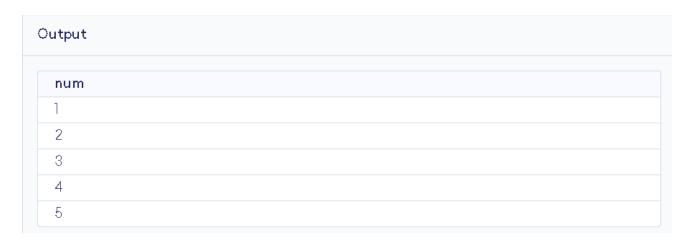
#### Numbers

num1	num2	num3
15	25	20

num1	num2	num3	greatest_number
15	25	20	25

**AIM:** To Write a PL/SQL code to print the numbers from 1 to n.





**AIM:** To Write a PL/SQL code to reverse a string using for loop.



```
Output

reversed_str

olleh
```

**AIM:** To Write a PL/SQL code to find the sum of n numbers.



Output			
sum			
5151			

**AIM:** To Consider a PL/SQL code to display the empno, ename, job of employees of departmentnumber 10.



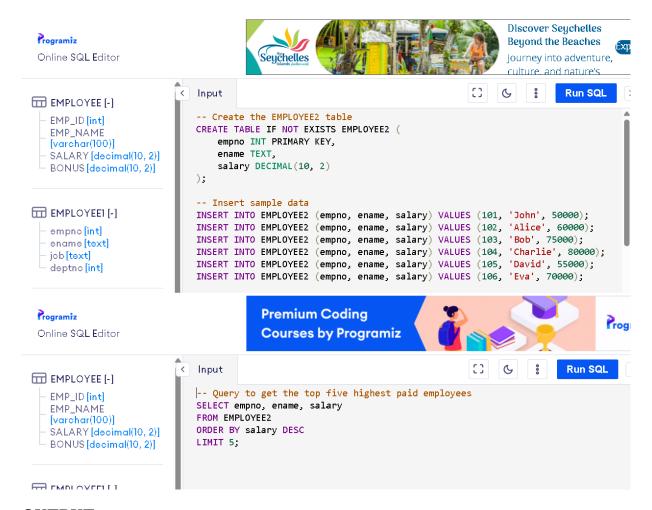
#### **OUTPUT:**

#### **EMPLOYEE1**

empno	ename	job	deptno
101	John	Manager	10
102	Alice	Clerk	20
103	Bob	Developer	10
104	Charlie	Analyst	10

Dutput		
empno	ename	job
101	John	Manager
103	Bob	Developer
104	Charlie	Analyst

**AIM:** To Consider a PL/SQL code to display the employee number & name of top five highestpaid employees.



#### **OUTPUT:**

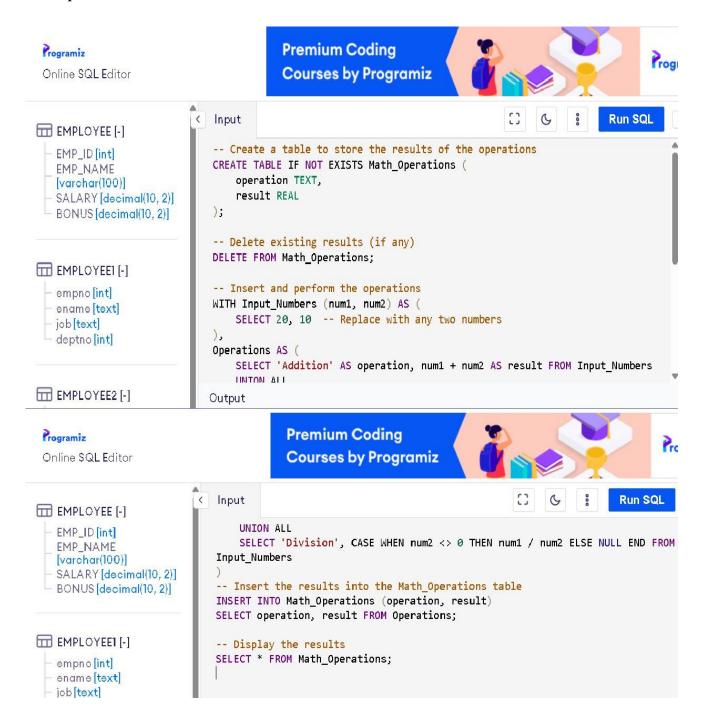
#### Output

empno	ename	salary
104	Charlie	80000
103	Bob	75000
106	Eva	70000
102	Alice	60000
105	David	55000

#### EMPLOYEE2

empno	ename	salary
101	John	50000
102	Alice	60000
103	Bob	75000
104	Charlie	80000
105	David	55000
106	<b>E</b> va	70000

**AIM:** To Consider a PL/SQL procedure that accepts 2 numbers & return addition, subtraction,multiplication & division of two numbers using stored procedure AND local procedure.



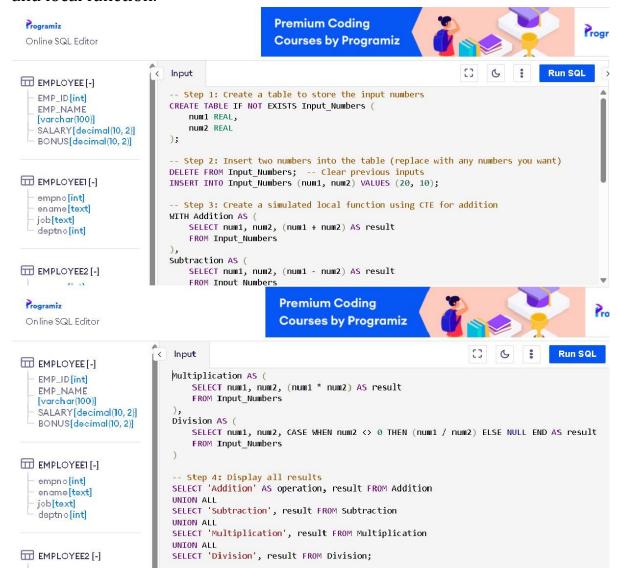
# **OUTPUT**:

# Math\_Operations

operation	result
Addition	30
Subtraction	10
Multiplication	200
Division	2

utput	
operation	result
Addition	30
Subtraction	10
Multiplication	200
Division	2

**AIM:** To Consider a PL/SQL code that accepts 2 numbers & return addition, subtraction, multiplication & division of two numbers using stored functions and local function.



#### **OUTPUT:**

#### Input\_Numbers

num1	num2
20	10

operation	result
Addition	30
Subtraction	10
Multiplication	200
Division	2

**AIM:** To Write a PL/SQL block to show the use of NO\_DATA FOUND exception.



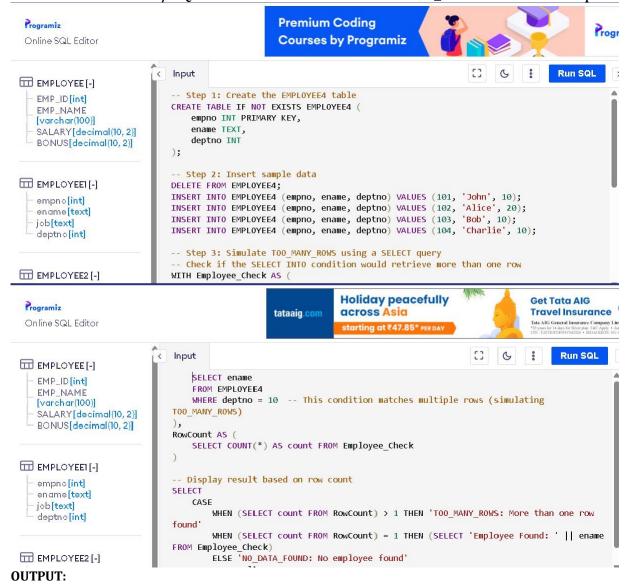
#### **OUTPUT:**

#### **EMPLOYEE3**

empno	ename	salary
101	John	50000
102	Alice	60000
103	Bob	75000

# result NO\_DATA\_FOUND: No employee found with the given employee number

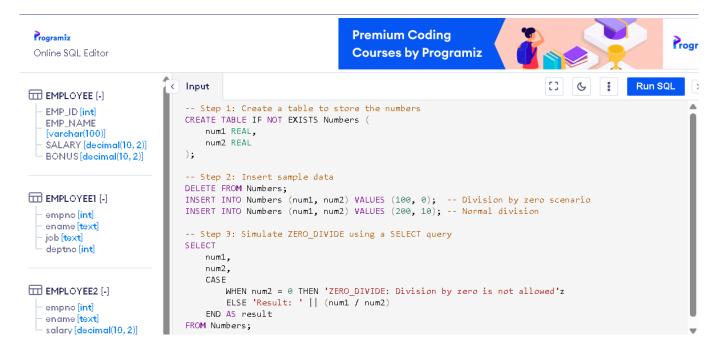
**AIM:** To Write a PL/SQL block to show the use of TOO\_MANY ROWS exception.



#### **EMPLOYEE4**

empno	ename	deptno
101	John	10
102	Alice	20
103	Bob	10
104	Charlie	10

**AIM:** To Write a PL/SQL block to show the use of ZERO\_DIVIDE exception.



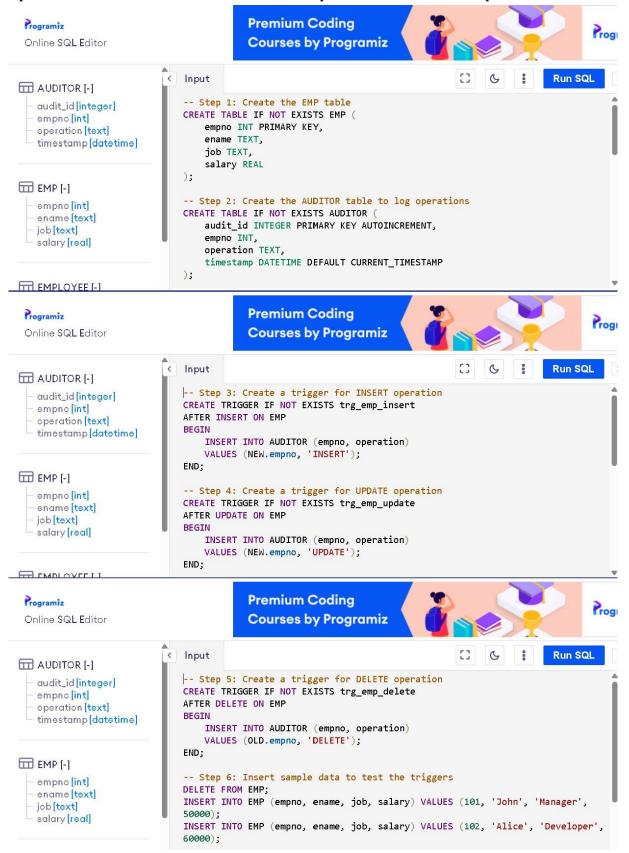
#### **OUTPUT:**

#### Numbers

num1	num2	num3
100	0	
200	10	

num1	num2	result
100	0	ZERO_DIVIDE: Division by zero is not allowed
200	10	Result: 20

**AIM:** To create a trigger on the emp table, which store the empno& operation in the table auditorfor each operation i.e. Insert, Update & Delete.





# **OUTPUT:**

#### **AUDITOR**

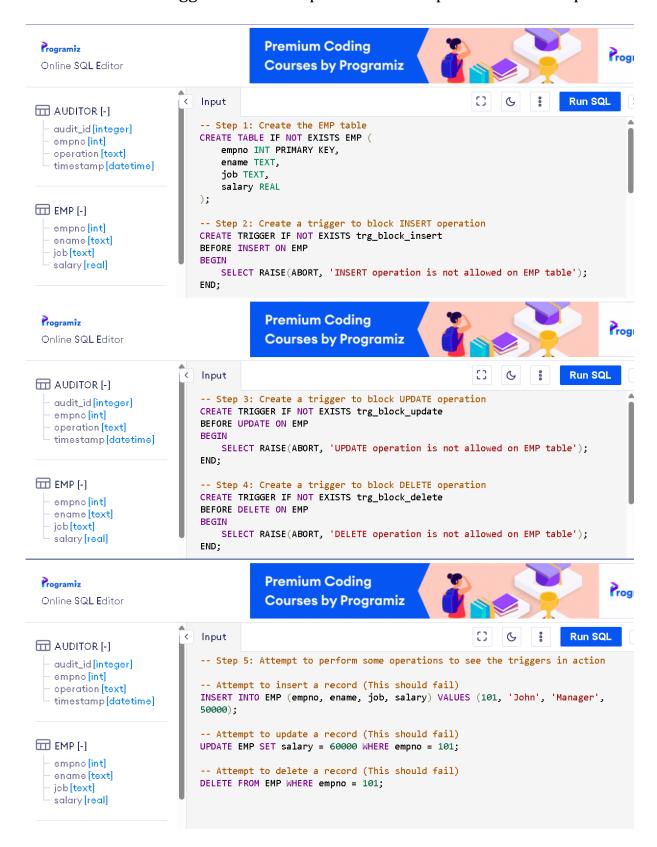
audit_id	empno	operation	timestamp
]	101	INSERT	2024-11-10 14:42:06
2	102	INSERT	2024-11-10 14:42:06
3	102	UPDATE	2024-11-10 14:42:06
4	101	DELETE	2024-11-10 14:42:06

#### **EMP**

empno	ename	job	salary
102	Alice	Developer	65000

audit_id	empno	operation	timestamp
1	101	INSERT	2024-11-1014:42:06
2	102	INSERT	2024-11-1014:42:06
3	102	UPDATE	2024-11-1014:42:06
4	101	DELETE	2024-11-10 14:42:06

**AIM:** To create a trigger so that no operation can be performed on emp table.



```
Output

Error: INSERT operation is not allowed on EMP table
```