### Database Management systems LABORATORY FILE

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D3 CSE A1

URN: 1805172

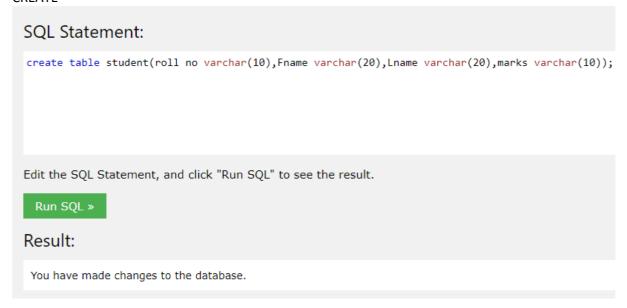
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### PRACTICAL-1

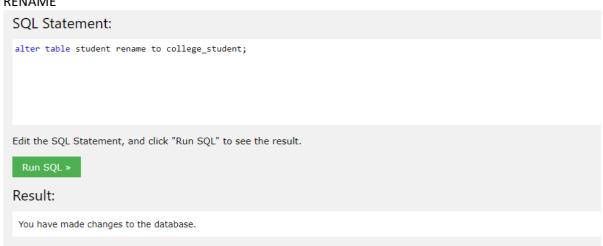
Write a query for data definition (create, drop, alter and rename) and data manipulation language (Select, Insert, Update and Delete)

### DATA DEFINITION LANGUAGE:

CREATE



### RENAME



### • ALTER

## SQL Statement: ALTER TABLE COLLEGE\_STUDENT ADD COLUMN GRADE VARCHAR(5); Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL > Result:

### DROP

```
SQL Statement:

DROP TABLE COLLEGE_STUDENT;

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL >>

Result:

You have made changes to the database.
```

### DATA MANIPULATION LANGUAGE:

You have made changes to the database.

• INSERT

### **SQL Statement:**

```
insert into student values('1','ram','kishan','40');
```

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

You have made changes to the database. Rows affected: 1

### UPDATE

```
update student set marks='55'where fname='ram';
```

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

Number of Records: 3

roll	Fname	Lname	marks
1	ram	kishan	40
2	mohan	raj	70
3	sarabjeet	singh	75

### DELETE

### **SQL Statement:**

delete from college\_student where marks='55';

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

You have made changes to the database. Rows affected: 1

### Guneet Kohli PRACTICAL-2

### Write SQL queries using logical operators.

# SQL Statement: select shippername from shippers where salary=1000; Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL >> Result: Number of Records: 1

### SQL Statement: select shippername from shippers where salary<500;

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

Number of Records: 2

ShipperName

Speedy Express

ShipperName

Speedy Express

United Package

### PRACTICAL-3

Write SQL queries using SQL operators(between,and,or,in ,like ,null)

Null

## SQL Statement: select shippername from shippers where salary is null; Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL > Result: Number of Records: 1 ShipperName Federal Shipping

### Between

### **SQL Statement:**

select shippername from shippers where salary between 1000 and 2000;

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

Number of Records: 2

### ShipperName

Speedy Express

United Package

### Like

select shipperid from shippers where shippername like's%s'

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

Number of Records: 1

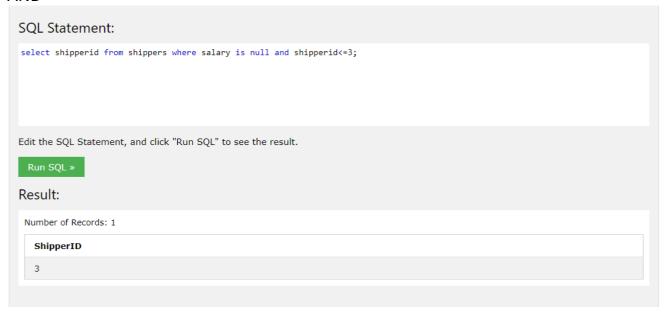
### ShipperID

1

### • OR

# SQL Statement: select shippername from shippers where shipperid=1 or shipperid=2; Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL > Result: Number of Records: 2 ShipperName Speedy Express United Package

### AND



### PRACTICAL-4

Write SQL query using character, number, date and group functions.

• Character functions



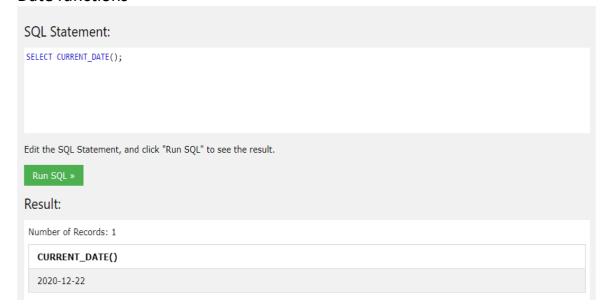


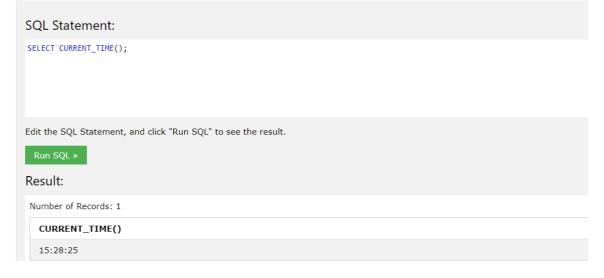




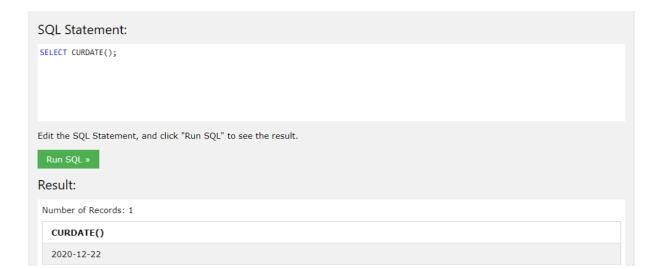


### Date functions









### • Number functions

## SQL Statement: SELECT TRUNCATE(135.375, 2); Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL > Result: Number of Records: 1 TRUNCATE(135.375, 2) 135.37





## SQL Statement: SELECT SUM(Quantity) AS TotalItemsOrdered FROM OrderDetails; Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL > Result: Number of Records: 1 TotalItemsOrdered 51317

### • Group functions

### **SQL Statement:** SELECT COUNT(CustomerID), Country FROM Customers GROUP BY Country; Edit the SQL Statement, and click "Run SQL" to see the result. Run SQL » Result: Number of Records: 21 COUNT(CustomerID) Country Argentina 2 Austria Belgium 9 Brazil Canada

```
SQL Statement:

SELECT Shippers.ShipperName,COUNT(Orders.OrderID) AS NumberOfOrders FROM Orders
LEFT JOIN Shippers ON Orders.ShipperID = Shippers.ShipperID
GROUP BY ShipperName;

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL >

Result:

Number of Records: 3

ShipperName NumberOfOrders

Federal Shipping 68

Speedy Express 54

United Package 74
```

### PRACTICAL-5

### Write SQL for relational algebra (union, intersect and minus)

### • Union



### Intersect

```
SELECT ID, NAME, Amount, Date
FROM Customers
LEFT JOIN Orders
ON Customers.ID = Orders.Customer_id
INTERSECT
SELECT ID, NAME, Amount, Date
FROM Customers
RIGHT JOIN Orders
ON Customers.ID = Orders.Customer_id;
```

### Output:

ID	Name	Amount	Date
3	Akash	3000	2017-10-08
3	Akash	1500	2017-10-08
2	Pratik	1560	2017-11-20
4	Varun	2060	2016-05-20

### • Minus

SELECT NAME, AGE , GRADE FROM Table1 MINUS SELECT NAME, AGE, GRADE FROM Table2

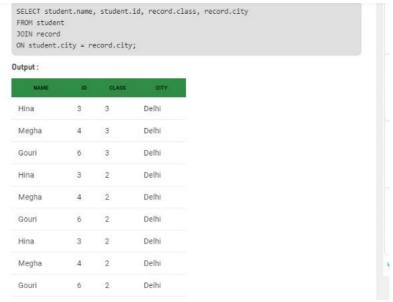
### Output:

Name	Age	Grade
Harsh	20	А
Gaurav	21	В
Pratik	21	A

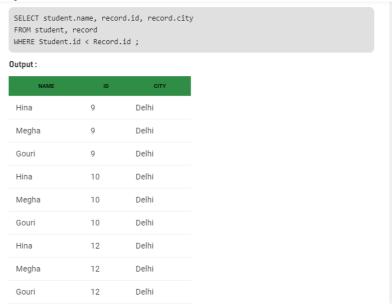
### **PRACTICAL-6**

Write SQL Queries for extracting data from more than one table(equi join,non equi join,outer join)

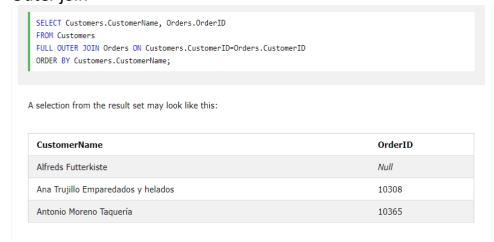
• Equi join



Non –equi join



Outer join



### PRACTICAL-7

Write SQL queries for sub queries, nested queries.

```
SELECT job_id,AVG(salary)
        SELECT job_id, AVG(salary)
        FROM employees
   4 GROUP BY job_id
        HAVING AVG(salary)<
   6 (SELECT MAX(myavg) from (select job_id,AVG(min_salary) as myavg
        FROM jobs
   8 WHERE job_id IN
        (SELECT job_id FROM job_history
        WHERE department_id
        BETWEEN 50 AND 100)
   12 GROUP BY job_id) ss);
The above code is executed in PostgreSQL 9.3
Output
JOB_ID AVG(SALARY)
 AC_ACCOUNT
                   7280
 ST_MAN
AD_ASST
                    4400
 AD_ASS1 4400

SH_CLERK 3215

FI_ACCOUNT 7920

PU_CLERK 2780

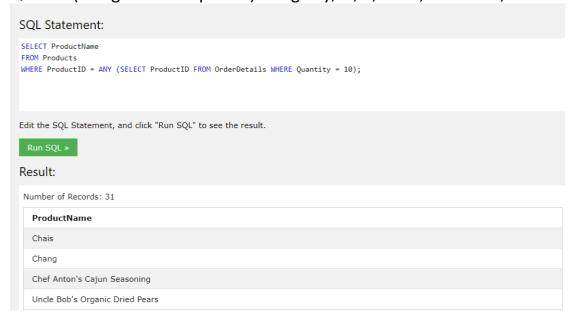
SA REP 8350
```

### • Sub query

```
SELECT OUTSTANDING_AMT
       FROM CUSTOMER
       WHERE GRADE=3
       AND CUST_COUNTRY<>'India'
    4
    5
       AND opening_amt<7000
       AND EXISTS(
       SELECT *
    8 FROM agents
       WHERE commission<.12);
Output:
 OUTSTANDING AMT
            6000
            3000
             5000
```

### **PRACTICAL-8**

Queries (along with sub queries) using any,all,in,exists,non exists,union constraints.



```
SQL Statement:

SELECT ProductName
FROM Products
WHERE ProductID = ALL (SELECT ProductID FROM OrderDetails WHERE Quantity = 10);

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL >

Result:

Number of Records: 0

ProductName
```

```
SQL Statement:

SELECT SupplierName
FROM Suppliers
WHERE EXISTS (SELECT ProductName FROM Products WHERE Products.SupplierID = Suppliers.supplierID AND Price = 22);

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL **

Result:

Number of Records: 1

SupplierName

New Orleans Cajun Delights
```

### **SQL Statement:**

SELECT SupplierName FROM Suppliers

WHERE EXISTS (SELECT ProductName FROM Products WHERE Products.SupplierID = Suppliers.supplierID AND Price < 20);

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

Number of Records: 24

### SupplierName

Exotic Liquid

New Orleans Cajun Delights

Tokyo Traders

Mayumi's

Pavlova, Ltd.

### SQL Statement:

```
SELECT * FROM Customers
WHERE Country IN ('Germany', 'France', 'UK');
```

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

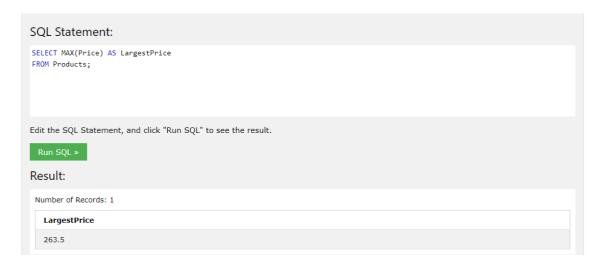
### Result:

Number of Records: 29

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
6	Blauer See Delikatessen	Hanna Moos	Forsterstr. 57	Mannheim	68306	Germany
7	Blondel père et fils	Frédérique Citeaux	24, place Kléber	Strasbourg	67000	France
9	Bon app'	Laurence Lebihans	12, rue des Bouchers	Marseille	13008	France

### Guneet Kohli PRACTICAL-9

Queries using aggregate functions(count,sum,avg,min,max),group by,having and creation and dropping of views.









SQL Statement:

SELECT COUNT(ProductID)
FROM Products;

Edit the SQL Statement, and click "Run SQL" to see the result.

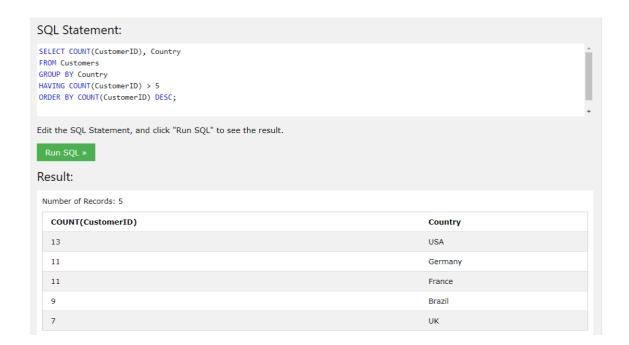
Run SQL >

Result:

Number of Records: 1

COUNT(ProductID)

77



### **SQL Statement:**

```
CREATE VIEW [Brazil Customers] AS
SELECT CustomerName, ContactName
FROM Customers
WHERE Country = 'Brazil';
```

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

### Result:

You have made changes to the database.

### SQL Statement:

DROP VIEW [Brazil Customers];

Edit the SQL Statement, and click "Run SQL" to see the result.

Run SQL »

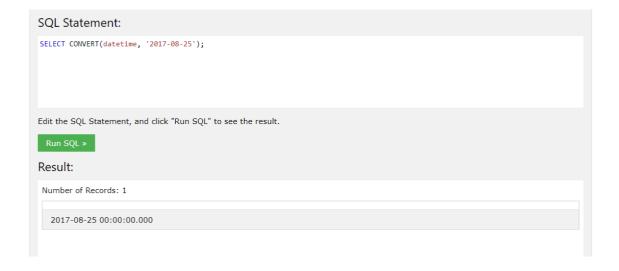
### Result:

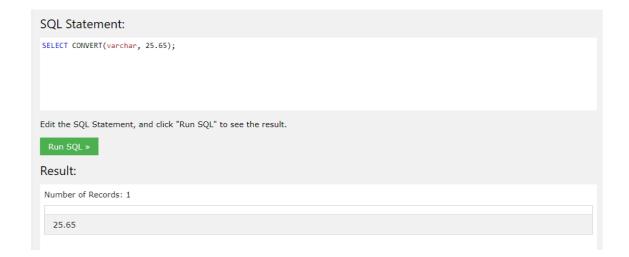
You have made changes to the database.

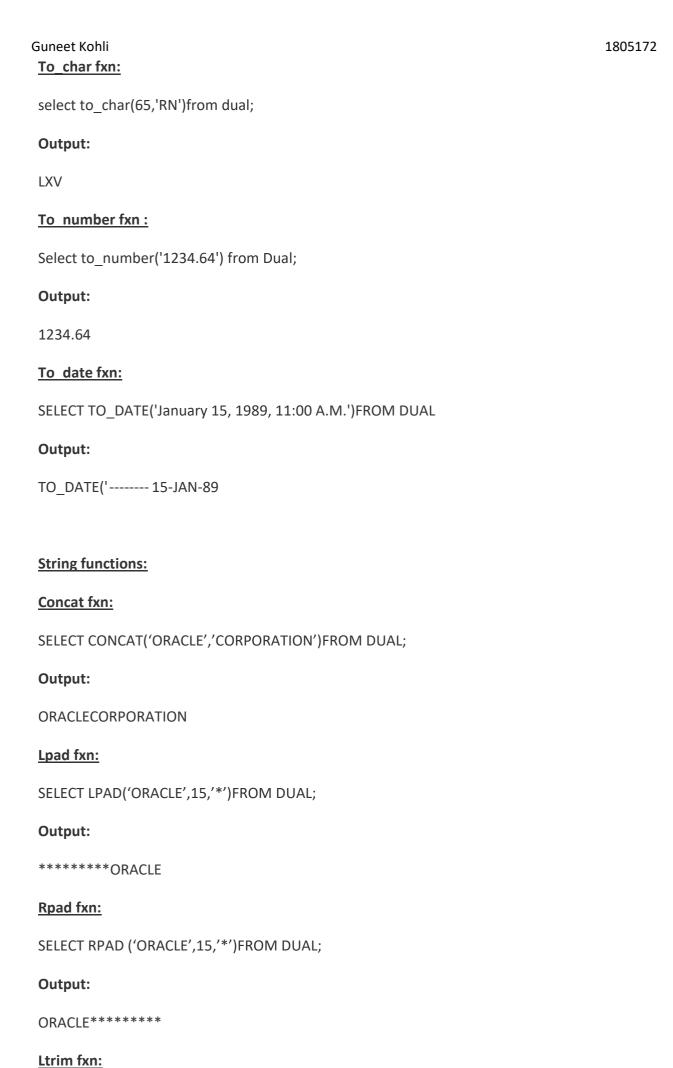
### Guneet Kohli 1805172 PRACTICAL-10

Queries using Conversion functions (to\_char, to\_number and to\_date), string functions (Concatenation, Ipad, rpad, Itrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next\_day, add\_months, last\_day, months\_between, least, greatest, trunc, round, to\_char, to\_date)

SQL Statement:
SELECT CONVERT(varchar, '2017-08-25', 101);
Edit the SQL Statement, and click "Run SQL" to see the result.
Run SQL »
Result:
Number of Records: 1
2017-08-25
2017-00-23







SELECT LTRIM('SSMITHSS','S')FROM DUAL;
Output:
MITHSS
Rtrim fxn:
SELECT RTRIM('SSMITHSS','S')FROM DUAL;
Output:
SSMITH
Lower fxn:
SELECT LOWER('DBMS')FROM DUAL;
Output:
dbms
Upper fxn:
SELECT UPPER('dbms')FROM DUAL;
Output:
DBMS
Length fxn:
SELECT LENGTH('DATABASE')FROM DUAL;
Output:
8
Substr fxn:
SELECT SUBSTR('ABCDEFGHIJ'3,4)FROM DUAL;
Output:
CDEF
Instr fxn:
SELECT INSTR('CORPORATE FLOOR','OR',3,2)FROM DUAL;

**Output:** 

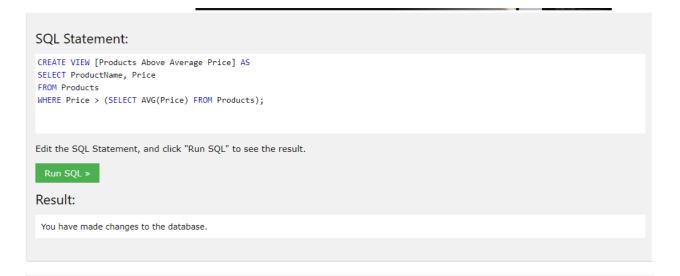
10-JAN-07

**Greatest fxn:** 

24-mar-05.

### PRACTICAL-11

Write SQL queries to create views and also apply different operations on views.



### **SQL Statement:**

SELECT \* FROM [Products Above Average Price];

Edit the SQL Statement, and click "Run SQL" to see the result.

### Result:

Number of Records: 25

ProductName	Price
Uncle Bob's Organic Dried Pears	30
Northwoods Cranberry Sauce	40
Mishi Kobe Niku	97
Ikura	31
Queso Manchego La Pastora	38
Alice Mutton	39

### **SQL Statement:**

DROP VIEW [Brazil Customers];

Edit the SQL Statement, and click "Run SQL" to see the result.

### Result:

You have made changes to the database.

### Result:

You have made changes to the database.