



INSTITUTE OF ENGINEERING & TECHNOLOGY
BACHUPALLY (VIA), NIZAMPET - (S.O.)
HYDERABAD - 500090

Name: GANAPURAPU SANATH KUMAR

Department: DATA SCIENCE - DS

Roll No: 24071A6714

Laboratory: DBMS - Database Management Systems Laboratory (CSE, CSE - AIML, CSE - IoT)

**VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI
INSTITUTE OF ENGINEERING AND TECHNOLOGY**

BACHUPALLY (VIA), KUKATPALLY - 500 090



Certificate

Certificate that is the bonafied record of the practical work done during the academic Year 2024 - 2028 by the student Name "GANAPURAPU SANATH KUMAR" H.T.No "24071A6714" Class in the Laboratory "DBMS - Database Management Systems Laboratory (CSE, CSE - AIML, CSE - IoT)" Department of "DATA SCIENCE - DS"

Signature of the Head of the Dept.

Signature of the Staff Member

Date of Examination:

Signature of the Examiners

Internal Examiner

External Examiner

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Problem 1:

String Case Conversion to all upper case

Submitted Code:

```
Select upper('vnrvjet') from dual;
```

Testcase 1

Input:

-- String: 'vnrvjet'

Expected Output:

('VNRVJIET')

Actual Output:

('VNRVJIET')

Problem 2:

String Trimming Using SQL Function

Submitted Code:

```
select trim('    vnrvjet') from dual
```

Testcase 1

Input:

-- String: 'vnrvjet'

Expected Output:

('vnrvjet')

Actual Output:

('vnrvjet')

Problem 3:

Pad the right side of string

Submitted Code:

```
SELECT RPAD('vnrvjet', 15, '*') AS padded_string  
FROM dual;
```

Testcase 1

Input:

-- String: 'vnrvjet', Length: 15, Pad: '*'
('vnrvjet*****')

Expected Output:

Actual Output:

Problem 4:

String Length Calculation Using SQL Function

Submitted Code:

```
select length('vnrvjet') from dual;
```

Testcase 1

Input:

-- String: 'vnrvjet'

Expected Output:

('8')

Actual Output:

('8')

Problem 5:

Pad the left side of string

Submitted Code:

```
SELECT LPAD('vnrvjet', 15, '*') AS padded_string  
FROM dual
```

Testcase 1

Input:

-- String: 'vnrvjet', Length: 15, Pad: '*'

Expected Output:

('*****vnrvjet')

Actual Output:

('*****vnrvjet')

Problem 6:

Minimum Value Selection Using SQL Function

Submitted Code:

```
SELECT LEAST(2,5,3,10,8) FROM DUAL;
```

Testcase 1

Input:

-- Values: 2, 5, 3, 10, 8

Expected Output:

('2')

Actual Output:

('2')

Problem 7:

Find Maximum Between Two Numbers

Submitted Code:

```
SELECT GREATEST(89, 95) FROM DUAL;
```

Testcase 1

Input:

89, 95

Expected Output:

('95')

Actual Output:

('95')

Problem 8:

Convert Character to Number

Submitted Code:

```
select to_number('56789') from dual;
```

Testcase 1

Input:

'56789'

Expected Output:

('56789')

Actual Output:

('56789')

Problem 9:

Calculate Power of a Number

Submitted Code:

```
select power(5,3) from dual;
```

Testcase 1

Input:

5, 3

Expected Output:

('125')

Actual Output:

('125')

Problem 10:

String Position Finding Using SQL Function

Submitted Code:

```
SELECT INSTR('vnrvjet', 'vjet') AS position  
FROM dual;
```

Testcase 1

Input:

-- Source: 'vnrvjet', Search: 'vjet'

Expected Output:

('4')

Actual Output:

('4')

Problem 11:

Using SQL Function to Calculate Exponents

Submitted Code:

```
select power(4,2) from dual;
```

Testcase 1

Input:

-- Input: Base 4 with power 2)

Expected Output:

('16')

Actual Output:

('16')

Problem 12:

Using SQL Function to Get Absolute Value

Submitted Code:

```
select abs(-5) from dual;
```

Testcase 1

Input:

-- Input: -5

Expected Output:

('5')

Actual Output:

('5')

Problem 13:

String Capitalization Using SQL Function

Submitted Code:

```
SELECT INITCAP('india') AS title_case_string  
FROM dual;
```

Testcase 1

Input:

-- String: 'india'

Expected Output:

('India')

Actual Output:

('India')

Problem 14:

String Replacement Using SQL Function

Submitted Code:

```
SELECT REPLACE('library', 'r', 't') AS modified_string  
FROM dual;
```

Testcase 1

Input:

-- Source: 'library', Search: 'r', Replace: 't'

Expected Output:

('libtaty')

Actual Output:

('libtaty')

Problem 15:

Using SQL Function to Round Down Numbers

Submitted Code:

```
SELECT FLOOR(3.7) FROM DUAL;
```

Testcase 1

Input:

-- Input: 3.7

Expected Output:

('3')

Actual Output:

('3')

Problem 16:

Using SQL Function to Round Up Numbers

Submitted Code:

```
SELECT CEIL(3.7) FROM DUAL;
```

Testcase 1

Input:

-- Input: 3.7

Expected Output:

('4')

Actual Output:

('4')

Problem 17:

String Extraction Using SQL Function

Submitted Code:

```
select substr('vnrvjet', 2, 3) from dual;
```

Testcase 1

Input:

-- String: 'vnrvjet', Start: 2, Length: 3

Expected Output:

('nrv')

Actual Output:

('nrv')

Problem 18:

Using SQL Function to Identify the Highest Number

Submitted Code:

```
select greatest(2,5,3,10,8) as max_value  
from dual;
```

Testcase 1

Input:

-- Compare values 2, 5, 3, 10, 8

Expected Output:

('10')

Actual Output:

('10')

Problem 19:

String Case Conversion to all lower case

Submitted Code:

```
select lower('VNR') from dual;
```

Testcase 1

Input:

-- String: 'VNR'

Expected Output:

('vnr')

Actual Output:

('vnr')

Problem 20:

2. Create Employee leaves Table with Foreign Key Relationship

Submitted Code:

```

CREATE TABLE leaves (
    eno INT(5),
    stdate DATE,
    enddate DATE,
    type CHAR(1),
    CONSTRAINT pk_leaves PRIMARY KEY (eno, stdate), -- Composite PK (eno + stdate)
    CONSTRAINT fk_leaves_employee FOREIGN KEY (eno)
        REFERENCES employee(eno), -- FK -> employee table
    CONSTRAINT chk_type CHECK (type IN ('C','S')), -- Leave type check
    CONSTRAINT chk_date CHECK (stdate <= enddate) -- Start date must be <= end date
);

```

Testcase 1**Input:**

VERIFY-TABLE-EXISTS TABLE leaves

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

VERIFY-PRIMARY-KEY TABLE leaves COLUMN eno

Expected Output:

('1')

Actual Output:

('1')

Testcase 3

Input:

VERIFY-PRIMARY-KEY TABLE leaves COLUMN stdate

Expected Output:

('1')

Actual Output:

('1')

Testcase 4

Input:

VERIFY-FOREIGN-KEY TABLE leaves COLUMN eno

REFERENCED-TABLE employee REFERENCED-COLUMN eno

Expected Output:

('1')

Actual Output:

('1')

Testcase 5

Input:

VERIFY-CHECK-CONSTRAINT TABLE leaves

Expected Output:

('1')

Actual Output:

('1')

Problem 21:

1. Create Employee Management System Table with Constraints

Submitted Code:

```
CREATE TABLE employee (
    eno      NUMBER(5) PRIMARY KEY,                      -- Employee
    number   (unique identifier)
    ename    VARCHAR2(10) NOT NULL,                      -- Employee
    name, must be VARCHAR2(10)
    deptno   NUMBER(3),                                 -- Department
    t number
    bs       NUMBER CHECK (bs BETWEEN 1000 AND 20000), -- Salary between 1000 and 20000
    grade    CHAR(1) CHECK (grade IN ('A', 'B', 'C'))   -- Grade must be A, B, or C
);
```

Testcase 1

Input:

VERIFY-CREATE TABLE employee

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

VERIFY-DATATYPES employee eno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 3

Input:

VERIFY-DATATYPES employee ename VARCHAR2 10

Expected Output:

('1')

Actual Output:

('1')

Testcase 4

Input:

VERIFY-DATATYPES employee deptno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 5

Input:

VERIFY-DATATYPES employee bs NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 6**Input:**

VERIFY-DATATYPES employee grade CHAR

Expected Output:

('1')

Actual Output:

('1')

Testcase 7**Input:**

VERIFY-PRIMARY-KEY TABLE employee COLUMN eno

Expected Output:

('1')

Actual Output:

('1')

Testcase 8**Input:**

VERIFY-NOT-NULL TABLE employee COLUMN ename

Expected Output:

('1')

Actual Output:

('1')

Problem 22:

2. Create Employee Leave Management System Table

Submitted Code:

```
CREATE TABLE leaves (
    eno      NUMBER(5),
    stdate   VARCHAR2(5),
    enddate  VARCHAR2(5),
    type     VARCHAR2(1) CHECK (type IN ('C','S')), -- Must be VARC
HAR2(1)

    CONSTRAINT pk_leaves PRIMARY KEY (eno, stdate),
    CONSTRAINT fk_leaves_employee FOREIGN KEY (eno)
        REFERENCES employee(eno),
    CONSTRAINT chk_date CHECK (stdate <= enddate) -- Works only i
f values are numeric-like
);
```

Testcase 1

Input:

VERIFY-CREATE TABLE leaves

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

VERIFY-COMPOSITE-PRIMARY-KEY TABLE leaves COLUMNS eno stdate

Expected Output:

('1')

Actual Output:

('1')

Testcase 3

Input:

VERIFY-DATATYPES leaves eno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 4

Input:

VERIFY-DATATYPES leaves stdate VARCHAR2 5

Expected Output:

('1')

Actual Output:

('1')

Testcase 5

Input:

VERIFY-DATATYPES leaves enddate VARCHAR2 5

Expected Output:

('1')

Actual Output:

('1')

Testcase 6

Input:

VERIFY-DATATYPES leaves type VARCHAR2 1

Expected Output:

('1')

Actual Output:

('1')

Testcase 7

Input:

VERIFY-FOREIGN-KEY TABLE leaves COLUMN eno

REFERENCED-TABLE employee REFERENCED-COLUMN eno

Expected Output:

('1')

Actual Output:

('1')

Testcase 8

Input:

VERIFY-FOREIGN-KEY TABLE leaves COLUMN eno

REFERENCED-TABLE employee REFERENCED-COLUMN eno

Expected Output:

('1')

Actual Output:

('1')

Problem 23:

3. Modify Employee Table Structure - Add Date of Joining Column

Submitted Code:

```
ALTER TABLE employee ADD (dateOfJoining VARCHAR2(10));
```

Testcase 1

Input:

```
VERIFY-TABLE-EXISTS TABLE employee
```

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

```
VERIFY-DATATYPES employee dateOfJoining VARCHAR2 10
```

Expected Output:

('1')

Actual Output:

('1')

Problem 24:

5. Modify Employee Name Column Size in Employee Table

Submitted Code:

```
ALTER TABLE employee  
MODIFY (ename VARCHAR2(15));
```

Testcase 1

Input:

VERIFY-CREATE TABLE employee

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

VERIFY-DATATYPES employee grade

Expected Output:

('0')

Actual Output:

('0')

Testcase 3

Input:

VERIFY-DATATYPES employee eno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 4**Input:**

VERIFY-DATATYPES employee ename VARCHAR2 15

Expected Output:

('1')

Actual Output:

('1')

Testcase 5**Input:**

VERIFY-DATATYPES employee deptno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 6**Input:**

VERIFY-DATATYPES employee bs NUMBER

Expected Output:

('1')

Actual Output:

('1')

Problem 25:

4. Remove Grade Column from Employee Table Structure

Submitted Code:

```
ALTER TABLE employee  
DROP COLUMN grade;
```

Testcase 1

Input:

VERIFY-CREATE TABLE employee

Expected Output:

('1')

Actual Output:

('1')

Testcase 2

Input:

VERIFY-DATATYPES employee grade

Expected Output:

('0')

Actual Output:

('0')

Testcase 3

Input:

VERIFY-DATATYPES employee eno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 4**Input:**

VERIFY-DATATYPES employee ename VARCHAR2

Expected Output:

('1')

Actual Output:

('1')

Testcase 5**Input:**

VERIFY-DATATYPES employee deptno NUMBER

Expected Output:

('1')

Actual Output:

('1')

Testcase 6**Input:**

VERIFY-DATATYPES employee bs NUMBER

Expected Output:

('1')

Actual Output:

('1')