DATABASE SYSTEMS

DDL

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CATEGORIES OF SQL STATEMENTS

1. **Data Definition Languages (DDL).**
2. **Data Query Languages (DQL).**
3. **Data Manipulation Languages (DML).**
4. **Data Control Languages (DCL).**
5. **Transaction Control Languages (TCL).**

DATA DEFINITION LANGUAGES (DDL)

- Data Definition Commands are used to create & modify db objects.
- The DDL statements are a subset of SQL statements used to create, modify, or remove database structures.
- Changes made by DDL commands are permanent and can not be rolled back.
- Following are the commands included in this category:

1. CREATE

2. ALTER

3. DROP4. RENAME

5. TRUNCATE

CREATE TABLE COMMAND

- The CREATE TABLE command is used to create tables.

Naming conventions for Tables & Columns

- Name can be unto 30 character long & must begin with a letter.

  Example: Employee , emp

  1emp , #employee

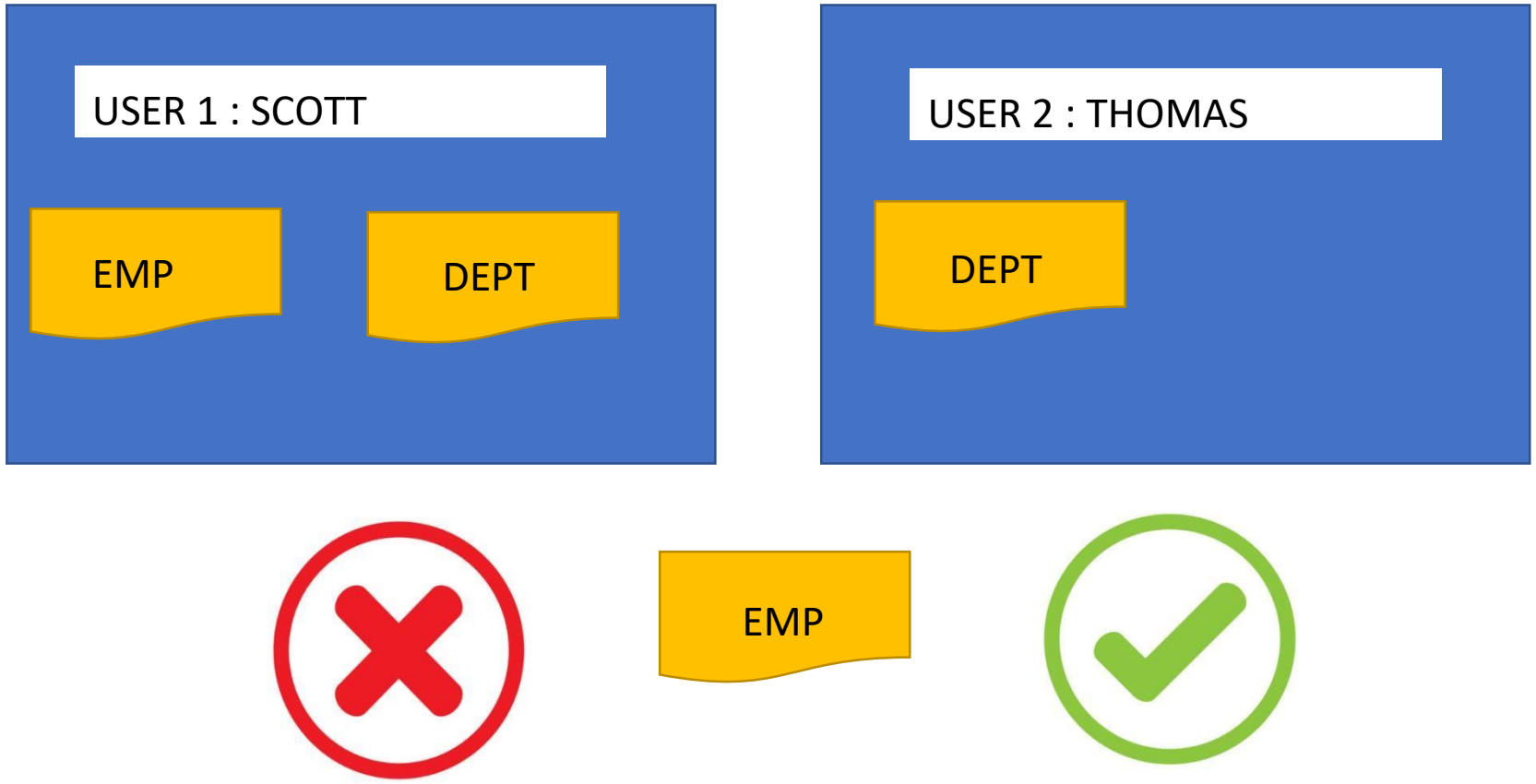
- Numbers ,(-) (#) are allowed however, blank spaces are not allowed.

  Example: Employee1 , emp1, emp-1 , student_data

  Emp loyee , emp 1 •

Reserved words can't be used as names.

- Each table owned by a user should have a unique table name & column names within each table should be unique.


USER 1 : SCOTT
EMP
DEPT
USER 2 : THOMAS
DEPT
EMP

Each table owned by a user should have a unique table name

TABLE 1 : EMPLOYEE

EMP_NO	SALARY	JOB

TABLE 2 : DEPARTMENT

D_NO	SALARY	DEPT_NO

Column names within each table should be unique

TABLE CREATION (METHOD - 1)

SYNTAX:

```
CREATE TABLE  table _name ( Column1_name Column1_datatype [ Column1_Constraint ] ,
                            Column2_name Column2_datatype [ Column2_Constraint ] , …… ,
                           [Table_Constraints]
                           ) ;
```

EXAMPLE A & B:

1.
```
CREATE TABLE SW_Students ( st_id Number(5) ,
                           S_Name varchar2(15) ,
                           S_dob date
                          ) ;
```
2.
```
CREATE TABLE Course ( Course_id  Number ,
                      Course_Name varchar2(10)
                     ) ;
```

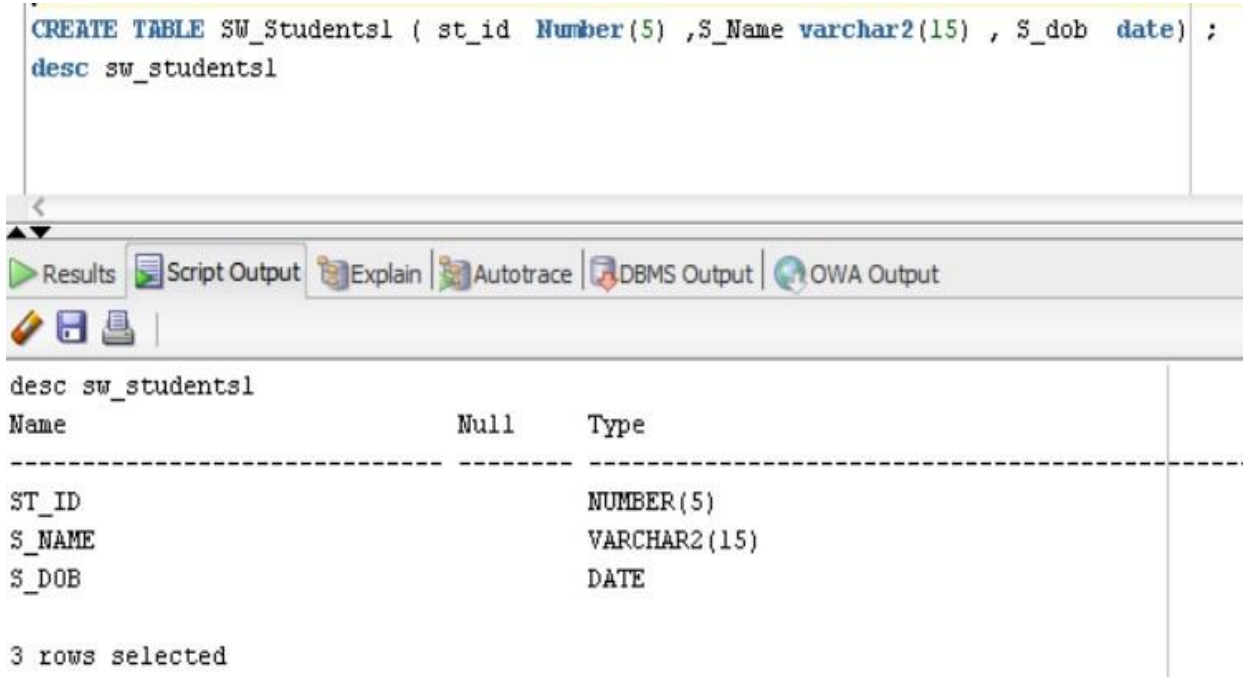


TABLE CREATED

VIEWING A TABLE

In order to confirm the creation of the table and to view its structure **DESCRIBE** or **DESC** command is used.

SYNTAX:

DESCRIBE table_name OR **DESC** table_name
OR **desc** table_name ; OR
DESCRIBE table_name ; **EXAMPLE C & D:**

DESC SW_STUDENT

DESC Course

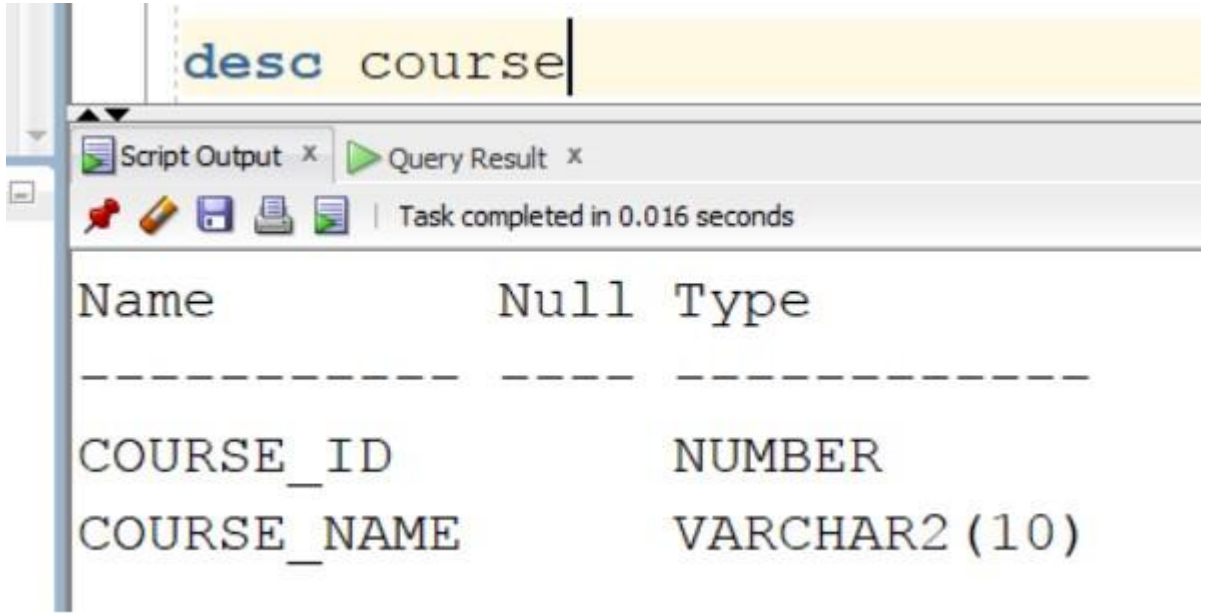


TABLE CREATION (METHOD-2)

SYNTAX:

CREATE TABLE table _name
[(column-name,……)]
AS
(Subquery) ;

```
CREATE TABLE EMP2 AS SELECT * FROM EMP
SELECT * FROM EMP2
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

Results:

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	17-DEC-80	800	(null)	20
2	7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
3	7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
4	7566	JONES	MANAGER	7839	02-APR-81	2975	(null)	20
5	7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
6	7698	BLAKE	MANAGER	7839	01-MAY-81	2850	(null)	30
7	7782	CLARK	MANAGER	7839	09-JUN-81	2450	(null)	10
8	7788	SCOTT	ANALYST	7566	19-APR-87	3000	(null)	20
9	7839	KING	PRESIDENT	(null)	17-NOV-81	5000	(null)	10
10	7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
11	7876	ADAMS	CLERK	7788	23-MAY-87	1100	(null)	20
12	7900	JAMES	CLERK	7698	03-DEC-81	950	(null)	30
13	7902	FORD	ANALYST	7566	03-DEC-81	3000	(null)	20
14	7934	MILLER	CLERK	7782	23-JAN-82	1300	(null)	10

EXAMPLE E

```
CREATE TABLE  admin_emp (
empno          NUMBER(5)        PRIMARY KEY,
ename          VARCHAR2(15)     NOT NULL,
ssn            NUMBER(9)        ENCRYPT,
job            VARCHAR2(10),
mgr            NUMBER(5),
hiredate       DATE DEFAULT (sysdate),
photo          BLOB,
sal            NUMBER(7,2),
hrly_rate      NUMBER(7,2) GENERATED ALWAYS AS (sal/2080),
comm           NUMBER(7,2),
deptno         NUMBER(3) NOT NULL
                        ) ;
```

```
desc admin_emp
Name                          Null     Type
----------------------------- -------- --------------
EMPNO                         NOT NULL NUMBER(5)
ENAME                         NOT NULL VARCHAR2(15)
SSN                                    NUMBER(9)
JOB                                    VARCHAR2(10)
MGR                                    NUMBER(5)
HIREDATE                               DATE
PHOTO                                  BLOB()
SAL                                    NUMBER(7,2)
HRLY_RATE                              NUMBER(7,2)
COMM                                   NUMBER(7,2)
DEPTNO                        NOT NULL NUMBER(3)

11 rows selected
```

RECORD INSERTION INTO admin_emp TABLE

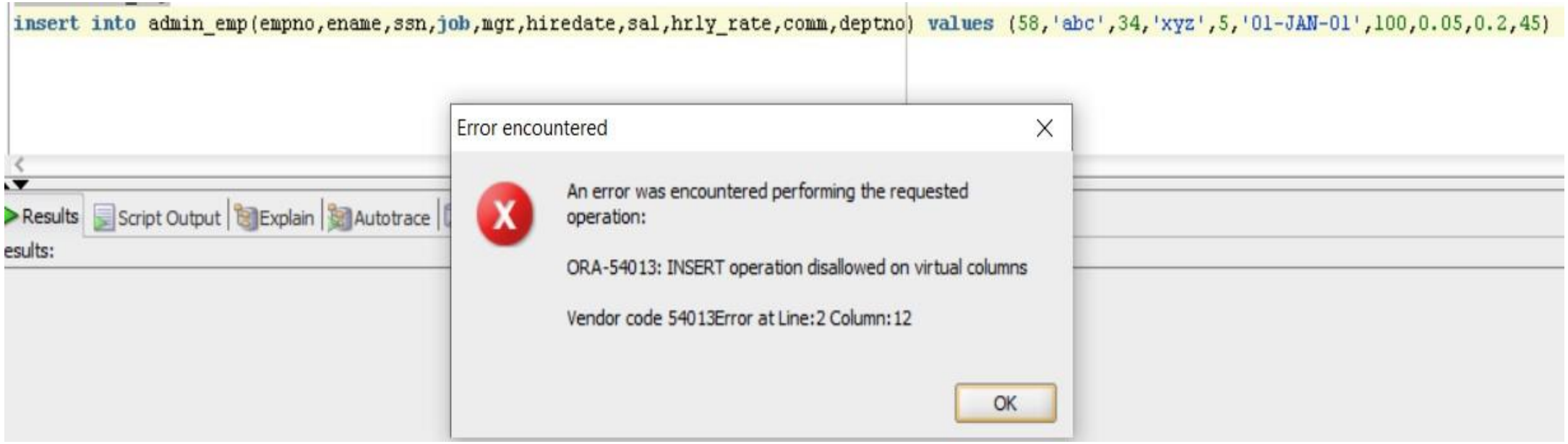
```
INSERT INTO admin_emp (empno, ename, ssn, job, mgr, sal,comm, deptno )values (344,'abc',585 ,'xac' ,545 ,100,2.3,10)

select * from admin_emp
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

Results:

	EMPNO	ENAME	SSN	JOB	MGR	HIREDATE	PHOTO	SAL	HRLY_RATE	COMM	DEPTNO
1	344	abc	585	xac	545	23-JAN-21	(null)	100	0.05	2.3	10


insert into admin_emp(empno,ename,ssn,job,mgr,hiredate,sal,hrly_rate,comm,deptno) values (58,'abc',34,'xyz',5,'01-JAN-01',100,0.05,0.2,45)
Results
Script Output
Explain
Autotrace
esults:
Error encountered
An error was encountered performing the requested operation:
ORA-54013: INSERT operation disallowed on virtual columns
Vendor code 54013Error at Line:2 Column:12
OK

```
insert into admin_emp(empno,ename,ssn,job,mgr,hiredate,sal,comm,deptno) values (58,'abc',34,'xyz',5,'01-JAN-01',100,0.2,45)
select * from admin_emp
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

esults:

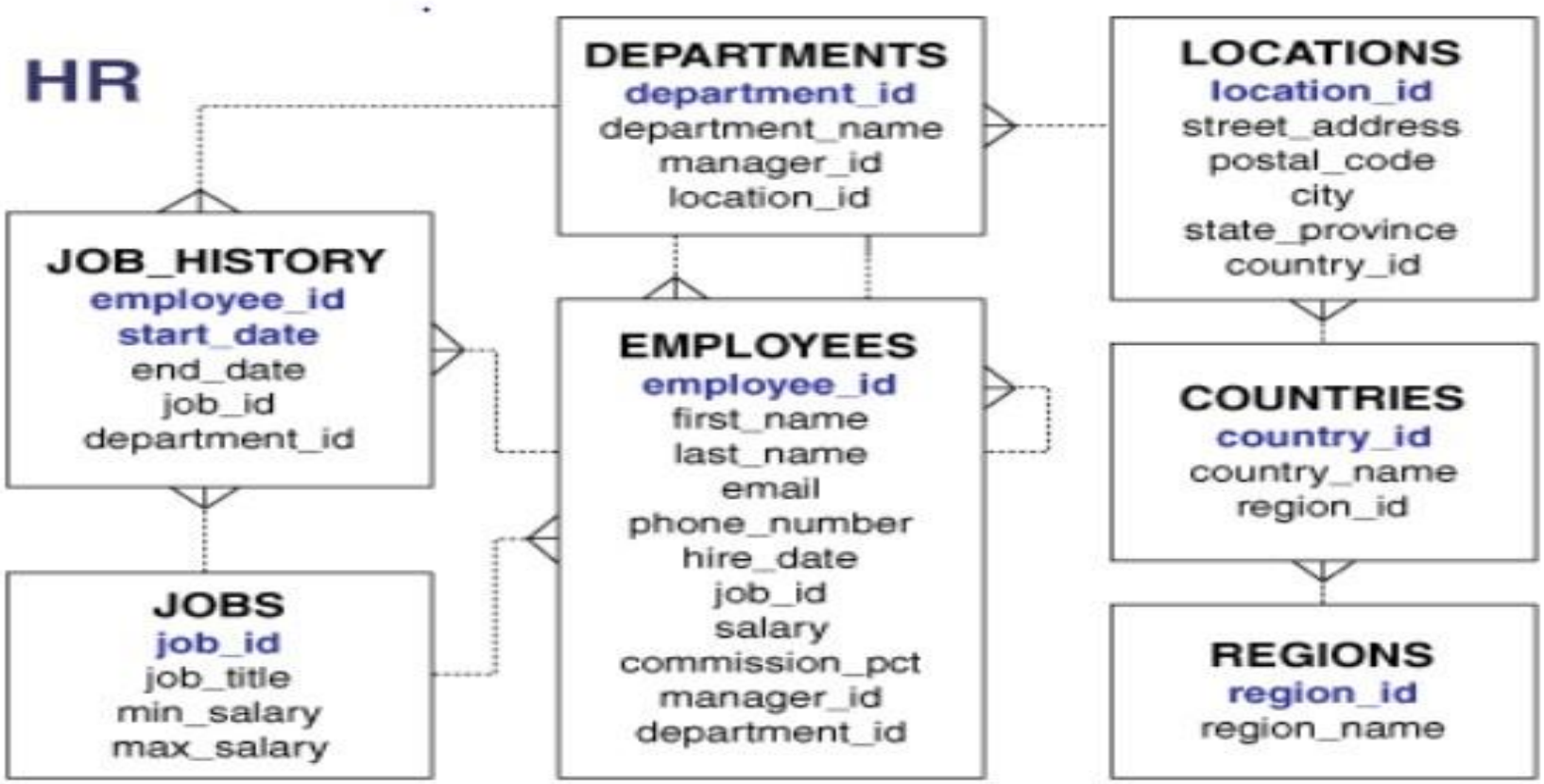
	EMPNO	ENAME	SSN	JOB	MGR	HIREDATE	PHOTO	SAL	HRLY_RATE	COMM	DEPTNO
1	344	abc	585	xac	545	23-JAN-21	(null)	100	0.05	2.3	10
2	58	abc	34	xyz	5	01-JAN-01	(null)	100	0.05	0.2	45

EXAMPLE F

```
1  CREATE TABLE demo_tbl
2  (
3  salary number(8,2) DEFAULT 9500,
4  hire_date DATE DEFAULT '01-JAN-2011' ,
5  birthdate DATE DEFAULT SYSDATE
6  )
```

TASK A

1. Create the tables to implement the following database model.



TASK B

1. Create a table named Test_1 to in accordance with the below mentioned requirements.

Field Name	Data Type	Size	Decimal Places	NULL
ord_num	decimal	6		No
ord_amount	decimal	12	2	Yes
ord_date	date			No
cust_code	char	6		No
agent_code	char	6		No