



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 - 8

AIM - You are tasked with designing a database for managing a sales and client management system. The database should support the creation, updating, and querying of data related to salespeople, customers, orders, and clients while ensuring data integrity through constraints. (Refer the attached excel sheet for Database).

Tasks:-

- 1. Managing Salespeople Information:** The organization needs a table to store data about its salespeople. Each salesperson must have a unique ID, a name, and optionally, a city and commission rate.

Tasks: 1. Create the Salespeople Table:

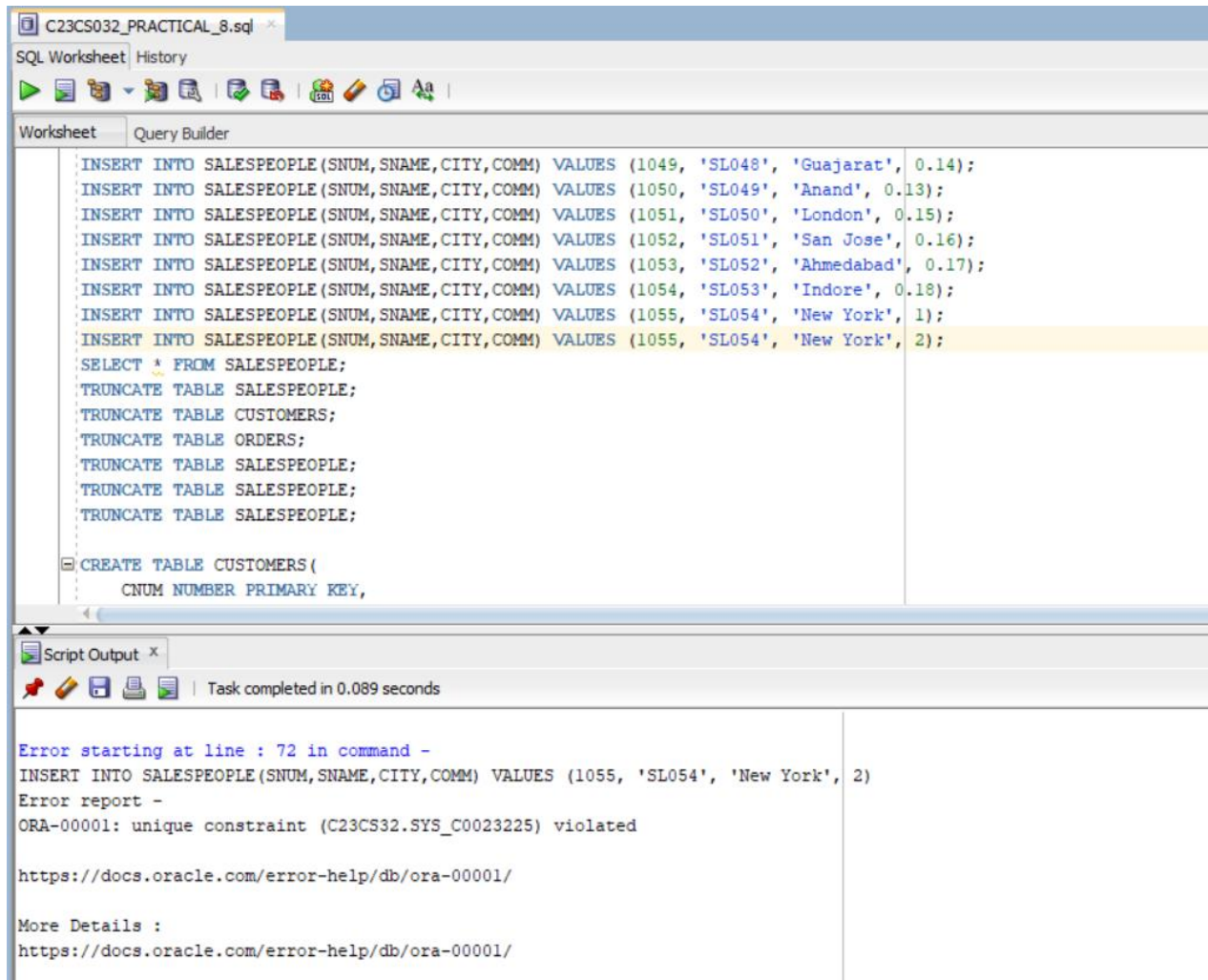
- **Attributes:**
 - Snum: Salesperson ID (Primary Key, number).
 - Sname: Salesperson Name (Not Null).
 - City: City (nullable).
 - Comm: Commission Rate (nullable).

Constraints:

- Primary Key Constraint: Ensure Snum uniquely identifies each record.
- Not Null Constraint: Ensure Sname is not null.

2.Test Cases:

- o Try inserting a record with duplicate Snum and ensure the system rejects it.



```
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1049, 'SL048', 'Guaajarat', 0.14);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1050, 'SL049', 'Anand', 0.13);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1051, 'SL050', 'London', 0.15);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1052, 'SL051', 'San Jose', 0.16);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1053, 'SL052', 'Ahmedabad', 0.17);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1054, 'SL053', 'Indore', 0.18);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1055, 'SL054', 'New York', 1);
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1055, 'SL054', 'New York', 2);
SELECT * FROM SALESPEOPLE;
TRUNCATE TABLE SALESPEOPLE;
TRUNCATE TABLE CUSTOMERS;
TRUNCATE TABLE ORDERS;
TRUNCATE TABLE SALESPEOPLE;
TRUNCATE TABLE SALESPEOPLE;
TRUNCATE TABLE SALESPEOPLE;
CREATE TABLE CUSTOMERS (
  CNUM NUMBER PRIMARY KEY,
```

Script Output x

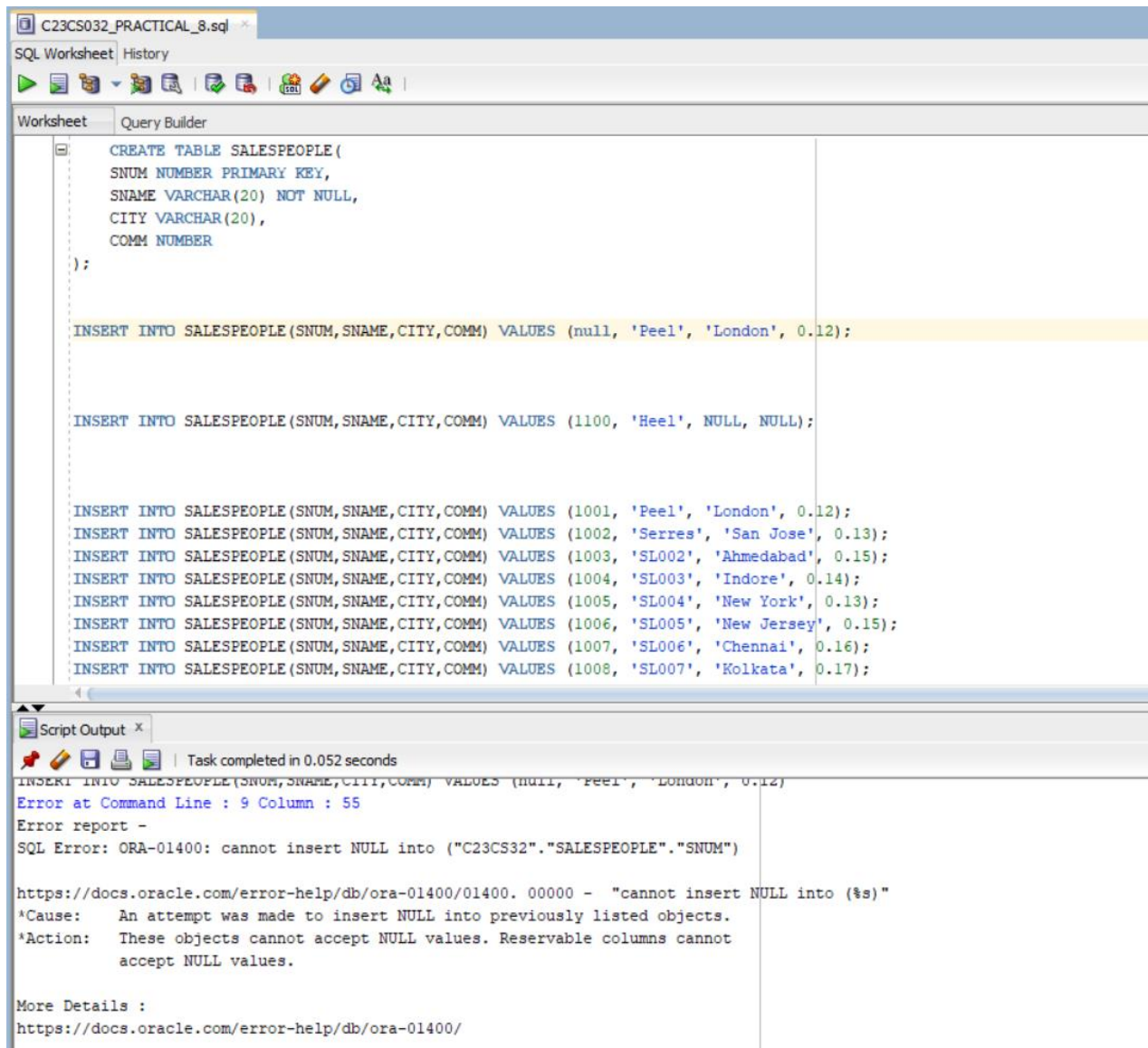
Task completed in 0.089 seconds

Error starting at line : 72 in command -
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1055, 'SL054', 'New York', 2)
Error report -
ORA-00001: unique constraint (C23CS32.SYS_C0023225) violated

<https://docs.oracle.com/error-help/db/ora-00001/>

More Details :
<https://docs.oracle.com/error-help/db/ora-00001/>

o Attempt to insert a record with a null Sname and ensure it fails.



The screenshot shows the Oracle SQL Developer interface. The top pane, titled 'C23CS032_PRACTICAL_8.sql', contains a SQL script. The script first creates a table named 'SALESPEOPLE' with columns: 'SNUM' (NUMBER, PRIMARY KEY), 'SNAME' (VARCHAR(20), NOT NULL), 'CITY' (VARCHAR(20)), and 'COMM' (NUMBER). It then attempts to insert several records. The first insert statement is highlighted in yellow: `INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (null, 'Peel', 'London', 0.12);`. Below it are several other insert statements with various values. The bottom pane, titled 'Script Output', shows the execution results. It indicates that the task completed in 0.052 seconds. However, an error occurred at command line 9, column 55. The error report states: 'SQL Error: ORA-01400: cannot insert NULL into ("C23CS32"."SALESPEOPLE"."SNUM")'. It also provides a link to the Oracle error documentation and explains the cause and action for this error.

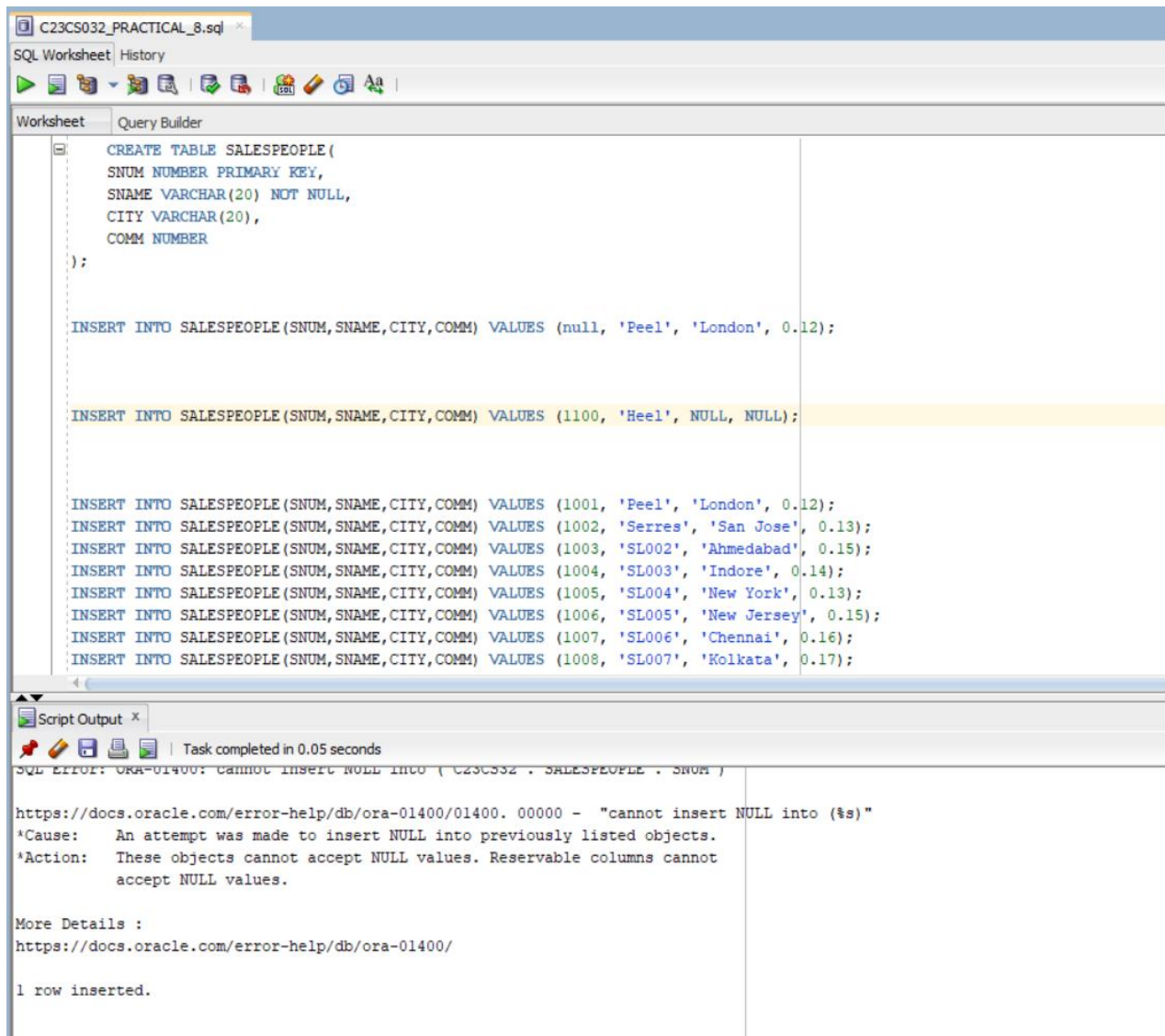
```
CREATE TABLE SALESPEOPLE (  
  SNUM NUMBER PRIMARY KEY,  
  SNAME VARCHAR(20) NOT NULL,  
  CITY VARCHAR(20),  
  COMM NUMBER  
);  
  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (null, 'Peel', 'London', 0.12);  
  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1100, 'Heel', NULL, NULL);  
  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1001, 'Peel', 'London', 0.12);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1002, 'Serres', 'San Jose', 0.13);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1003, 'SL002', 'Ahmedabad', 0.15);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1004, 'SL003', 'Indore', 0.14);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1005, 'SL004', 'New York', 0.13);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1006, 'SL005', 'New Jersey', 0.15);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1007, 'SL006', 'Chennai', 0.16);  
INSERT INTO SALESPEOPLE (SNUM, SNAME, CITY, COMM) VALUES (1008, 'SL007', 'Kolkata', 0.17);
```

Script Output x
Task completed in 0.052 seconds
Error at Command Line : 9 Column : 55
Error report -
SQL Error: ORA-01400: cannot insert NULL into ("C23CS32"."SALESPEOPLE"."SNUM")

<https://docs.oracle.com/error-help/db/ora-01400/01400.00000> - "cannot insert NULL into (%s)"
'Cause: An attempt was made to insert NULL into previously listed objects.
'Action: These objects cannot accept NULL values. Reservable columns cannot accept NULL values.

More Details :
<https://docs.oracle.com/error-help/db/ora-01400/>

o Insert a record with null City and Comm and ensure it is allowed.



```
CREATE TABLE SALESPEOPLE(  
  SNUM NUMBER PRIMARY KEY,  
  SNAME VARCHAR(20) NOT NULL,  
  CITY VARCHAR(20),  
  COMM NUMBER  
);  
  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (null, 'Peel', 'London', 0.12);  
  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1100, 'Heel', NULL, NULL);  
  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1001, 'Peel', 'London', 0.12);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1002, 'Serres', 'San Jose', 0.13);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1003, 'SL002', 'Ahmedabad', 0.15);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1004, 'SL003', 'Indore', 0.14);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1005, 'SL004', 'New York', 0.13);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1006, 'SL005', 'New Jersey', 0.15);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1007, 'SL006', 'Chennai', 0.16);  
INSERT INTO SALESPEOPLE(SNUM,SNAME,CITY,COMM) VALUES (1008, 'SL007', 'Kolkata', 0.17);
```

Script Output x

Task completed in 0.05 seconds

SQL Error: ORA-01400: cannot insert NULL into (C23CS32.SALESPEOPLE.SNUM)

<https://docs.oracle.com/error-help/db/ora-01400/01400.00000> - "cannot insert NULL into (%s)"

*Cause: An attempt was made to insert NULL into previously listed objects.

*Action: These objects cannot accept NULL values. Reservable columns cannot accept NULL values.

More Details :

<https://docs.oracle.com/error-help/db/ora-01400/>

1 row inserted.

o Retrieve all records from the Salespeople table to verify data integrity.

The screenshot shows an SQL IDE window titled 'C23CS032_PRACTICAL_8.sql'. The 'SQL Worksheet' tab is active, displaying a script of INSERT statements for the 'SALESPEOPLE' table. The statements insert 22 records with columns SNUM, SNAME, CITY, and COMM. Below the script, the 'Query Result' tab shows the output of the script, displaying all 22 records in a table format.

	SNUM	SNAME	CITY	COMM
1	1001	Peel	London	0.12
2	1002	Serres	San Jose	0.13
3	1003	SL002	Ahmedabad	0.15
4	1004	SL003	Indore	0.14
5	1005	SL004	New York	0.13
6	1006	SL005	New Jersey	0.15
7	1007	SL006	Chennai	0.16
8	1008	SL007	Kolkata	0.17
9	1009	SL008	Gujarat	0.18
10	1010	SL009	Anand	1
11	1011	SL010	London	1.2
12	1012	SL011	San Jose	0.89
13	1013	SL012	Ahmedabad	0.8
14	1014	SL013	Indore	0.8
15	1015	SL014	New York	0.29
16	1016	SL015	New Jersey	0.12
17	1017	SL016	Chennai	0.13
18	1018	SL017	Kolkata	0.15
19	1019	SL018	Gujarat	0.14
20	1020	SL019	Anand	0.13
21	1021	SL020	London	0.15
22	1022	SL021	San Jose	0.16

- Managing Customer Information:** The system must store customer details, including their relationship with salespeople. Customers have unique IDs, names, and optionally a city. They also have a rating with a default value.

Tasks:

1. Create the Customer Table:

- Attributes:
 - Cnum: Customer ID (Primary Key, number).
 - Cname: Customer Name (Not Null).
 - City: City (nullable).
 - Rating: Customer rating (Default: 10).
 - Snum: Salesperson ID (Foreign Key references Salespeople).

Constraints:

- Primary Key Constraint: Ensure Cnum uniquely identifies each record.

- Foreign Key Constraint: Ensure Snum references Salespeople(Snum).
- Default Constraint: Ensure Rating defaults to 10 when not provided.

2. Test Cases:

- Attempt to insert a record with null Cname and ensure it fails.

```

);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, SNUM) VALUES (2013, 'Hoffman', 'London', 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2015 , NULL, 'London', 100, 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2017 , 'Chauhan', 'London', 100, 1020);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2019, 'Hoffman', NULL, 100, 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2001, 'Hoffman', 'London', 100, 1001);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2003, 'Liu', 'San Jose', 300, 1002);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2005, 'Customer1', 'Ahmedabad', 100, 1003);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2007, 'Customer2', 'Indore', 200, 1004);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2009, 'Customer3', 'New York', 300, 1005);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2011, 'Customer4', 'New York', 400, 1006);

```

Task completed in 0.042 seconds

```

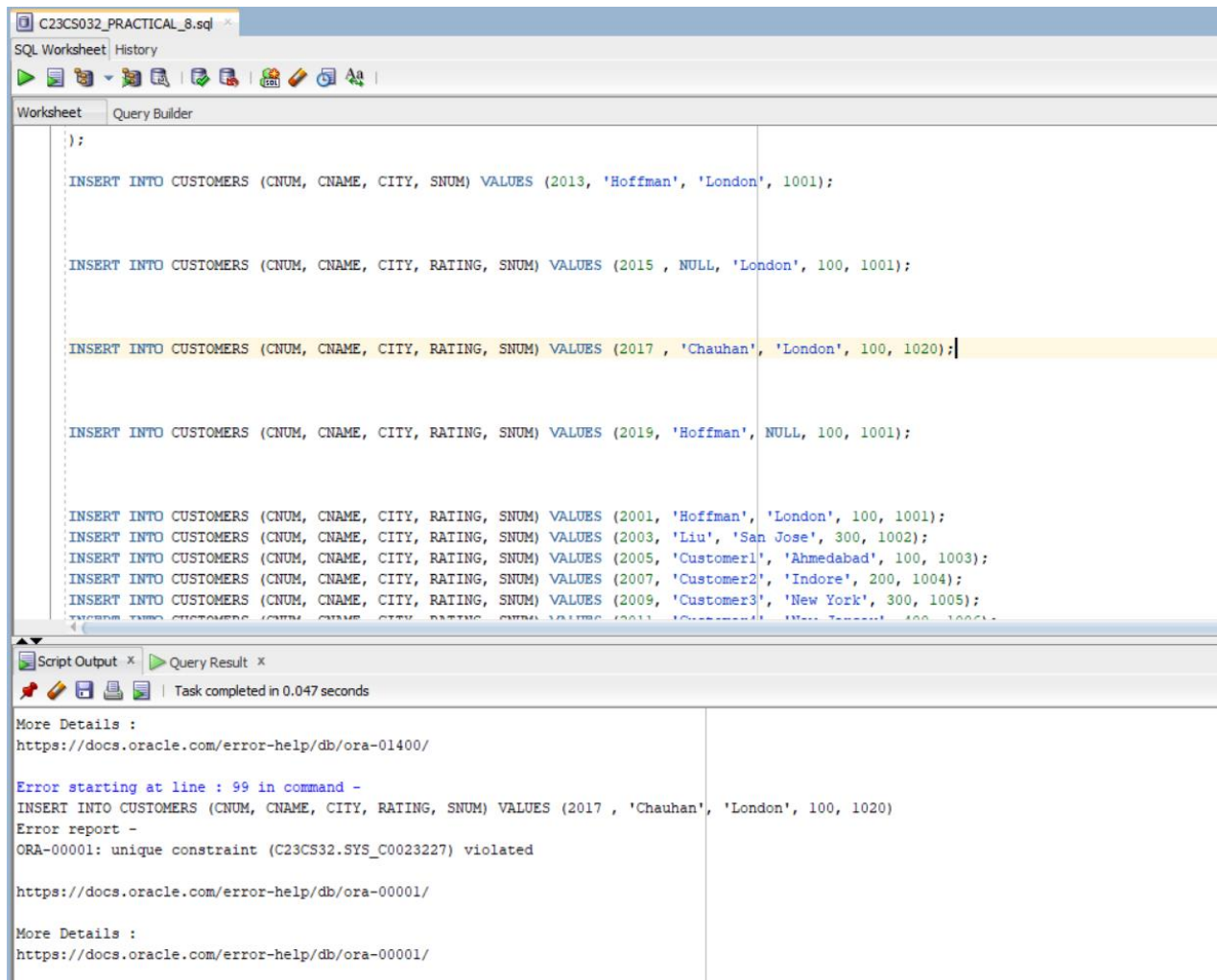
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2015 , NULL, 'London', 100, 1001)
Error at Command Line : 95 Column : 72
Error report -
SQL Error: ORA-01400: cannot insert NULL into ("C23CS32"."CUSTOMERS"."CNAME")

https://docs.oracle.com/error-help/db/ora-01400/01400.00000 - "cannot insert NULL into (%s)"
*Cause:   An attempt was made to insert NULL into previously listed objects.
*Action:  These objects cannot accept NULL values. Reservable columns cannot
          accept NULL values.

More Details :
https://docs.oracle.com/error-help/db/ora-01400/

```

- Try inserting a record with a non-existent Snum and ensure it fails.



```
--
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, SNUM) VALUES (2013, 'Hoffman', 'London', 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2015, NULL, 'London', 100, 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2017, 'Chauhan', 'London', 100, 1020);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2019, 'Hoffman', NULL, 100, 1001);

INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2001, 'Hoffman', 'London', 100, 1001);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2003, 'Liu', 'San Jose', 300, 1002);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2005, 'Customer1', 'Ahmedabad', 100, 1003);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2007, 'Customer2', 'Indore', 200, 1004);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2009, 'Customer3', 'New York', 300, 1005);
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2011, 'Customer4', 'New York', 100, 1006);
```

Script Output x Query Result x

Task completed in 0.047 seconds

More Details :
<https://docs.oracle.com/error-help/db/ora-01400/>

Error starting at line : 99 in command -
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2017, 'Chauhan', 'London', 100, 1020)

Error report -
ORA-00001: unique constraint (C23CS32.SYS_C0023227) violated

<https://docs.oracle.com/error-help/db/ora-00001/>

More Details :
<https://docs.oracle.com/error-help/db/ora-00001/>

- Retrieve all records from the Customer table to verify the data.

The screenshot shows the SQL Developer interface. The top pane displays the following SQL script:

```
INSERT INTO CUSTOMERS (CNUM, CNAME, CITY, RATING, SNUM) VALUES (2109, 'Customer53', 'New York', 500, 1055);
SELECT * FROM CUSTOMERS;

CREATE TABLE ORDERS (
  ORDER_NO VARCHAR2(6) NOT NULL,
```

The bottom pane shows the 'Query Result' tab with the following data:

	CNUM	CNAME	CITY	RATING	SNUM
1	2001	Hoffman	London	100	1001
2	2003	Liu	San Jose	300	1002
3	2005	Customer1	Ahmedabad	100	1003
4	2007	Customer2	Indore	200	1004
5	2009	Customer3	New York	300	1005
6	2011	Customer4	New Jersey	400	1006
7	2013	Customer5	Chennai	500	1007
8	2015	Customer6	Kolkata	600	1008
9	2017	Customer7	Gujarat	700	1009
10	2019	Customer8	Anand	800	1010
11	2021	Customer9	London	900	1011
12	2023	Customer10	San Jose	1000	1012
13	2025	Customer11	Ahmedabad	100	1013
14	2027	Customer12	Indore	300	1014
15	2029	Customer13	New York	100	1015
16	2031	Customer14	New Jersey	200	1016
17	2033	Customer15	Chennai	300	1017
18	2035	Customer16	Kolkata	400	1018
19	2037	Customer17	Gujarat	500	1019
20	2039	Customer18	Anand	600	1020
21	2041	Customer19	London	700	1021
22	2043	Customer20	San Jose	800	1022
23	2045	Customer21	Ahmedabad	900	1023
24	2047	Customer22	Indore	1000	1024
25	2049	Customer23	New York	200	1025

- 3. Managing Orders:** The company tracks orders placed by customers, which are managed by salespeople. Each order has an ID, amount, date, and links to customers and salesman.

Tasks:

- Create the Order Table:

Attributes:

- Order_no: Order Number (Primary Key, number).
- Amount: Order Amount (nullable).
- Odate: Order Date (nullable).
- Cnum: Customer ID (Foreign Key references Customer).
- Snum: Salesperson ID (Foreign Key references Salespeople).

Constraints:

- Primary Key Constraint: Ensure Order_no uniquely identifies each record.
- Foreign Key Constraint: Ensure Cnum references Customer(Cnum).
- Foreign Key Constraint: Ensure Snum references Salespeople(Snum).

2. Test Cases:

- Attempt to insert records with non-existent Cnum or Snum and ensure the system rejects them.

SQL Worksheet History

Worksheet Query Builder

```

INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3001, null,null, 2001, 1001);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3001, 18.96, TO_DATE('03/10/1994', 'MM/DD/YYYY'), 2001, 1001);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3002, 19.95, TO_DATE('03/01/1995', 'MM/DD/YYYY'), 2003, 1002);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3003, 201, TO_DATE('01/02/1995', 'MM/DD/YYYY'), 2005, 1003);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3004, 2005, TO_DATE('06/02/1995', 'MM/DD/YYYY'), 2007, 1004);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3005, 2336, TO_DATE('04/01/2004', 'MM/DD/YYYY'), 2009, 1005);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3006, 523, TO_DATE('04/15/1996', 'MM/DD/YYYY'), 2011, 1006);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3007, 652, TO_DATE('05/16/1995', 'MM/DD/YYYY'), 2013, 1007);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3008, 125, TO_DATE('05/17/1995', 'MM/DD/YYYY'), 2015, 1008);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3009, 332, TO_DATE('04/15/1996', 'MM/DD/YYYY'), 2017, 1009);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3010, 225, TO_DATE('05/16/1995', 'MM/DD/YYYY'), 2019, 1010);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3011, 3356, TO_DATE('05/17/1995', 'MM/DD/YYYY'), 2021, 1011);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3012, 2156, TO_DATE('04/15/1996', 'MM/DD/YYYY'), 2023, 1012);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3013, 325, TO_DATE('05/16/1995', 'MM/DD/YYYY'), 2025, 1013);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3014, 365, TO_DATE('05/17/1995', 'MM/DD/YYYY'), 2027, 1014);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3015, 893, TO_DATE('04/15/1996', 'MM/DD/YYYY'), 2029, 1015);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3016, 245, TO_DATE('05/16/1995', 'MM/DD/YYYY'), 2031, 1016);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3017, 652, TO_DATE('06/17/1995', 'MM/DD/YYYY'), 2033, 1017);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3018, 3652, TO_DATE('06/18/1995', 'MM/DD/YYYY'), 2035, 1001);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3019, 325, TO_DATE('07/25/1996', 'MM/DD/YYYY'), 2037, 1002);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3020, 145, TO_DATE('07/28/1995', 'MM/DD/YYYY'), 2039, 1003);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3021, 254, TO_DATE('10/03/1995', 'MM/DD/YYYY'), 2041, 1004);
INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3022, 2654, TO_DATE('10/04/1995', 'MM/DD/YYYY'), 2043, 1005);

```

Script Output x Query Result x

Task completed in 0.142 seconds

```

INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3001, null,null, 2001, 1001)
Error at Command Line : 178 Column : 52
Error report -
SQL Error: ORA-00904: "SNUM": invalid identifier

https://docs.oracle.com/error-help/db/ora-00904/00904. 00000 - "$s: invalid identifier"
Cause: The identifier or column name entered was invalid.
Action: Ensure the following

More Details :
https://docs.oracle.com/error-help/db/ora-00904/

```

- Retrieve all records from the Order table to verify data integrity.

The screenshot shows a SQL Developer window with a script titled 'C23CS032_PRACTICAL_8.sql'. The script contains 17 INSERT statements for the ORDERS table, each with columns (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) and values. The script ends with 'DROP TABLE ORDERS;' and 'SELECT * FROM ORDERS;'. Below the script, the 'Query Result' tab shows the output of the SELECT statement, displaying 17 rows of data.

ORDER_NO	AMOUNT	ODATE	CNUM	SNUM
1 3001	18.96	10-03-94	2001	1001
2 3002	19.95	01-03-95	2003	1002
3 3003	201	02-01-95	2005	1003
4 3004	2005	02-06-95	2007	1004
5 3005	2336	01-04-04	2009	1005
6 3006	523	15-04-96	2011	1006
7 3007	652	16-05-95	2013	1007
8 3008	125	17-05-95	2015	1008
9 3009	332	15-04-96	2017	1009
10 3010	225	16-05-95	2019	1010
11 3011	3356	17-05-95	2021	1011
12 3012	2156	15-04-96	2023	1012
13 3013	325	16-05-95	2025	1013
14 3014	365	17-05-95	2027	1014
15 3015	893	15-04-96	2029	1015
16 3016	245	16-05-95	2031	1016
17 3017	652	17-06-95	2033	1017

4. Managing Sales Orders: Sales orders track additional details such as delivery type and order status, with constraints to ensure consistency.

Tasks:

- Create the Sales_order Table:

Attributes:

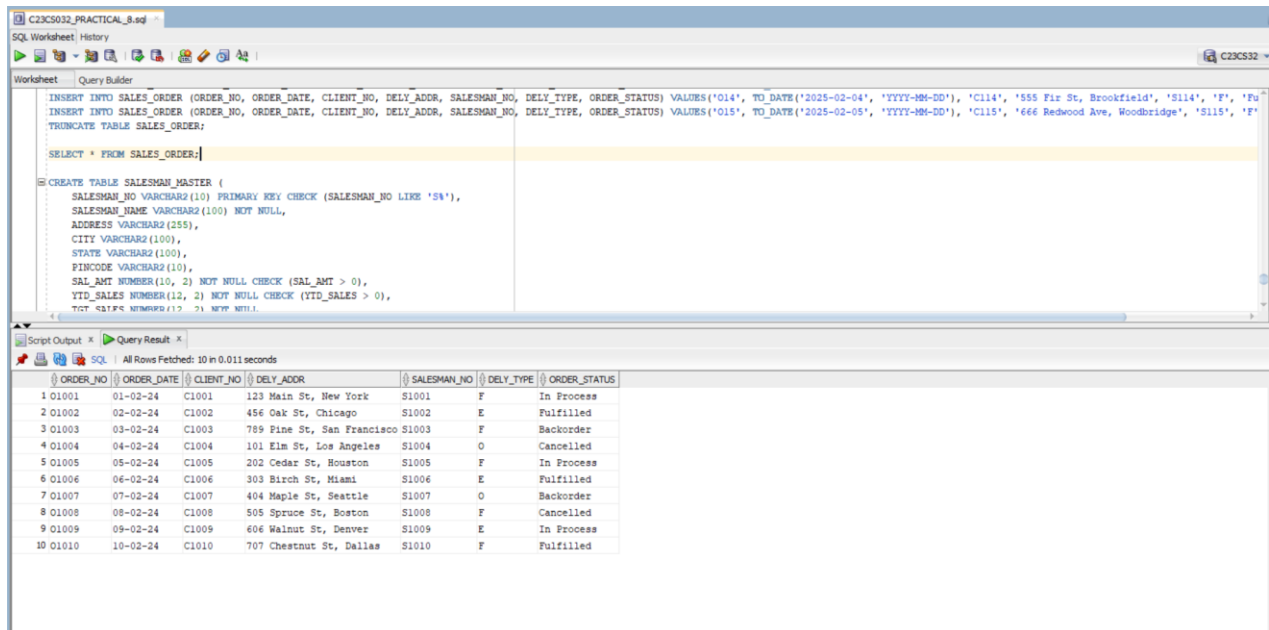
- Order_no: Order Number (Primary Key, first letter must start with 'O').
- Order_date: Date of the Order.
- Client_no: Client ID (Foreign Key references Client_master).
- Dely_addr: Delivery Address.
- Salesman_no: Salesperson ID (Foreign Key references Salesman_master).
- Dely_type: Delivery Type (Default: 'F').
- Order_status: Order Status (Allowed Values: In Process, Fulfilled, Backorder, Cancelled).

Constraints:

- Primary Key, Foreign Key, Check, and Default constraints.

2. Test Cases:

- Verify that all constraints, including the primary key, check constraints, and default values, are applied correctly.



- Managing Salesman Details:** The organization needs to maintain records of salesmen, including their target and year-to-date sales, with strict constraints for validation.

Tasks:

- Create the Salesman_master Table:

Attributes:

- Salesman_no: Salesman Number (Primary Key, must start with 'S').
- Salesman_name: Salesman Name (Not Null).
- Address, City, Pincode, State: Additional details.
- Sal_amt: Salary (Not Null, cannot be 0).
- Ytd_sales: Year-to-date Sales (Not Null, cannot be 0).
- Tgt_sales: Target Sales (Not Null).

- Test Cases:

- Verify that records with invalid Sal_amt or Ytd_sales are rejected.

```

INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S101', 'James Brown', '123 High Street', 'Los Angeles', 'CA', '90001', 5000.00, 150000, 200000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S102', 'Michael Clark', '456 Pine Avenue', 'Chicago', 'IL', '60601', 4500.00, 120000, 180000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S103', 'Sarah Green', '789 Oak Road', 'Houston', 'TX', '77001', 4800.00, 130000, 190000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S104', 'David White', '101 Cedar Boulevard', 'Phoenix', 'AZ', '85001', 4700.00, 125000, 185000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S105', 'Jessica Blue', '202 Birch Street', 'San Diego', 'CA', '92101', 5300.00, 140000, 200000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S106', 'William Black', '303 Elm Drive', 'Philadelphia', 'PA', '19101', 5500.00, 150000, 210000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S107', 'Emma Red', '404 Maple Avenue', 'Dallas', 'TX', '75201', 4900.00, 140000, 190000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S108', 'Mason Yellow', '505 Pine Street', 'Austin', 'TX', '73301', 4600.00, 130000, 180000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S109', 'Sophia Silver', '606 Oak Lane', 'San Antonio', 'TX', '78201', 5200.00, 145000, 205000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S110', 'Lucas Brown', '707 Willow Road', 'Seattle', 'WA', '98101', 5100.00, 135000, 195000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S111', 'Isabella Gray', '808 Fir Drive', 'Denver', 'CO', '80201', 4800.00, 122000, 182000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S112', 'Ethan Gold', '909 Maple Lane', 'Boston', 'MA', '02101', 5100.00, 130000, 190000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S113', 'Harper Copper', '1010 Chestnut Street', 'Miami', 'FL', '33101', 4700.00, 120000, 170000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S114', 'Liam Bronze', '1111 Cedar Drive', 'Charlotte', 'NC', '28201', 5400.00, 150000, 210000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S115', 'Olivia White', '1212 Pine Lane', 'Miami', 'FL', '33101', 5000.00, 128000, 178000)

SELECT * FROM SALESMAN_MASTER;

```

Script Output: Task completed in 0.026 seconds

INSERT INTO ORDERS (ORDER_NO, AMOUNT, ODATE, CNUM, SNUM) VALUES (3055, 325, TO_DATE('4/15/1996', 'MM/DD/YYYY'), 2105, 1006)

Error report -

ORA-02291: integrity constraint (C23CS32.SYS_C0024845) violated - parent key not found

<https://docs.oracle.com/error-help/db/ora-02291/>

More Details : <https://docs.oracle.com/error-help/db/ora-02291/>

1 row inserted.

- Ensure all constraints are correctly applied.

```

INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S101', 'James Brown', '123 High Street', 'Los Angeles', 'CA', '90001', 5000.00, 150000, 200000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S102', 'Michael Clark', '456 Pine Avenue', 'Chicago', 'IL', '60601', 4500.00, 120000, 180000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S103', 'Sarah Green', '789 Oak Road', 'Houston', 'TX', '77001', 4800.00, 130000, 190000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S104', 'David White', '101 Cedar Boulevard', 'Phoenix', 'AZ', '85001', 4700.00, 125000, 185000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S105', 'Jessica Blue', '202 Birch Street', 'San Diego', 'CA', '92101', 5300.00, 140000, 200000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S106', 'William Black', '303 Elm Drive', 'Philadelphia', 'PA', '19101', 5500.00, 150000, 210000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S107', 'Emma Red', '404 Maple Avenue', 'Dallas', 'TX', '75201', 4900.00, 140000, 190000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S108', 'Mason Yellow', '505 Pine Street', 'Austin', 'TX', '73301', 4600.00, 130000, 180000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S109', 'Sophia Silver', '606 Oak Lane', 'San Antonio', 'TX', '78201', 5200.00, 145000, 205000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S110', 'Lucas Brown', '707 Willow Road', 'Seattle', 'WA', '98101', 5100.00, 135000, 195000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S111', 'Isabella Gray', '808 Fir Drive', 'Denver', 'CO', '80201', 4800.00, 122000, 182000)
INSERT INTO SALESMAN_MASTER (SALESMAN_NO, SALESMAN_NAME, ADDRESS, CITY, STATE, PINCODE, SAL_AMT, YTD_SALES, TGT_SALES) VALUES ('S112', 'Ethan Gold', '909 Maple Lane', 'Boston', 'MA', '02101', 5100.00, 130000, 190000)

```

Script Output: All Rows Fetched: 11 in 0.008 seconds

SALESMAN_NO	SALESMAN_NAME	ADDRESS	CITY	PINCODE	STATE	SAL_AMT	YTD_SALES	TGT_SALES
1 S1001	John Doe	123 Main St	New York	10001	NY	50000	150000	200000
2 S1002	Jane Smith	456 Oak St	Chicago	60601	IL	55000	175000	220000
3 S1003	Robert Brown	789 Pine St	San Francisco	94101	CA	48000	140000	190000
4 S1004	Emily Davis	101 Elm St	Los Angeles	90001	CA	60000	200000	250000
5 S1005	Michael Wilson	202 Cedar St	Houston	77001	TX	52000	160000	210000
6 S1006	Jessica Johnson	303 Birch St	Miami	33101	FL	57000	180000	230000
7 S1007	William Martinez	404 Maple St	Seattle	98101	WA	53000	165000	215000
8 S1008	Sophia Lee	505 Spruce St	Boston	02101	MA	49000	145000	195000
9 S1009	Daniel Anderson	606 Walnut St	Denver	80201	CO	51000	155000	205000
10 S1010	Olivia White	707 Chestnut St	Dallas	75201	TX	62000	210000	260000
11 S1011	James Brown	123 High Street	Los Angeles	90001	CA	50.42	150.215	200000

6. Managing Client Details: Clients are key stakeholders in the sales process. Their data must be consistent and adhere to specific constraints.

Tasks:

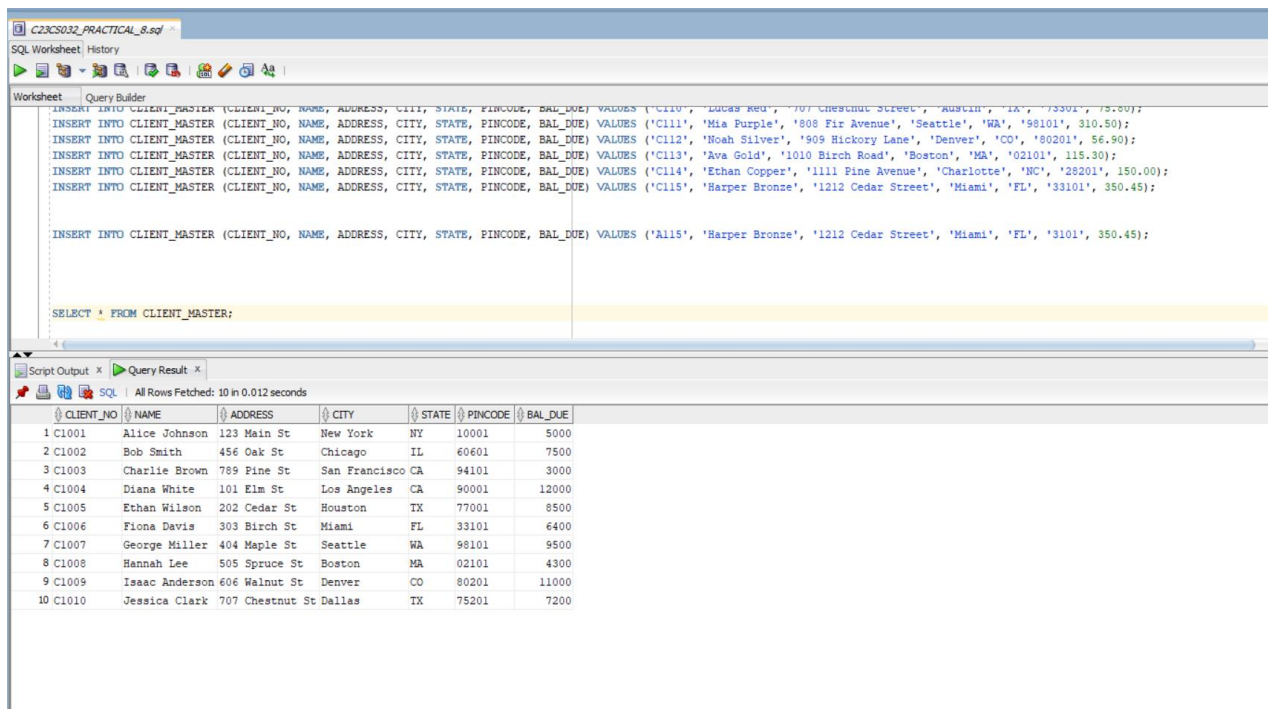
1. Create the Client_master Table:

Attributes:

- Client_no: Client Number (Primary Key, must start with 'C').
- Name: Client Name (Not Null).
- Address, City, State, Pincode: Client details.
- Bal_due: Balance Due.

2. Test Cases:

- Verify that all constraints, including the primary key, not null, and check constraints, are correctly applied.



SQL Worksheet: History

Worksheet: Query Builder

```

INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C101', 'Lucas Red', '707 Chestnut Street', 'Austin', 'TX', '73301', 75.50);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C111', 'Mia Purple', '808 Fir Avenue', 'Seattle', 'WA', '98101', 310.50);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C112', 'Moah Silver', '909 Hickory Lane', 'Denver', 'CO', '80201', 56.90);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C113', 'Ava Gold', '1010 Birch Road', 'Boston', 'MA', '02101', 115.30);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C114', 'Ethan Copper', '1111 Pine Avenue', 'Charlotte', 'NC', '28201', 150.00);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C115', 'Harper Bronze', '1212 Cedar Street', 'Miami', 'FL', '33101', 350.45);

INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('A115', 'Harper Bronze', '1212 Cedar Street', 'Miami', 'FL', '3101', 350.45);

SELECT * FROM CLIENT_MASTER;

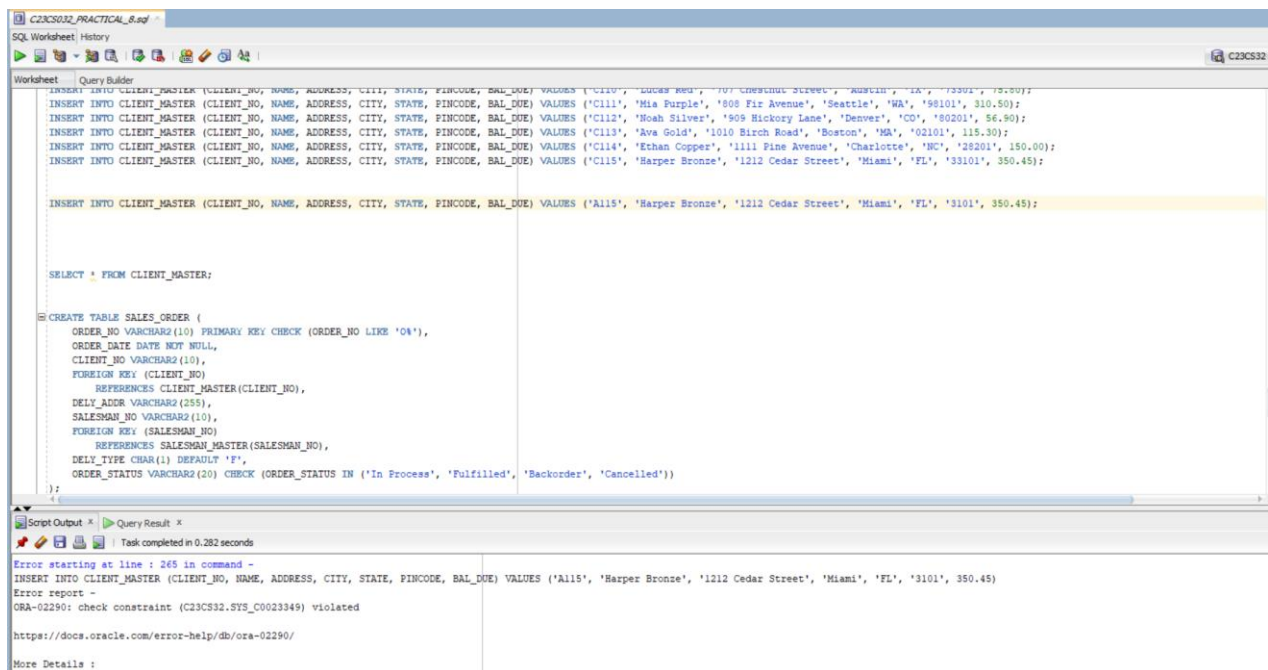
```

Script Output x Query Result x

All Rows Fetched: 10 in 0.012 seconds

CLIENT_NO	NAME	ADDRESS	CITY	STATE	PINCODE	BAL_DUE
1 C1001	Alice Johnson	123 Main St	New York	NY	10001	5000
2 C1002	Bob Smith	456 Oak St	Chicago	IL	60601	7500
3 C1003	Charlie Brown	789 Pine St	San Francisco	CA	94101	3000
4 C1004	Diana White	101 Elm St	Los Angeles	CA	90001	12000
5 C1005	Ethan Wilson	202 Cedar St	Houston	TX	77001	8500
6 C1006	Fiona Davis	303 Birch St	Miami	FL	33101	6400
7 C1007	George Miller	404 Maple St	Seattle	WA	98101	9500
8 C1008	Hannah Lee	505 Spruce St	Boston	MA	02101	4300
9 C1009	Isaac Anderson	606 Walnut St	Denver	CO	80201	11000
10 C1010	Jessica Clark	707 Chestnut St	Dallas	TX	75201	7200

- Ensure invalid records are rejected.



SQL Worksheet: History

Worksheet: Query Builder

```

INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C101', 'Lucas Red', '707 Chestnut Street', 'Austin', 'TX', '73301', 75.50);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C111', 'Mia Purple', '808 Fir Avenue', 'Seattle', 'WA', '98101', 310.50);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C112', 'Moah Silver', '909 Hickory Lane', 'Denver', 'CO', '80201', 56.90);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C113', 'Ava Gold', '1010 Birch Road', 'Boston', 'MA', '02101', 115.30);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C114', 'Ethan Copper', '1111 Pine Avenue', 'Charlotte', 'NC', '28201', 150.00);
INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('C115', 'Harper Bronze', '1212 Cedar Street', 'Miami', 'FL', '33101', 350.45);

INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('A115', 'Harper Bronze', '1212 Cedar Street', 'Miami', 'FL', '3101', 350.45);

SELECT * FROM CLIENT_MASTER;

CREATE TABLE SALES_ORDER (
  ORDER_NO VARCHAR2(10) PRIMARY KEY CHECK (ORDER_NO LIKE 'O%'),
  ORDER_DATE DATE NOT NULL,
  CLIENT_NO VARCHAR2(10),
  FOREIGN KEY (CLIENT_NO)
    REFERENCES CLIENT_MASTER(CLIENT_NO),
  DELV_ADDR VARCHAR2(255),
  SALESMAN_NO VARCHAR2(10),
  FOREIGN KEY (SALESMAN_NO)
    REFERENCES SALESMAN_MASTER(SALESMAN_NO),
  DELV_TYPE CHAR(1) DEFAULT 'F',
  ORDER_STATUS VARCHAR2(20) CHECK (ORDER_STATUS IN ('In Process', 'Fulfilled', 'Backorder', 'Cancelled'))
);

```

Script Output x Query Result x

Task completed in 0.282 seconds

Error starting at line : 265 in command -
 INSERT INTO CLIENT_MASTER (CLIENT_NO, NAME, ADDRESS, CITY, STATE, PINCODE, BAL_DUE) VALUES ('A115', 'Harper Bronze', '1212 Cedar Street', 'Miami', 'FL', '3101', 350.45)
 Error report -
 ORA-02290: check constraint (C23CS32.SYS_C0023349) violated
<https://docs.oracle.com/error-help/db/ora-02290/>
 More Details :