

**DATABASE MANAGEMENT SYSTEM**

**(01CT0407)**

**Department of Information Communication and  
Technology**

**4<sup>rd</sup> Semester**

**Lab Manual**

**(Dec-Apr 23-24)**

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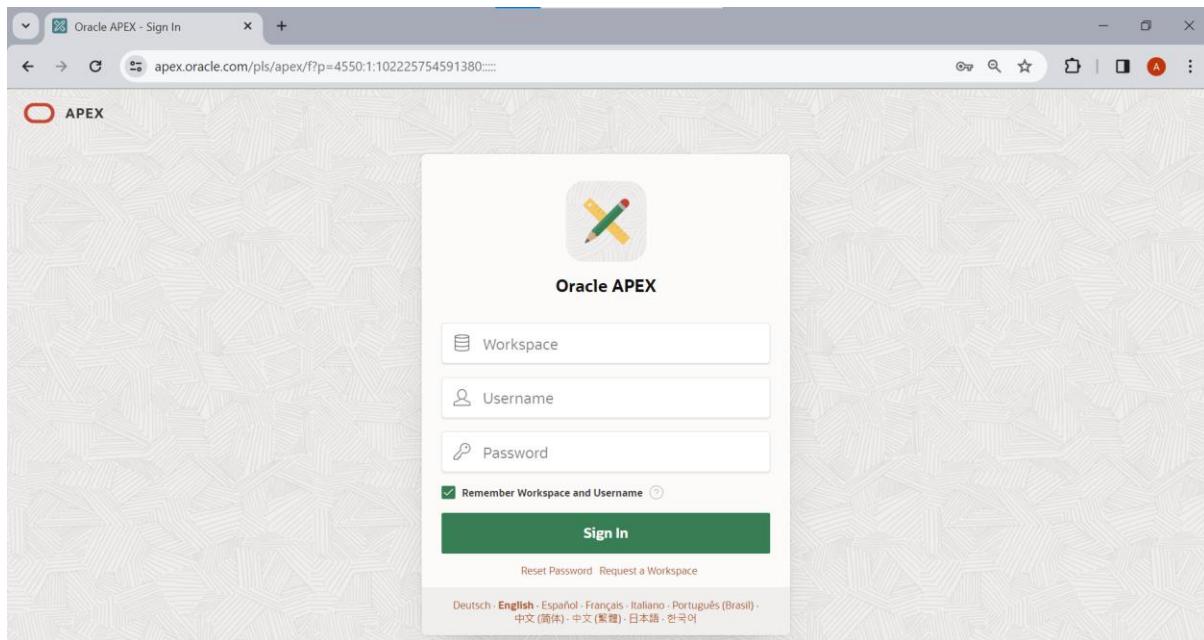
## Practical 1

**Aim: Introduction to RDBMS and APEX Login.**

**APEX login:**

Step 1:<https://apex.oracle.com/pls/apex/>

Step 2: Click on Request a workspace.

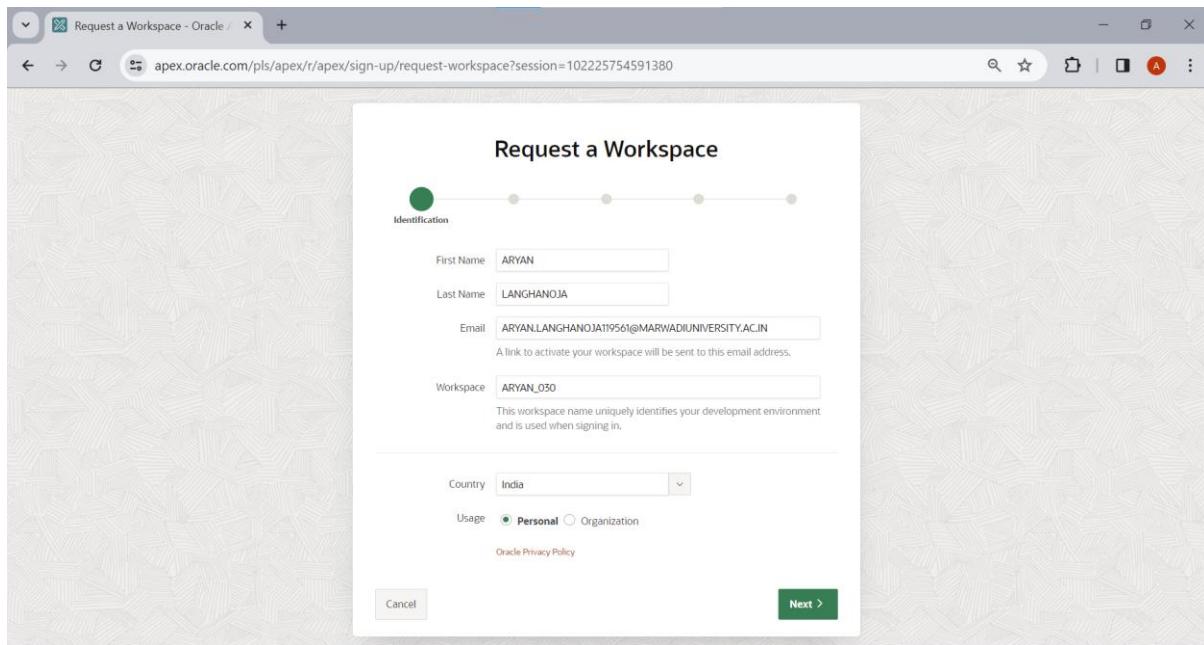


Step 3: Fill all the required details carefully like: First Name: Your name(ex. Harikesh)

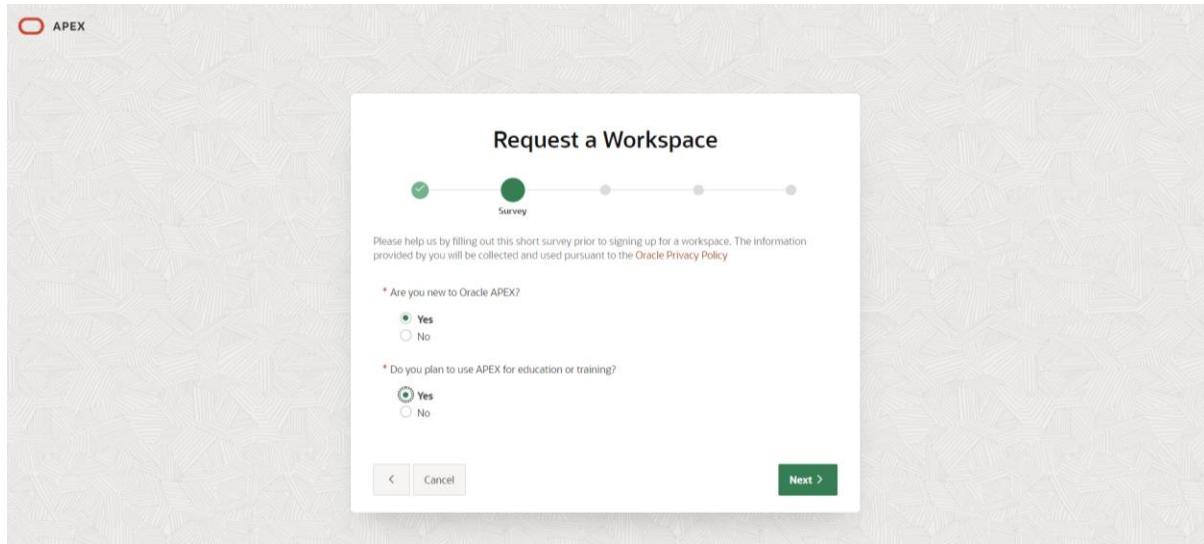
Last Name: Your last name (ex. Chauhan)

Email: Use your institute email address only.

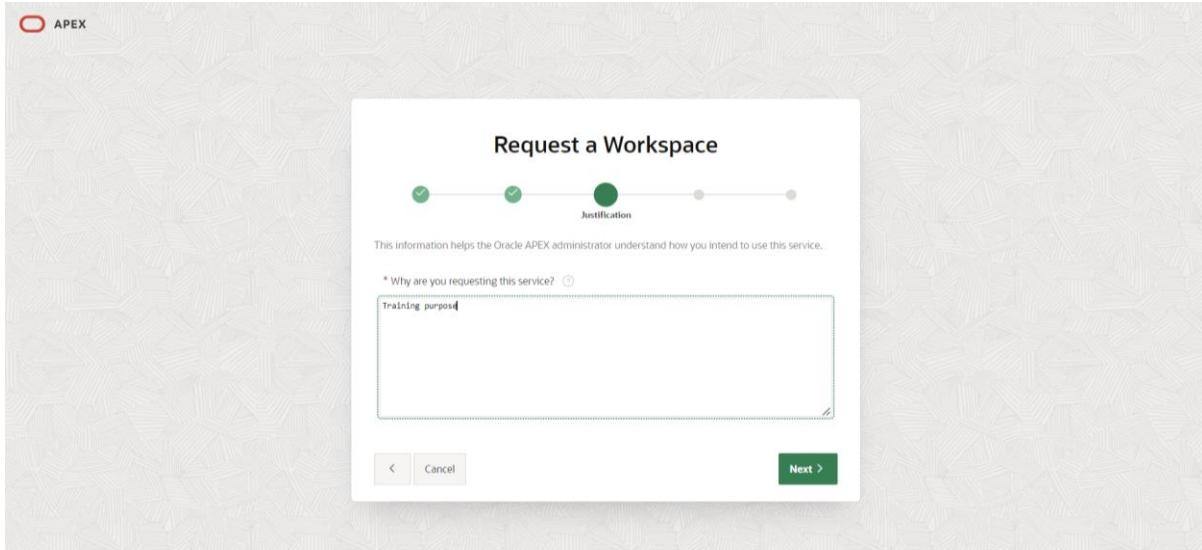
Workspace: name\_surname And click on next.



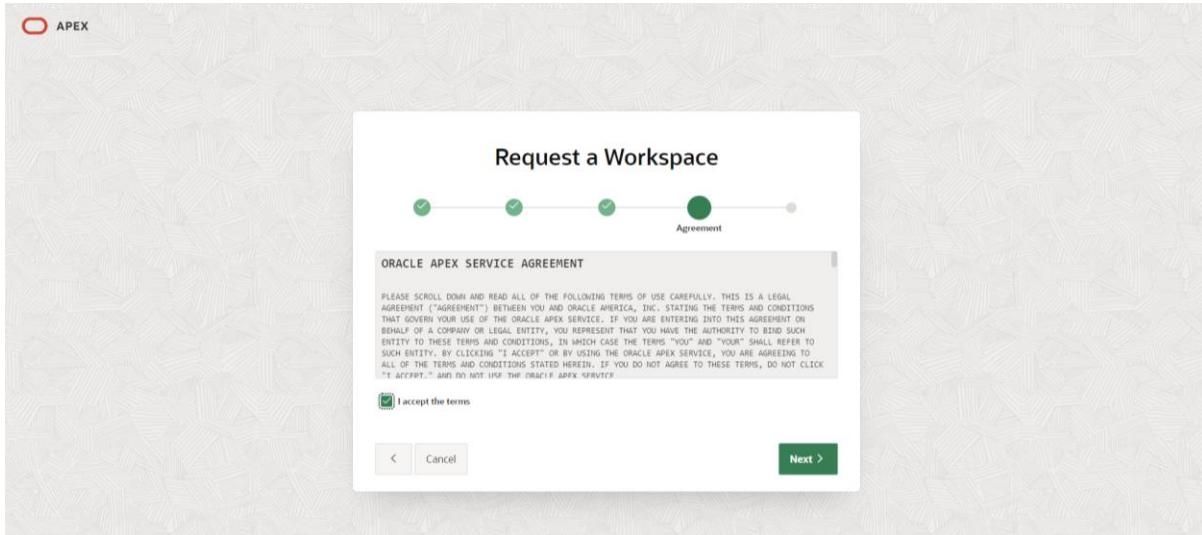
Step 4: Fill survey detail same as below and click on next.



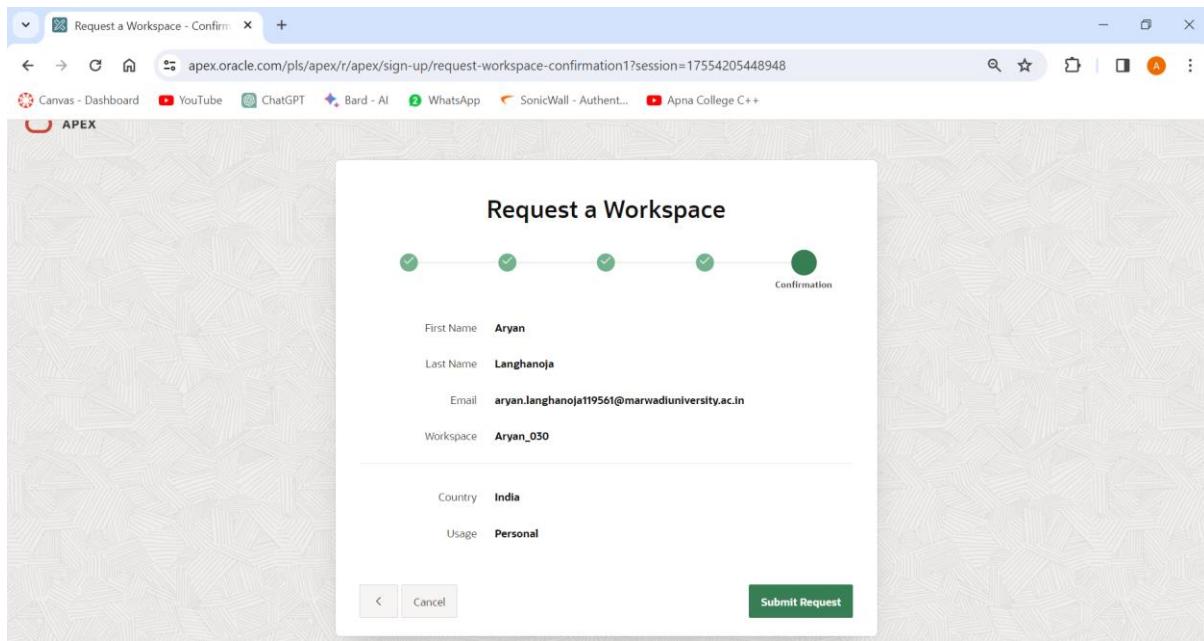
Step 5: Write appropriate text in textarea and Click on next,



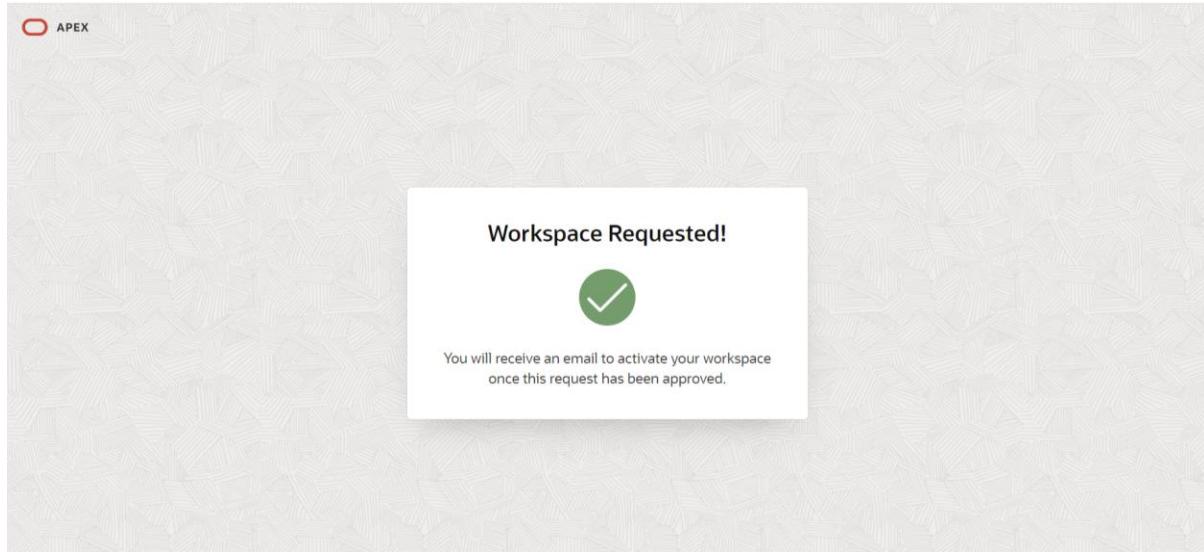
Step 6: Click on check box to agree terms and conditions and Click on next.



Step 7: Click on submit request button and Click on next

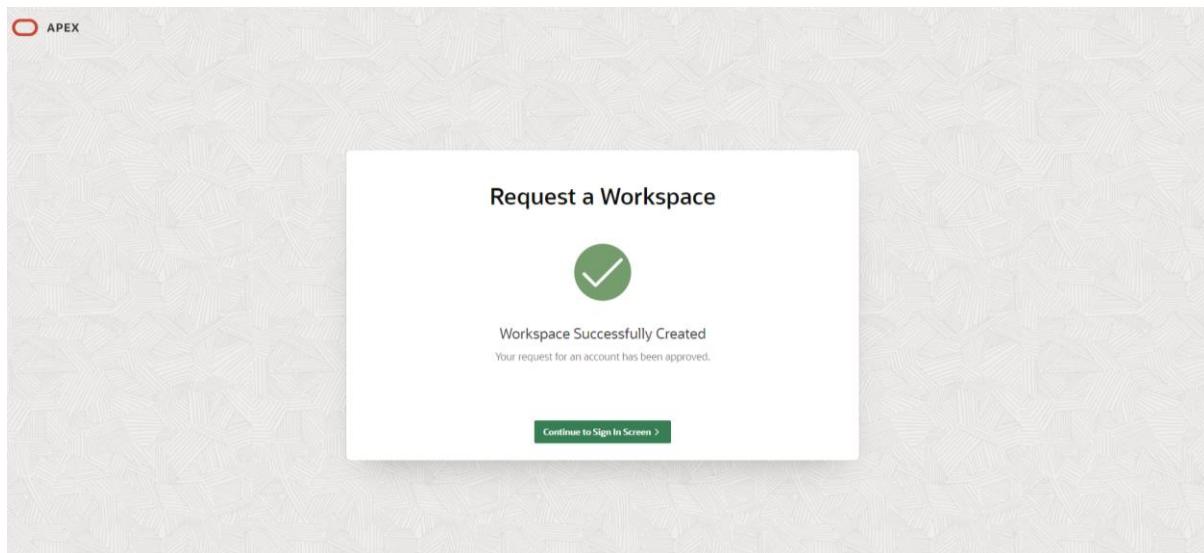
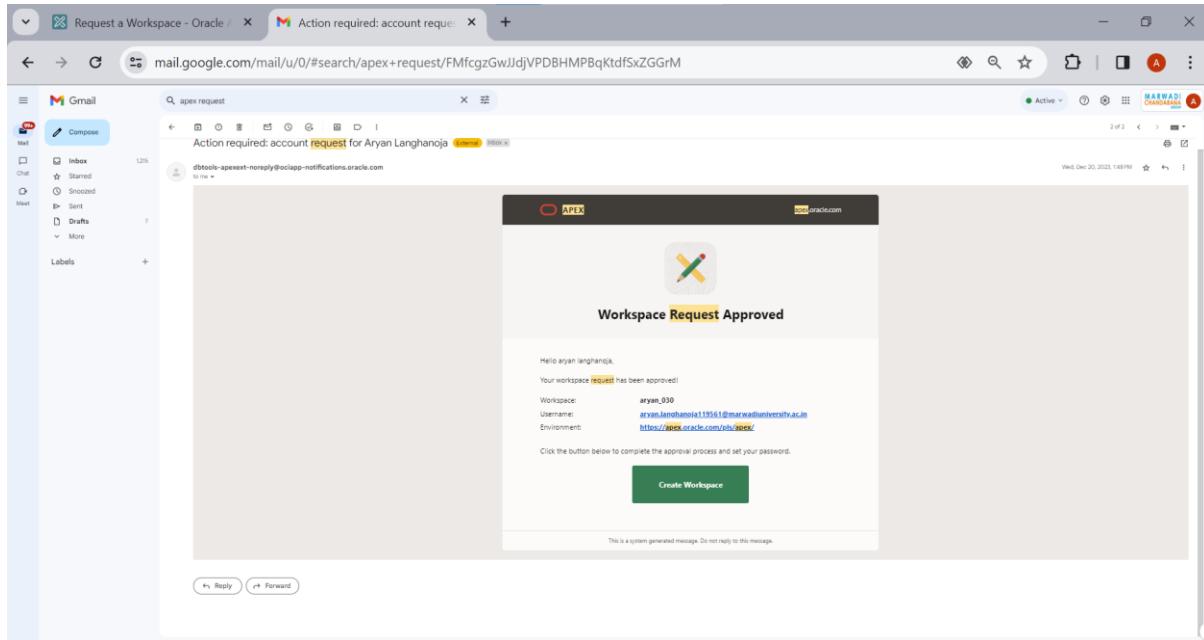


Step 8: After that you will receive an email on your institute email id.

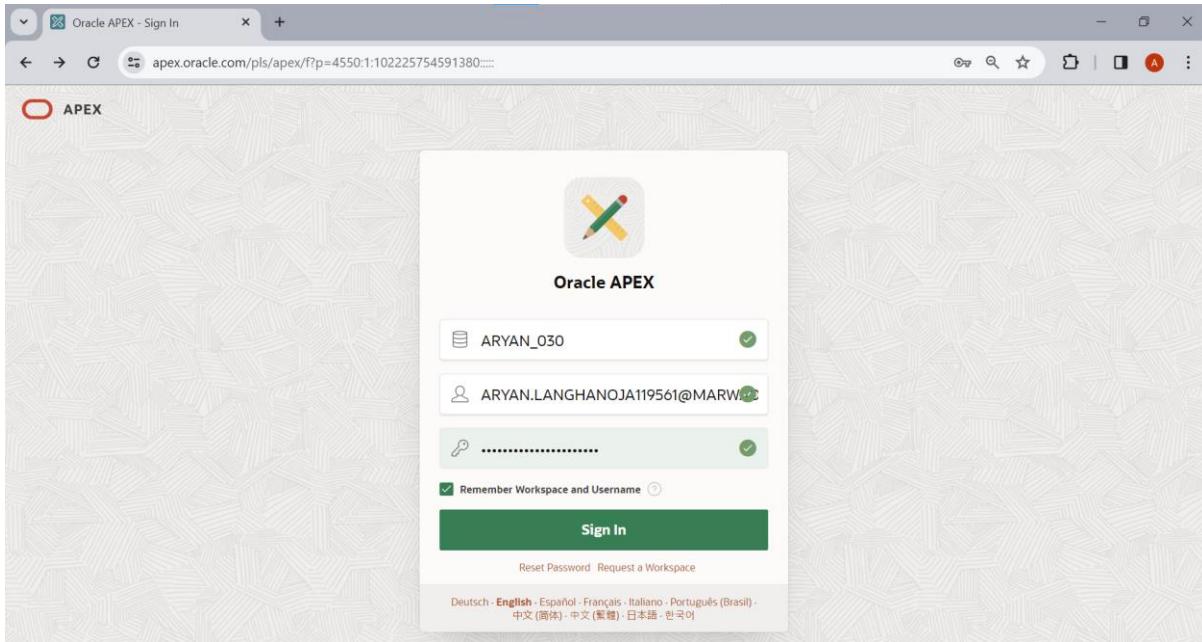


Step 9: Click on create workspace.

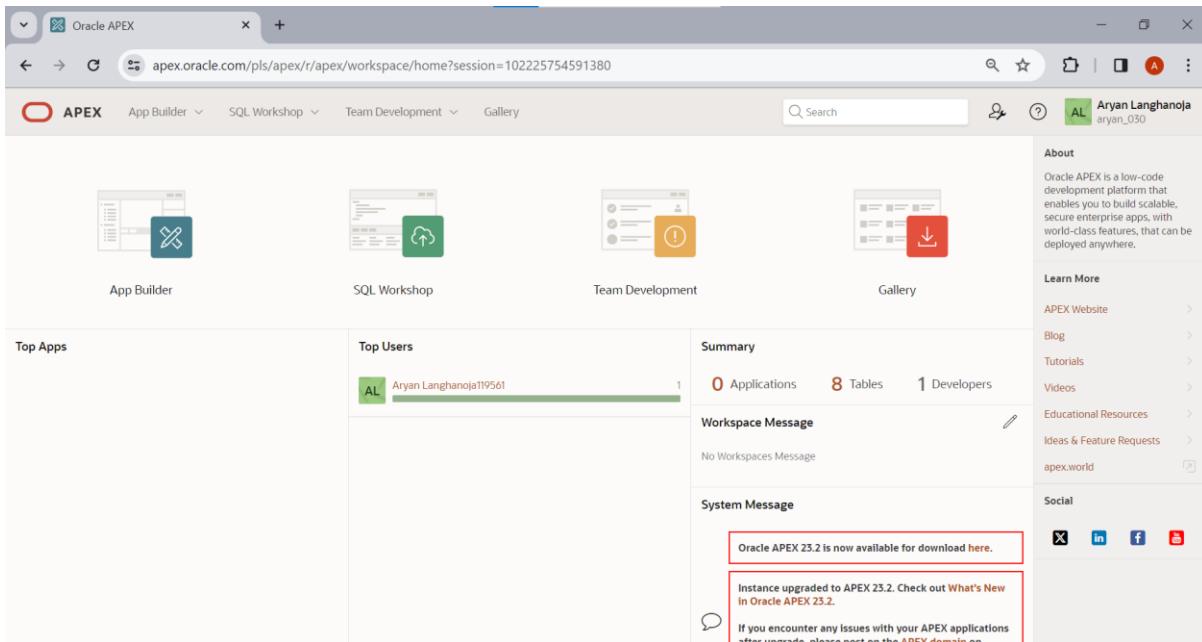
Step 10: Click on Continue to sign in screen.



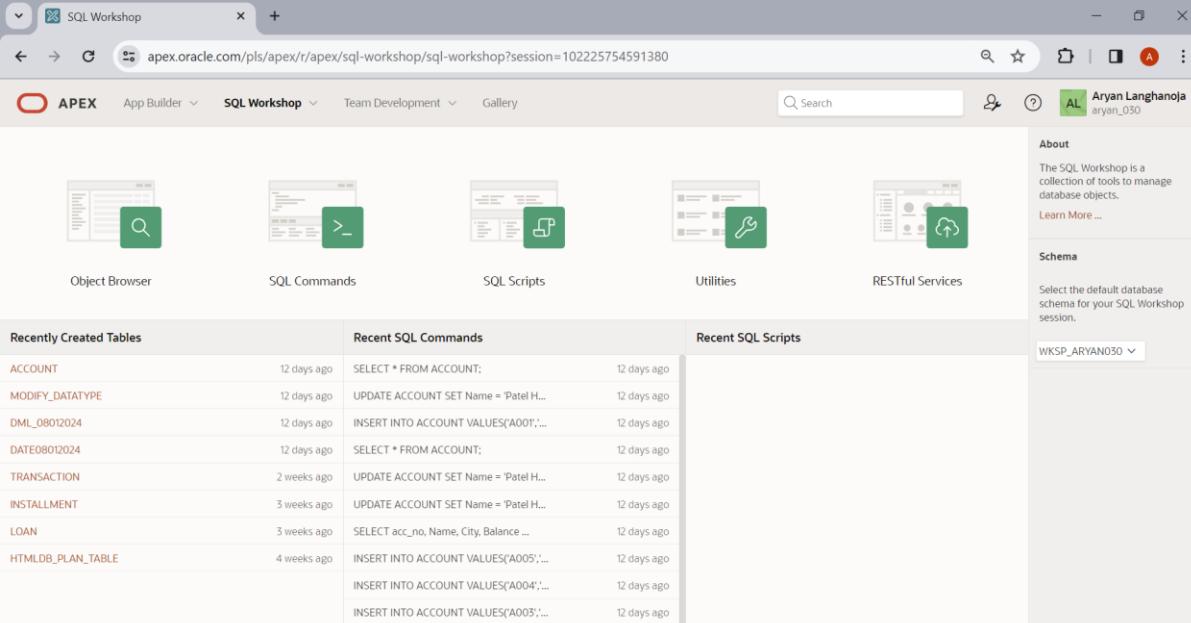
Step 11: Set your new password and confirm password and click on change password.



Step 12: Click on SQL workshop.

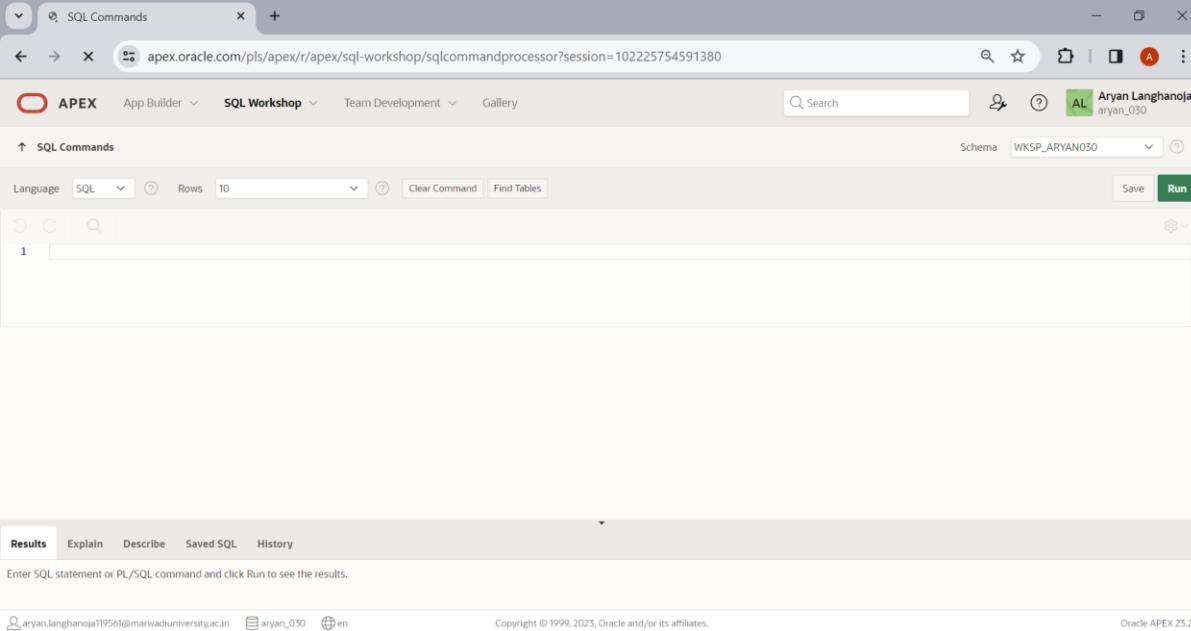


Step 13: Click on SQL Commands.



The screenshot shows the Oracle SQL Workshop interface. At the top, there are five main tool icons: Object Browser, SQL Commands, SQL Scripts, Utilities, and RESTful Services. Below these are two tables: 'Recently Created Tables' and 'Recent SQL Commands'. The 'Recent SQL Commands' table lists several recent queries, such as SELECT statements from the ACCOUNT table and INSERT statements into the ACCOUNT table. On the right side, there is an 'About' section describing the SQL Workshop and a 'Schema' section where the user can select the default database schema for their session.

Step 14: Now you can perform your queries.



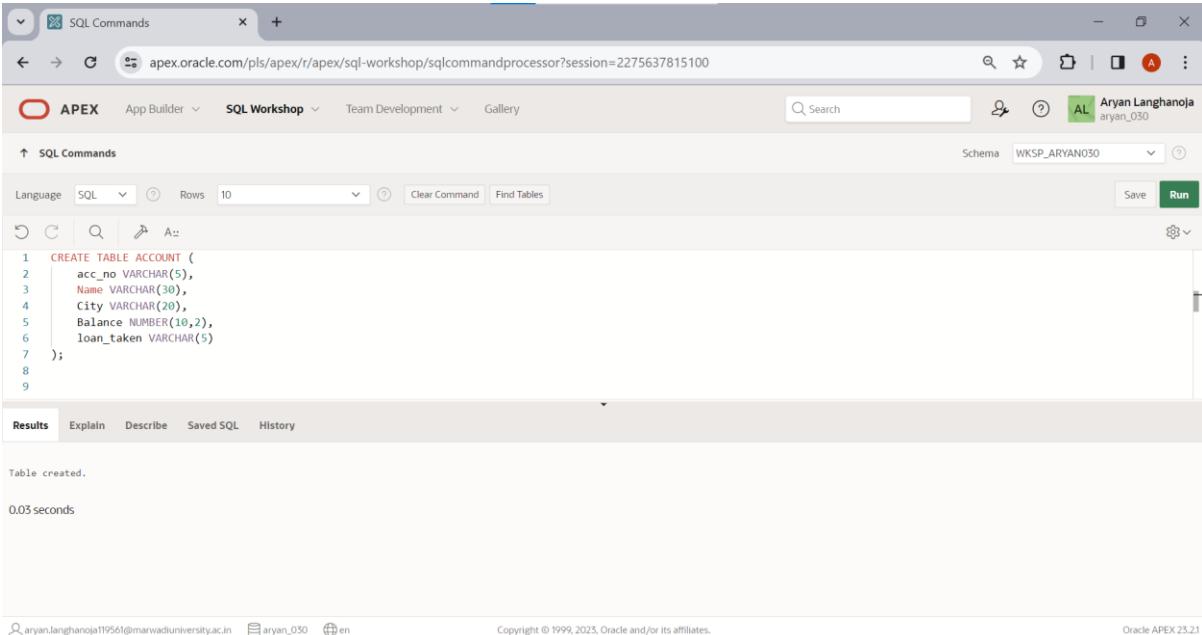
The screenshot shows the Oracle SQL Commands interface. It features a query editor at the top where a single digit '1' is entered. Below the editor is a results panel with tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is selected, and it displays the message 'Enter SQL statement or PL/SQL command and click Run to see the results.' At the bottom of the interface, there are footer links for email, user profile, and language selection, along with copyright information and the Oracle APEX version.

## Practical 2

**Aim: DDL Commands and Table Creation.**

**Create a table ACCOUNT**

Column name	Data Type	Size
acc_no	varchar2	5
Name	varchar2	30
City	varchar2	20
Balance	Number	10,2
loan_taken	varchar2	5



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```

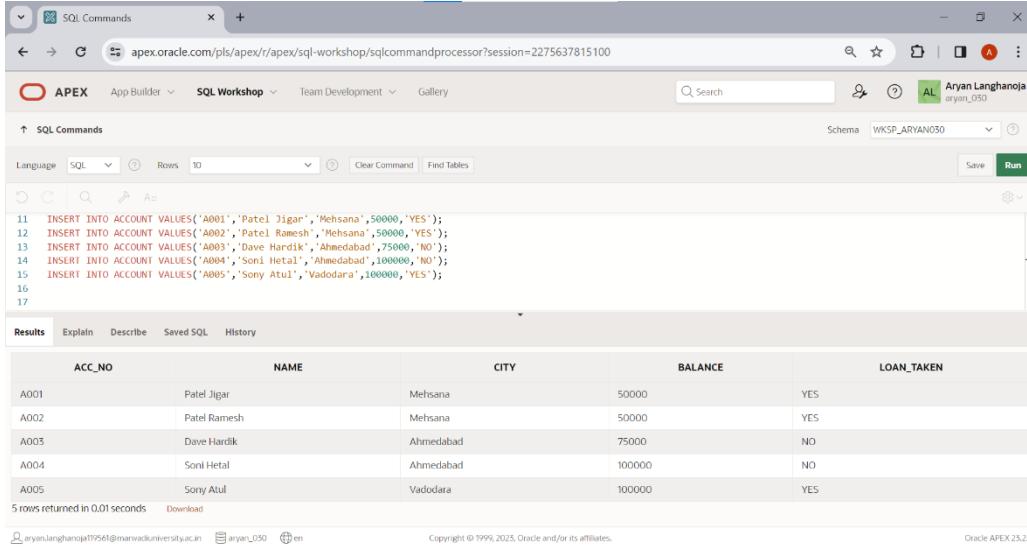
1 CREATE TABLE ACCOUNT (
2   acc_no VARCHAR(5),
3   Name VARCHAR(30),
4   City VARCHAR(20),
5   Balance NUMBER(10,2),
6   loan_taken VARCHAR(5)
7 );
8
9
  
```

After running the command, the results show:

Table created.  
0.05 seconds

**Insert the following records.**

acc_no	Name	City	Balance	loan_taken
A001	Patel Jigar	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	YES
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Sony Atul	Vadodara	100000	YES



The screenshot shows the Oracle APEX SQL Workshop interface. In the top navigation bar, 'APEX' is selected. The main area displays a SQL command window with the following code:

```

11  INSERT INTO ACCOUNT VALUES('A001','Patel Jigar','Mehsana',50000,'YES');
12  INSERT INTO ACCOUNT VALUES('A002','Patel Ramesh','Mehsana',50000,'YES');
13  INSERT INTO ACCOUNT VALUES('A003','Dave Hardik','Ahmedabad',75000,'NO');
14  INSERT INTO ACCOUNT VALUES('A004','Soni Hetal','Ahmedabad',100000,'NO');
15  INSERT INTO ACCOUNT VALUES('A005','Sony Atul','Vadodara',100000,'YES');
16
17
  
```

The results section shows a table with the following data:

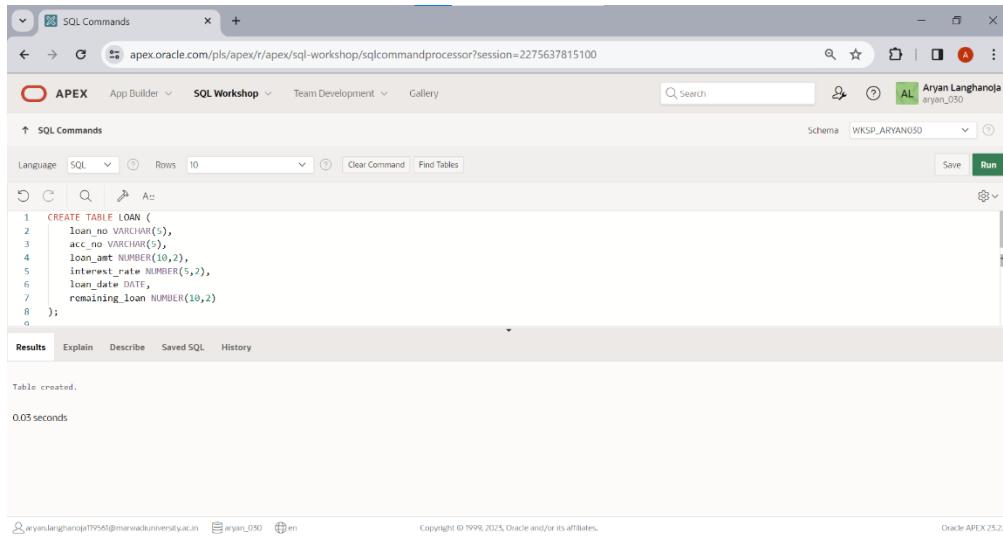
ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A001	Patel Jigar	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	YES
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Sony Atul	Vadodara	100000	YES

5 rows returned in 0.01 seconds

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### Create a Table LOAN

Column Name	Data Type	Size
loan_no	varchar2	5
acc_no	varchar2	5
loan_amt	number	10,2
interest_rate	number	5,2
loan_date	date	
remaining_loa n	number	10,2



The screenshot shows the Oracle APEX SQL Workshop interface. In the top navigation bar, 'APEX' is selected. The main area displays a SQL command window with the following code:

```

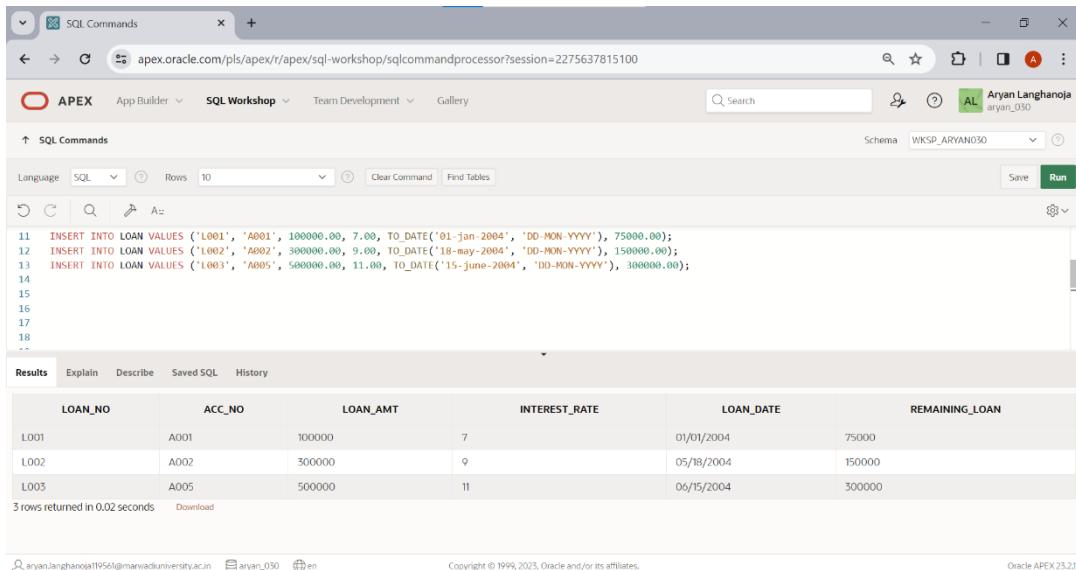
1 CREATE TABLE LOAN (
2   loan_no VARCHAR(5),
3   acc_no VARCHAR(5),
4   loan_amt NUMBER(10,2),
5   interest_rate NUMBER(5,2),
6   loan_date DATE,
7   remaining_loan NUMBER(10,2)
8 );
  
```

The results section shows the message "Table created." and "0.03 seconds".

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**Insert the following Records.**

Loan_no	Acc_no	Loan_amt	Interest_rate	Loan_date	Remaining_loan
L001	A001	100000	7	1-jan-04	75000
L002	A002	300000	9	18-may-04	150000
L003	A005	500000	11	15-june-04	300000



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL tab contains the following SQL code:

```

11  INSERT INTO LOAN VALUES ('L001', 'A001', 100000.00, 7.00, TO_DATE('01-jan-2004', 'DD-MON-YYYY'), 75000.00);
12  INSERT INTO LOAN VALUES ('L002', 'A002', 300000.00, 9.00, TO_DATE('18-may-2004', 'DD-MON-YYYY'), 150000.00);
13  INSERT INTO LOAN VALUES ('L003', 'A005', 500000.00, 11.00, TO_DATE('15-june-2004', 'DD-MON-YYYY'), 300000.00);
14
15
16
17
18

```

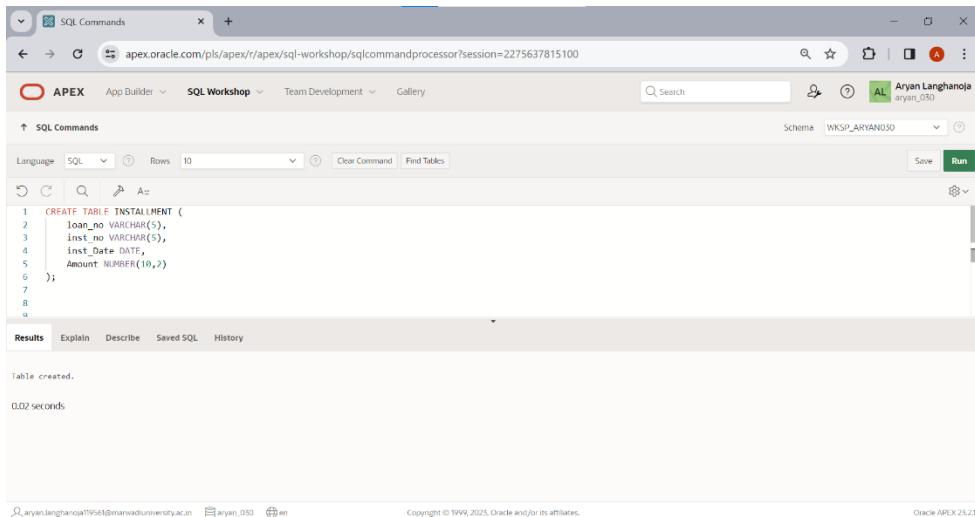
The Results tab displays the inserted data:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	100000	7	01/01/2004	75000
L002	A002	300000	9	05/18/2004	150000
L003	A005	500000	11	06/15/2004	300000

3 rows returned in 0.02 seconds

**Create a table INSTALLMENT**

Column Name	Data Type	Size
loan_no	varchar2	5
inst_no	varchar2	5
inst_Date	Date	
Amount	Number	10,2



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL tab contains the following SQL code:

```

1  CREATE TABLE INSTALLMENT (
2    loan_no VARCHAR(5),
3    inst_no VARCHAR(5),
4    inst_date DATE,
5    Amount NUMBER(10,2)
6  );
7
8
9

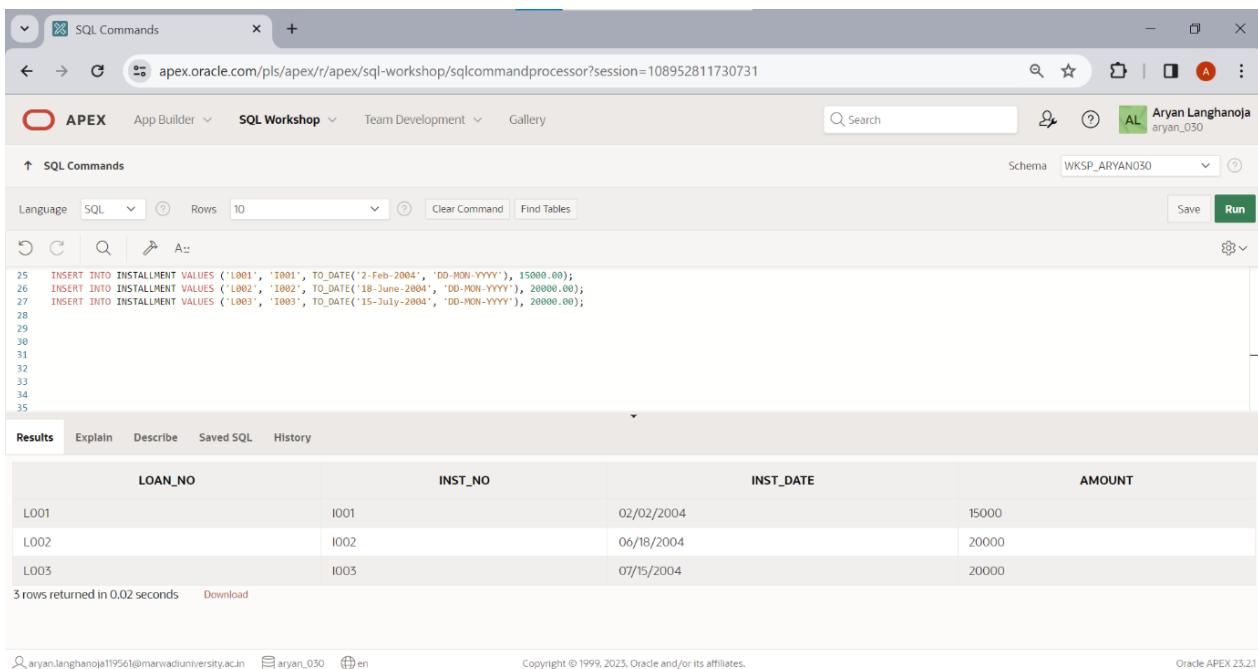
```

The Results tab displays the message:

Table created.  
0.02 seconds

**Insert following Records**

Loan_no	Inst_no	Date	Amount
L001	I001	2-Feb-04	15000
L002	I002	18-June-04	20000
L003	I003	15-July-04	20000



```

25 INSERT INTO INSTALLMENT VALUES ('L001', 'I001', TO_DATE('2-Feb-2004', 'DD-MON-YYYY'), 15000.00);
26 INSERT INTO INSTALLMENT VALUES ('L002', 'I002', TO_DATE('18-June-2004', 'DD-MON-YYYY'), 20000.00);
27 INSERT INTO INSTALLMENT VALUES ('L003', 'I003', TO_DATE('15-July-2004', 'DD-MON-YYYY'), 20000.00);
28
29
30
31
32
33
34
35
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

25 INSERT INTO INSTALLMENT VALUES ('L001', 'I001', TO_DATE('2-Feb-2004', 'DD-MON-YYYY'), 15000.00);
26 INSERT INTO INSTALLMENT VALUES ('L002', 'I002', TO_DATE('18-June-2004', 'DD-MON-YYYY'), 20000.00);
27 INSERT INTO INSTALLMENT VALUES ('L003', 'I003', TO_DATE('15-July-2004', 'DD-MON-YYYY'), 20000.00);
28
29
30
31
32
33
34
35
  
```

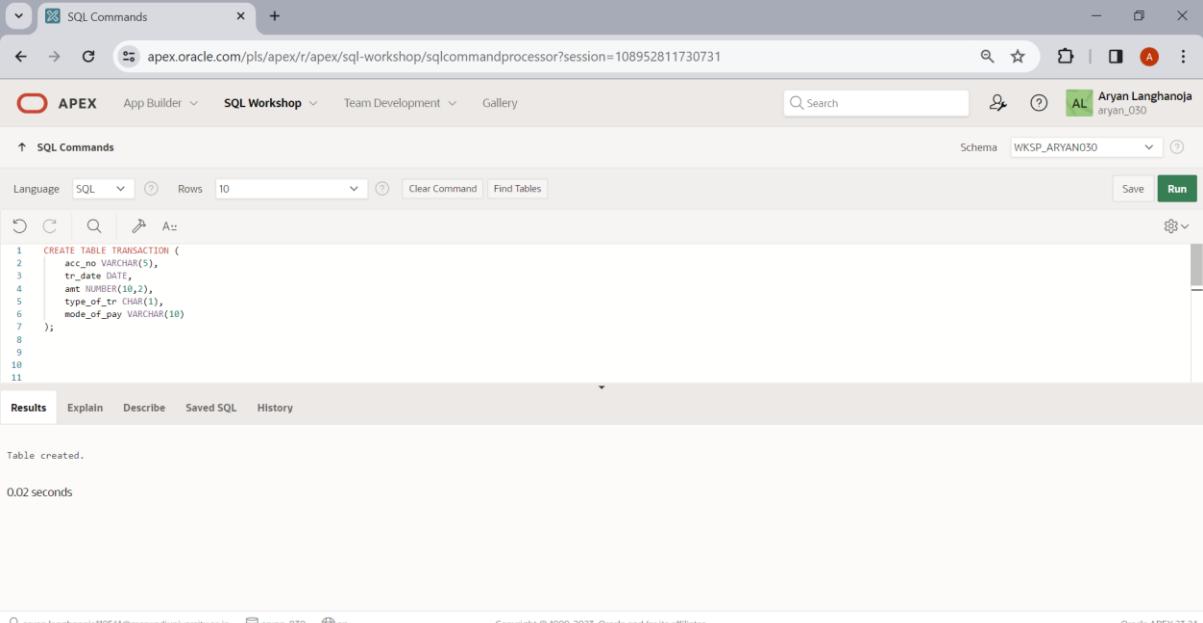
The Results tab shows the output of the executed SQL statements:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	15000
L002	I002	06/18/2004	20000
L003	I003	07/15/2004	20000

3 rows returned in 0.02 seconds

**Create a Table TRANSACTION**

Column Name	Data Type	Size
acc_no	Varchar2	5
tr_Date	Date	
Amt	Number	10 ,2
type_of_tr	Char	1
mode_of_pay	Varchar2	10



```

1 CREATE TABLE TRANSACTION (
2   acc_no VARCHAR(5),
3   tr_date DATE,
4   amt NUMBER(10,2),
5   type_of_tr CHAR(1),
6   mode_of_pay VARCHAR(10)
7 );
8
9
10
11
  
```

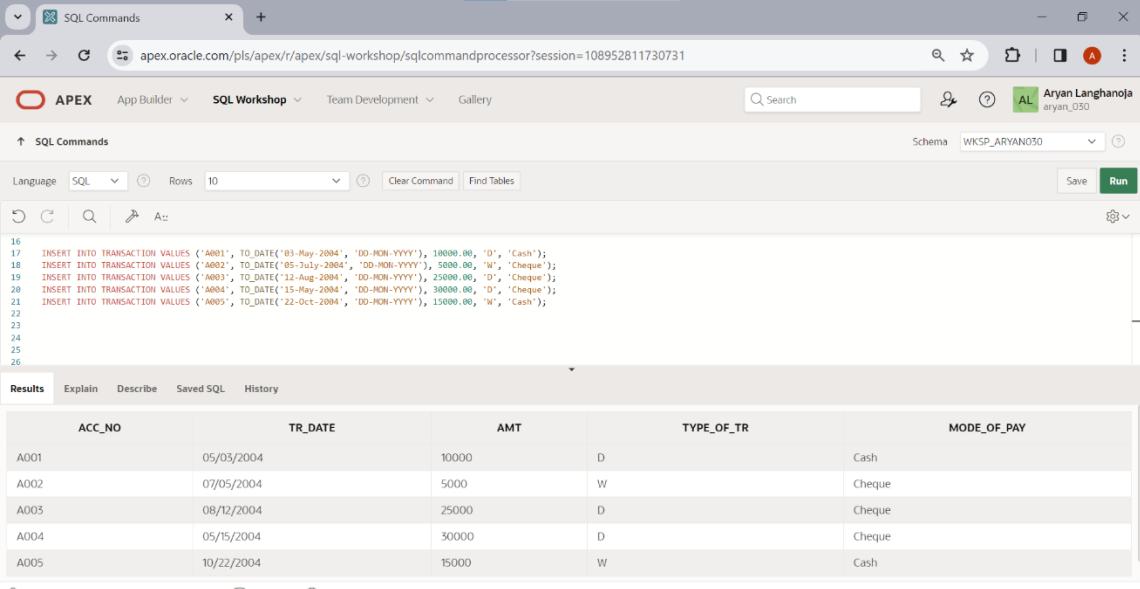
Results Explain Describe Saved SQL History

Table created.  
0.02 seconds

aryan.langhanoja119561@marwadiuniversity.ac.in aryan\_030 en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.2.1

### Insert a Following Records

Acc_no	Date	Amt	Type_of_tr	Mode_of_pay
A001	3-may-04	10000	D	Cash
A002	5-july-04	5000	W	Cheque
A003	12-Aug-04	25000	D	Cheque
A004	15-may-04	30000	D	Cheque
A005	22-oct-04	15000	W	Cash



```

16
17   INSERT INTO TRANSACTION VALUES ('A001', TO_DATE('03-May-2004', 'DD-MON-YYYY'), 10000.00, 'D', 'Cash');
18   INSERT INTO TRANSACTION VALUES ('A002', TO_DATE('05-July-2004', 'DD-MON-YYYY'), 5000.00, 'W', 'Cheque');
19   INSERT INTO TRANSACTION VALUES ('A003', TO_DATE('12-Aug-2004', 'DD-MON-YYYY'), 25000.00, 'D', 'Cheque');
20   INSERT INTO TRANSACTION VALUES ('A004', TO_DATE('15-May-2004', 'DD-MON-YYYY'), 30000.00, 'D', 'Cheque');
21   INSERT INTO TRANSACTION VALUES ('A005', TO_DATE('22-Oct-2004', 'DD-MON-YYYY'), 15000.00, 'W', 'Cash');
22
23
24
25
26
  
```

Results Explain Describe Saved SQL History

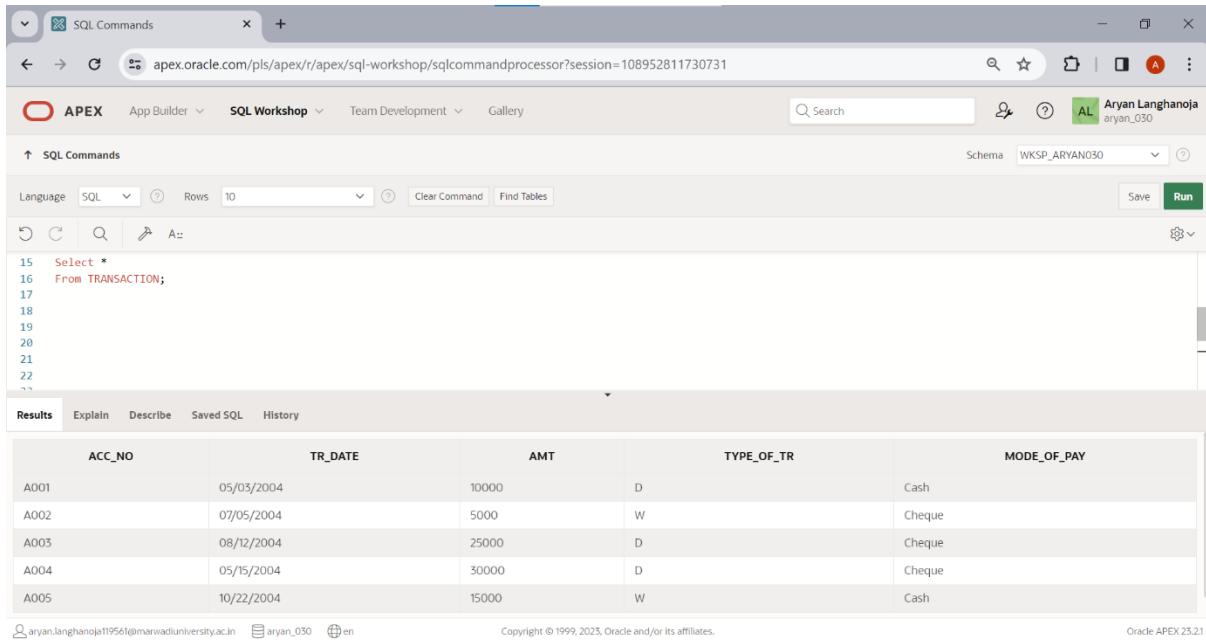
ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/2004	10000	D	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque
A004	05/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash

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## Table-Account

### List of queries

- Display all rows and all columns of table Transaction.



```
15  Select *
16  From TRANSACTION;
17
18
19
20
21
22
```

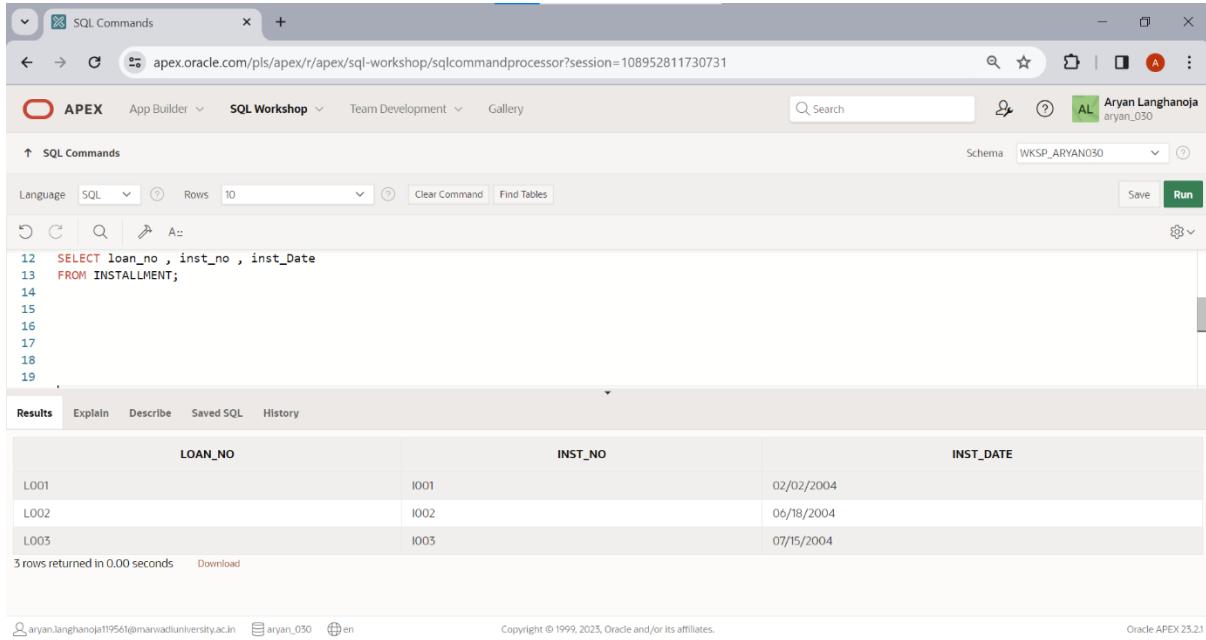
The screenshot shows the Oracle APEX SQL Workshop interface. The SQL command window contains the following code:

```
15  Select *
16  From TRANSACTION;
17
18
19
20
21
22
```

The results pane displays a table with the following data:

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/2004	10000	D	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque
A004	05/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash

- Display all rows and selected columns of table Installment.



```
12  SELECT loan_no , inst_no , inst_date
13  FROM INSTALLMENT;
14
15
16
17
18
19
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL command window contains the following code:

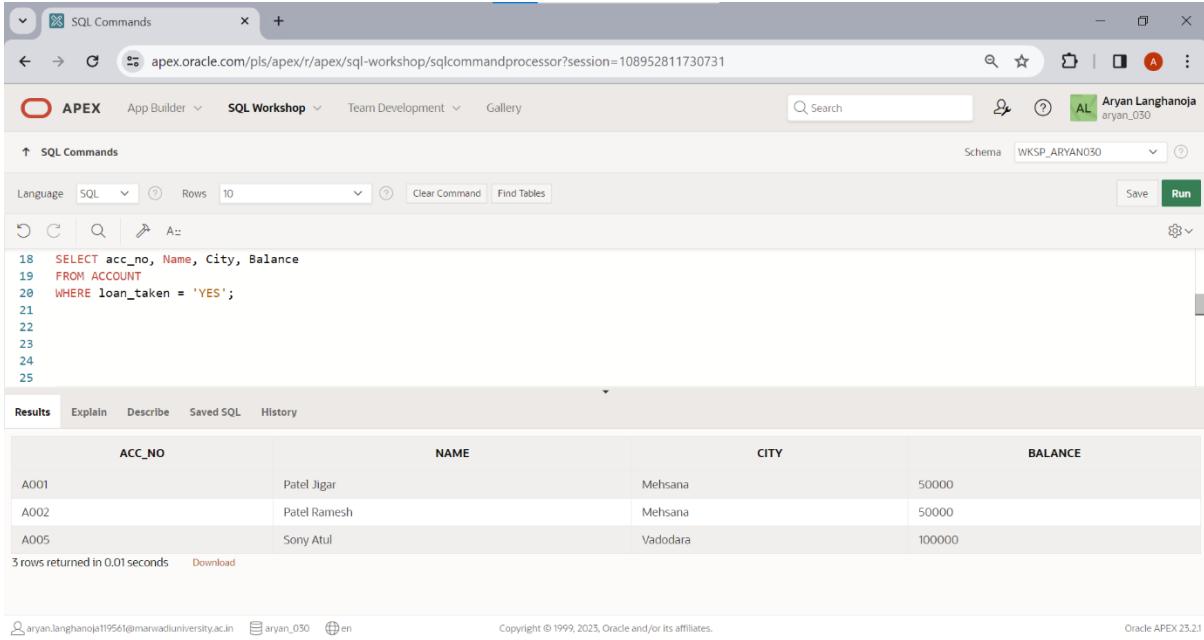
```
12  SELECT loan_no , inst_no , inst_date
13  FROM INSTALLMENT;
14
15
16
17
18
19
```

The results pane displays a table with the following data:

LOAN_NO	INST_NO	INST_DATE
L001	I001	02/02/2004
L002	I002	06/18/2004
L003	I003	07/15/2004

3 rows returned in 0.00 seconds

### 3. Display selected rows and selected columns of table Account.



```

18  SELECT acc_no, Name, City, Balance
19  FROM ACCOUNT
20  WHERE loan_taken = 'YES';
21
22
23
24
25
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The query window contains the following SQL code:

```

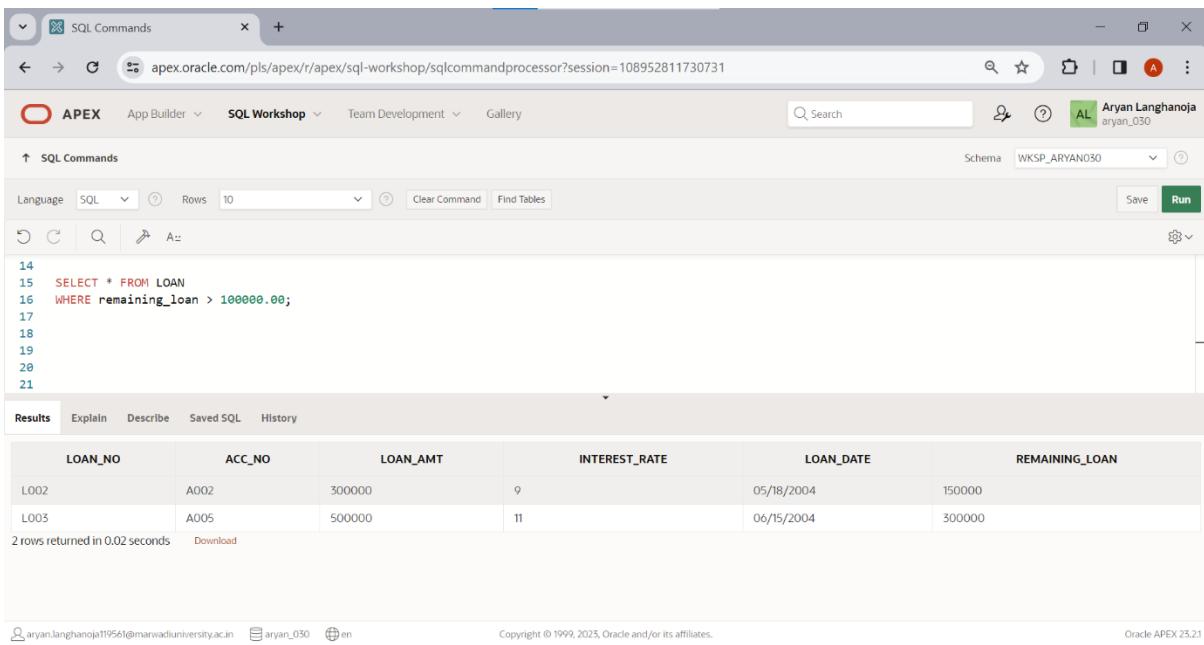
18  SELECT acc_no, Name, City, Balance
19  FROM ACCOUNT
20  WHERE loan_taken = 'YES';
21
22
23
24
25
  
```

The results pane displays the following data:

ACC_NO	NAME	CITY	BALANCE
A001	Patel Jigar	Mehsana	50000
A002	Patel Ramesh	Mehsana	50000
A005	Sony Atul	Vadodara	100000

3 rows returned in 0.01 seconds

### 4. Display selected rows and all columns of table loan.



```

14
15  SELECT * FROM LOAN
16  WHERE remaining_loan > 100000.00;
17
18
19
20
21
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The query window contains the following SQL code:

```

14
15  SELECT * FROM LOAN
16  WHERE remaining_loan > 100000.00;
17
18
19
20
21
  
```

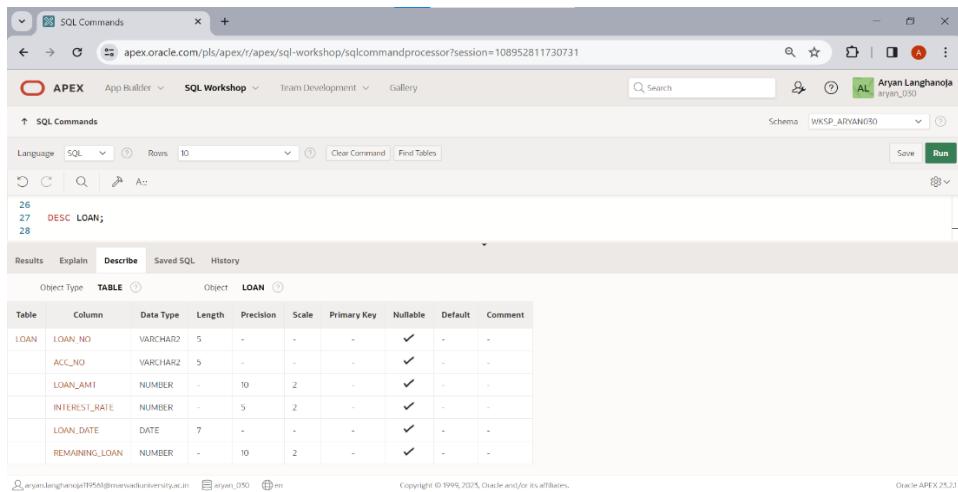
The results pane displays the following data:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L002	A002	300000	9	05/18/2004	150000
L003	A005	500000	11	06/15/2004	300000

2 rows returned in 0.02 seconds

5. Show the structure of the table loan, account and transaction.

desc loan;

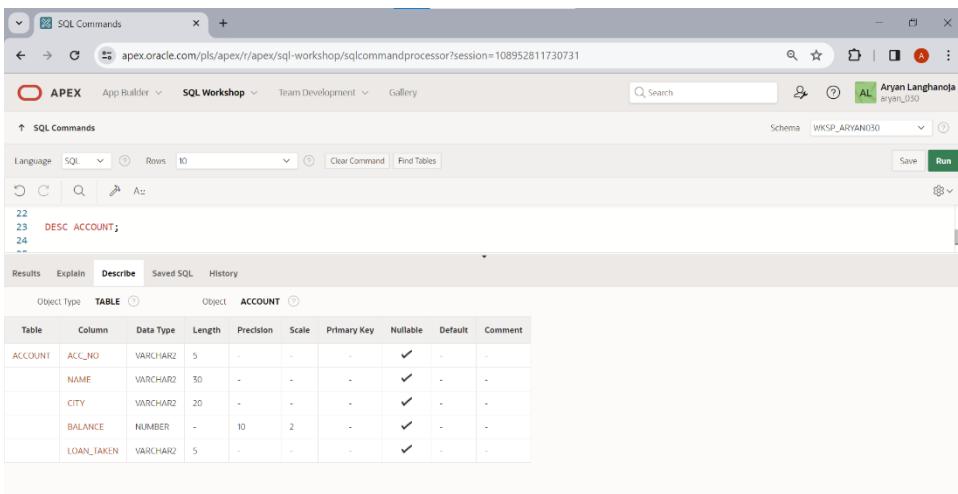


```

26
27 DESC LOAN;
28

```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
LOAN	LOAN_NO	VARCHAR2	5	-	-	✓	-	-	
	ACC_NO	VARCHAR2	5	-	-	✓	-	-	
	LOAN_AMT	NUMBER	-	10	2	✓	-	-	
	INTEREST_RATE	NUMBER	-	5	2	✓	-	-	
	LOAN_DATE	DATE	7	-	-	✓	-	-	
	REMAINING_LOAN	NUMBER	-	10	2	✓	-	-	

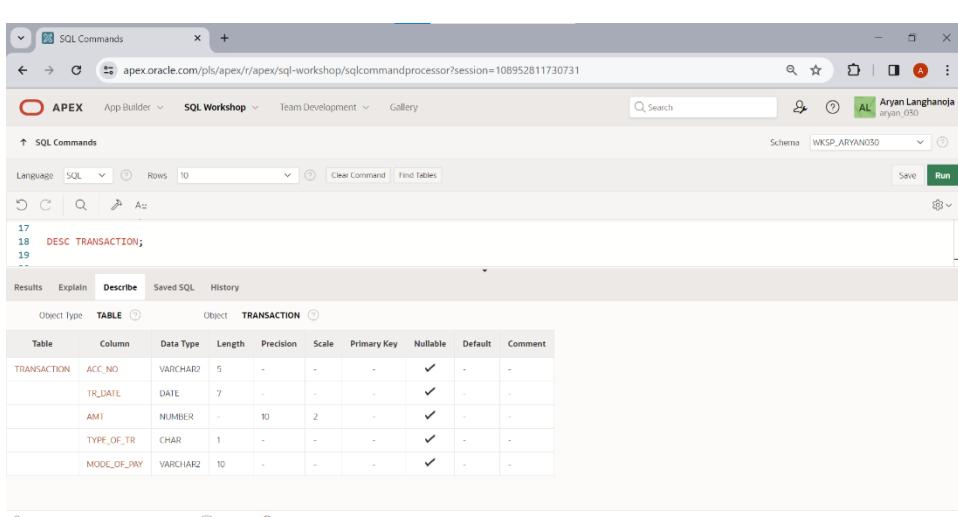


```

22
23 DESC ACCOUNT;
24

```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT	ACC_NO	VARCHAR2	5	-	-	✓	-	-	
	NAME	VARCHAR2	30	-	-	✓	-	-	
	CITY	VARCHAR2	20	-	-	✓	-	-	
	BALANCE	NUMBER	-	10	2	✓	-	-	
	LOAN_TAKEN	VARCHAR2	5	-	-	✓	-	-	



```

17
18 DESC TRANSACTION;
19

```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TRANSACTION	ACC_NO	VARCHAR2	5	-	-	✓	-	-	
	TR_DATE	DATE	7	-	-	✓	-	-	
	AMT	NUMBER	-	10	2	✓	-	-	
	TYPE_OF_TR	CHAR	1	-	-	✓	-	-	
	MODE_OF_PY	VARCHAR2	10	-	-	✓	-	-	

## Practical 3

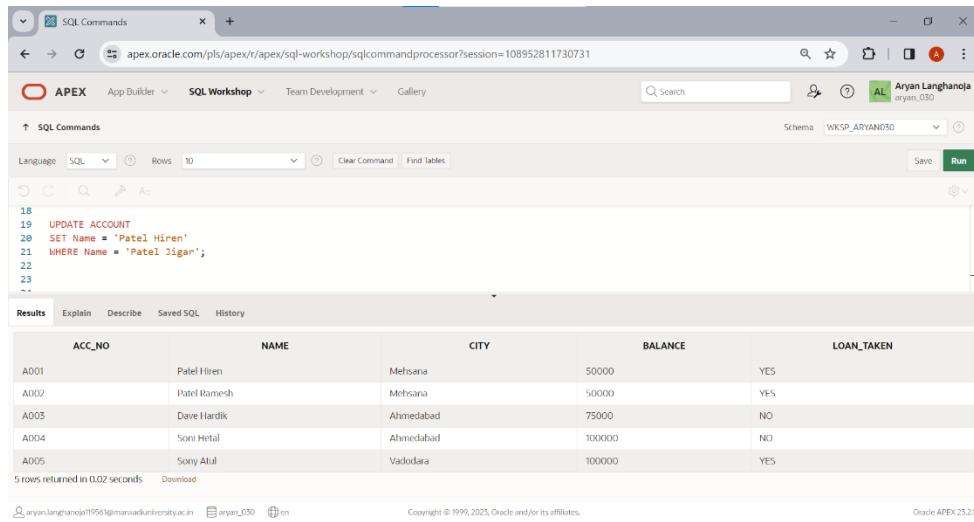
### Aim: DML Commands and Queries

Table: ACCOUNT.

Insert the following records if you have not inserted in PRACTICAL - 1

Acc_no	Name	City	Balanc e	Loan_take n
A001	Patel Jigar	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	Yes
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Soni Atul	Vadodara	100000	YES

1. Change the name 'patel jigar' to 'patel hiren'.



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```

18
19 UPDATE ACCOUNT
20 SET Name = 'Patel Hiren'
21 WHERE Name = 'Patel Jigar';
22
23

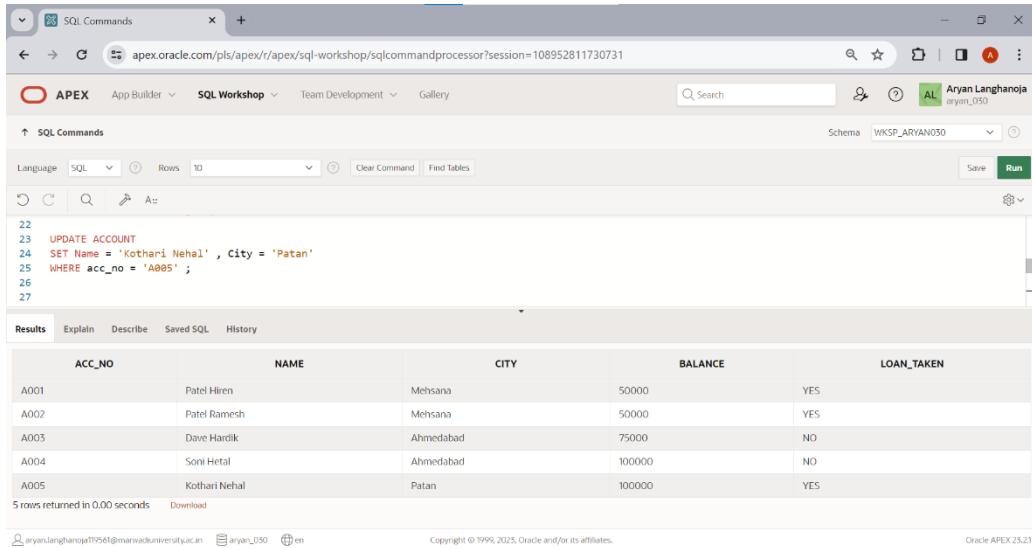
```

In the Results tab, the updated data is displayed in a table:

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A001	Patel Hiren	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	YES
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Soni Atul	Vadodara	100000	YES

5 rows returned in 0.02 seconds

2. Change the name and city where account number is A005. (new name = ‘kothari nehal’ and new city = ‘patan’).



```

22
23 UPDATE ACCOUNT
24 SET Name = 'Kothari Nehal' , City = 'Patan'
25 WHERE acc_no = 'A005' ;
26
27
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL editor contains the following update statement:

```

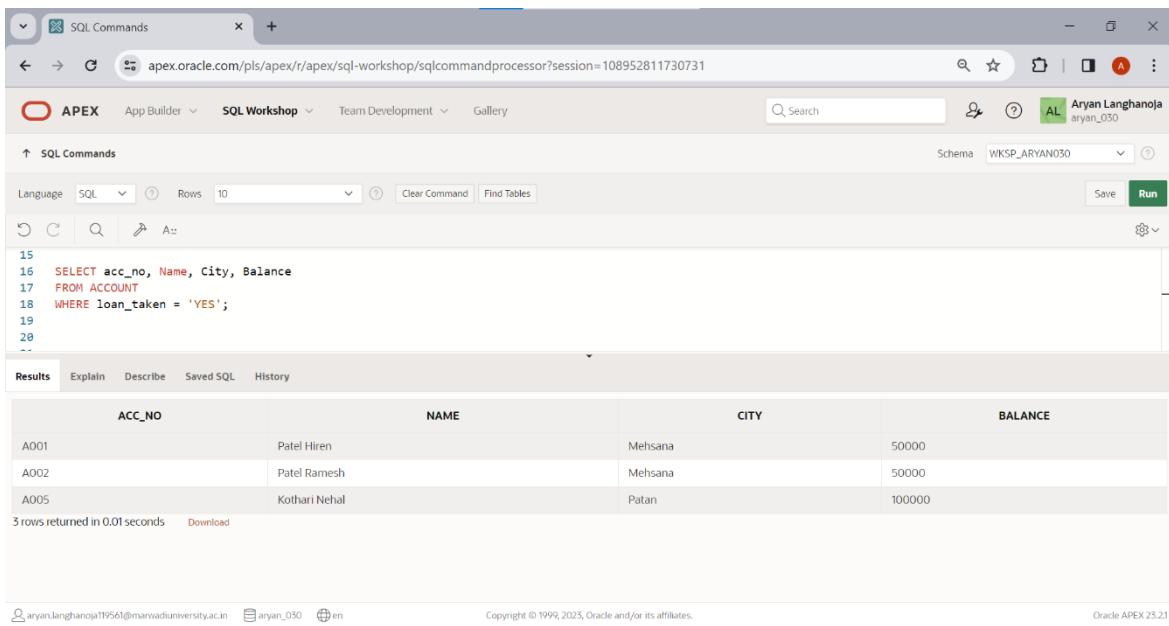
22
23 UPDATE ACCOUNT
24 SET Name = 'Kothari Nehal' , City = 'Patan'
25 WHERE acc_no = 'A005' ;
26
27
  
```

The results grid displays the following data:

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A001	Patel Hiren	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	YES
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Kothari Nehal	Patan	100000	YES

5 rows returned in 0.00 seconds

3. Display only those records where loan taken status is ‘YES’.



```

15
16 SELECT acc_no, Name, City, Balance
17 FROM ACCOUNT
18 WHERE loan_taken = 'YES';
19
20
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL editor contains the following select statement:

```

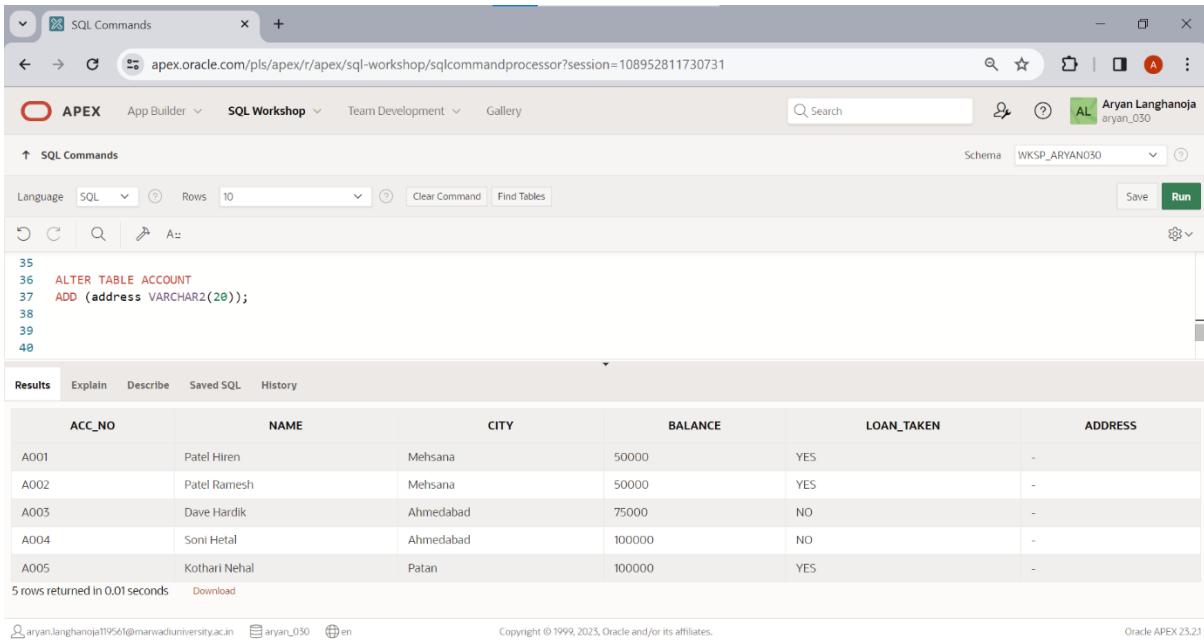
15
16 SELECT acc_no, Name, City, Balance
17 FROM ACCOUNT
18 WHERE loan_taken = 'YES';
19
20
  
```

The results grid displays the following data:

ACC_NO	NAME	CITY	BALANCE
A001	Patel Hiren	Mehsana	50000
A002	Patel Ramesh	Mehsana	50000
A005	Kothari Nehal	Patan	100000

3 rows returned in 0.01 seconds

4. Add the new column (address varchar2 (20)) into table ACCOUNT.



```

35
36  ALTER TABLE ACCOUNT
37    ADD (address VARCHAR2(20));
38
39
40

```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

35
36  ALTER TABLE ACCOUNT
37    ADD (address VARCHAR2(20));
38
39
40

```

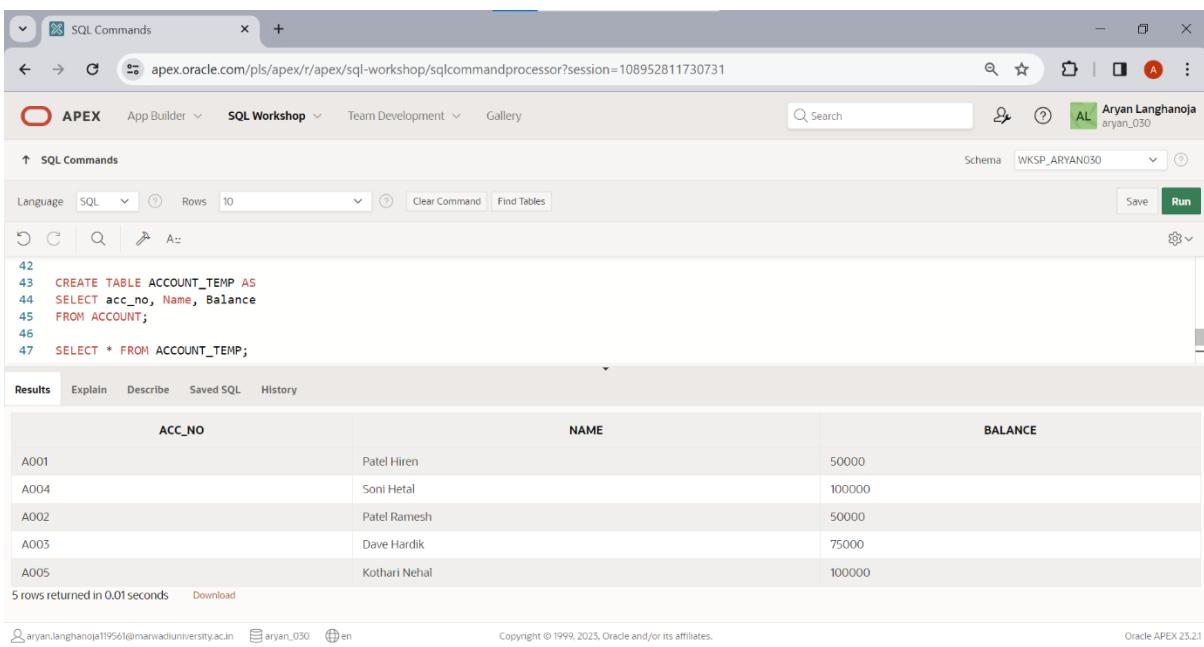
Below the code, the Results tab shows a table with the following data:

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN	ADDRESS
A001	Patel Hiren	Mehsana	50000	YES	-
A002	Patel Ramesh	Mehsana	50000	YES	-
A003	Dave Hardik	Ahmedabad	75000	NO	-
A004	Soni Hetal	Ahmedabad	100000	NO	-
A005	Kothari Nehal	Patan	100000	YES	-

5 rows returned in 0.01 seconds [Download](#)

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5. Create another table ACCOUNT\_TEMP (acc\_no, name, balance) from table ACCOUNT.



```

42
43  CREATE TABLE ACCOUNT_TEMP AS
44    SELECT acc_no, Name, Balance
45    FROM ACCOUNT;
46
47  SELECT * FROM ACCOUNT_TEMP;

```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

42
43  CREATE TABLE ACCOUNT_TEMP AS
44    SELECT acc_no, Name, Balance
45    FROM ACCOUNT;
46
47  SELECT * FROM ACCOUNT_TEMP;

```

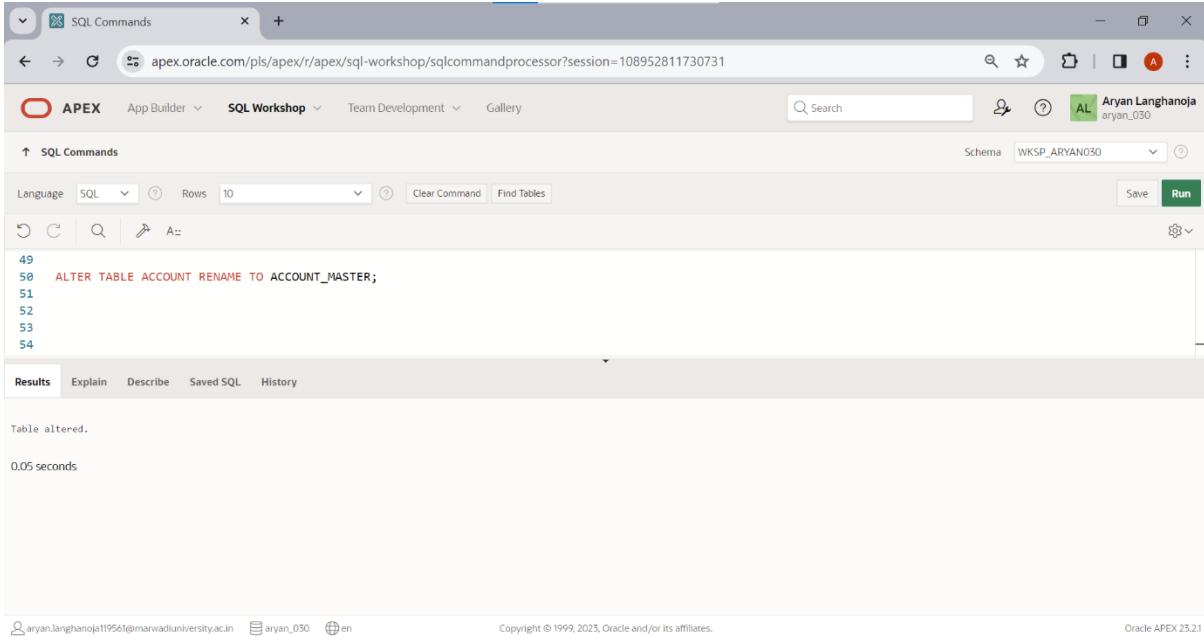
Below the code, the Results tab shows a table with the following data:

ACC_NO	NAME	BALANCE
A001	Patel Hiren	50000
A004	Soni Hetal	100000
A002	Patel Ramesh	50000
A003	Dave Hardik	75000
A005	Kothari Nehal	100000

5 rows returned in 0.01 seconds [Download](#)

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6. Rename the table ACCOUNT to ACCOUNT\_MASTER.

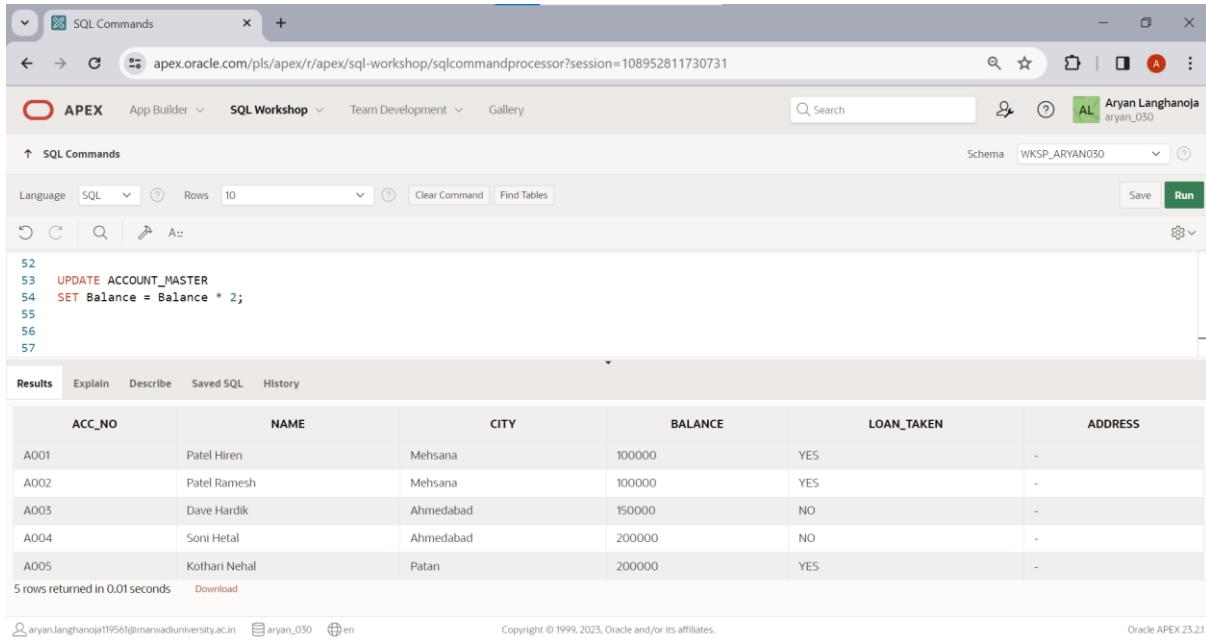


```

49
50  ALTER TABLE ACCOUNT RENAME TO ACCOUNT_MASTER;
51
52
53
54
  
```

Table altered.  
0.05 seconds

7. Update the column balance for all the account holders. (Multiply the balance by 2 for each account holders)



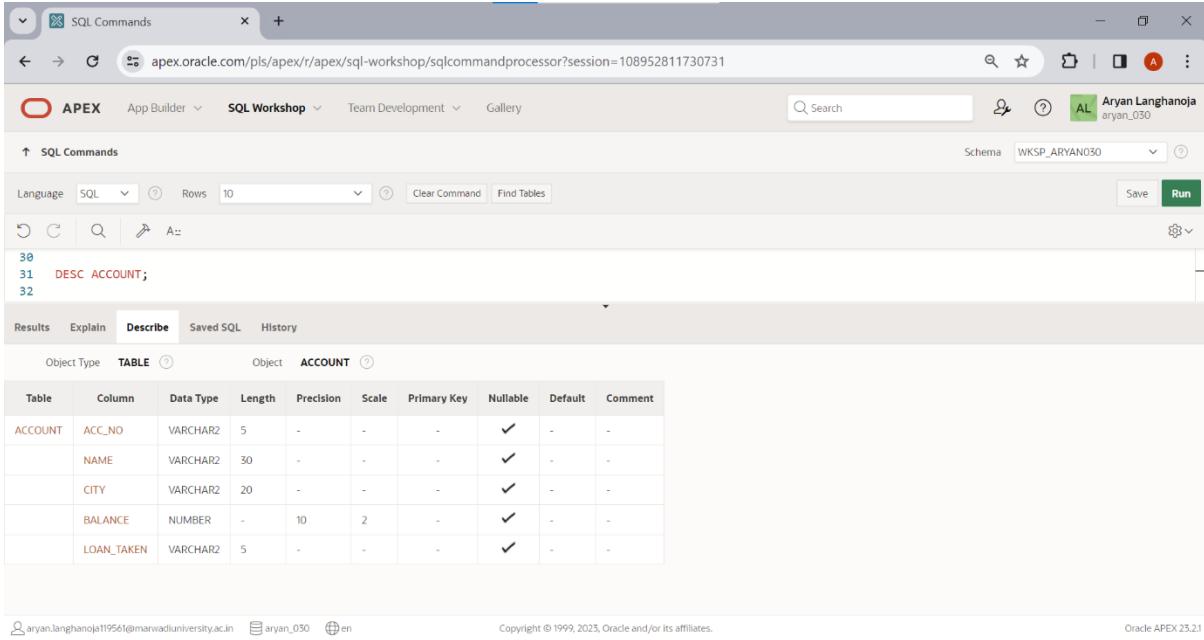
```

52
53  UPDATE ACCOUNT_MASTER
54  SET Balance = Balance * 2;
55
56
57
  
```

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN	ADDRESS
A001	Patel Hiren	Mehsana	100000	YES	-
A002	Patel Ramesh	Mehsana	100000	YES	-
A003	Dave Hardik	Ahmedabad	150000	NO	-
A004	Soni Hetal	Ahmedabad	200000	NO	-
A005	Kothari Nehal	Patan	200000	YES	-

5 rows returned in 0.01 seconds [Download](#)

### 8. Describe the structure of table ACCOUNT.



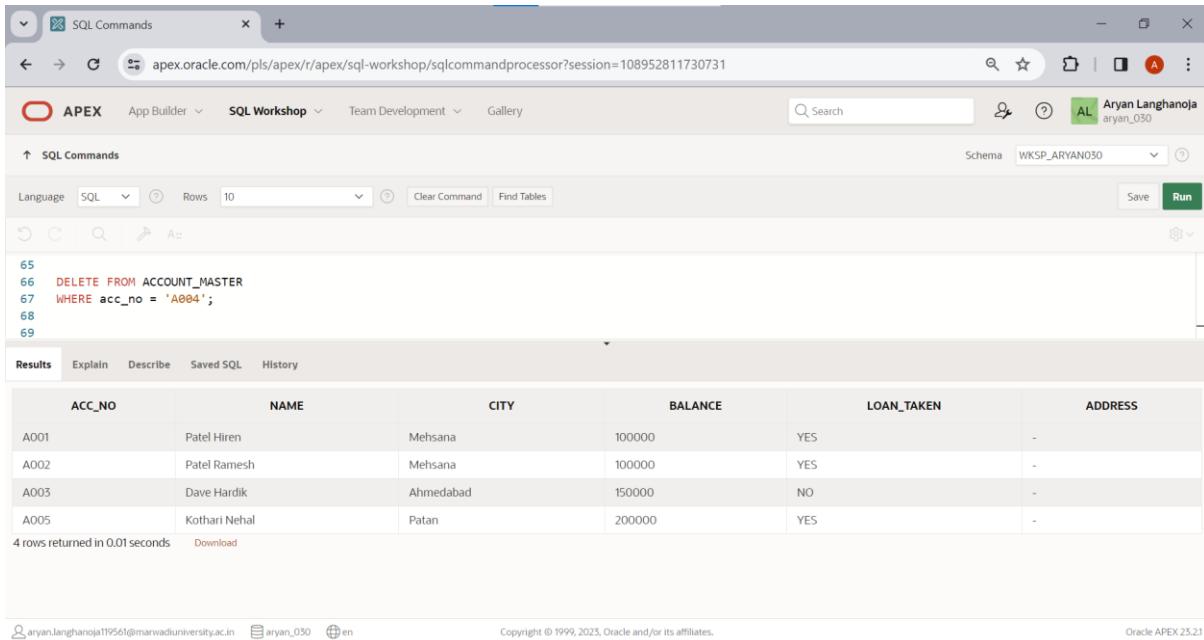
The screenshot shows the Oracle APEX SQL Workshop interface. The 'Describe' tab is selected. The SQL command entered is:

```
30
31 DESC ACCOUNT;
32
```

The results table displays the structure of the ACCOUNT table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT	ACC_NO	VARCHAR2	5	-	-	✓	-	-	
	NAME	VARCHAR2	30	-	-	✓	-	-	
	CITY	VARCHAR2	20	-	-	✓	-	-	
	BALANCE	NUMBER	-	10	2	✓	-	-	
	LOAN_TAKEN	VARCHAR2	5	-	-	✓	-	-	

### 9. Delete the records whose account no is A004.



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL command entered is:

```
65
66 DELETE FROM ACCOUNT_MASTER
67 WHERE acc_no = 'A004';
68
69
```

The results table shows the data before and after the delete operation:

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN	ADDRESS
A001	Patel Hiren	Mehsana	100000	YES	-
A002	Patel Ramesh	Mehsana	100000	YES	-
A003	Dave Hardik	Ahmedabad	150000	NO	-
A005	Kothari Nehal	Patan	200000	YES	-

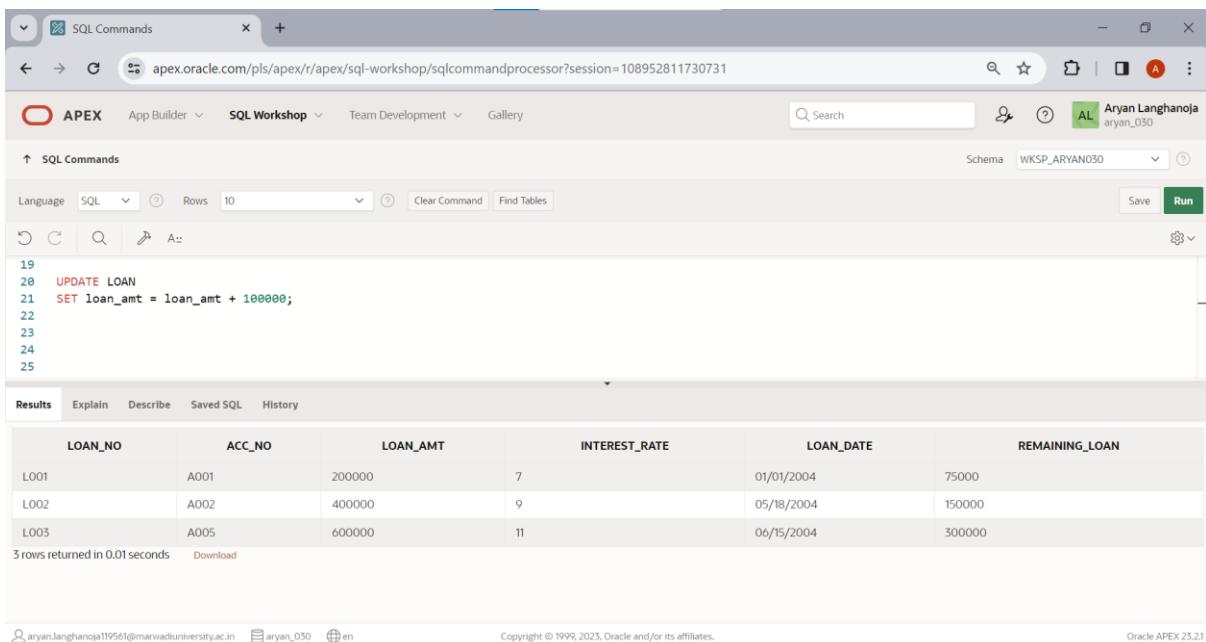
4 rows returned in 0.01 seconds

Table: **LOAN**.

Insert the following Records if you have not inserted in PRACTICAL-1

Loan_no	Acc_no	Loan_amt	Interest_rate	Loan_date	Remaining_loan
L001	A001	100000	7	1-jan-04	75000
L002	A002	300000	9	18-may-04	150000
L003	A005	500000	11	15-june-04	300000

1. For each loan holders Add 100000 Rs. Amount into the column loan\_amt.



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is executed:

```

19
20 UPDATE LOAN
21 SET loan_amt = loan_amt + 100000;
22
23
24
25

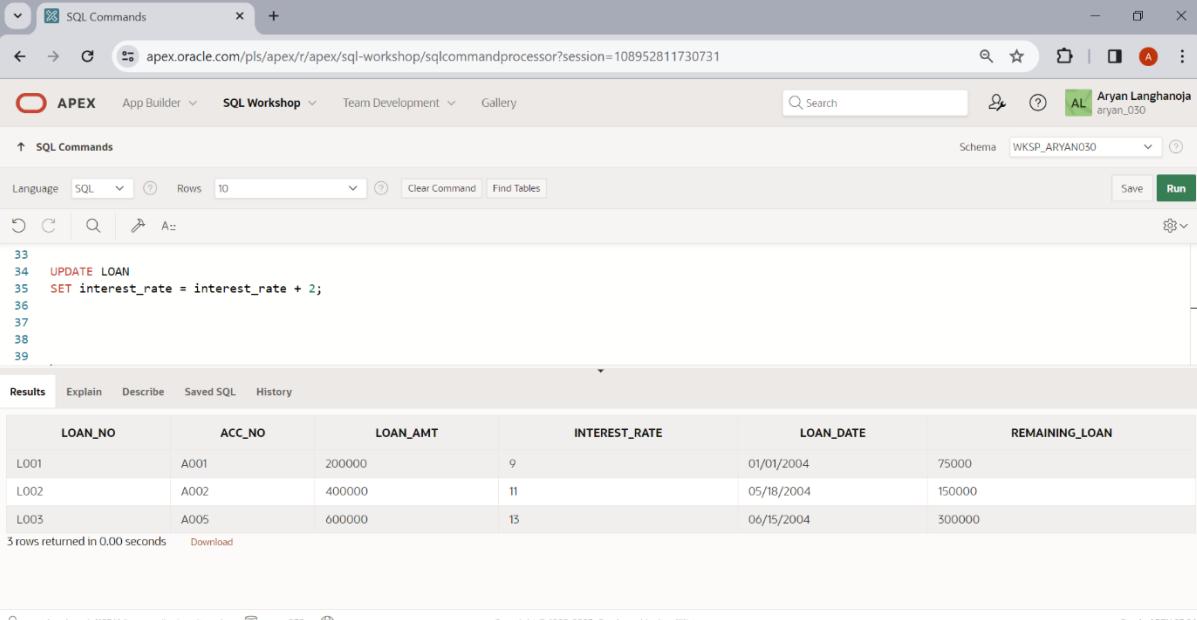
```

The Results tab displays the updated data in a table:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	200000	7	01/01/2004	75000
L002	A002	400000	9	05/18/2004	150000
L003	A005	600000	11	06/15/2004	300000

3 rows returned in 0.01 seconds

2. for each loan holders Increase the interest rate 2%.



```

33
34 UPDATE LOAN
35 SET interest_rate = interest_rate + 2;
36
37
38
39
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

33
34 UPDATE LOAN
35 SET interest_rate = interest_rate + 2;
36
37
38
39
  
```

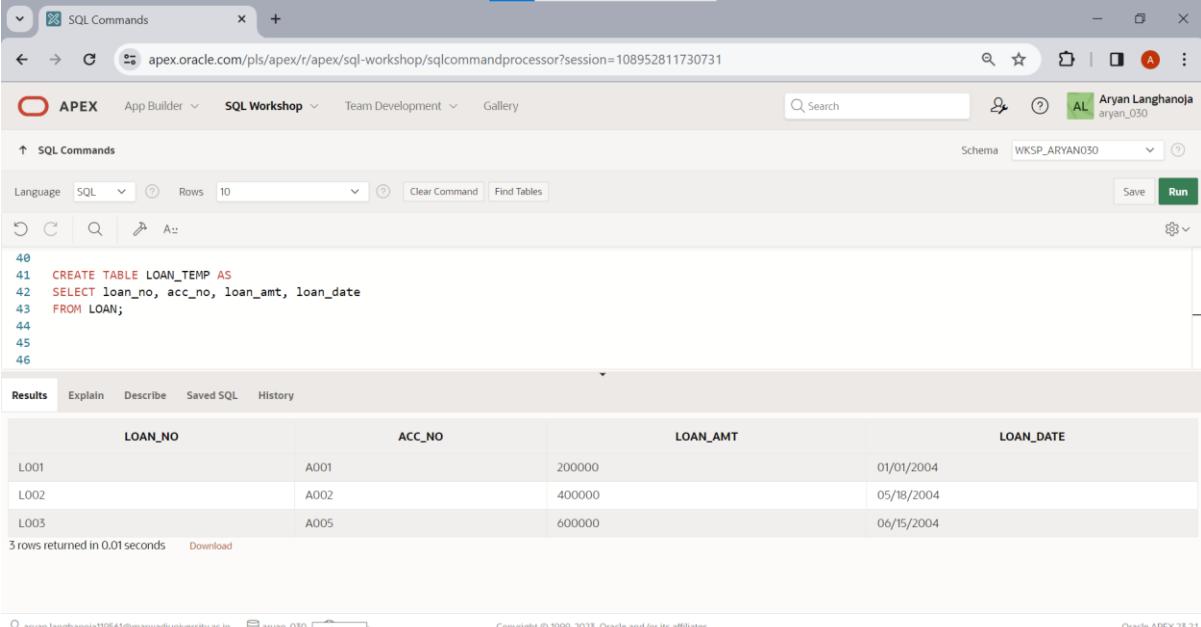
The Results tab shows the output of the query:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	200000	9	01/01/2004	75000
L002	A002	400000	11	05/18/2004	150000
L003	A005	600000	15	06/15/2004	300000

3 rows returned in 0.00 seconds [Download](#)

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3. Create another table LOAN\_TEMP (loan\_no, Acc\_no, loan\_amt, loan\_date) from The table LOAN.



```

40
41 CREATE TABLE LOAN_TEMP AS
42 SELECT loan_no, acc_no, loan_amt, loan_date
43 FROM LOAN;
44
45
46
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

40
41 CREATE TABLE LOAN_TEMP AS
42 SELECT loan_no, acc_no, loan_amt, loan_date
43 FROM LOAN;
44
45
46
  
```

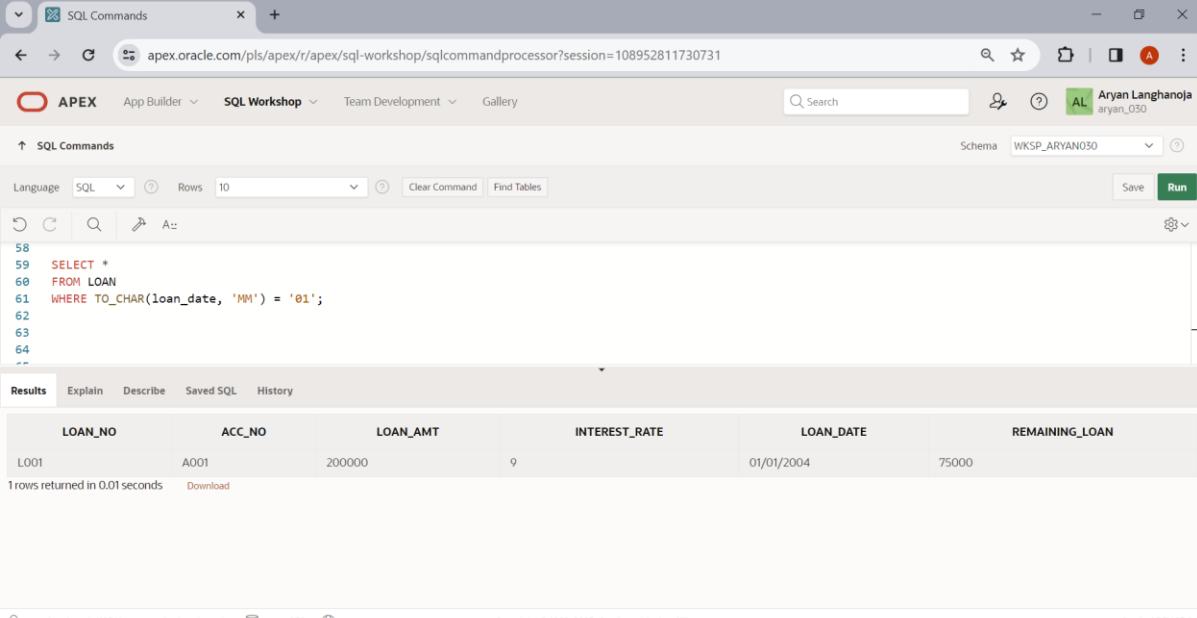
The Results tab shows the output of the query:

LOAN_NO	ACC_NO	LOAN_AMT	LOAN_DATE
L001	A001	200000	01/01/2004
L002	A002	400000	05/18/2004
L003	A005	600000	06/15/2004

3 rows returned in 0.01 seconds [Download](#)

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4. Display only those records where loan holder taken a loan in month of January.



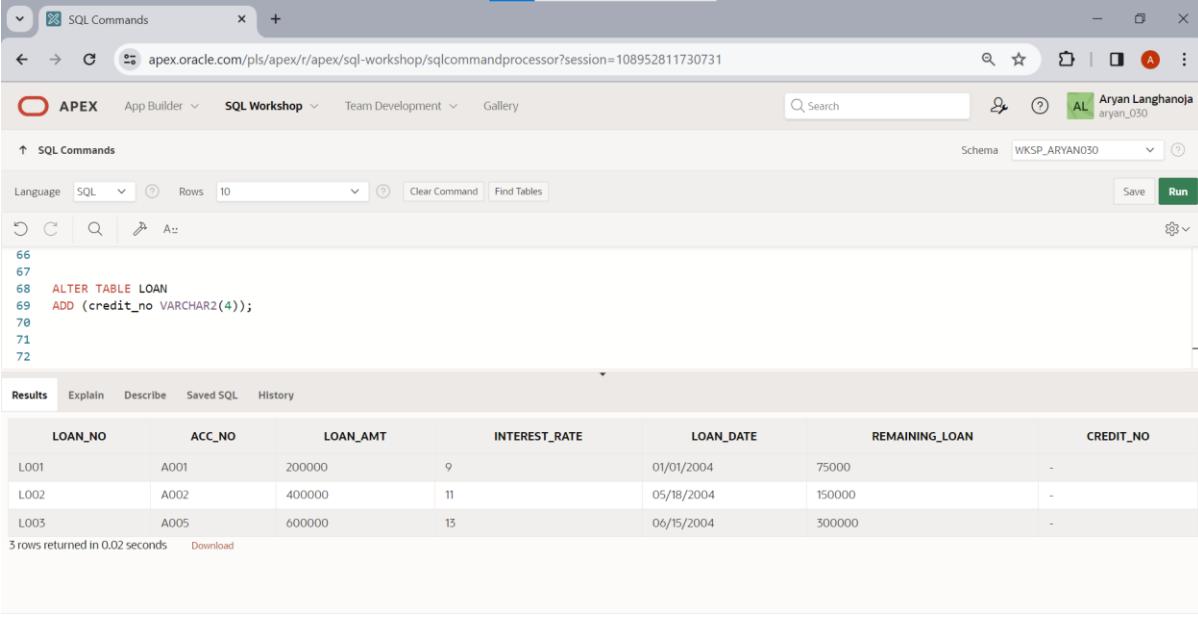
```

58
59  SELECT *
60  FROM LOAN
61  WHERE TO_CHAR(loan_date, 'MM') = '01';
62
63
64
--
```

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	200000	9	01/01/2004	75000

1 rows returned in 0.01 seconds [Download](#)

5. Modify the structure of table LOAN by adding one column credit\_no varchar2 (4).



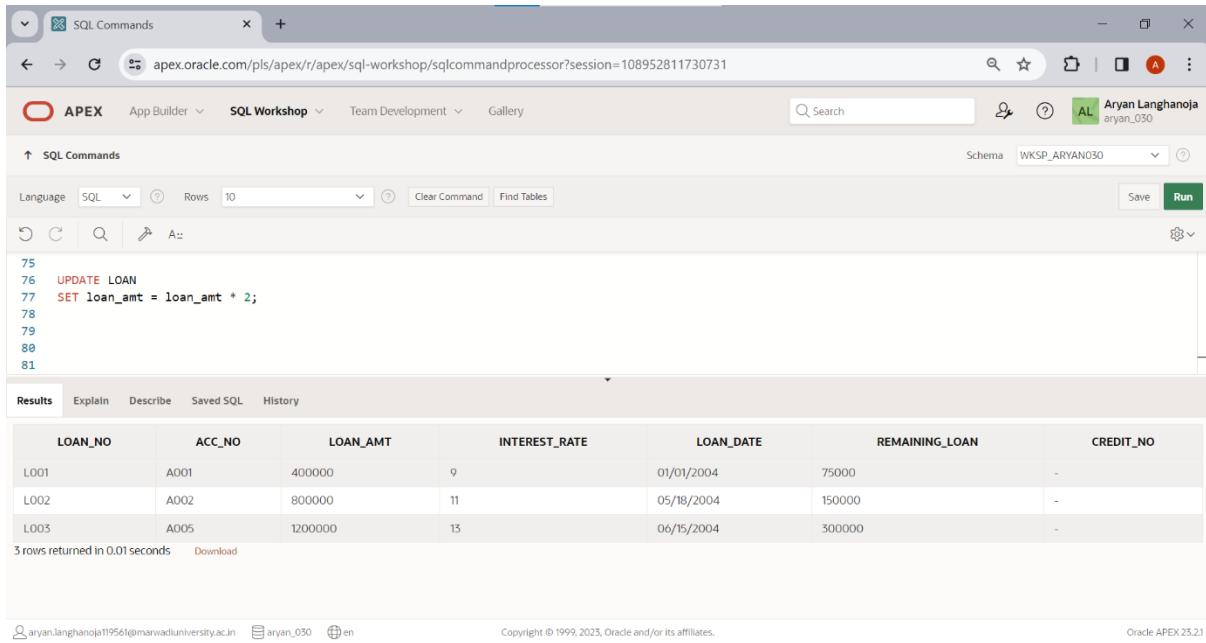
```

66
67
68  ALTER TABLE LOAN
69  ADD (credit_no VARCHAR2(4));
70
71
72
--
```

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN	CREDIT_NO
L001	A001	200000	9	01/01/2004	75000	-
L002	A002	400000	11	05/18/2004	150000	-
L003	A005	600000	13	06/15/2004	300000	-

3 rows returned in 0.02 seconds [Download](#)

6. Display the Loan amount\*2 of table LOAN.



```

75
76 UPDATE LOAN
77 SET loan_amt = loan_amt * 2;
78
79
80
81
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

75
76 UPDATE LOAN
77 SET loan_amt = loan_amt * 2;
78
79
80
81
  
```

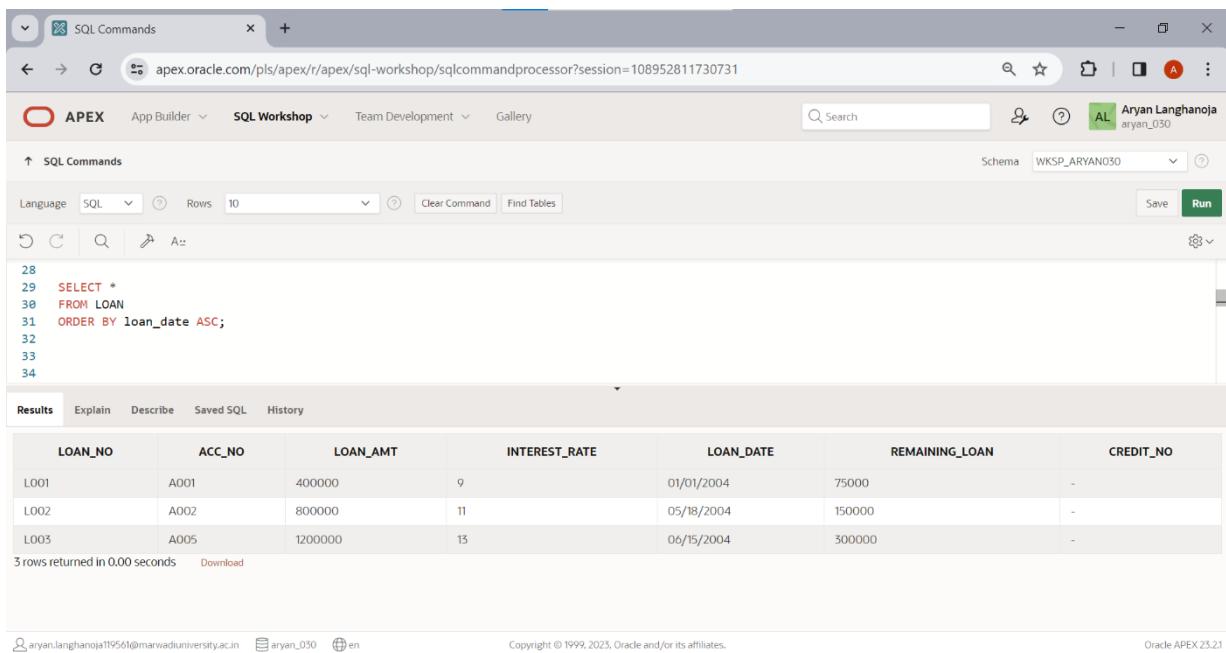
Below the code, the Results tab displays the updated data from the LOAN table:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN	CREDIT_NO
L001	A001	400000	9	01/01/2004	75000	-
L002	A002	800000	11	05/18/2004	150000	-
L003	A005	1200000	15	06/15/2004	300000	-

3 rows returned in 0.01 seconds [Download](#)

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7. Display the records of table LOAN by date wise in ascending order.



```

28
29 SELECT *
30 FROM LOAN
31 ORDER BY loan_date ASC;
32
33
34
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

28
29 SELECT *
30 FROM LOAN
31 ORDER BY loan_date ASC;
32
33
34
  
```

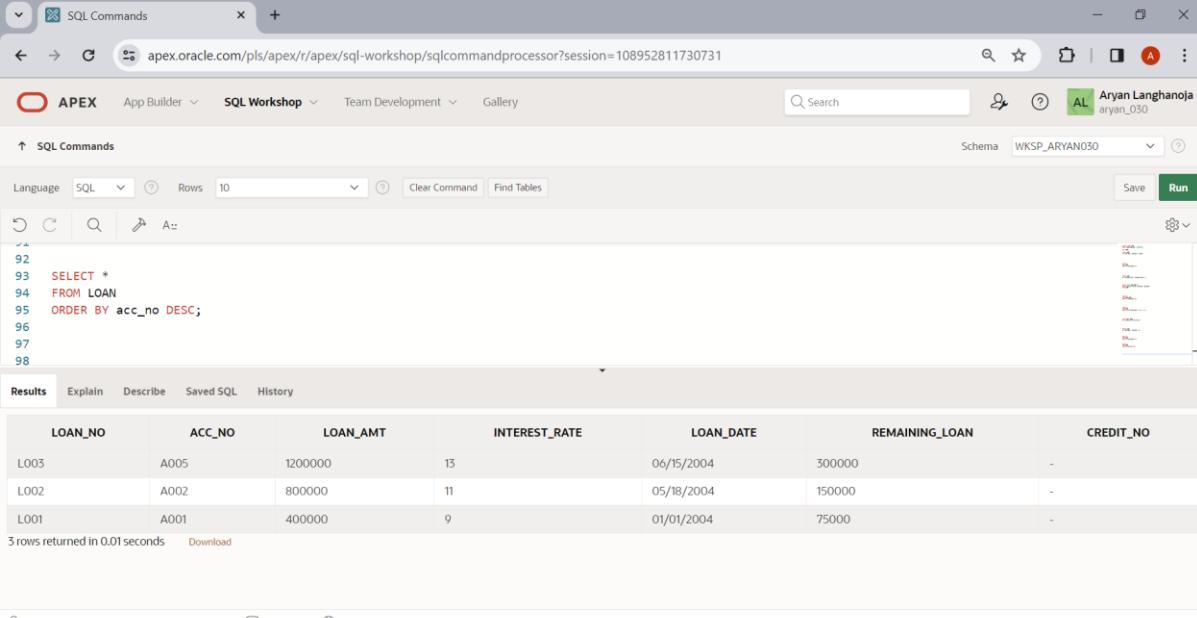
Below the code, the Results tab displays the data from the LOAN table ordered by loan\_date:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN	CREDIT_NO
L001	A001	400000	9	01/01/2004	75000	-
L002	A002	800000	11	05/18/2004	150000	-
L003	A005	1200000	15	06/15/2004	300000	-

3 rows returned in 0.00 seconds [Download](#)

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8. Display the records of table LOAN by account number wise in descending Order.



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL command entered is:

```

92
93  SELECT *
94  FROM LOAN
95  ORDER BY acc_no DESC;
96
97
98
  
```

The results section displays the following data:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN	CREDIT_NO
L003	A005	1200000	13	06/15/2004	300000	-
L002	A002	800000	11	05/18/2004	150000	-
L001	A001	400000	9	01/01/2004	75000	-

3 rows returned in 0.01 seconds    [Download](#)

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# Practical 4

## Aim: DML Commands and Related Queries

Table: **INSTALLMENT.**

1. Insert following Records if you have not inserted in PRACTICAL-1.

<b>Loan_no</b>	<b>Inst_no</b>	<b>Inst_Date</b>	<b>Amount</b>
L001	I001	2-Feb-04	15000
L002	I002	18-June-04	20000
L003	I003	15-July-04	20000



The screenshot shows the Oracle APEX SQL Workshop interface. The user has selected the 'SQL Commands' tab and is running a script to insert three rows into the 'INSTALLMENT' table. The script is as follows:

```
11 INSERT INTO INSTALLMENT VALUES ('1001', '1001', TO_DATE('2-Feb-2004', 'DD-MON-YYYY'), 15000.00);
12 INSERT INTO INSTALLMENT VALUES ('1002', '1002', TO_DATE('18-June-2004', 'DD-MON-YYYY'), 20000.00);
13 INSERT INTO INSTALLMENT VALUES ('1003', '1003', TO_DATE('15-July-2004', 'DD-MON-YYYY'), 20000.00);
14
15
16
```

The 'Results' tab is active, showing the message "1 row(s) inserted." and "0.00 seconds". The top right corner shows the user's name, Aryan Langhanja, and their workspace, WKSP\_ARYANO30.

2. Change the Inst Date '2-Feb-04' to '3-Mar-04'.

The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes links for APEX, App Builder, SQL Workshop, Team Development, and Gallery. The current page is titled "SQL Commands". The main area displays a SQL query:

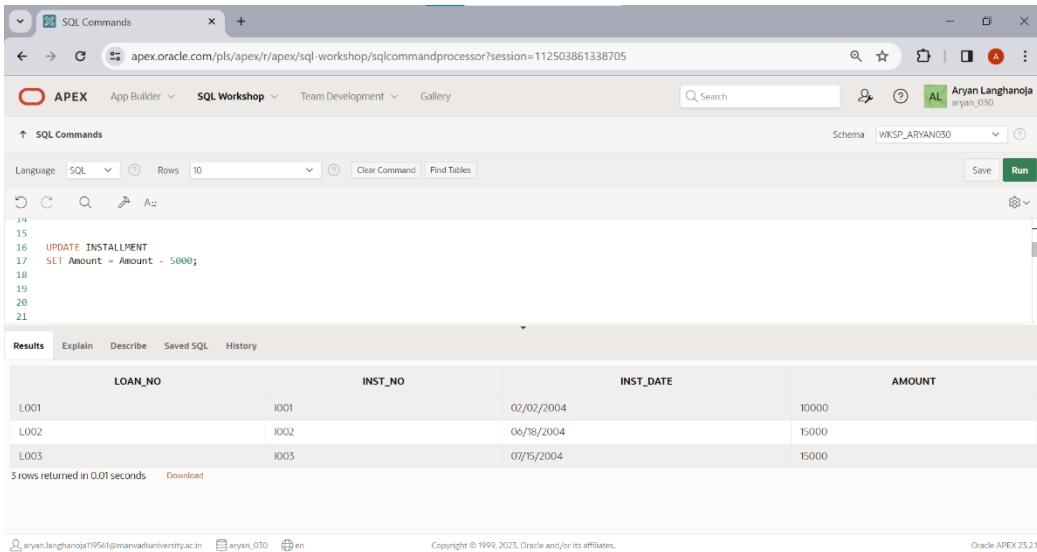
```
24 UPDATE INSTALLMENT
25 SET inst_Date = TO_DATE('3-Mar-2004', 'DD-MON-YYYY')
26 WHERE inst_Date = TO_DATE('2-Feb-2004', 'DD-MON-YYYY');
27
28 SELECT *
29 FROM INSTALLMENT
30 ORDER BY loan_no;
```

The "Results" tab is selected, showing the output of the query:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	05/05/2004	15000
L002	I002	06/18/2004	20000
L005	I005	07/15/2004	20000

At the bottom, it says "3 rows returned in 0.02 seconds" and has "Download" and "Copy" buttons.

### 3. Reduce 5000 amount from all Instalment holders.



```

14
15
16 UPDATE INSTALLMENT
17 SET Amount = Amount - 5000;
18
19
20
21
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

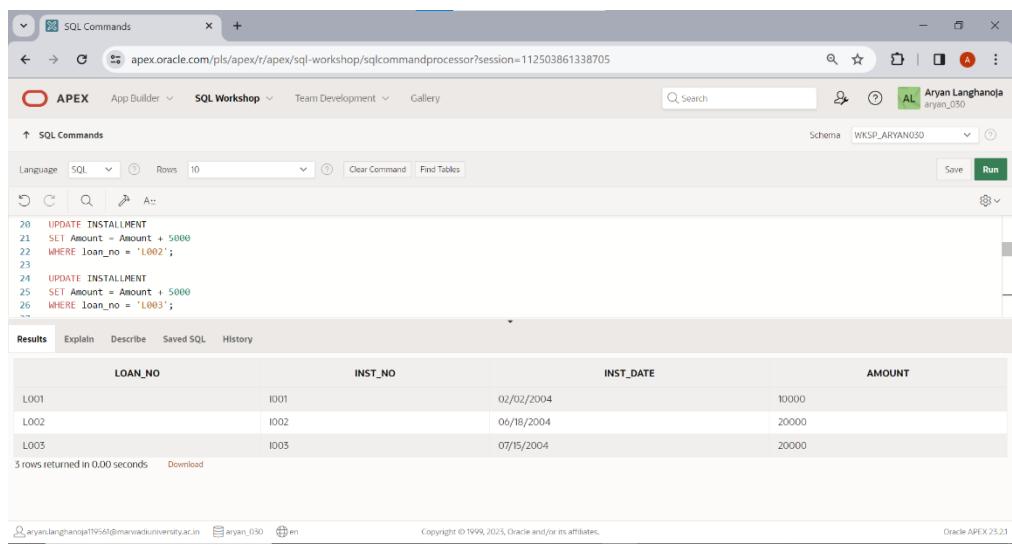
14
15
16 UPDATE INSTALLMENT
17 SET Amount = Amount - 5000;
18
19
20
21
  
```

Below the code, the Results tab displays the output of the query:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	10000
L002	I002	06/18/2004	15000
L003	I003	07/15/2004	15000

3 rows returned in 0.01 seconds

### 4. Add the amount 5000 where loan no is ‘L003’ and ‘L002’.



```

20 UPDATE INSTALLMENT
21 SET Amount = Amount + 5000
22 WHERE loan_no = 'L002';
23
24 UPDATE INSTALLMENT
25 SET Amount = Amount + 5000
26 WHERE loan_no = "L003";
27
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

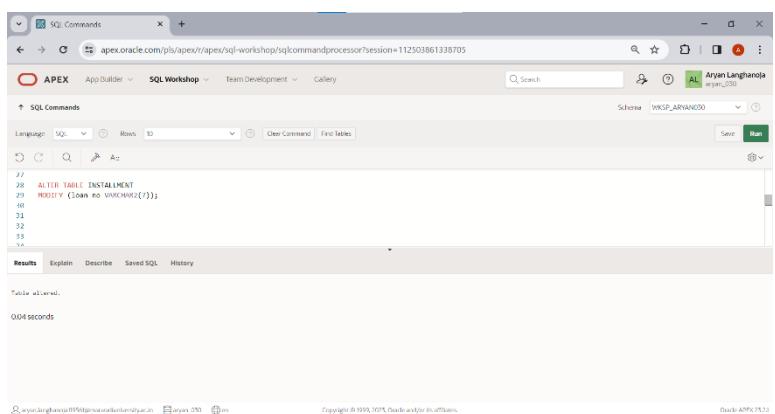
20 UPDATE INSTALLMENT
21 SET Amount = Amount + 5000
22 WHERE loan_no = 'L002';
23
24 UPDATE INSTALLMENT
25 SET Amount = Amount + 5000
26 WHERE loan_no = "L003";
27
  
```

Below the code, the Results tab displays the output of the query:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	10000
L002	I002	06/18/2004	20000
L003	I005	07/15/2004	20000

3 rows returned in 0.00 seconds

### 5. Change the column size of 5 to 7 where column name is Loan\_no.



```

27
28 ALTER TABLE INSTALLMENT
29 MODIFY (loan_no VARCHAR(7));
30
31
32
33
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

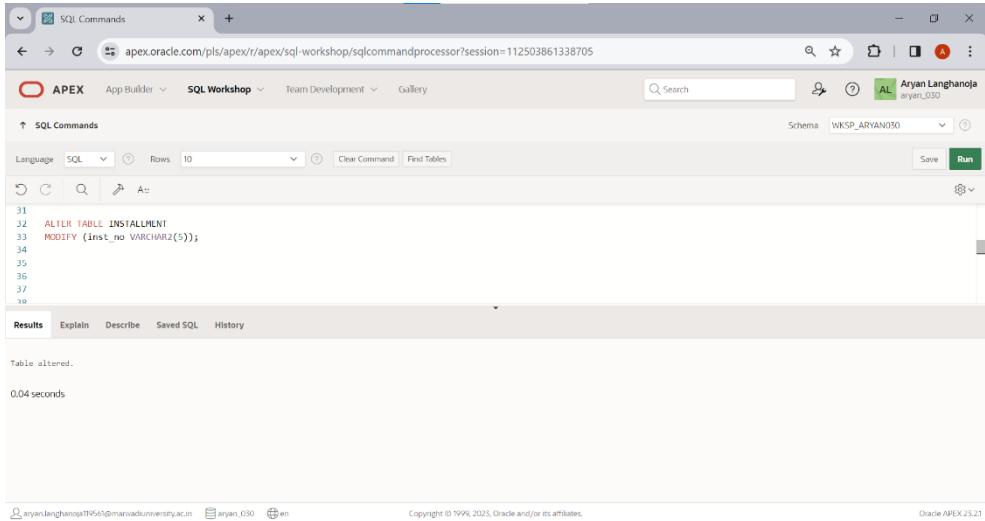
```

27
28 ALTER TABLE INSTALLMENT
29 MODIFY (loan_no VARCHAR(7));
30
31
32
33
  
```

Below the code, the Results tab displays the output of the query:

Table altered.  
0.04 seconds

6. Decrease the column size 5 to 4 where column name Inst\_no.

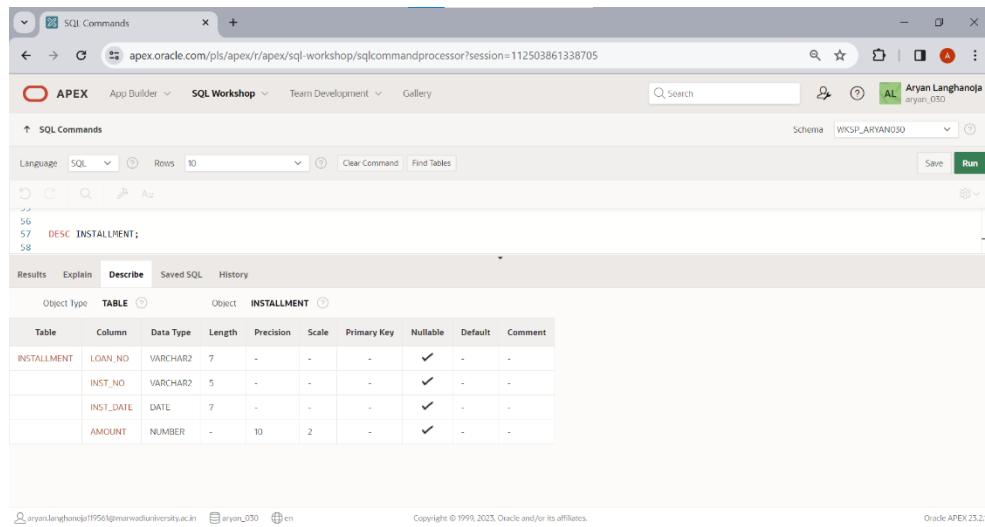


```

31
32  ALTER TABLE INSTALLMENT
33  MODIFY (inst_no VARCHAR2(5));
34
35
36
37
38
  
```

Table altered.  
0.04 seconds

7. Show the structure of the Table.



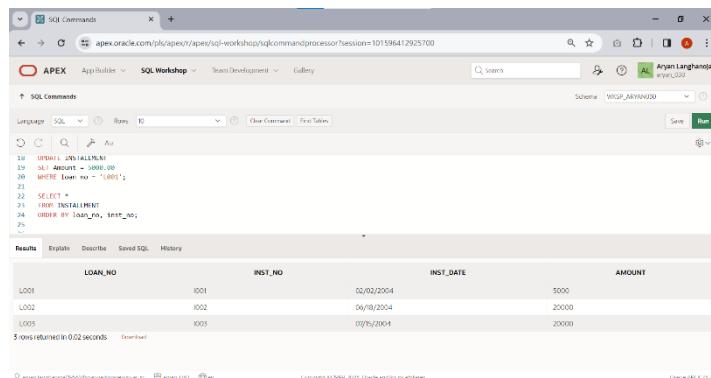
```

56
57  DESC INSTALLMENT;
58
  
```

Object Type: TABLE Object: INSTALLMENT

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INSTALLMENT	LOAN_NO	VARCHAR2	7	-	-	-	✓	-	-
	INST_NO	VARCHAR2	5	-	-	-	✓	-	-
	INST_DATE	DATE	7	-	-	-	✓	-	-
	AMOUNT	NUMBER	-	10	2	-	✓	-	-

8. Change the amount 15000 to 5000 where loan number is L001



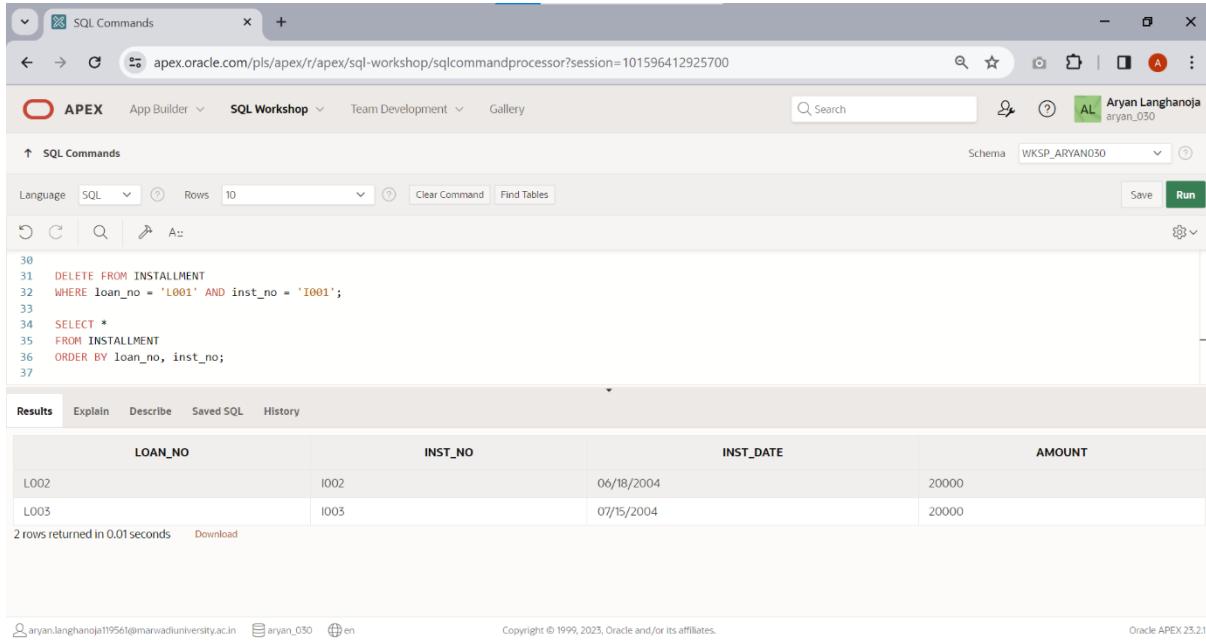
```

14  UPDATE INSTALMENT
15  SET AMOUNT = 5000.00
16  WHERE LOAN_NO = 'L001';
17
18  SELECT *
19  FROM INSTALLMENT
20  ORDER BY LOAN_NO, INST_NO;
21
22
  
```

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	5000
L002	I002	06/02/2004	20000
L003	I003	07/02/2004	20000

1 rows returned in 0.02 seconds

9. Perform delete operation. (Delete only particular one record)



```

31  DELETE FROM INSTALLMENT
32  WHERE loan_no = 'L001' AND inst_no = 'I001';
33
34  SELECT *
35  FROM INSTALLMENT
36  ORDER BY loan_no, inst_no;
37
  
```

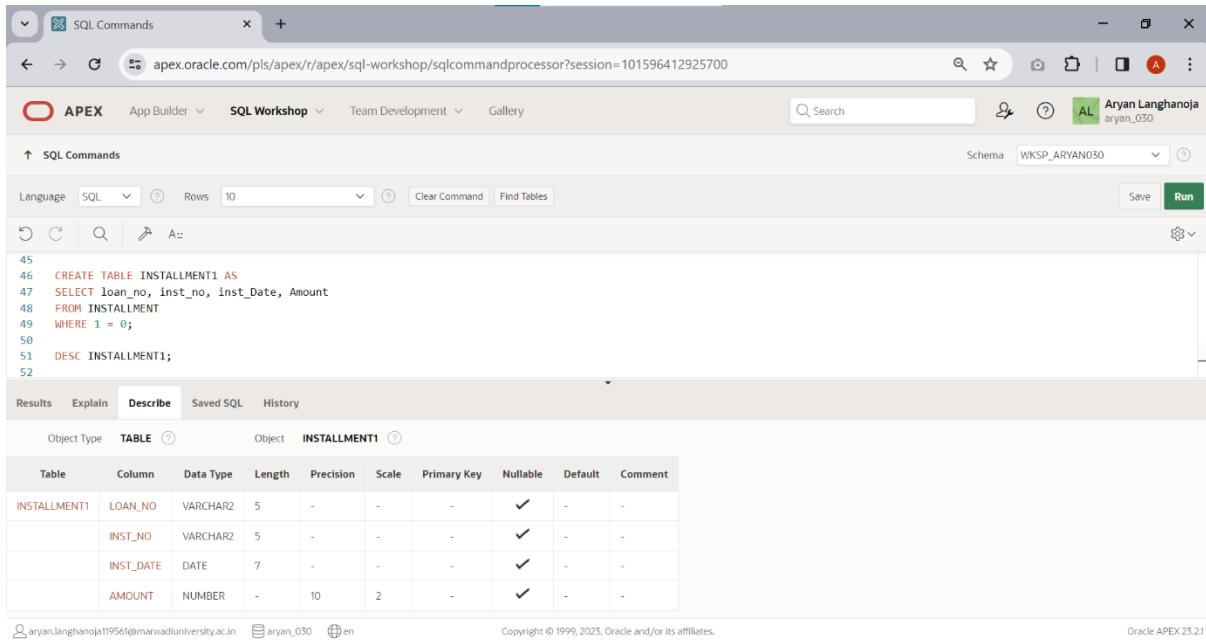
The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, a DELETE statement is run to remove a specific record from the INSTALLMENT table where loan\_no is 'L001' and inst\_no is 'I001'. After the delete, a SELECT statement retrieves all data from the table, showing two rows: L002 and L003.

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L002	I002	06/18/2004	20000
L003	I003	07/15/2004	20000

Results Explain Describe Saved SQL History

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10. Only create a structure of table installment1 from table installment.



```

45
46  CREATE TABLE INSTALLMENT1 AS
47  SELECT loan_no, Inst_no, inst_Date, Amount
48  FROM INSTALLMENT
49  WHERE 1 = 0;
50
51  DESC INSTALLMENT1;
52
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. A new table structure is being created named INSTALLMENT1. The table has four columns: LOAN\_NO, INST\_NO, INST\_DATE, and AMOUNT. The table is defined as a copy of the existing INSTALLMENT table, but with a WHERE clause that always returns false (1 = 0), which effectively creates an empty table structure. The 'Describe' tab is selected, showing the table's structure.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INSTALLMENT1	LOAN_NO	VARCHAR2	5	-	-	-	✓	-	-
	INST_NO	VARCHAR2	5	-	-	-	✓	-	-
	INST_DATE	DATE	7	-	-	-	✓	-	-
	AMOUNT	NUMBER	-	10	2	-	✓	-	-

Results Explain **Describe** Saved SQL History

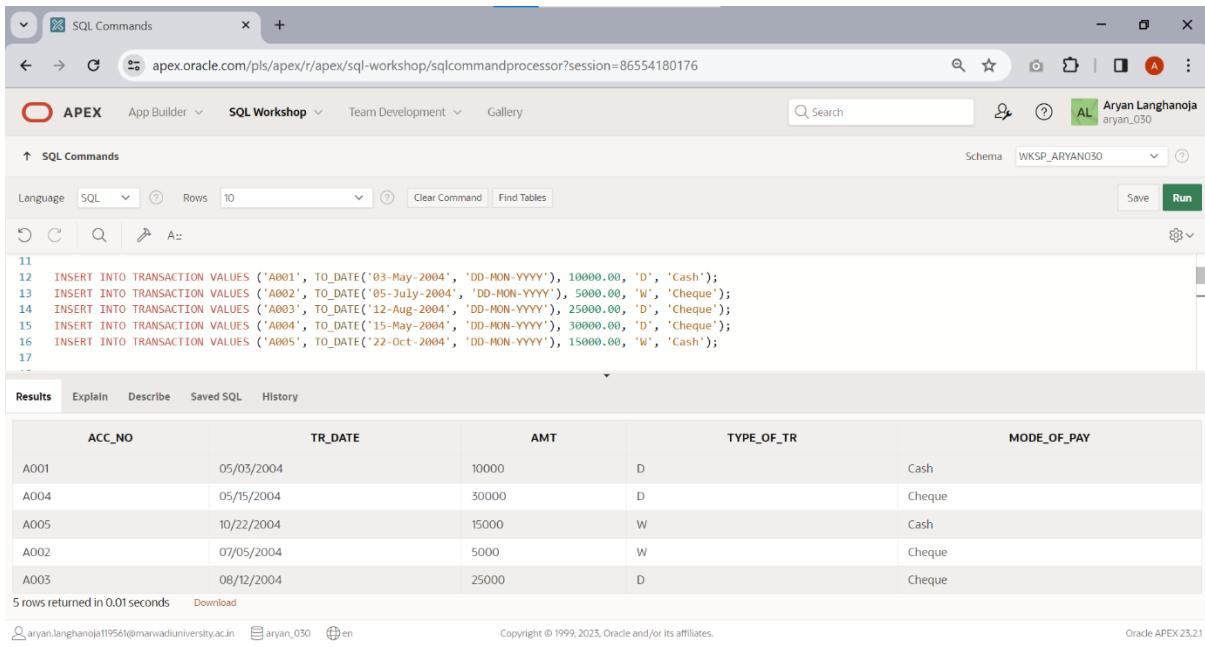
Object Type TABLE Object INSTALLMENT1

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Table: TRANSACTION.

1. Insert a Following Records if you have not inserted in PRACTICAL-1.

Acc_no	Trans_Da te	Amt	Type_of_tr	Mode_of_p ay
A001	3-may-04	10000	D	Cash
A002	5-july-04	5000	W	Check
A003	12-Aug-04	25000	D	Check
A004	15-may-04	30000	D	Check
A005	22-oct-04	15000	W	Cash



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, several SQL statements are run to insert records into the TRANSACTION table and then select all records from it.

```

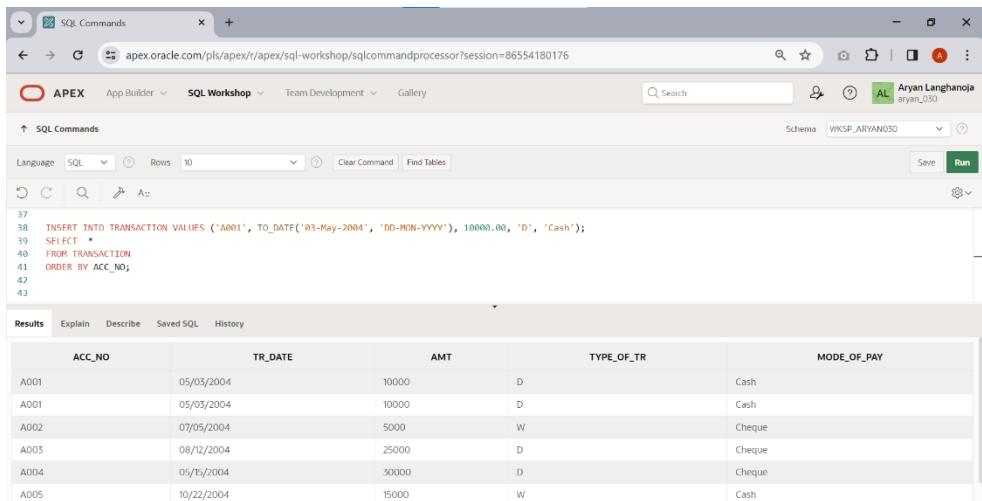
11 INSERT INTO TRANSACTION VALUES ('A001', TO_DATE('03-May-2004', 'DD-MON-YYYY'), 10000.00, 'D', 'Cash');
12 INSERT INTO TRANSACTION VALUES ('A002', TO_DATE('05-July-2004', 'DD-MON-YYYY'), 5000.00, 'W', 'Cheque');
13 INSERT INTO TRANSACTION VALUES ('A003', TO_DATE('12-Aug-2004', 'DD-MON-YYYY'), 25000.00, 'D', 'Cheque');
14 INSERT INTO TRANSACTION VALUES ('A004', TO_DATE('15-May-2004', 'DD-MON-YYYY'), 30000.00, 'D', 'Cheque');
15 INSERT INTO TRANSACTION VALUES ('A005', TO_DATE('22-Oct-2004', 'DD-MON-YYYY'), 15000.00, 'W', 'Cash');
16
  
```

The Results tab displays the inserted records:

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/2004	10000	D	Cash
A004	05/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque

5 rows returned in 0.01 seconds

2. Insert any duplicate value and display all the records without any duplicate rows.



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, a duplicate record is inserted and then a query is run to retrieve all unique records.

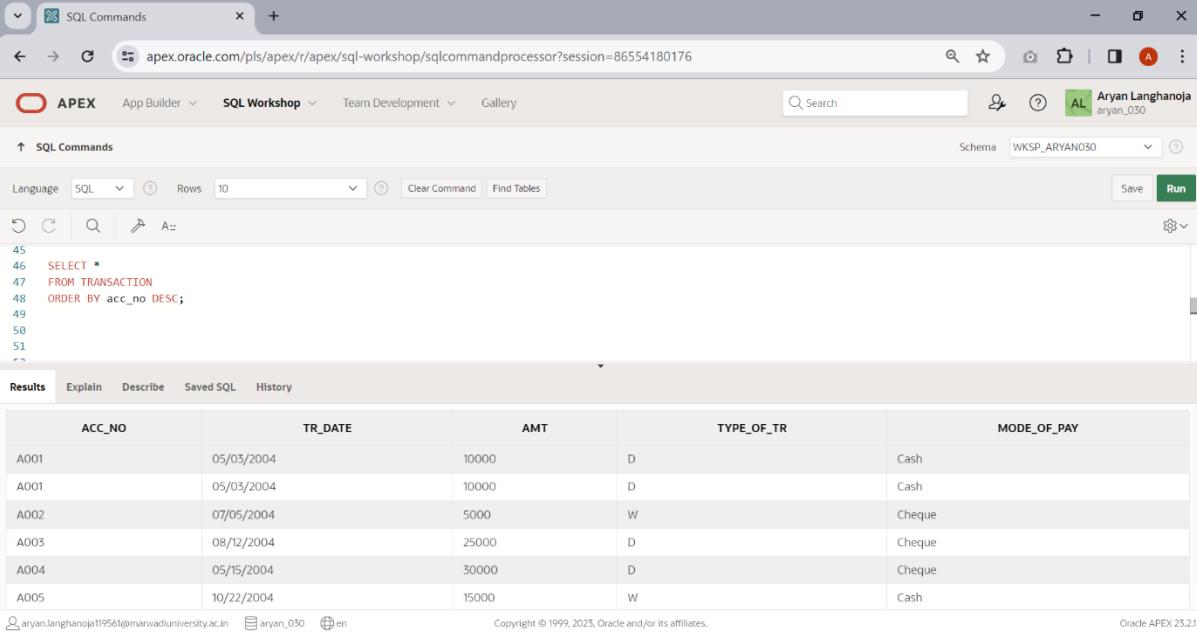
```

37
38 INSERT INTO TRANSACTION VALUES ('A001', TO_DATE('03-May-2004', 'DD-MON-YYYY'), 10000.00, 'D', 'Cash');
39
40 SELECT *
41 FROM TRANSACTION
42 ORDER BY ACC_NO;
43
  
```

The Results tab displays the unique records:

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/2004	10000	D	Cash
A001	05/03/2004	10000	D	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque
A004	08/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash

3. Select all the records in descending order(account number wise).

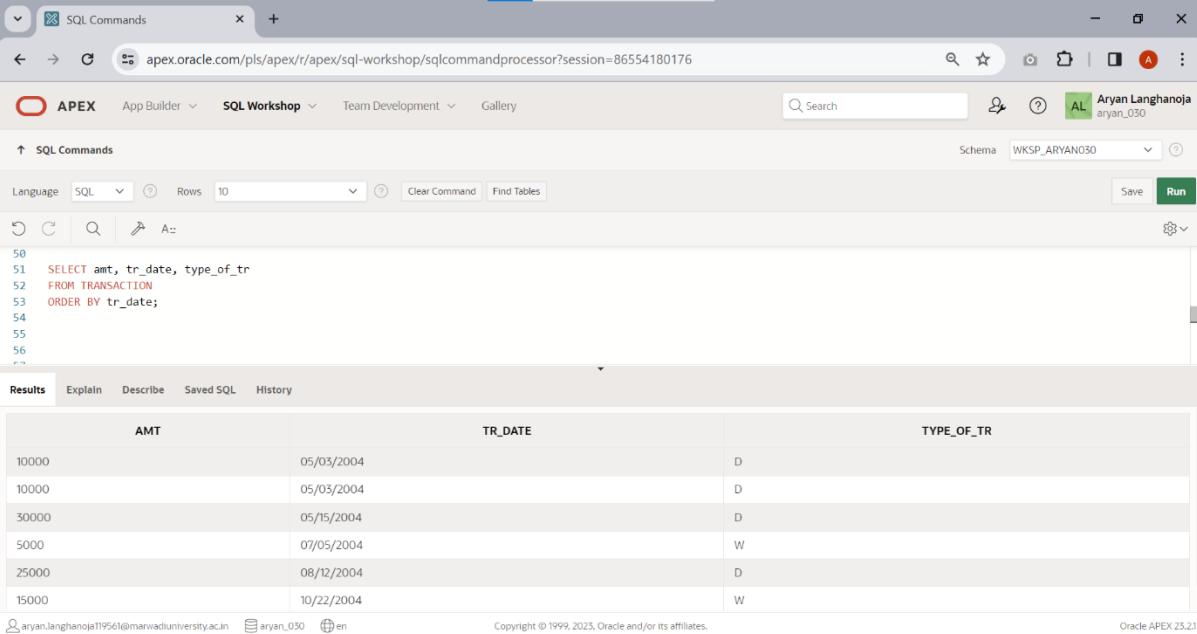


```

45
46   SELECT *
47     FROM TRANSACTION
48    ORDER BY acc_no DESC;
49
50
51
  
```

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/2004	10000	D	Cash
A001	05/03/2004	10000	D	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque
A004	05/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash

4. Display amt, date, and type of transaction by date wise.

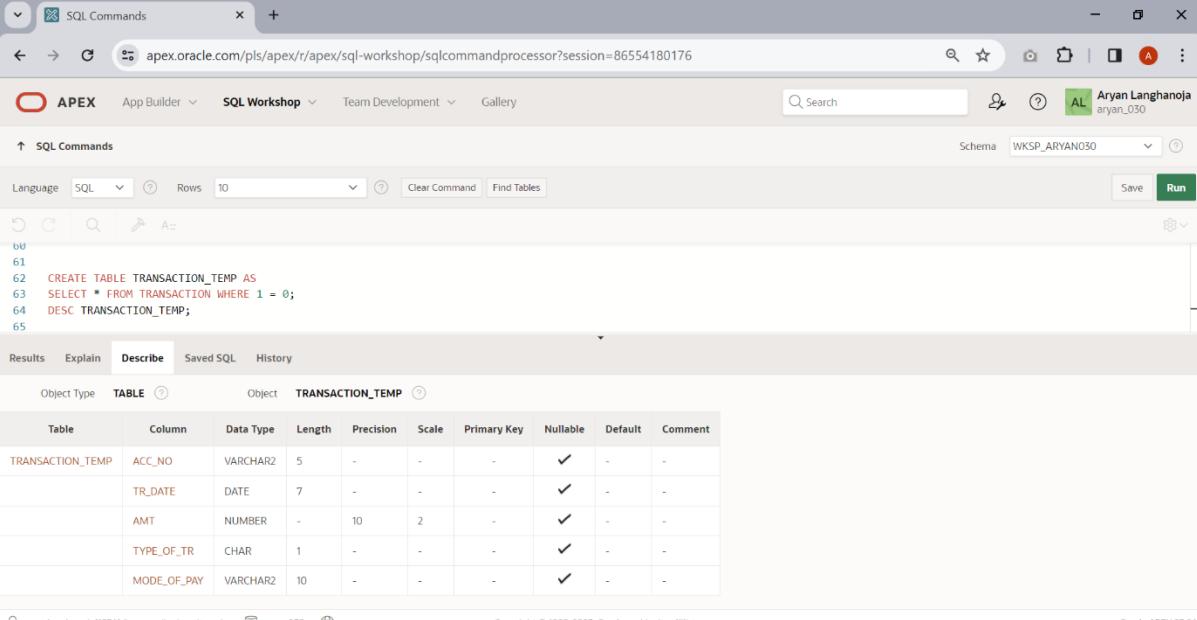


```

50
51   SELECT amt, tr_date, type_of_tr
52     FROM TRANSACTION
53    ORDER BY tr_date;
54
55
56
  
```

AMT	TR_DATE	TYPE_OF_TR
10000	05/03/2004	D
10000	05/03/2004	D
30000	05/15/2004	D
5000	07/05/2004	W
25000	08/12/2004	D
15000	10/22/2004	W

5. Create another table TRANSACTION\_TEMP from this table.

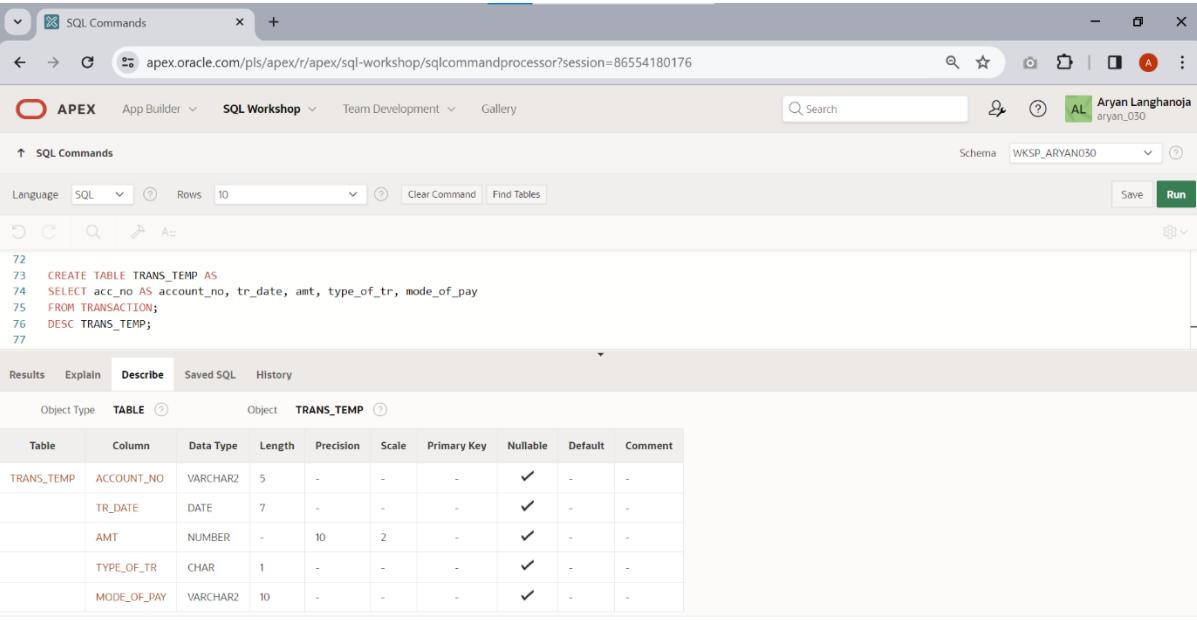


```

60
61
62 CREATE TABLE TRANSACTION_TEMP AS
63 SELECT * FROM TRANSACTION WHERE 1 = 0;
64 DESC TRANSACTION_TEMP;
65
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the creation of the TRANSACTION\_TEMP table. The table has five columns: ACC\_NO, TR\_DATE, AMT, TYPE\_OF\_TR, and MODE\_OF\_PAY. The primary key is ACC\_NO. The table is described in the Results tab, showing the same structure.

6. Create another table TRANS\_TEMP by change the column name acc\_no to account\_no.

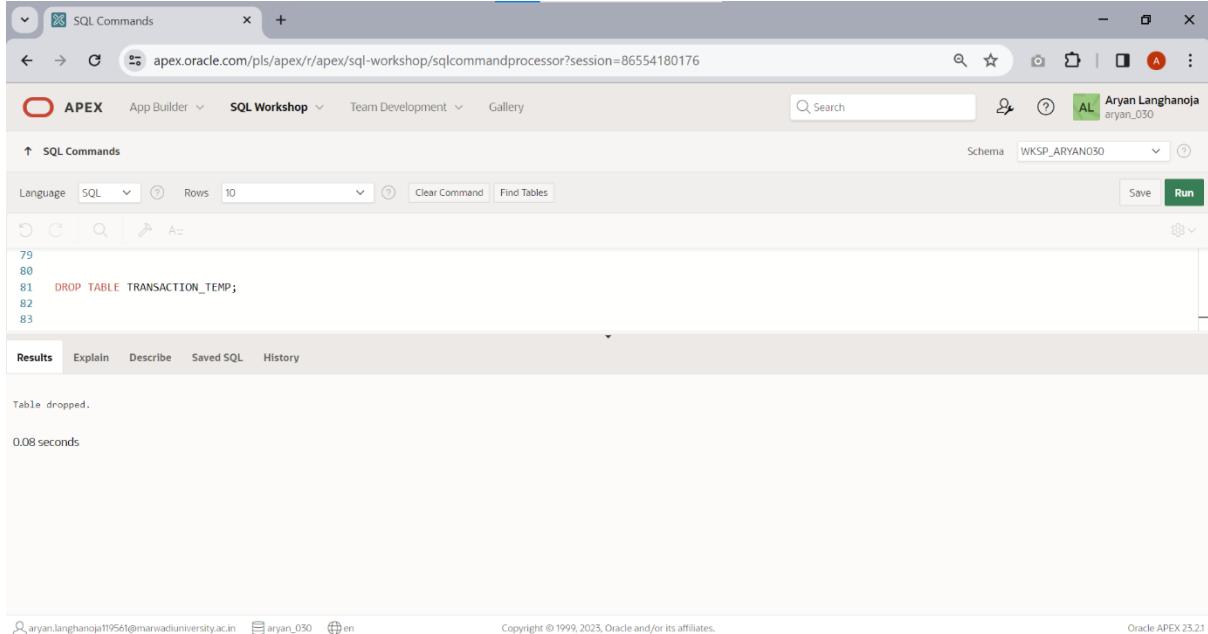


```

72
73 CREATE TABLE TRANS_TEMP AS
74 SELECT acc_no AS account_no, tr_date, amt, type_of_tr, mode_of_pay
75 FROM TRANSACTION;
76 DESC TRANS_TEMP;
77
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the creation of the TRANS\_TEMP table with a renamed column (acc\_no to account\_no). The table has five columns: ACCOUNT\_NO, TR\_DATE, AMT, TYPE\_OF\_TR, and MODE\_OF\_PAY. The primary key is ACCOUNT\_NO. The table is described in the Results tab, showing the same structure.

## 7. Delete a table TRANSACTION\_TEMP.



```

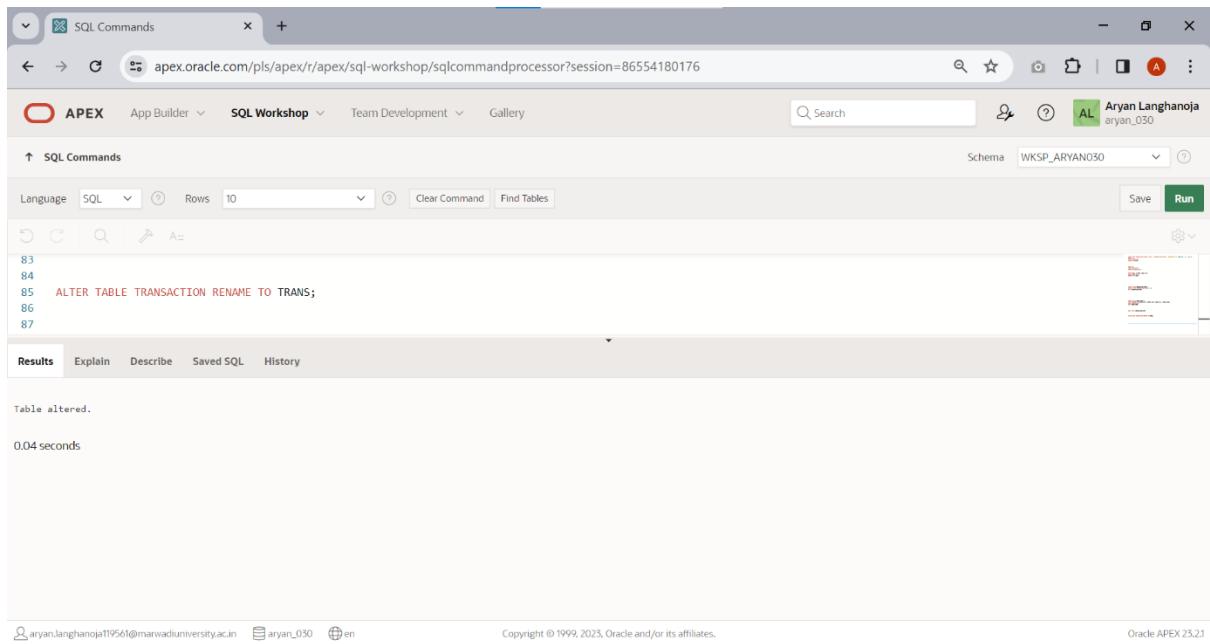
79
80
81  DROP TABLE TRANSACTION_TEMP;
82
83

```

Table dropped.  
0.08 seconds

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## 8. Rename the table TRANSACTION to TRANS.



```

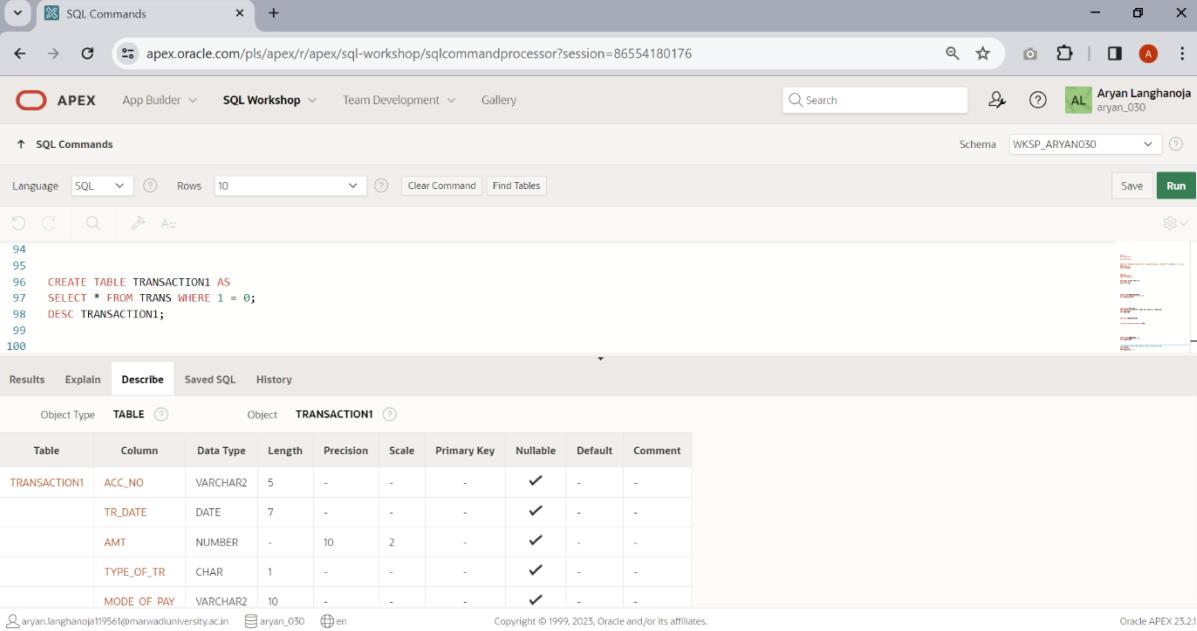
83
84
85  ALTER TABLE TRANSACTION RENAME TO TRANS;
86
87

```

Table altered.  
0.04 seconds

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9. Only create a structure of table transaction1 from table transaction.



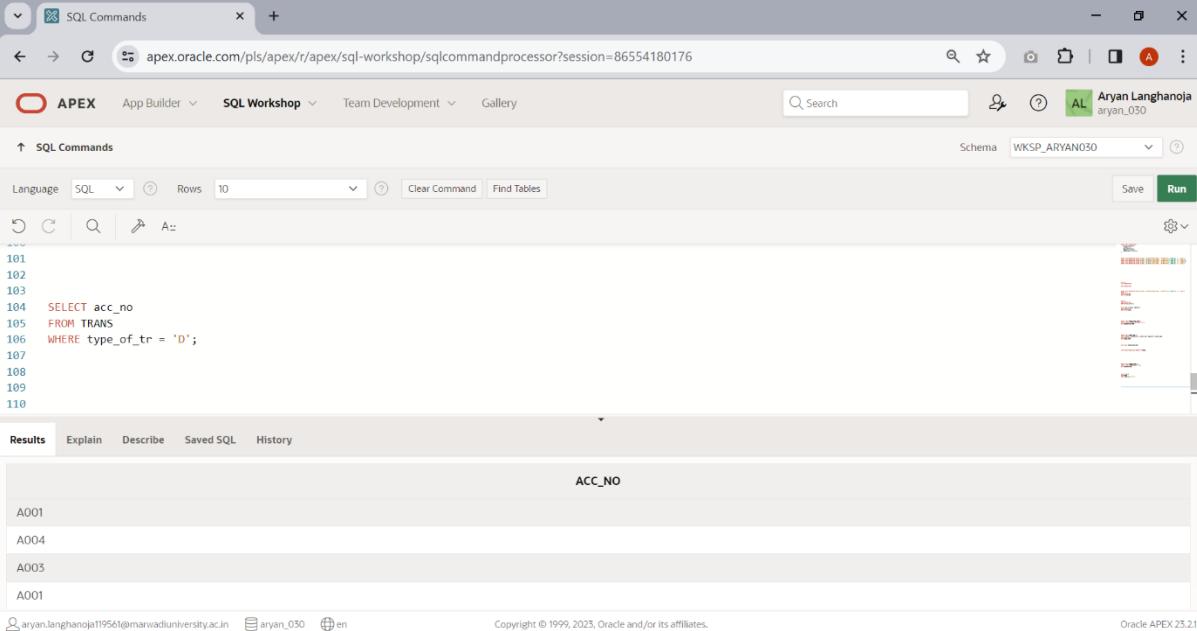
```

94
95
96 CREATE TABLE TRANSACTION1 AS
97 SELECT * FROM TRANS WHERE 1 = 0;
98 DESC TRANSACTION1;
99
100
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the creation of a new table named TRANSACTION1. The code includes a self-select query and a description of the table structure. Below the code, the 'Describe' tab is selected, showing the columns of the TRANSACTION1 table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TRANSACTION1	ACC_NO	VARCHAR2	5	-	-	-	✓	-	-
	TR_DATE	DATE	7	-	-	-	✓	-	-
	AMT	NUMBER	-	10	2	-	✓	-	-
	TYPE_OF_TR	CHAR	1	-	-	-	✓	-	-
	MODE_OF_PAY	VARCHAR2	10	-	-	-	✓	-	-

10. Display account number where type of transaction is 'D'.



```

101
102
103
104 SELECT acc_no
105 FROM TRANS
106 WHERE type_of_tr = 'D';
107
108
109
110
  
```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying a query to select account numbers (ACC\_NO) from the TRANS table where the type of transaction is 'D'. The results are displayed in the Results tab, showing four rows of account numbers: A001, A004, A003, and A001.

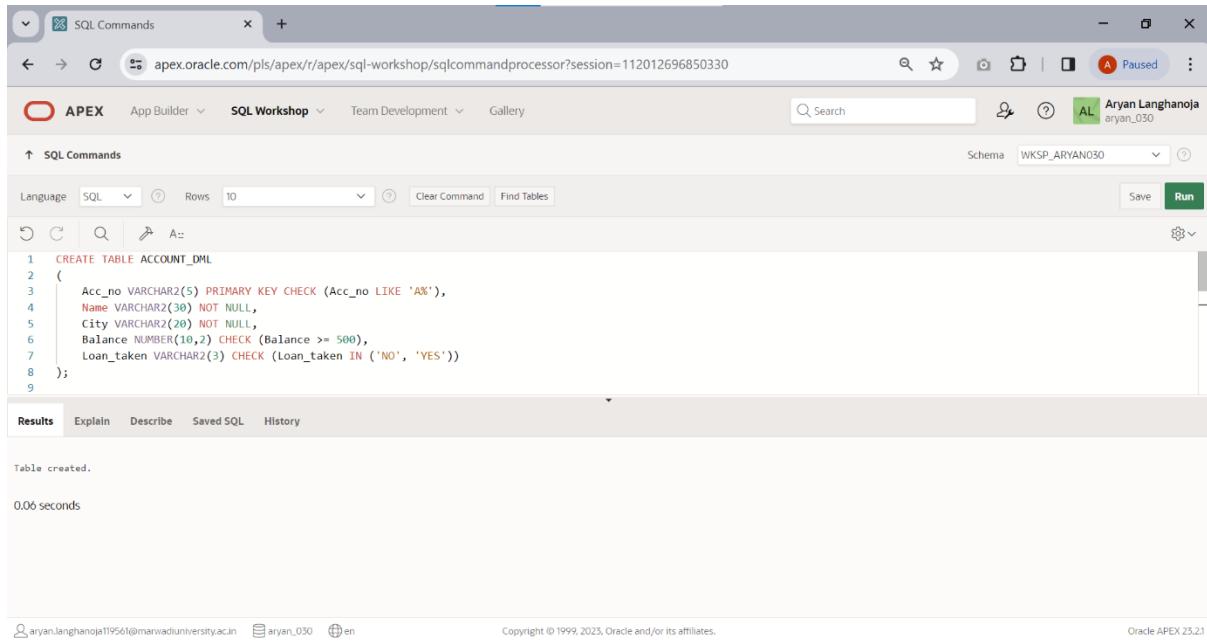
## Practical 5

### Aim: Constraint Based DML Commands

**Note:** **Bold and Underline column name indicates a primary key**

Create a table ACCOUNT.

Column name	Data Type	Size	Attribute s
<b><u>Acc_no</u></b>	Varchar2	5	Primary key/first letter must start with 'A'
Name	Varchar2	30	NOT NULL
City	Varchar2	20	NOT NULL
Balance	Number	10 ,2	Balance >=500
Loan_taken	Varchar2	3	Values('NO','YES')



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

1 CREATE TABLE ACCOUNT_DML
2 (
3   Acc_no VARCHAR2(5) PRIMARY KEY CHECK (Acc_no LIKE 'A%'),
4   Name VARCHAR2(30) NOT NULL,
5   City VARCHAR2(20) NOT NULL,
6   Balance NUMBER(10,2) CHECK (Balance >= 500),
7   Loan_taken VARCHAR2(3) CHECK (Loan_taken IN ('NO', 'YES'))
8 );
9

```

The results pane shows the output of the command:

```

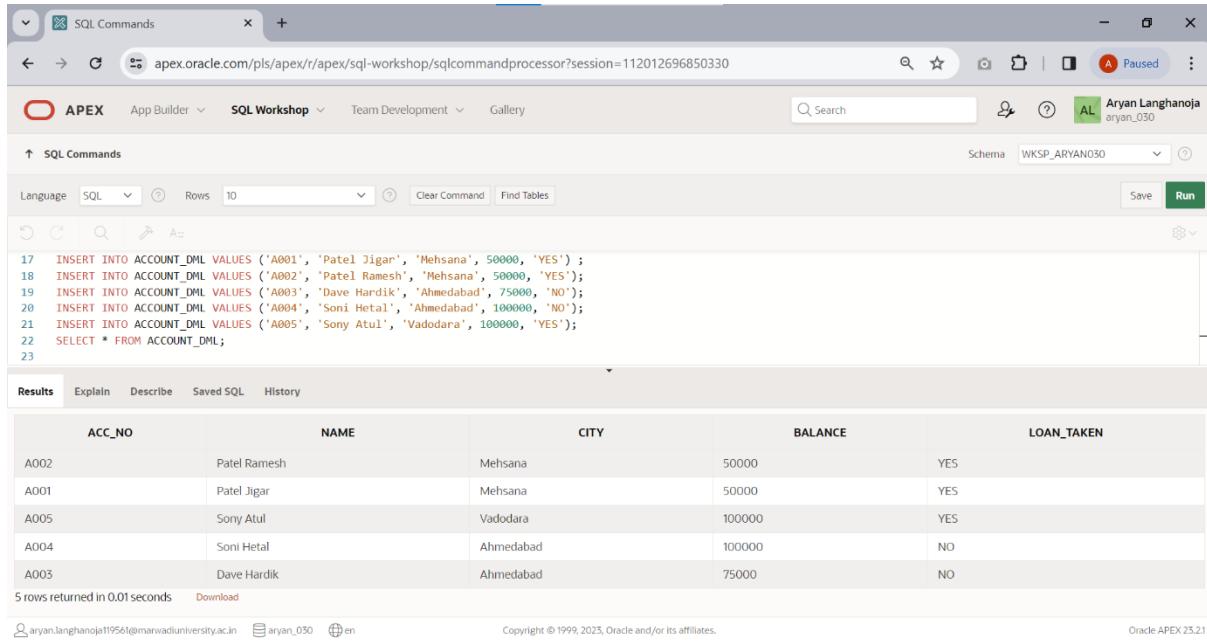
Table created.

0.06 seconds

```

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## 1. Insert the records using Practical list 1.



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the following SQL code:

```

17 INSERT INTO ACCOUNT_DML VALUES ('A001', 'Patel Jigar', 'Mehsana', 50000, 'YES') ;
18 INSERT INTO ACCOUNT_DML VALUES ('A002', 'Patel Ramesh', 'Mehsana', 50000, 'YES') ;
19 INSERT INTO ACCOUNT_DML VALUES ('A003', 'Dave Hardik', 'Ahmedabad', 75000, 'NO') ;
20 INSERT INTO ACCOUNT_DML VALUES ('A004', 'Soni Hetal', 'Ahmedabad', 100000, 'NO') ;
21 INSERT INTO ACCOUNT_DML VALUES ('A005', 'Sony Atul', 'Vadodara', 100000, 'YES') ;
22 SELECT * FROM ACCOUNT_DML ;
23
  
```

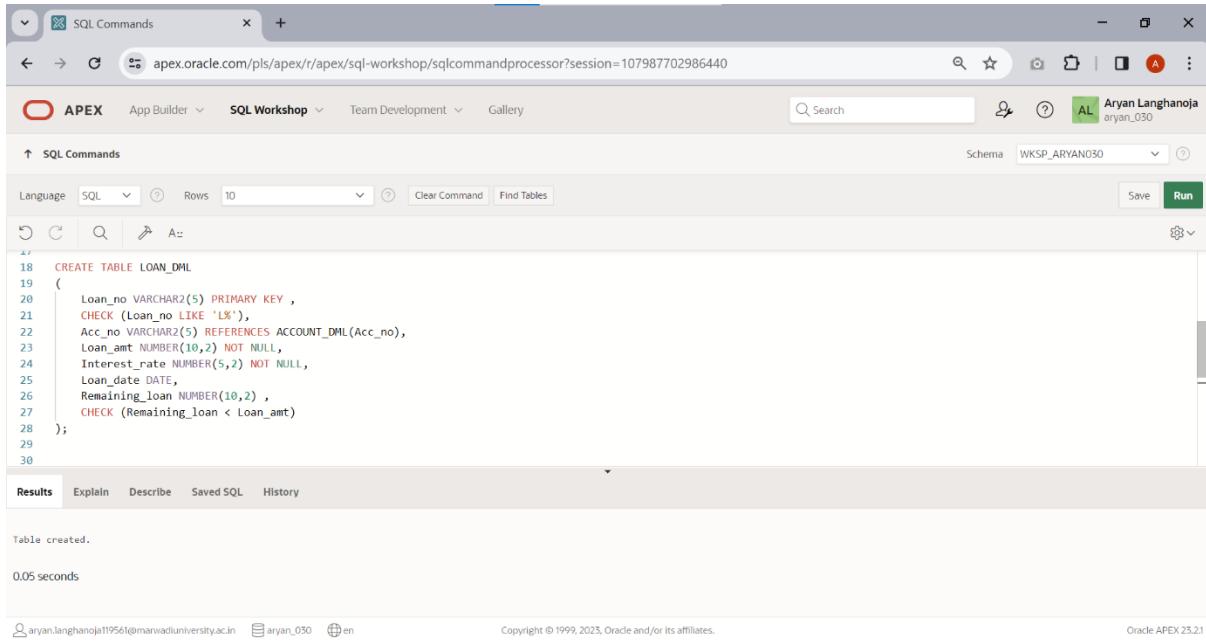
The Results tab shows the output of the query:

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A002	Patel Ramesh	Mehsana	50000	YES
A001	Patel Jigar	Mehsana	50000	YES
A005	Sony Atul	Vadodara	100000	YES
A004	Soni Hetal	Ahmedabad	100000	NO
A003	Dave Hardik	Ahmedabad	75000	NO

5 rows returned in 0.01 seconds

 Create a Table **LOAN**.

Column Name	Data Type	Size	Attribute s
<u>Loan_no</u>	Varchar 2	5	Primary Key / first letter must start with 'L'
Acc_no	Varchar 2	5	Foreign key References Acc_no of account table
Loan_amt	Number	1,0,2	NOT NULL
Interest_rate	Number	5,2	NOT NULL
Loan_date	Date		
Remaining_loan	Number	1,0,2	Remaining loan<loan amount



```

18 CREATE TABLE LOAN_DML
19 (
20   Loan_no VARCHAR2(5) PRIMARY KEY ,
21   CHECK (Loan_no LIKE 'L%'),
22   Acc_no VARCHAR2(5) REFERENCES ACCOUNT_DML(Acc_no),
23   Loan_amt NUMBER(10,2) NOT NULL,
24   Interest_rate NUMBER(5,2) NOT NULL,
25   Loan_date DATE,
26   Remaining_loan NUMBER(10,2),
27   CHECK (Remaining_loan < Loan_amt)
28 );
29
30
  
```

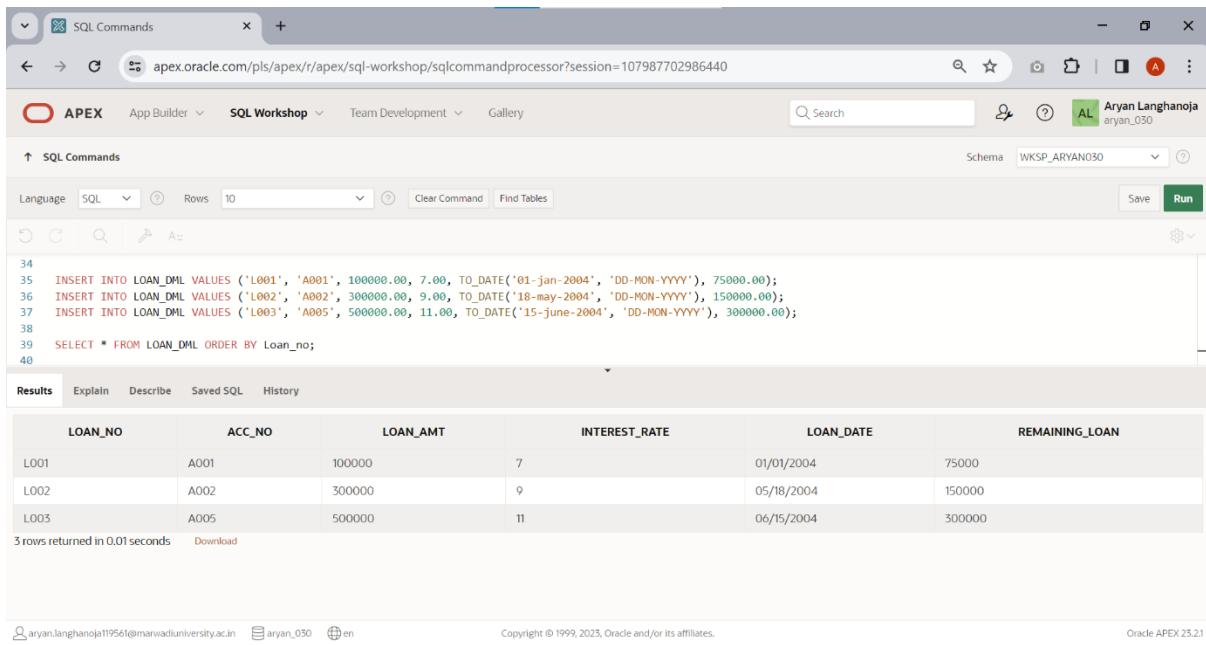
Results Explain Describe Saved SQL History

Table created.

0.05 seconds

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### 1. Insert the records using practical list-1.



```

34
35   INSERT INTO LOAN_DML VALUES ('L001', 'A001', 100000.00, 7.00, TO_DATE('01-jan-2004', 'DD-MON-YYYY'), 75000.00);
36   INSERT INTO LOAN_DML VALUES ('L002', 'A002', 300000.00, 9.00, TO_DATE('18-may-2004', 'DD-MON-YYYY'), 150000.00);
37   INSERT INTO LOAN_DML VALUES ('L003', 'A005', 500000.00, 11.00, TO_DATE('15-june-2004', 'DD-MON-YYYY'), 300000.00);
38
39   SELECT * FROM LOAN_DML ORDER BY Loan_no;
40
  
```

Results Explain Describe Saved SQL History

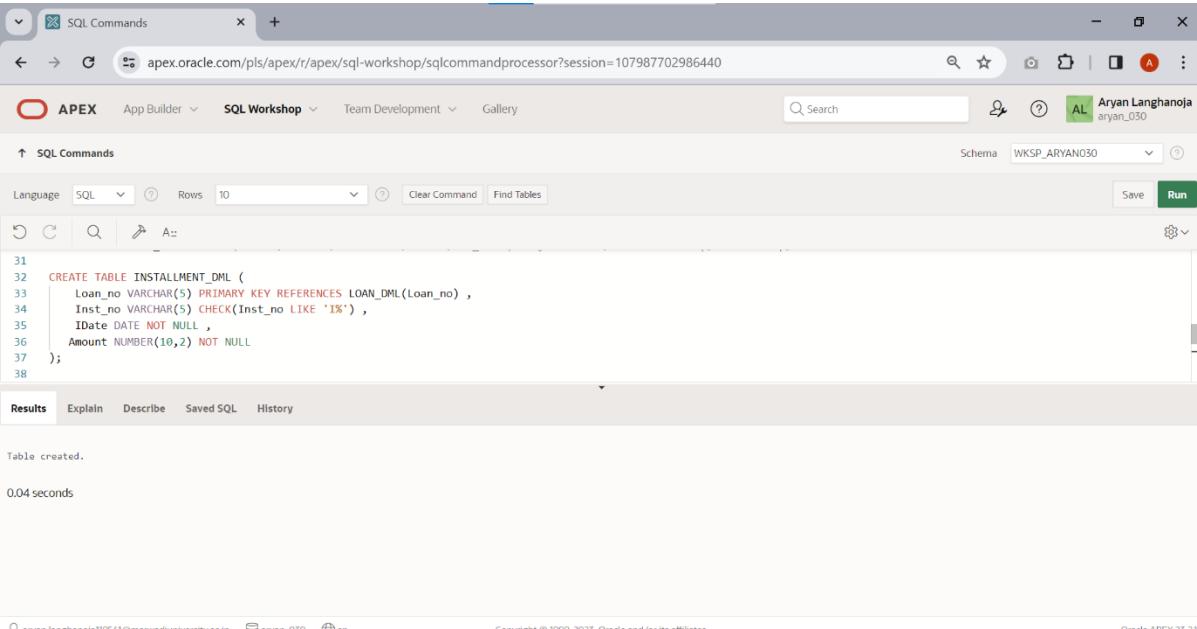
LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	100000	7	01/01/2004	75000
L002	A002	300000	9	05/18/2004	150000
L003	A005	500000	11	06/15/2004	300000

3 rows returned in 0.01 seconds | Download

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Create a table **INSTALLMENT**.

Column Name	Data Type	Size	Attributes
<u>Loan_no</u>	Varchar2	5	Foreign key References Loan_no of Loan table
Inst_no	Varchar2	5	first letter must start with 'I'
IDate	Date		NOT NULL
Amount	Number	10, 2	NOT NULL



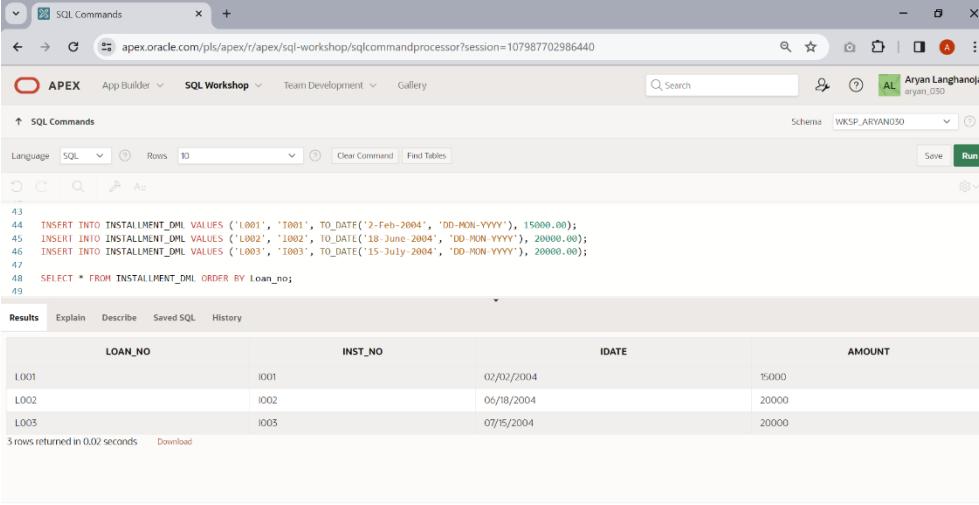
The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```

31
32 CREATE TABLE INSTALLMENT_DML (
33   Loan_no VARCHAR(5) PRIMARY KEY REFERENCES LOAN_DML(Loan_no) ,
34   Inst_no VARCHAR(5) CHECK(Inst_no LIKE 'I%') ,
35   IDATE DATE NOT NULL ,
36   Amount NUMBER(10,2) NOT NULL
37 );
38
  
```

The results section shows the message "Table created." and a execution time of "0.04 seconds".

## 1. Insert the records using Practical list-1



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```

43
44 INSERT INTO INSTALLMENT_DML VALUES ('L001', 'I001', TO_DATE('2-Feb-2004', 'DD-MON-YYYY'), 15000.00);
45 INSERT INTO INSTALLMENT_DML VALUES ('L002', 'I002', TO_DATE('18-June-2004', 'DD-MON-YYYY'), 20000.00);
46 INSERT INTO INSTALLMENT_DML VALUES ('L003', 'I003', TO_DATE('15-July-2004', 'DD-MON-YYYY'), 20000.00);
47
48 SELECT * FROM INSTALLMENT_DML ORDER BY loan_no;
49
  
```

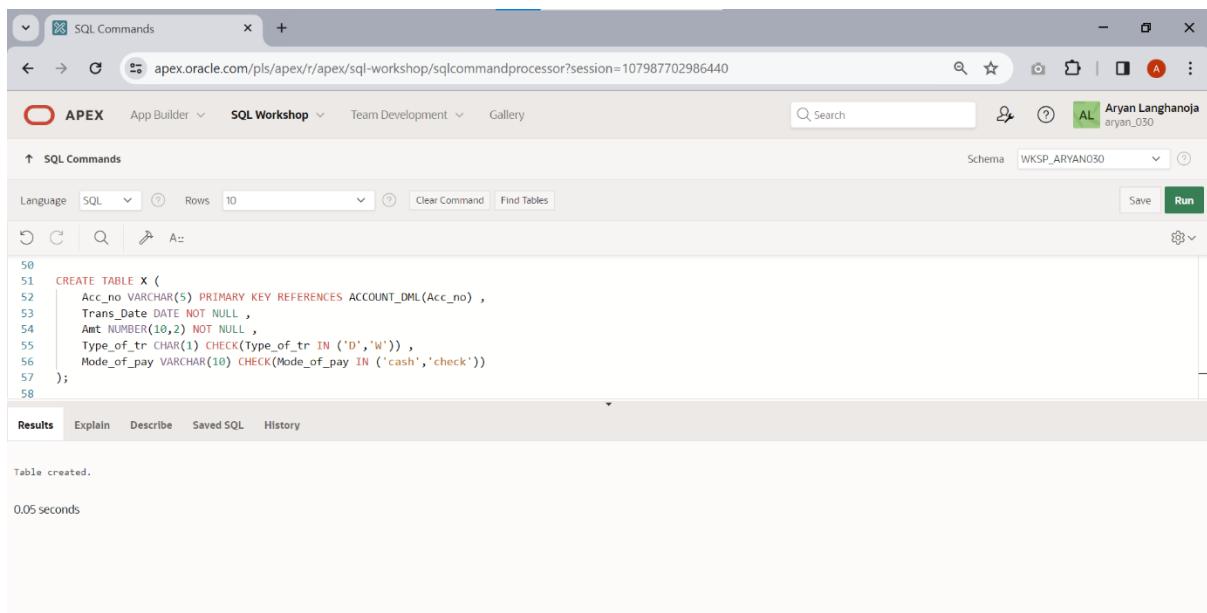
The results section displays the inserted data:

LOAN_NO	INST_NO	IDATE	AMOUNT
L001	I001	02/02/2004	15000
L002	I002	06/18/2004	20000
L003	I003	07/15/2004	20000

3 rows returned in 0.02 seconds.

Create a Table X .

Column Name	Data Type	Size	Attributes
<u>Acc_no</u>	Varchar2	5	Foreign key References Acc_no of account table
Trans_Dat e	Date		NOT NULL
Amt	Number	10,2	NOT NULL
Type_of_t r	Char	1	Values in ('D','W')
Mode_of_ pay	Varchar2	10	Values in ('cash','check')



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```

50
51 CREATE TABLE X (
52   Acc_no VARCHAR(5) PRIMARY KEY REFERENCES ACCOUNT_DML(Acc_no) ,
53   Trans_Date DATE NOT NULL ,
54   Amt NUMBER(10,2) NOT NULL ,
55   Type_of_tr CHAR(1) CHECK(Type_of_tr IN ('D','W')) ,
56   Mode_of_pay VARCHAR(10) CHECK(Mode_of_pay IN ('cash','check'))
57 );
58

```

The code creates a table named X with columns: Acc\_no (Primary Key, REFERENCES ACCOUNT\_DML(Acc\_no)), Trans\_Date (Date, NOT NULL), Amt (Number(10,2), NOT NULL), Type\_of\_tr (Char(1), CHECK(Type\_of\_tr IN ('D','W'))), and Mode\_of\_pay (VARCHAR(10), CHECK(Mode\_of\_pay IN ('cash','check'))).

The results pane shows the output:

```

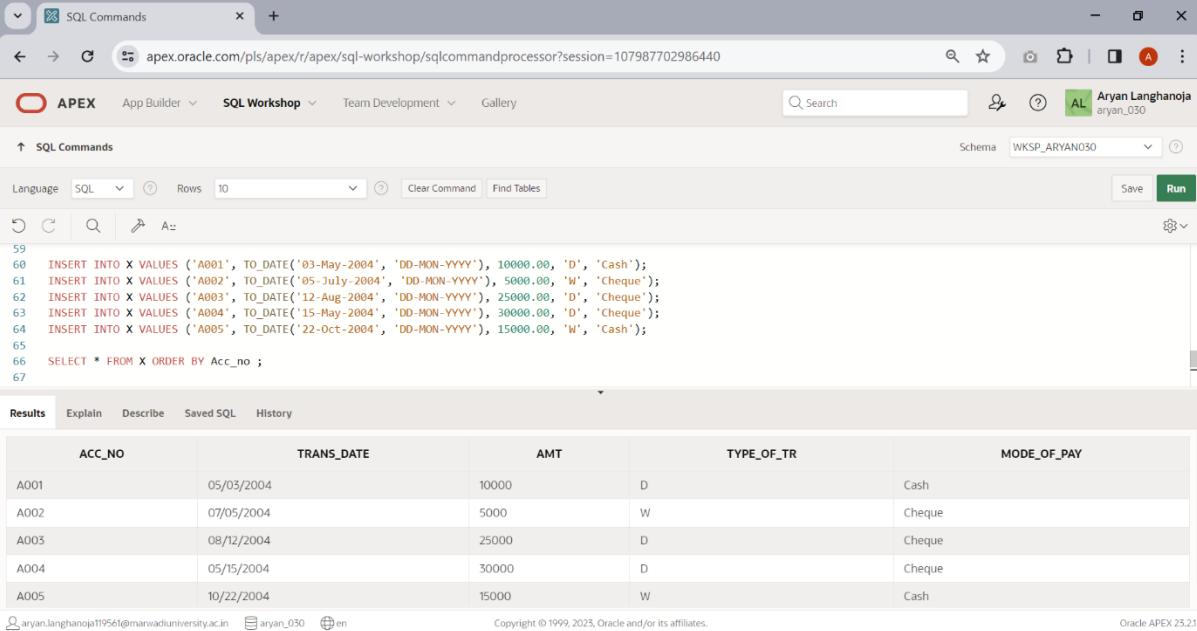
Table created.

0.05 seconds

```

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1. Insert the records using Practical list-1.



The screenshot shows the Oracle APEX SQL Workshop interface. The user is executing a SQL query to insert data into a table named X and then selecting all rows from it. The results are displayed in a grid format.

```

59
60  INSERT INTO X VALUES ('A001', TO_DATE('03-May-2004', 'DD-MON-YYYY'), 10000.00, 'D', 'Cash');
61  INSERT INTO X VALUES ('A002', TO_DATE('05-July-2004', 'DD-MON-YYYY'), 5000.00, 'W', 'Cheque');
62  INSERT INTO X VALUES ('A003', TO_DATE('12-Aug-2004', 'DD-MON-YYYY'), 25000.00, 'D', 'Cheque');
63  INSERT INTO X VALUES ('A004', TO_DATE('15-May-2004', 'DD-MON-YYYY'), 30000.00, 'D', 'Cheque');
64  INSERT INTO X VALUES ('A005', TO_DATE('22-Oct-2004', 'DD-MON-YYYY'), 15000.00, 'W', 'Cash');
65
66  SELECT * FROM X ORDER BY Acc_no ;
67

```

ACC_NO	TRANS_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/05/2004	10000	D	Cash
A002	07/05/2004	5000	W	Cheque
A003	08/12/2004	25000	D	Cheque
A004	05/15/2004	30000	D	Cheque
A005	10/22/2004	15000	W	Cash

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