

DATABASE MANAGEMENT SYSTEM
(01CE2302)
Department of Computer Engineering
3rd Semester

Lab Manual
(July-Dec 2023)

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Practical 1

Aim: Introduction to RDBMS and APEX Login.

Difference between DBMS and RDBMS

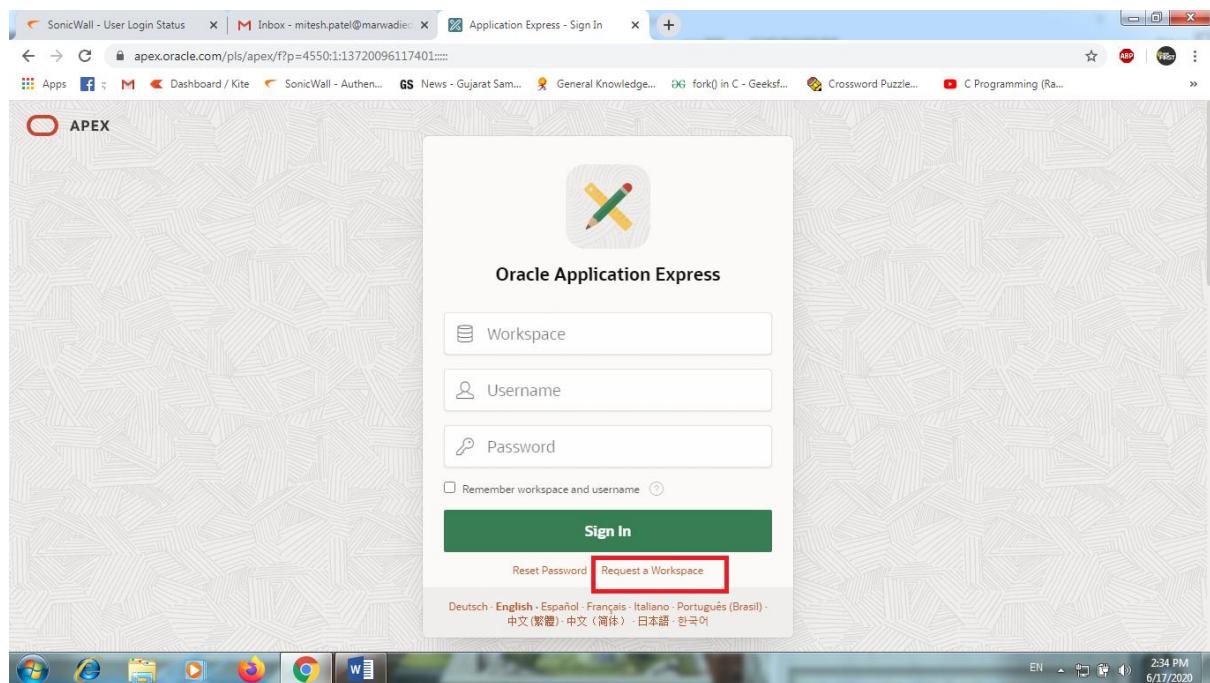
RDBMS	DBMS
Data stored is in table format	Data stored is in the file format
Multiple data elements are accessible together	Individual access of data elements
Data in the form of a table are linked together	No connection between data
Normalisation is not achievable	There is normalisation
Support distributed database	No support for distributed database
Data is stored in a large amount	Data stored is a small quantity
Here, redundancy of data is reduced with the help of key and indexes in RDBMS	Data redundancy is common
RDBMS supports multiple users	DBMS supports a single user
It features multiple layers of security while	There is only low security while handling

handling data	data
The software and hardware requirements are higher	The software and hardware requirements are low
Oracle, SQL Server.	XML, Microsoft Access.

APEX login:

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

Step 2: Click on Request a workspace.

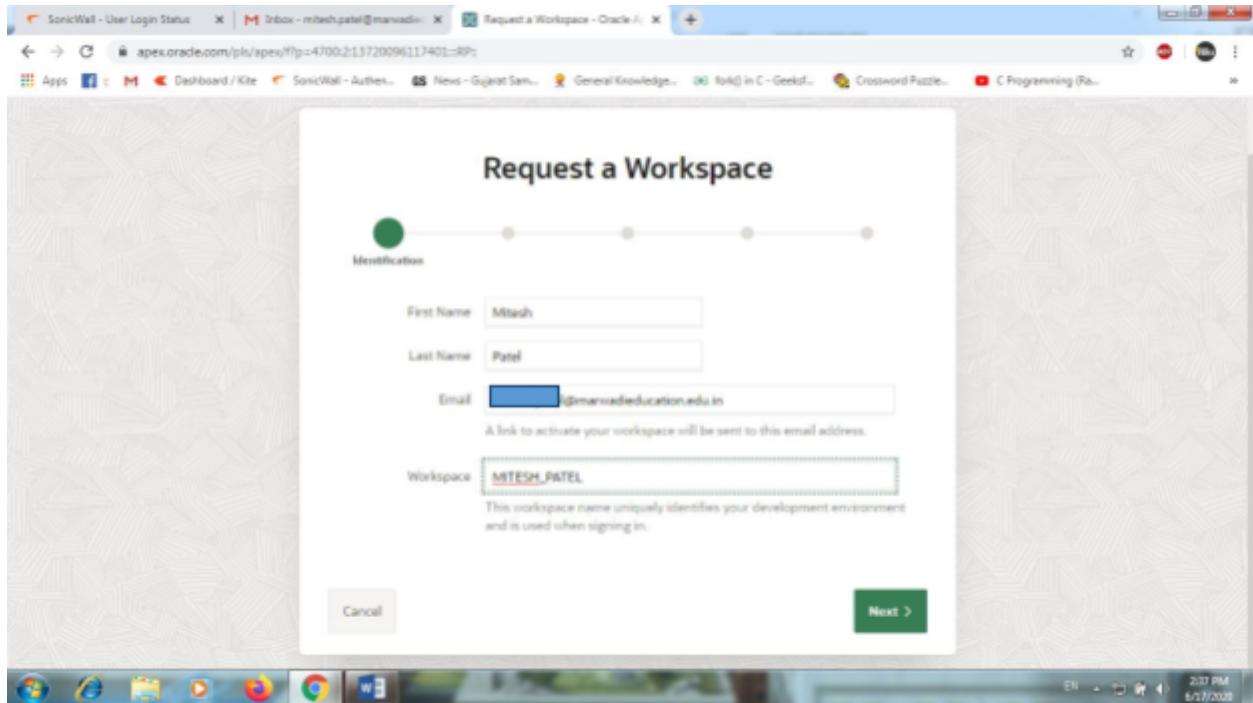


Step 3: Fill all the required details carefully like: First Name: Your name(ex. Mitesh)

Last Name: Your last name (ex. Patel)

Email: Use your institute email address only.

Workspace: name_surname And click on next.



Request a Workspace

Identification

First Name: Mitesh

Last Name: Patel

Email: [REDACTED]@marwadieducation.edu.in

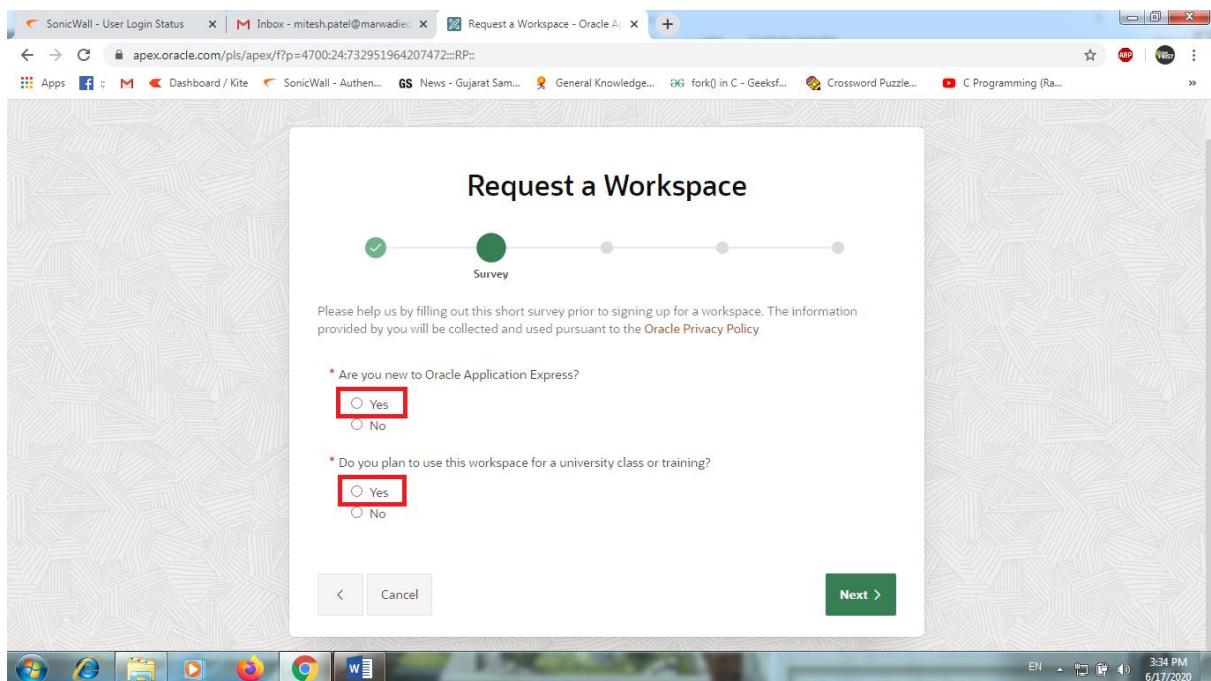
A link to activate your workspace will be sent to this email address.

Workspace: MITESH_PATEL

This workspace name uniquely identifies your development environment and is used when signing in.

Cancel Next >

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



Request a Workspace

Survey

Please help us by filling out this short survey prior to signing up for a workspace. The information provided by you will be collected and used pursuant to the [Oracle Privacy Policy](#).

* Are you new to Oracle Application Express?

Yes

No

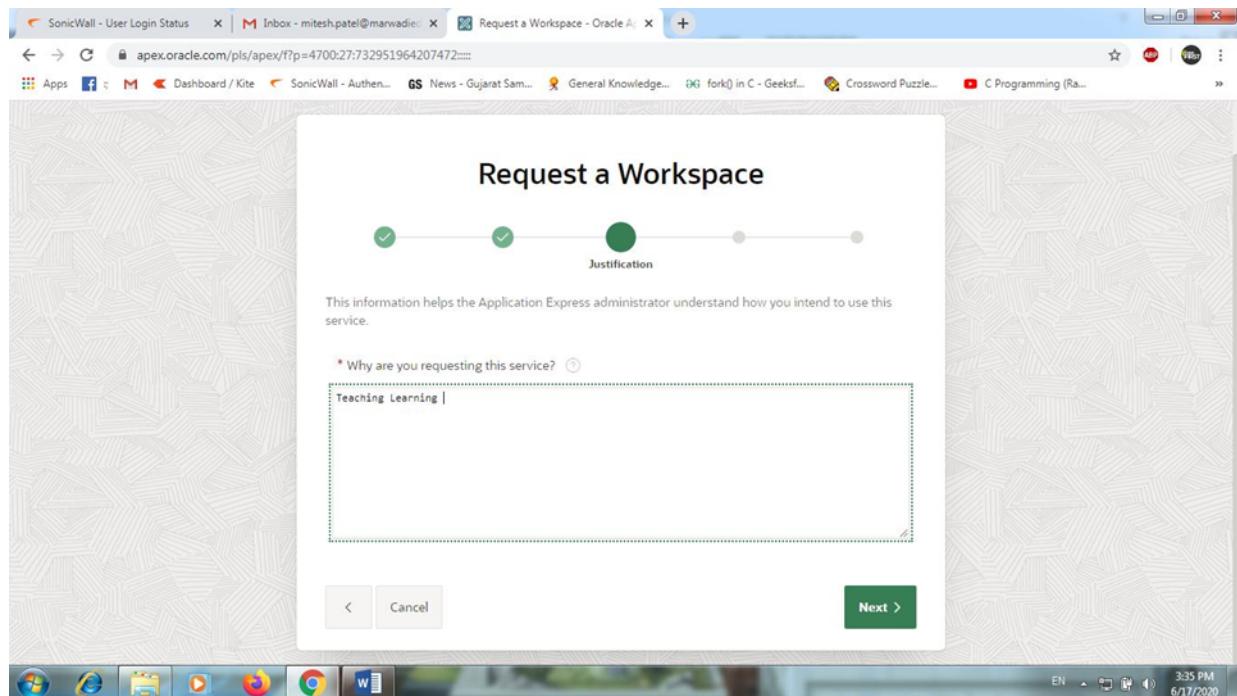
* Do you plan to use this workspace for a university class or training?

Yes

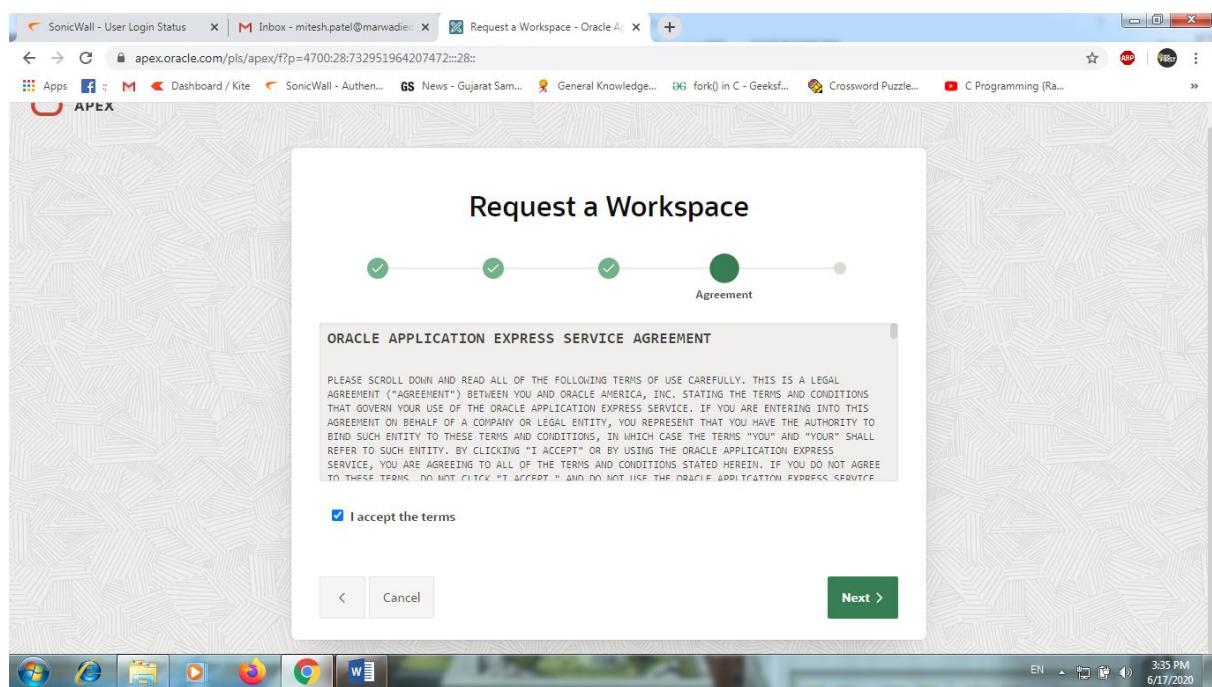
No

< Cancel Next >

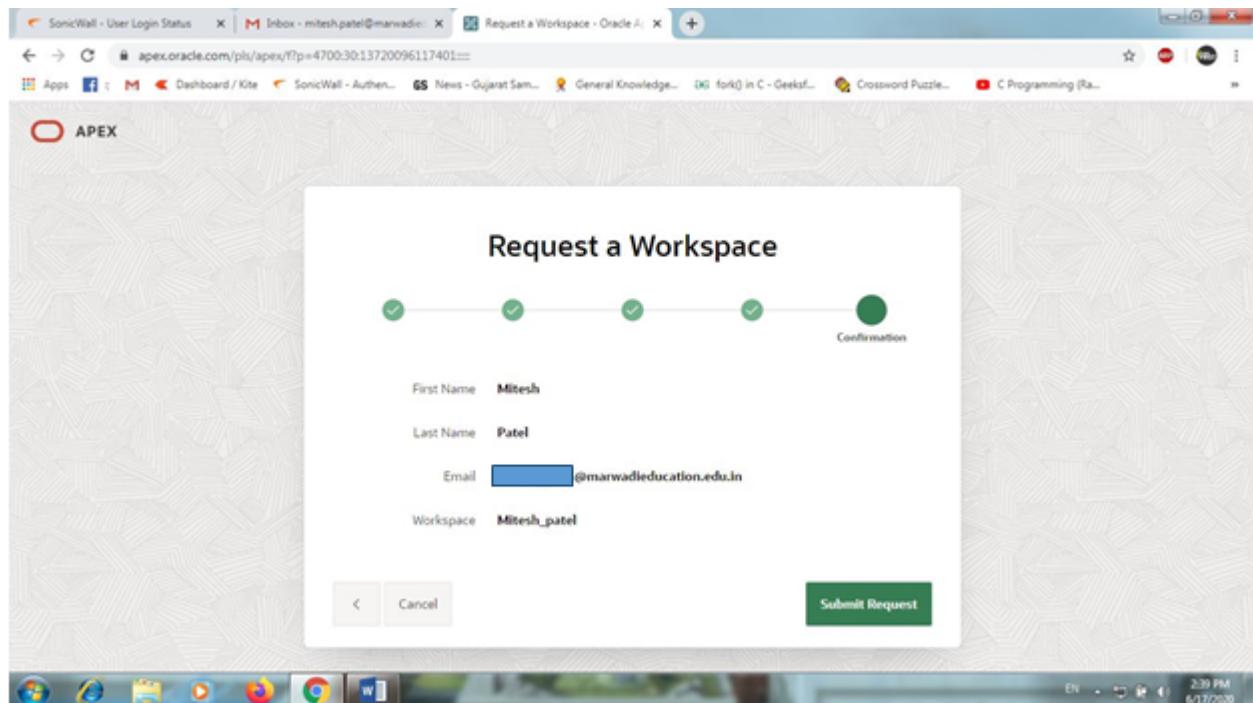
Step 5: Write appropriate text in textarea and Click on next,



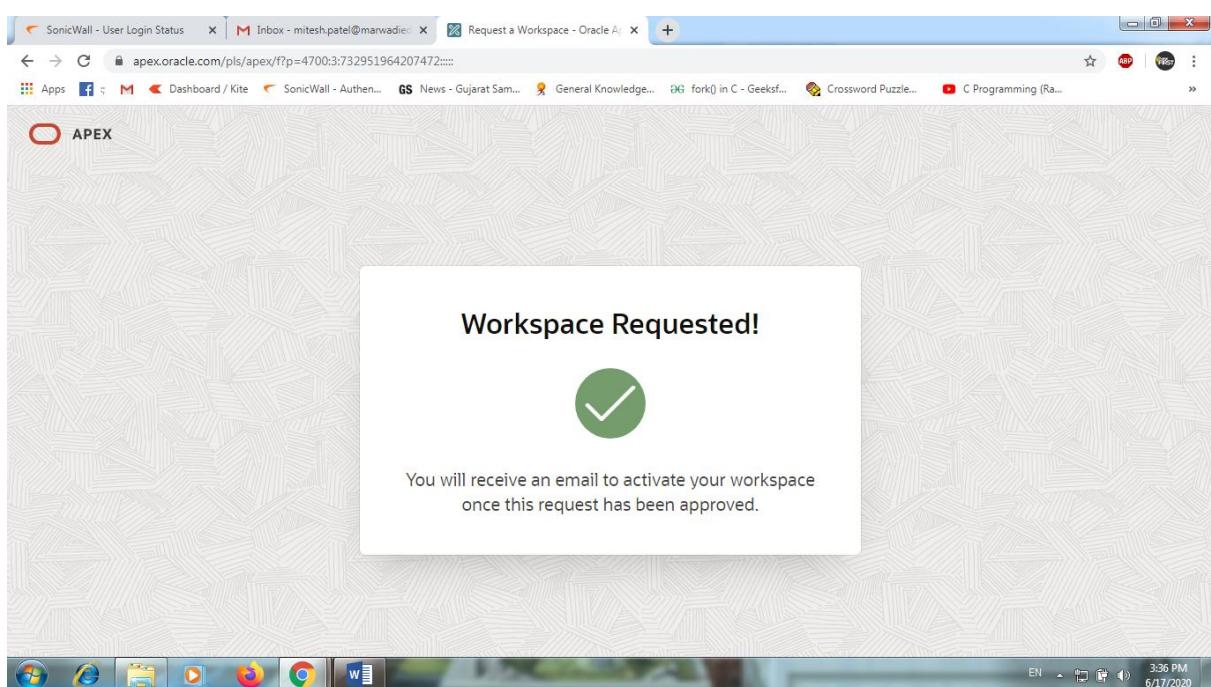
Step 6: Click on checkbox to agree terms and conditions and Click on next.



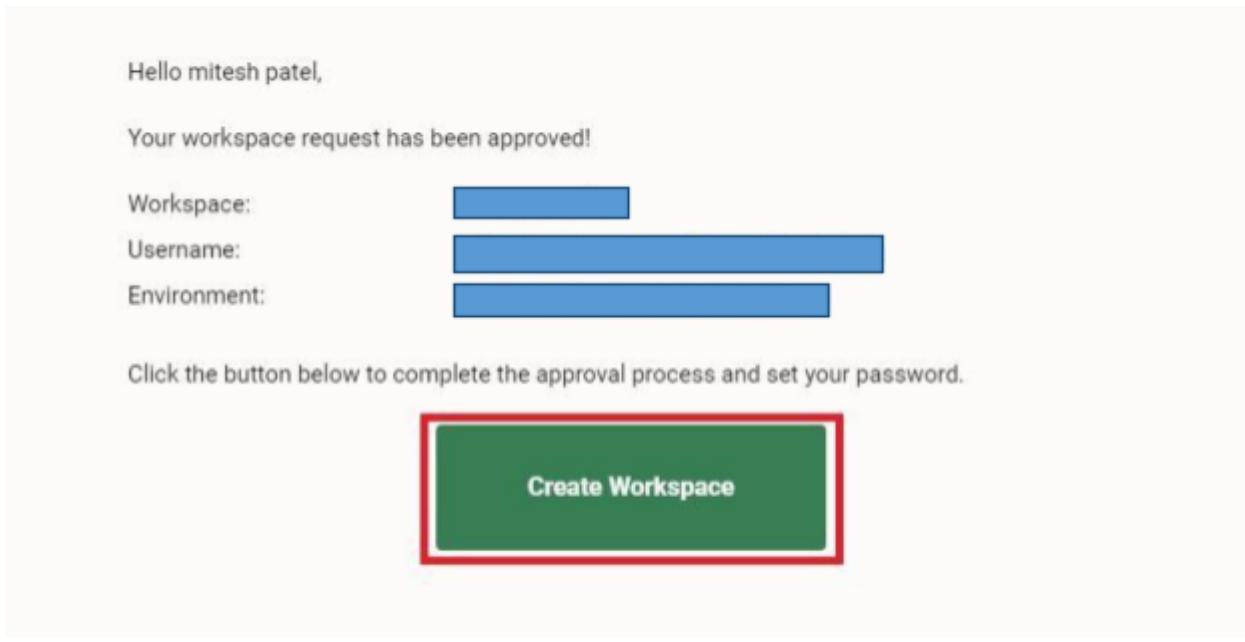
Step 7: Click on submit request button and Click on next



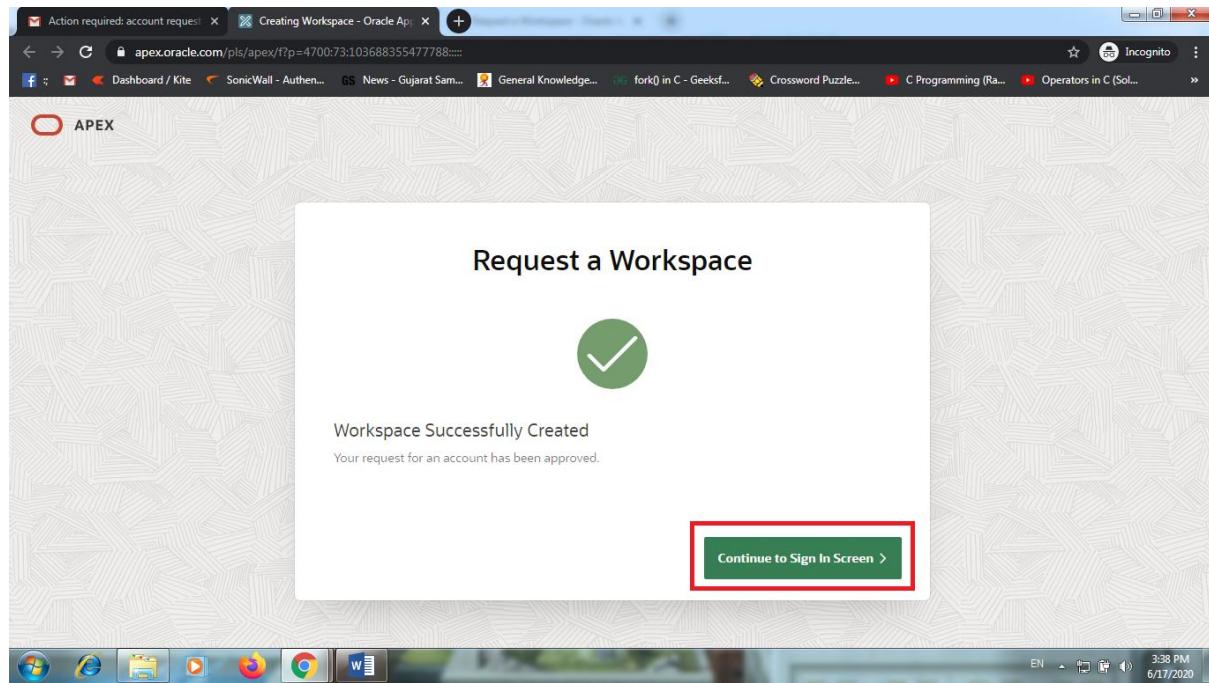
Step 8: After that you will receive an email on your institute email id.



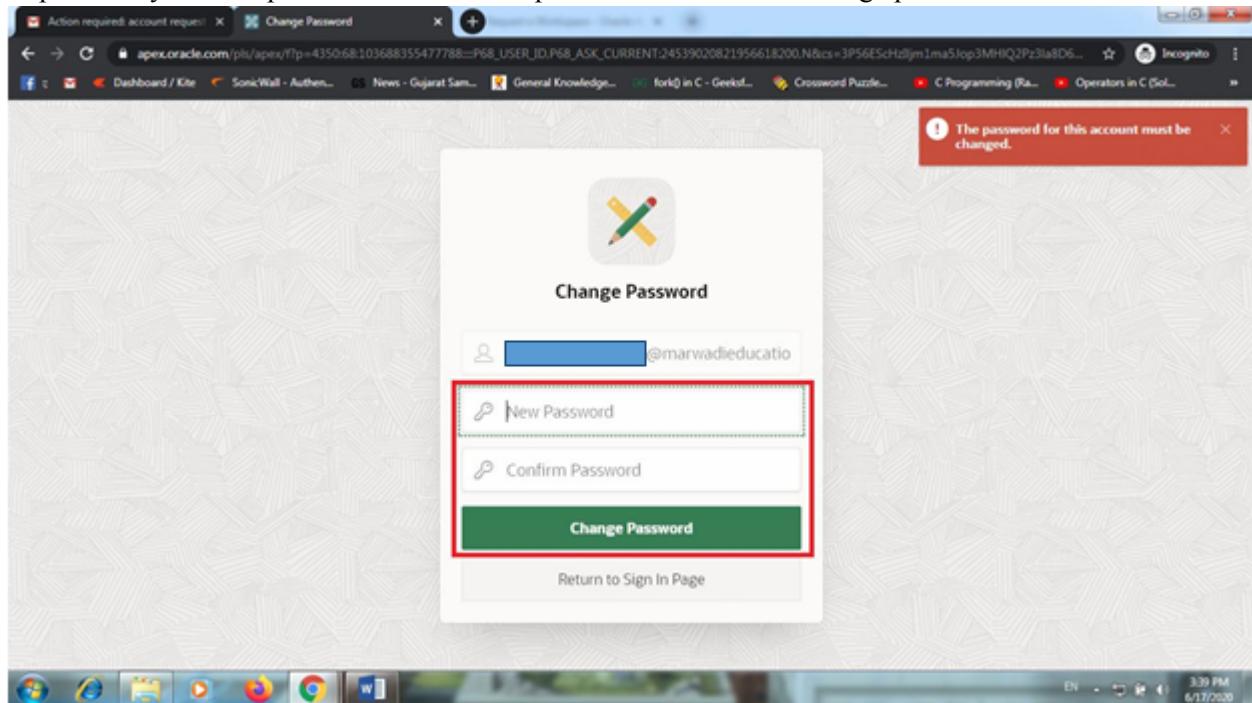
Step 9: Click on create workspace.



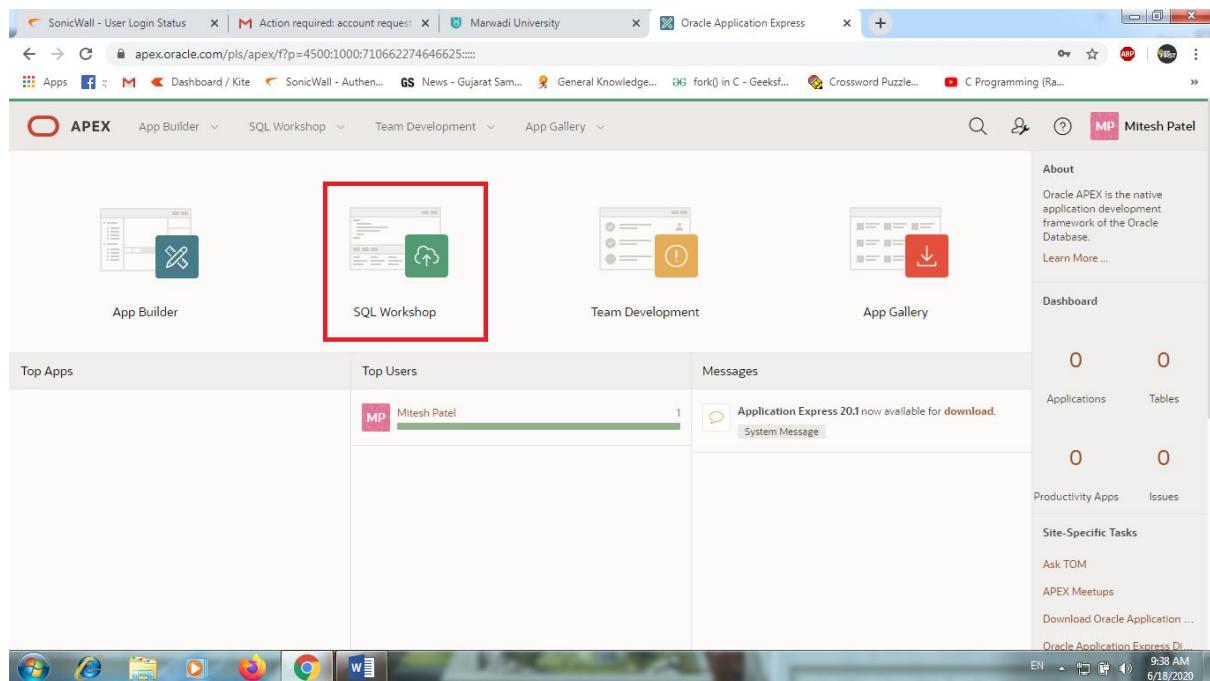
Step 10: Click on Continue to sign in screen.



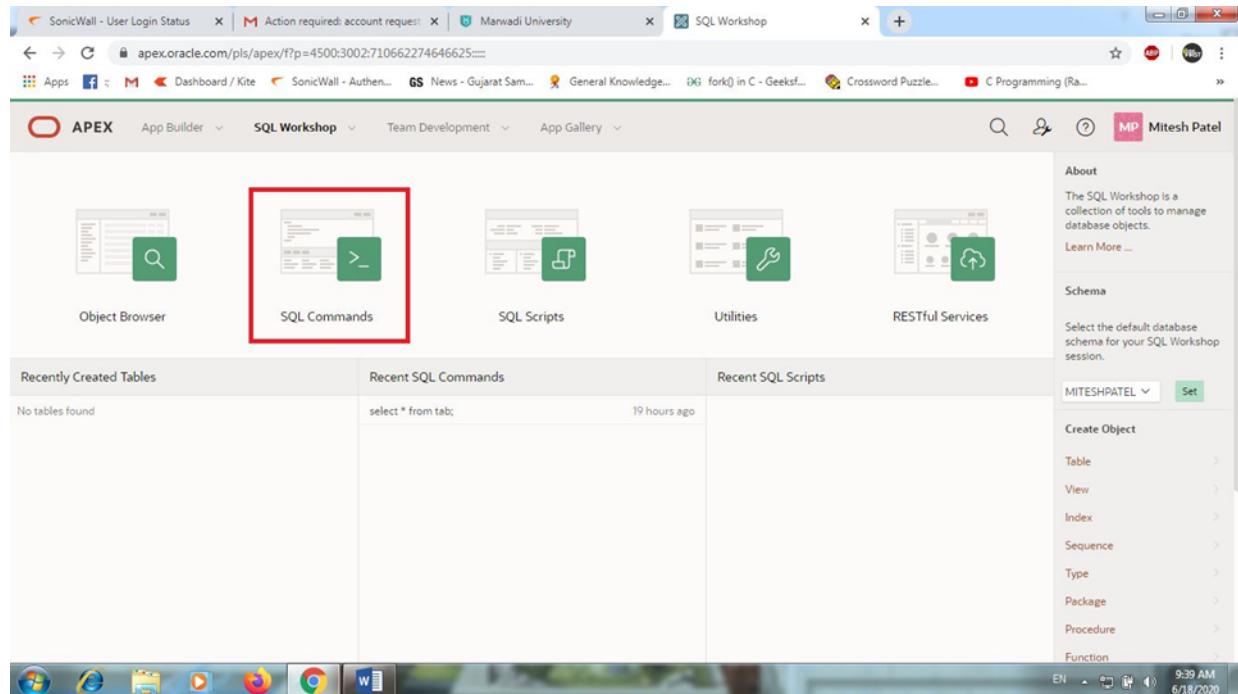
Step 11: Set your new password and confirm password and click on change password.



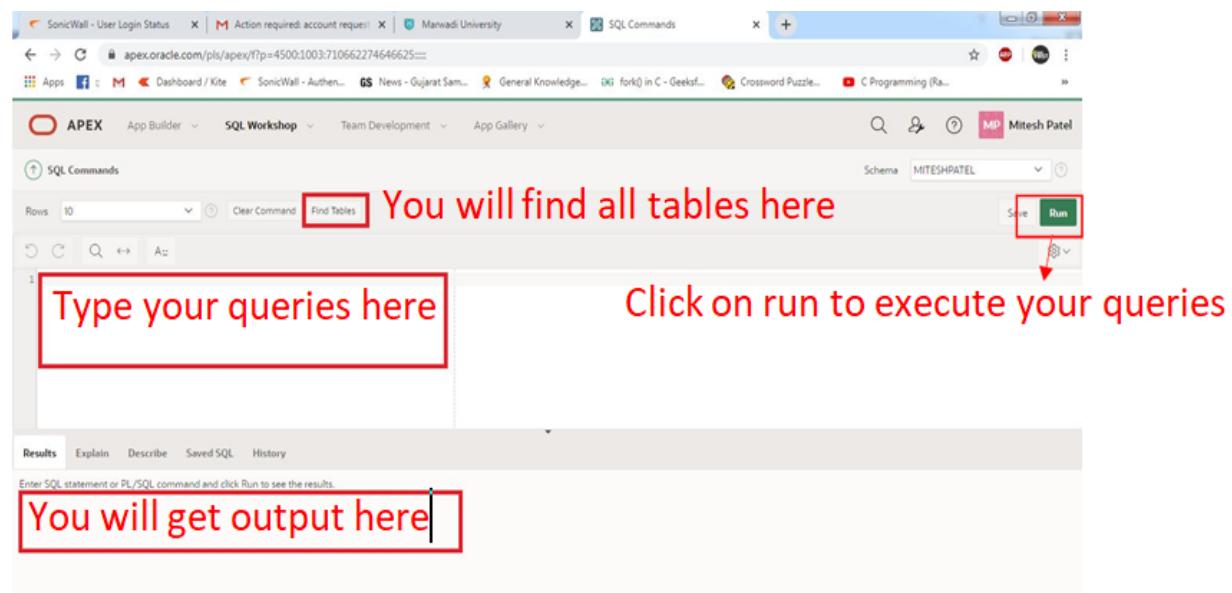
Step 12: Click on SQL workshop.



Step 13: Click on SQL Commands.



Step 14: Now you can perform your queries.



You will find all tables here

Type your queries here

Click on run to execute your queries

You will get output here

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

Insert the following records.

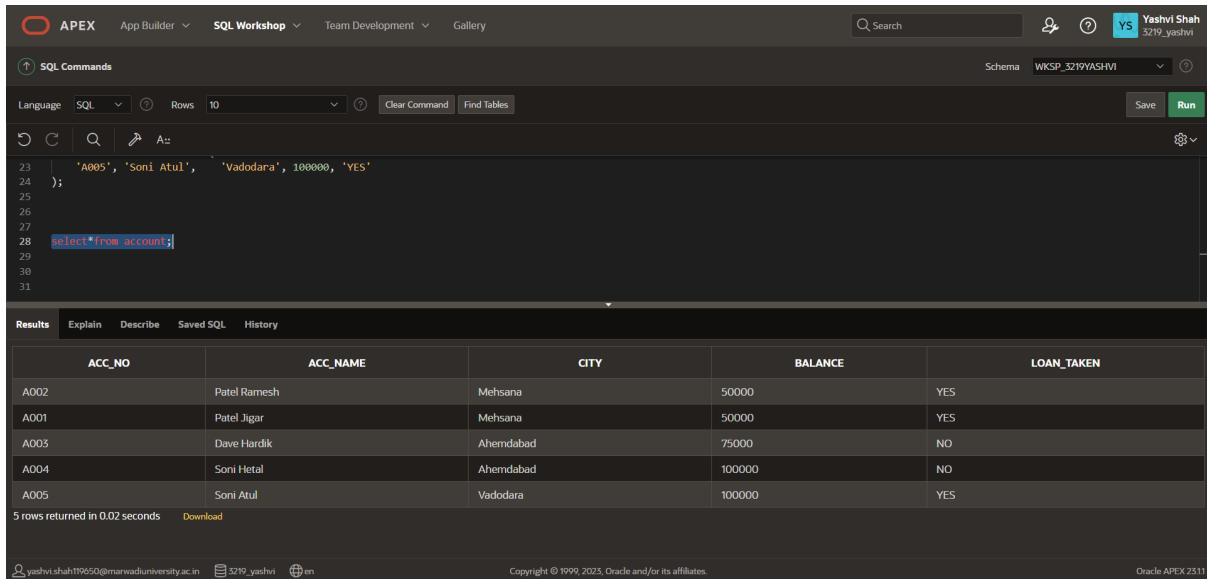
acc_no	Name	City	Balance	loan_taken
A001	Patel Jigar	Mehsana	50000	YES
A002	Patel Ramesh	Mehsana	50000	YES
A003	Dave Hardik	Ahmedabad	75000	NO
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Sony Atul	Vadodara	100000	YES

```

create table account(
  acc_no varchar2(5),
  acc_name varchar2(30),
  City varchar2(20),
  Balance Number(10,2),
  loan_taken varchar2(5)
);
insert into account values(
  'A001',      'Patel Jigar',    'Mehsana',     50000, 'YES'
);
insert into account values(
  'A002',      'Patel Ramesh',   'Mehsana',     50000, 'YES'
);
insert into account values(
  'A003',      'Dave Hardik',   'Ahmedabad',   75000, 'NO'
);
insert into account values(
  'A004',      'Soni Hetal',    'Ahmedabad',   100000, 'NO'
);
insert into account values(
  'A005',      'Sony Atul',     'Vadodara',    100000, 'YES'
);
  
```

```

'A003',      'Dave Hardik', 'Ahemdabad', 75000, 'NO'
);
insert into account values(
  'A004',      'Soni Hetal',   'Ahemdabad', 100000,      'NO'
);
insert into account values(
  'A005',      'Soni Atul',    'Vadodara',    100000,      'YES'
);
select*from account;
  
```



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop' (selected), 'Team Development', and 'Gallery'. The right side shows a user profile for 'Yashvi Shah' (3219_YASHVI). The main area has tabs for 'SQL Commands' and 'Results'. The SQL command entered is:

```

23 | 'A005', 'Soni Atul',    'Vadodara', 100000, 'YES'
24 );
25
26
27
28 select*from account;
29
30
31
  
```

The 'Results' tab displays the output of the query:

ACC_NO	ACC_NAME	CITY	BALANCE	LOAN_TAKEN
A002	Patel Ramesh	Mehsana	50000	YES
A001	Patel Jigar	Mehsana	50000	YES
A005	Dave Hardik	Ahemdabad	75000	NO
A004	Soni Hetal	Ahemdabad	100000	NO
A005	Soni Atul	Vadodara	100000	YES

5 rows returned in 0.02 seconds

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

Insert the following Records.

Loan_no	Acc_n o	Loan_a mt	Interest_rat e	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

create table loan(

```
loan_no varchar2 (5),
acc_no varchar2 (5),
loan_amt number (10,2),
interest_rate number (5,2),
loan_date date,
remaining_loan number (10,2)
```

);

insert into loan values(

```
'L001',      'A001', 100000,      7,      '01-01-2004',  75000
```

);

insert into loan values(

```
'L002',      'A002', 300000,      9,      '05-18-2004',  150000
```

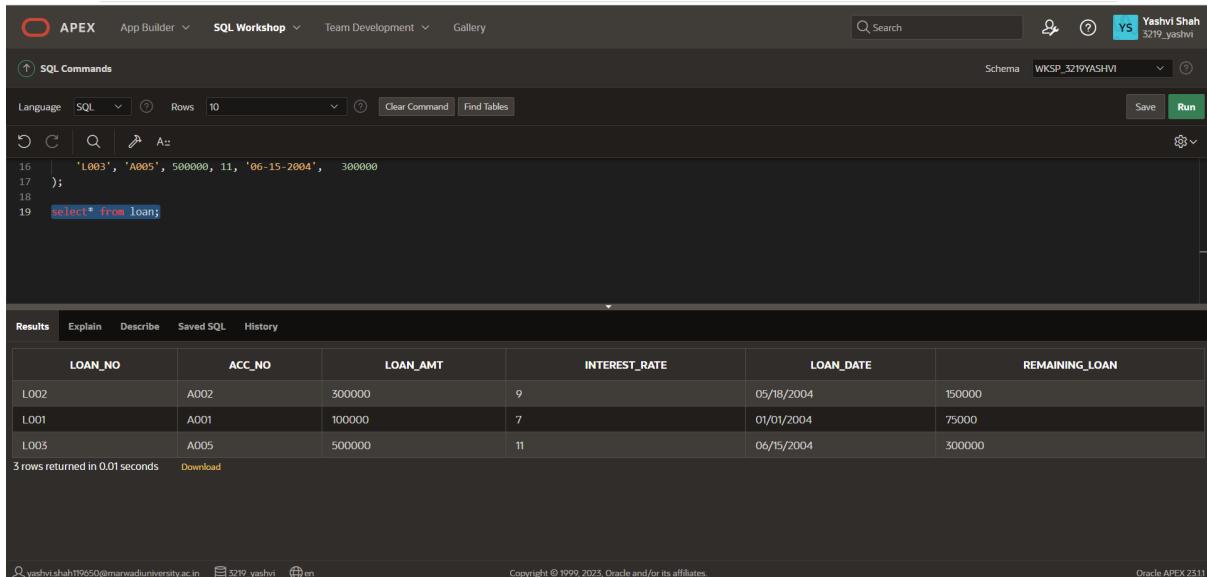
);

insert into loan values(

```
'L003',      'A005', 500000,      11,     '06-15-2004',  300000
```

);

select* from loan;



The screenshot shows the Oracle APEX SQL Workshop interface. At the top, there are tabs for 'APEX', 'App Builder', 'SQL Workshop' (which is selected), 'Team Development', and 'Gallery'. Below the tabs, there's a search bar and a user profile for 'Yashvi Shah'. The main area displays a SQL command and its results.

```

16   'L003', 'A005', 500000, 11, '06-15-2004', 300000
17 );
18
19 select* from loan;
  
```

The results table shows the following data:

LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L002	A002	300000	9	05/18/2004	150000
L001	A001	100000	7	01/01/2004	75000
L005	A005	500000	11	06/15/2004	300000

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

At the bottom, there are links for email, profile, and help, along with copyright information: Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1.1

Create a table INSTALLMENT

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

Insert following Records

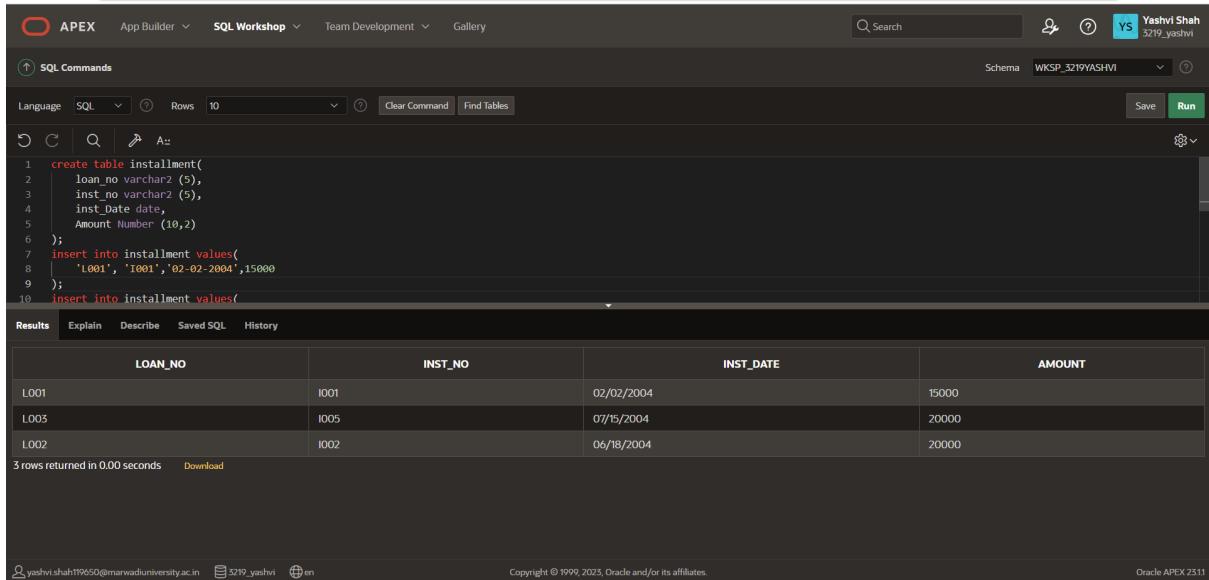
Loan_no	Inst_no	Date	Amount
L001	I001	2-Feb-04	15000
L002	I002	18-June-04	20000
L003	I003	15-July-04	20000

```

create table installment(
  loan_no varchar2(5),
  inst_no varchar2(5),
  inst_Date date,
  Amount Number(10,2)
);
insert into installment values(
  'L001',      'I001','02-02-2004',15000
);
insert into installment values(
  'L002',      'I002','06-18-2004',20000
);
  
```

```
);
insert into installment values(
    'L003',      'I005','07-15-2004',20000
);
```

select* from installment;



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. The right side shows the user 'Yashvi Shah' and the schema 'WKSP_5219YASHVI'. The main area has tabs for 'SQL Commands' and 'Results'. The SQL Commands tab contains the following code:

```
1 create table installment(
2     loan_no varchar2 (5),
3     inst_no varchar2 (5),
4     inst_date date,
5     Amount Number (10,2)
6 );
7 insert into installment values(
8     'L001', 'I001','02-02-2004',15000
9 );
10 insert into installment values(
```

The Results tab displays the data from the 'installment' table:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	15000
L003	I005	07/15/2004	20000
L002	I002	06/18/2004	20000

3 rows returned in 0.00 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

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

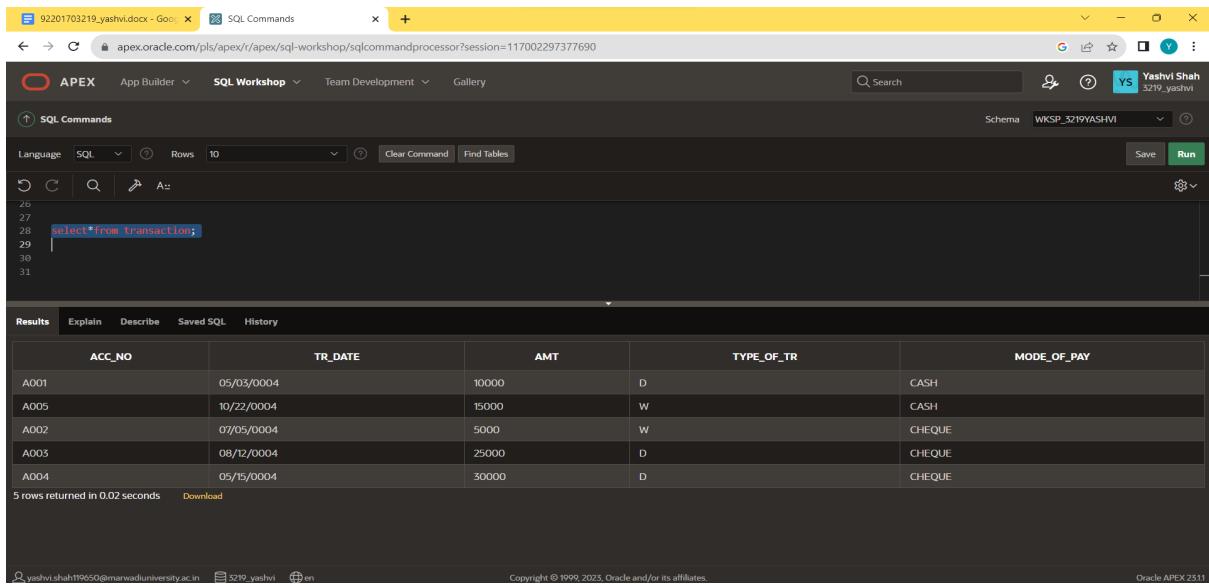
create table transaction(

```
acc_no varchar2 (5),
tr_Date      Date,
```

```

Amt Number (10,2),
type_of_tr Char (1),
mode_of_pay      Varchar2 (10)
);
insert into transaction values(
    'A001',      '05-03-04',      10000, 'D','CASH'
);
insert into transaction values(
    'A002',      '07-05-04',      5000, 'W','CHEQUE'
);
insert into transaction values(
    'A003',      '08-12-04',      25000, 'D','CHEQUE'
);
insert into transaction values(
    'A004',      '05-15-04',      30000, 'D','CHEQUE'
);
insert into transaction values(
    'A005',      '10-22-04',      15000, 'W','CASH'
);
select*from transaction;

```



The screenshot shows the Oracle APEX SQL Workshop interface. The query `select*from transaction;` is entered in the command editor. The results pane displays the following data:

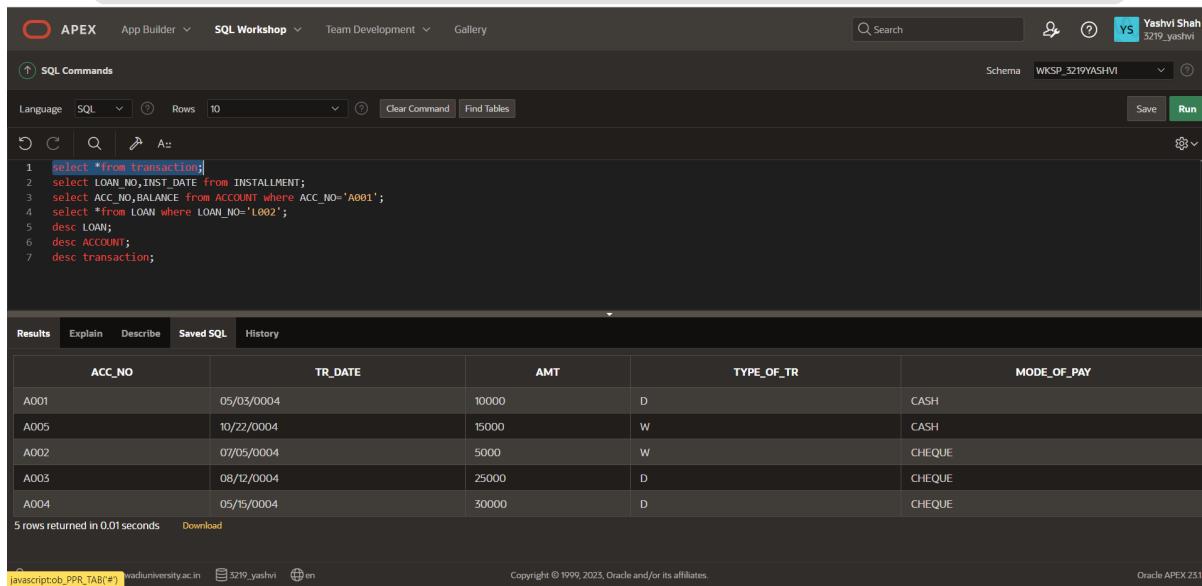
ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/0004	10000	D	CASH
A005	10/22/0004	15000	W	CASH
A002	07/05/0004	5000	W	CHEQUE
A003	08/12/0004	25000	D	CHEQUE
A004	05/15/0004	30000	D	CHEQUE

5 rows returned in 0.02 seconds

List of queries

- Display all rows and all columns of table Transaction.

```
select *from transaction;
```



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

```

1 select *from transaction;
2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

```

The results section displays a table with the following data:

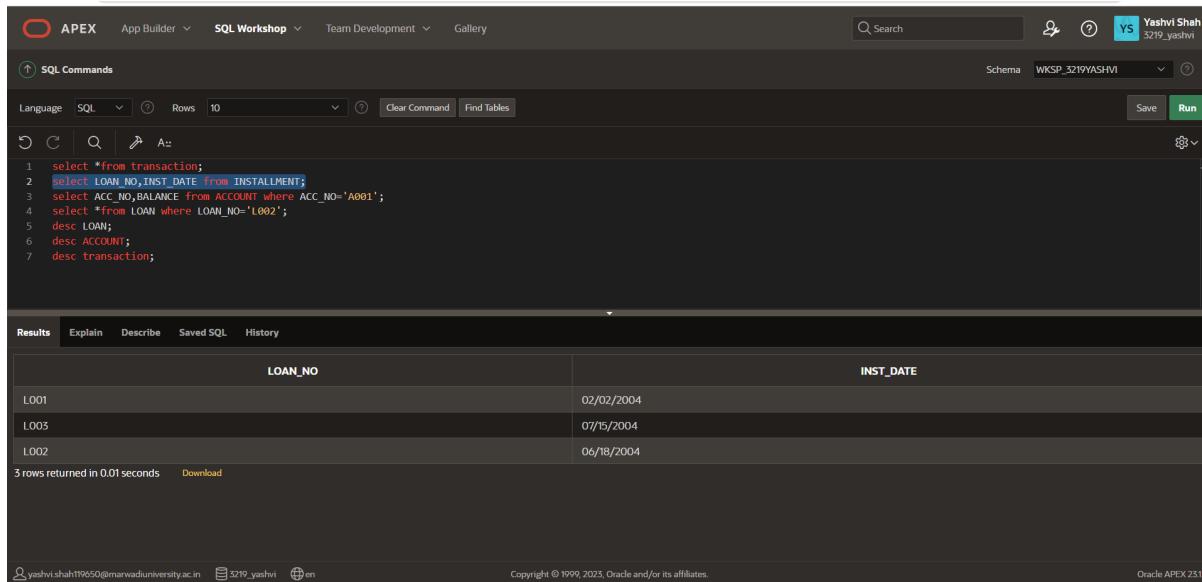
ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/0004	10000	D	CASH
A005	10/22/0004	15000	W	CASH
A002	07/05/0004	5000	W	CHEQUE
A003	08/12/0004	25000	D	CHEQUE
A004	05/15/0004	30000	D	CHEQUE

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

javascript:obj_PPR_TAB("#") yashvi.shah@marwadiuniversity.ac.in 5219_yashvi en Copyright © 1999, 2025, Oracle and/or its affiliates. Oracle APEX 23.11

2. Display all rows and selected columns of table Installment.

select LOAN_NO,INST_DATE from INSTALLMENT;



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

```

1 select *from transaction;
2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

```

The results section displays a table with the following data:

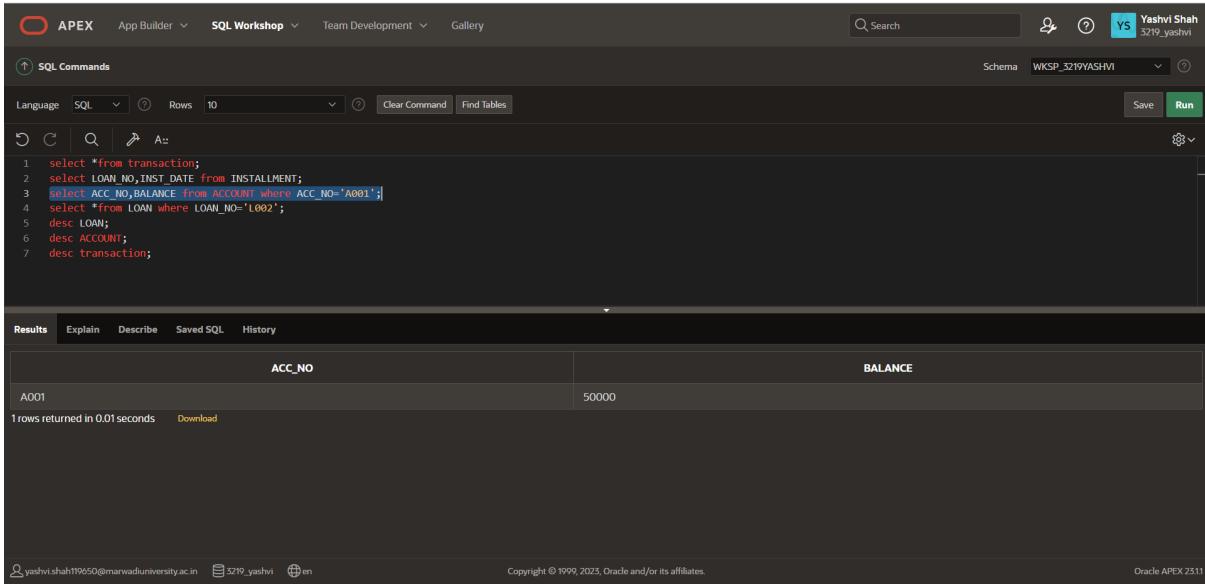
LOAN_NO	INST_DATE
L001	02/02/2004
L005	07/15/2004
L002	06/18/2004

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

yashvi.shah119650@marwadiuniversity.ac.in 5219_yashvi en Copyright © 1999, 2025, Oracle and/or its affiliates. Oracle APEX 23.11

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

select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';



```

APEX SQL Workshop

Schema: WKSP_3219YASHVI

SQL Commands
Language: SQL Rows: 10
Clear Command Find Tables
Save Run

1 select *from transaction;
2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

Results Explain Describe Saved SQL History

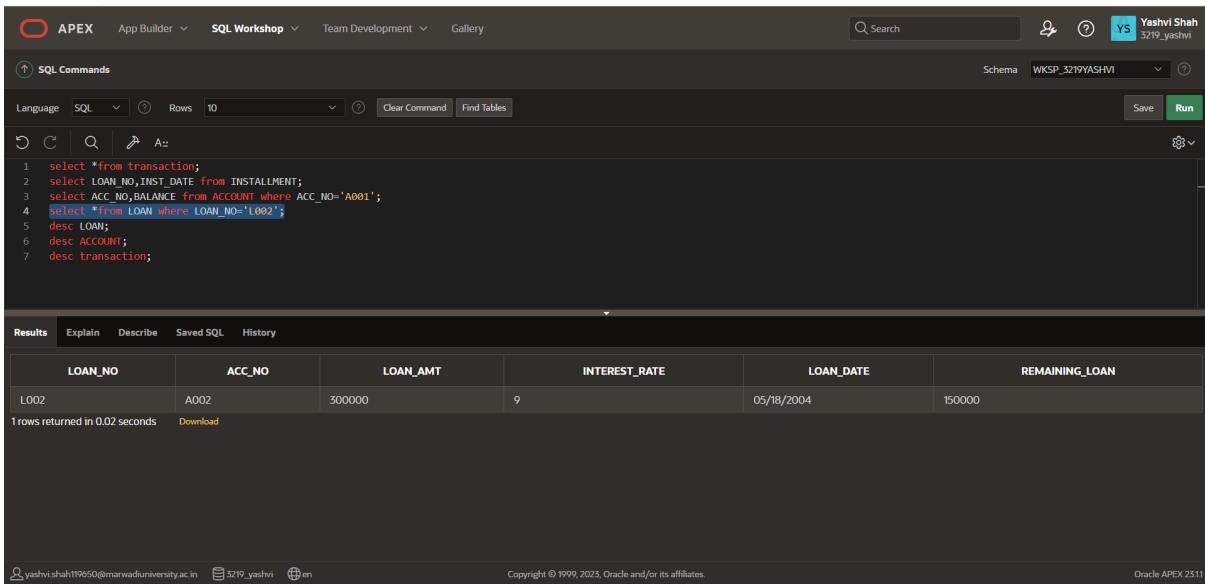
ACC_NO          BALANCE
A001           50000

1 rows returned in 0.01 seconds Download

```

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4. Display selected rows and all columns of table loan.
`select *from LOAN where LOAN_NO='L002';`



```

APEX SQL Workshop

Schema: WKSP_3219YASHVI

SQL Commands
Language: SQL Rows: 10
Clear Command Find Tables
Save Run

1 select *from transaction;
2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

Results Explain Describe Saved SQL History

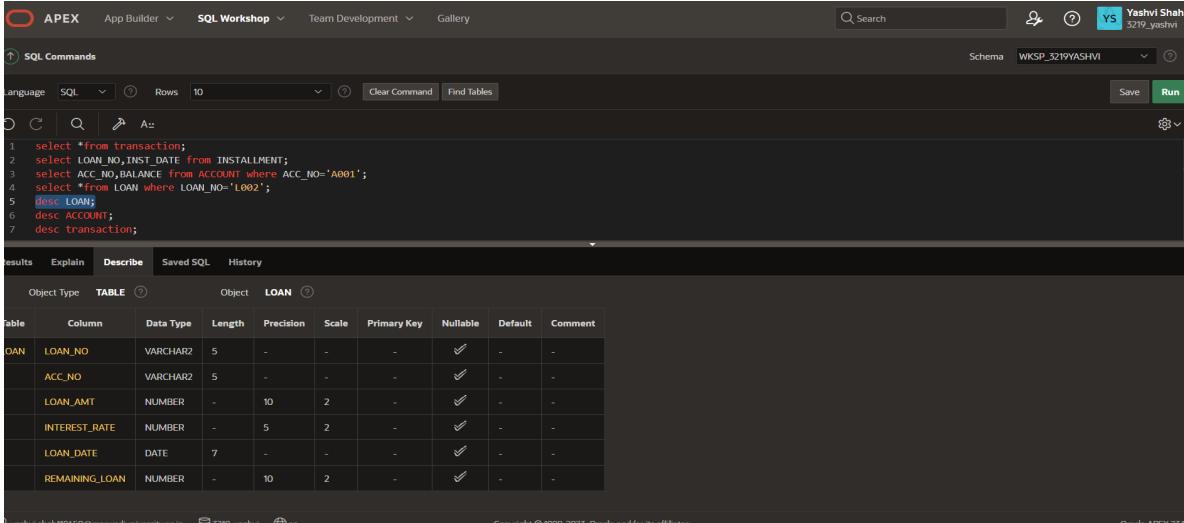
LOAN_NO          ACC_NO          LOAN_AMT      INTEREST_RATE    LOAN_DATE      REMAINING_LOAN
L002            A002           300000        9             05/18/2004    150000

1 rows returned in 0.02 seconds Download

```

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5. Show the structure of the table loan, account and transaction.
`desc LOAN;`



SQL Commands

```

1 select *from transaction;
2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

```

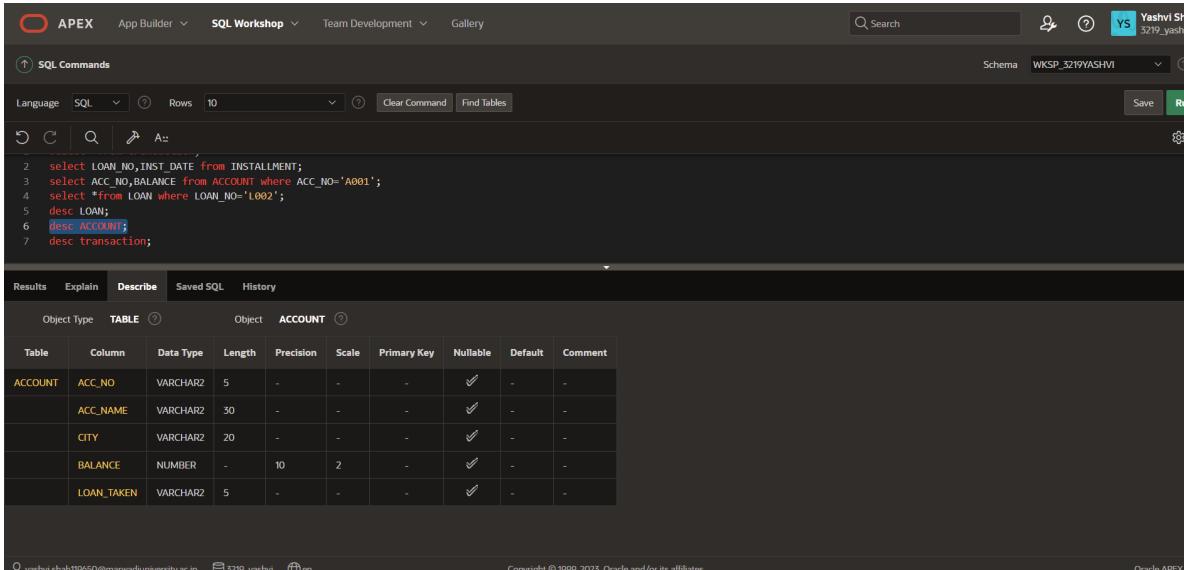
Results Explain Describe Saved SQL History

Object Type: TABLE Object: LOAN

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	-	✓	-	-

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desc ACCOUNT;



SQL Commands

```

2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

```

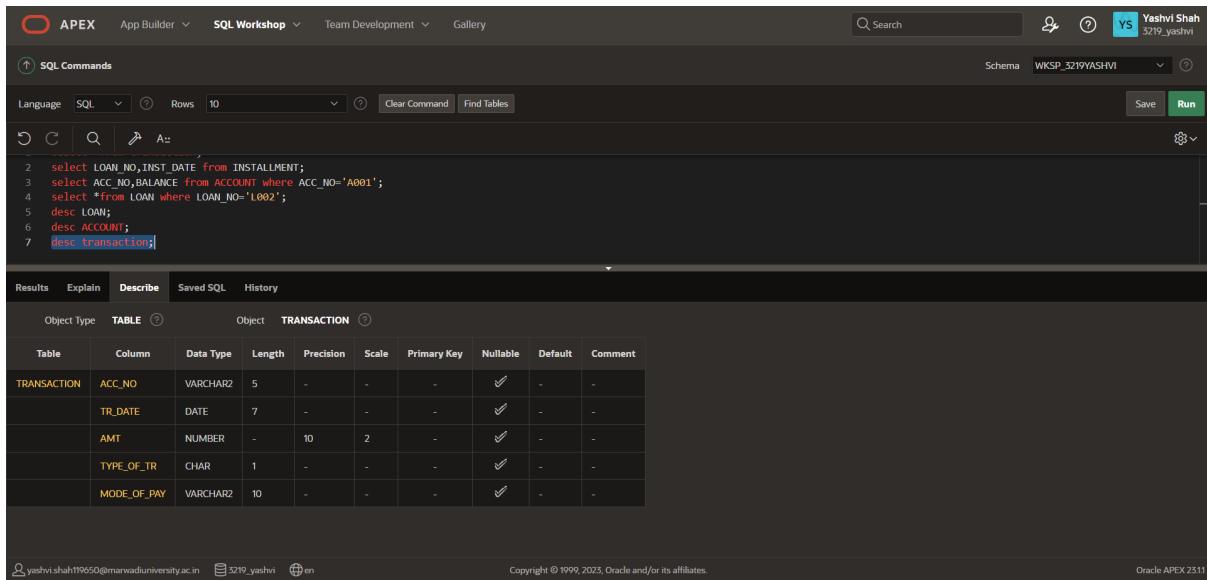
Results Explain Describe Saved SQL History

Object Type: TABLE Object: ACCOUNT

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

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desc transaction;



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes links for App Builder, SQL Workshop (selected), Team Development, and Gallery. The right side shows a user profile for 'Yashvi Shah' (3219_yashvi). The main area has tabs for SQL Commands, SQL (selected), Clear Command, Find Tables, Save, and Run. The SQL Commands tab contains the following code:

```

2 select LOAN_NO,INST_DATE from INSTALLMENT;
3 select ACC_NO,BALANCE from ACCOUNT where ACC_NO='A001';
4 select *from LOAN where LOAN_NO='L002';
5 desc LOAN;
6 desc ACCOUNT;
7 desc transaction;

```

The Results tab displays the schema for the 'TRANSACTION' table:

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_PAY	VARCHAR2	10	-	-	-	✓	-	-

At the bottom, there are footer links for user information, copyright notice (Copyright © 1999, 2023, Oracle and/or its affiliates.), and the version (Oracle APEX 23.1).

Practical 3

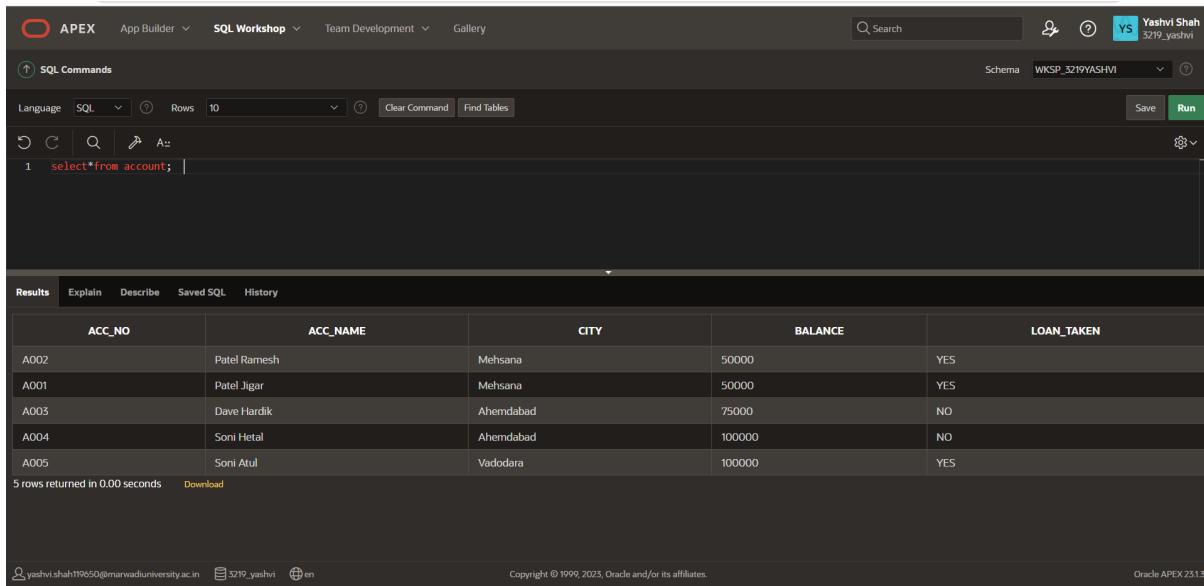
Aim: DML Commands and Queries

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	Ahmedaba d	75000	NO
A004	Soni Hetal	Ahmedaba d	100000	NO
A005	Soni Atul	Vadodara	100000	YES

select*from account;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the query `select*from account;` is entered. The Results tab displays the following table:

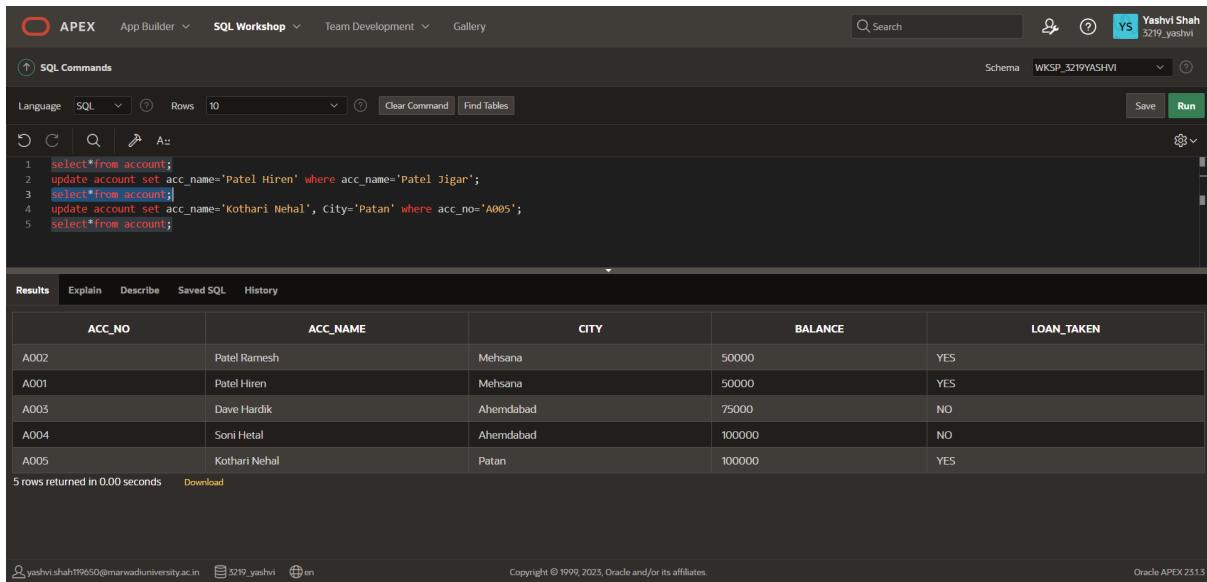
ACC_NO	ACC_NAME	CITY	BALANCE	LOAN_TAKEN
A002	Patel Ramesh	Mehsana	50000	YES
A001	Patel Jigar	Mehsana	50000	YES
A003	Dave Hardik	Ahemdabad	75000	NO
A004	Soni Hetal	Ahemdabad	100000	NO
A005	Soni Atul	Vadodara	100000	YES

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

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

update account set acc_name='Patel Hiren' where acc_name='Patel Jigar';

select*from account;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run

1 select*from account;
2 update account set acc_name='Patel Hiren' where acc_name='Patel Jigan';
3 select*from account;
4 update account set acc_name='Kothari Nehal', city='Patan' where acc_no='A005';
5 select*from account;

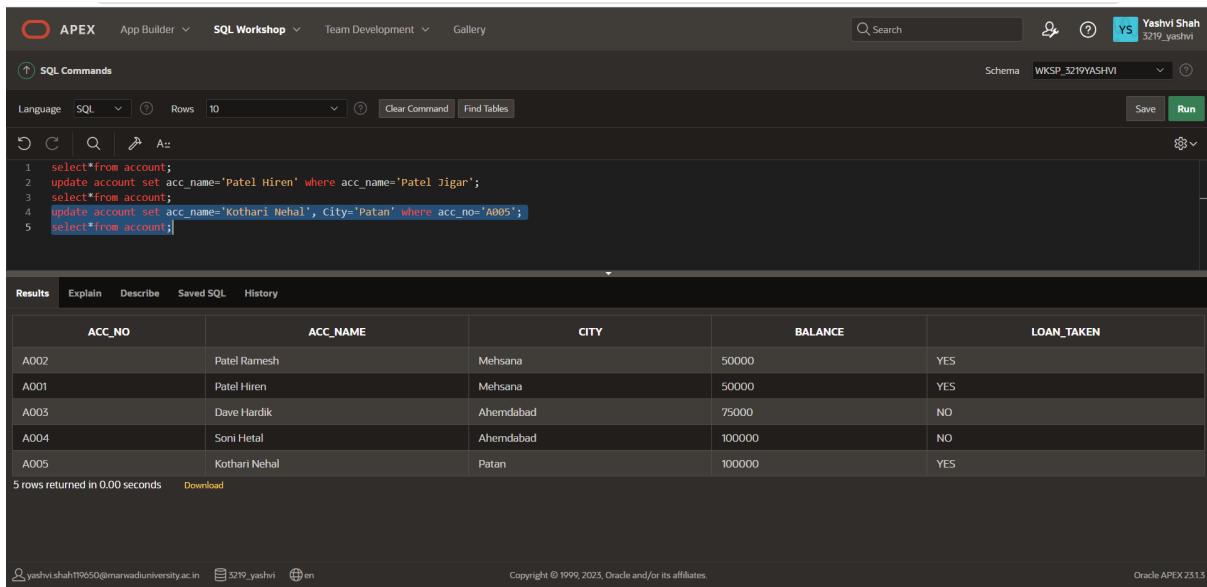
Results
ACC_NO ACC_NAME CITY BALANCE LOAN_TAKEN
A002 Patel Ramesh Mehsana 50000 YES
A001 Patel Hiren Mehsana 50000 YES
A003 Dave Hardik Ahmedabad 75000 NO
A004 Soni Hetal Ahmedabad 100000 NO
A005 Kothari Nehal Patan 100000 YES

5 rows returned in 0.00 seconds | Download | Schema: WKSP_3219YASHVI | Run | Explain | Describe | Saved SQL | History | Help | Search | Logout | Home

```

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

update account set acc_name='Kothari Nehal', City='Patan' where acc_no='A005';
select*from account;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run

1 select*from account;
2 update account set acc_name='Patel Hiren' where acc_name='Patel Jigan';
3 select*from account;
4 update account set acc_name='Kothari Nehal', City='Patan' where acc_no='A005';
5 select*from account;

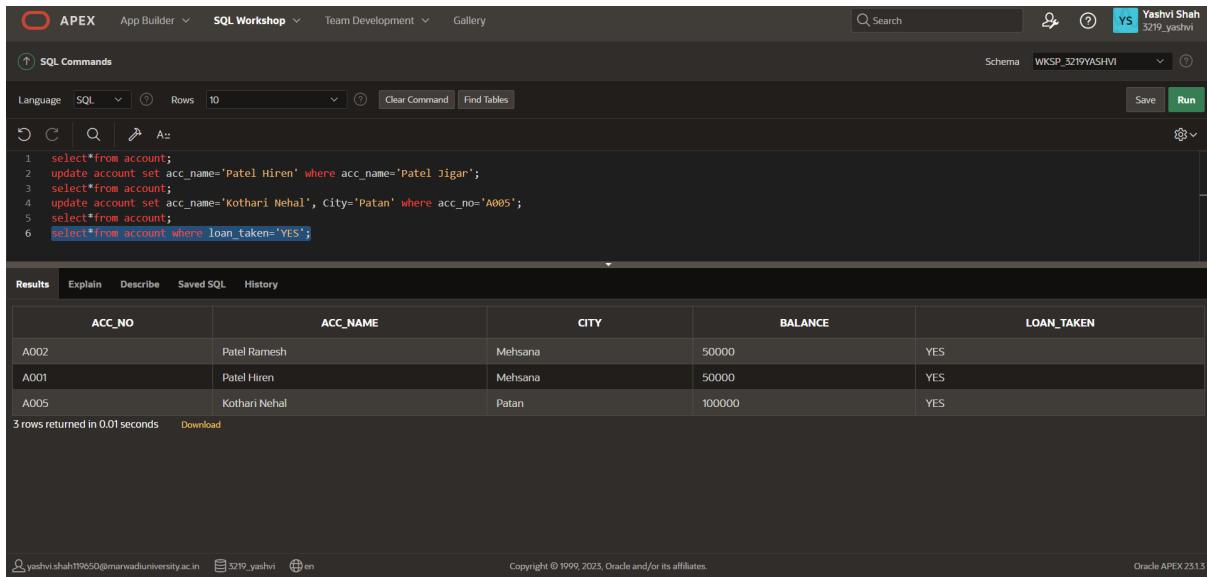
Results
ACC_NO ACC_NAME CITY BALANCE LOAN_TAKEN
A002 Patel Ramesh Mehsana 50000 YES
A001 Patel Hiren Mehsana 50000 YES
A003 Dave Hardik Ahmedabad 75000 NO
A004 Soni Hetal Ahmedabad 100000 NO
A005 Kothari Nehal Patan 100000 YES

5 rows returned in 0.00 seconds | Download | Schema: WKSP_3219YASHVI | Run | Explain | Describe | Saved SQL | History | Help | Search | Logout | Home

```

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

select*from account where loan_taken='YES';



```

1 select*from account;
2 update account set acc_name='Patel Hiren' where acc_name='Patel Jigar';
3 select*from account;
4 update account set acc_name='Kothari Nehal', City='Patan' where acc_no='A005';
5 select*from account;
6 select*from account where loan_taken='YES';

```

ACC_NO	ACC_NAME	CITY	BALANCE	LOAN_TAKEN
A002	Patel Ramesh	Mehsana	50000	YES
A001	Patel Hiren	Mehsana	50000	YES
A005	Kothari Nehal	Patan	100000	YES

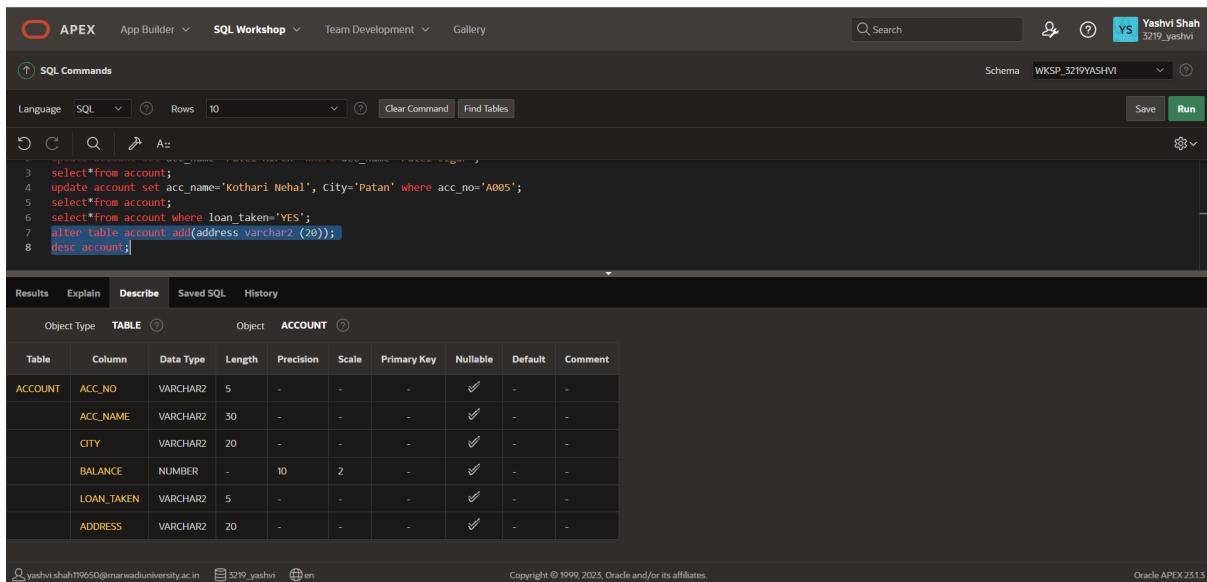
3 rows returned in 0.01 seconds [Download](#)

Vashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1.5

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

alter table account add(address varchar2 (20));

desc account;



```

1 select*from account;
2 update account set acc_name='Kothari Nehal', City='Patan' where acc_no='A005';
3 select*from account;
4 select*from account where loan_taken='YES';
5 alter table account add(address varchar2 (20));
6 desc account;

```

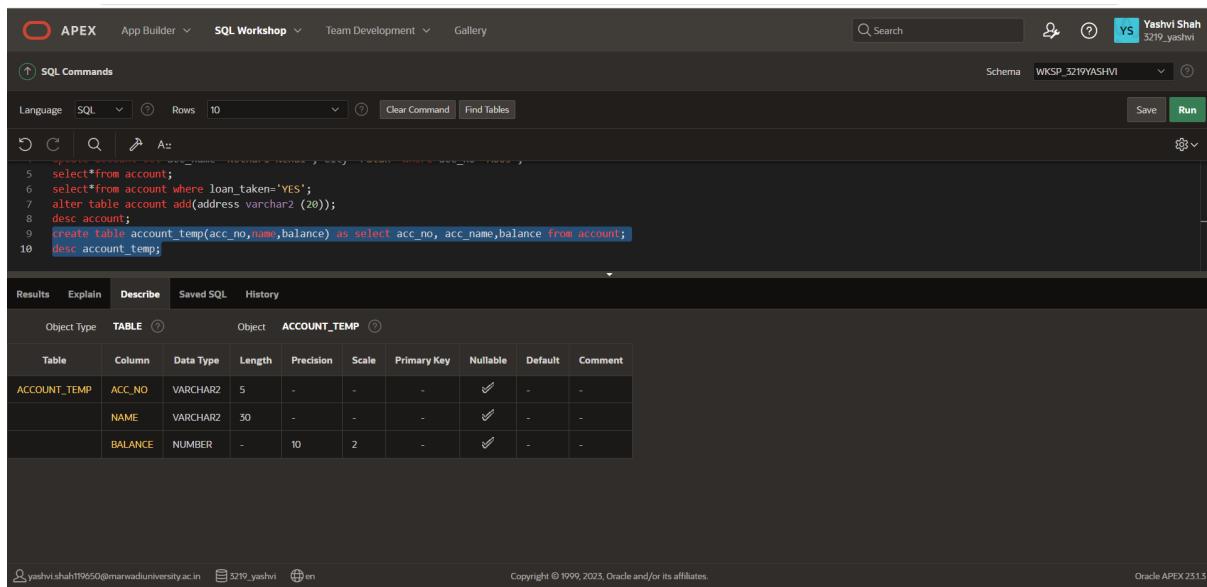
Object Type	TABLE	Object	ACCOUNT						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT	ACC_NO	VARCHAR2	5	-	-	-	✓	-	-
	ACC_NAME	VARCHAR2	30	-	-	-	✓	-	-
	CITY	VARCHAR2	20	-	-	-	✓	-	-
	BALANCE	NUMBER	-	10	2	-	✓	-	-
	LOAN_TAKEN	VARCHAR2	5	-	-	-	✓	-	-
	ADDRESS	VARCHAR2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

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5. Create another table ACCOUNT_TEMP (acc_no, name, balance) from table ACCOUNT.

create table account_temp(acc_no,name,balance) as select acc_no, acc_name,balance from account;

desc account_temp;



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

```

5 select*from account;
6 select*from account where loan_taken='YES';
7 alter table account add(address varchar2 (20));
8 desc account;
9 create table account_temp(acc_no,name,balance) as select acc_no, acc_name,balance from account;
10 desc account_temp;

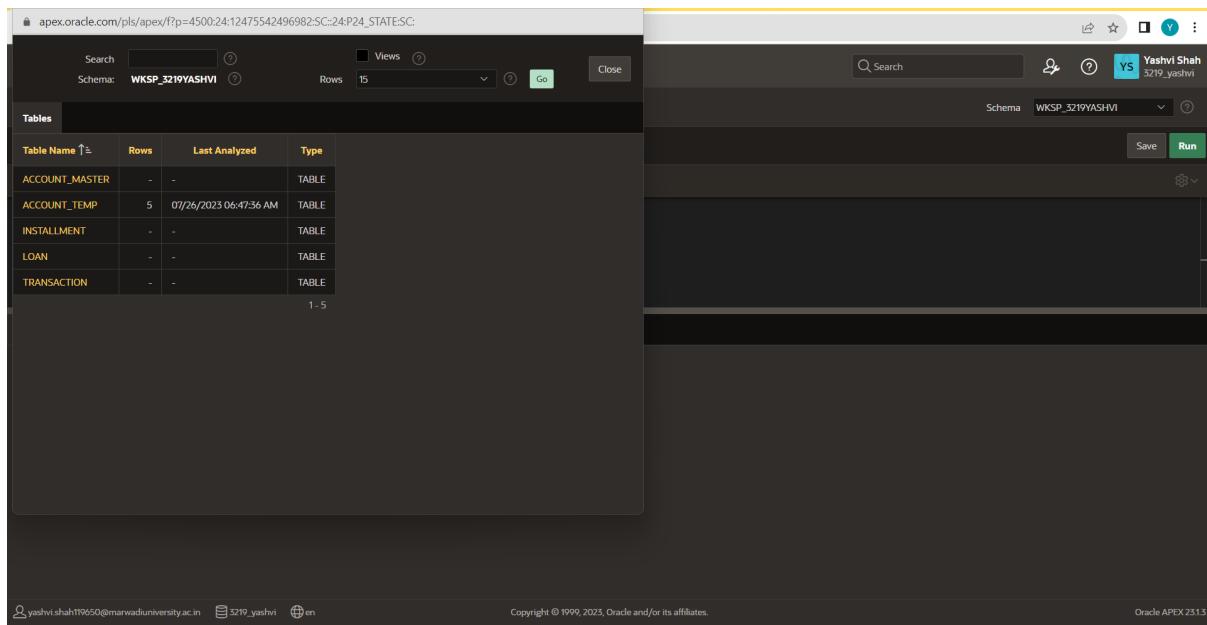
```

The Results tab displays the structure of the newly created table ACCOUNT_TEMP:

Object Type	TABLE	Object	ACCOUNT_TEMP						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT_TEMP	ACC_NO	VARCHAR2	5	-	-	-	✓	-	-
	NAME	VARCHAR2	30	-	-	-	✓	-	-
	BALANCE	NUMBER	-	10	2	-	✓	-	-

6. Rename the table ACCOUNT to ACCOUNT_MASTER.

rename account to account_master;



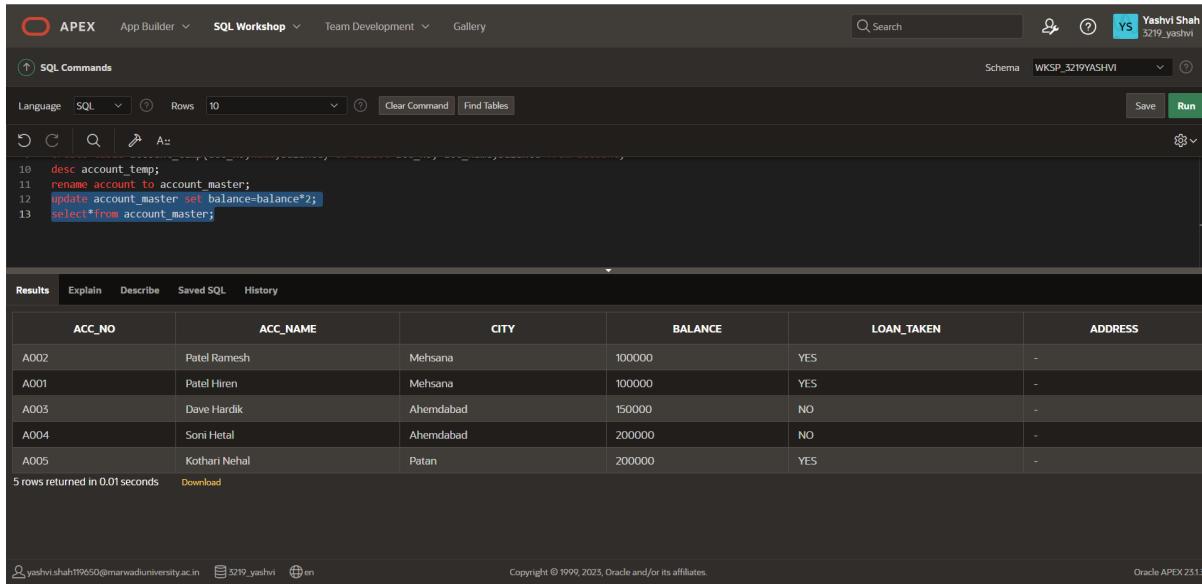
The screenshot shows the Oracle APEX Application Builder interface. The left panel displays a list of tables in the schema WKSP_3219YASHVI:

Table Name	Rows	Last Analyzed	Type
ACCOUNT_MASTER	-	-	TABLE
ACCOUNT_TEMP	5	07/26/2023 06:47:56 AM	TABLE
INSTALLMENT	-	-	TABLE
LOAN	-	-	TABLE
TRANSACTION	-	-	TABLE

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

update account_master set balance=balance*2;

select*from account_master;



```

APEX App Builder SQL Workshop Team Development Gallery
SQL Commands Search
Language SQL Rows 10 Clear Command Find Tables Schema WKSP_3219YASHVI
Save Run
10 desc account_temp;
11 rename account to account_master;
12 update account_master set balance=balance*2;
13 select*from account_master;

```

Results Explain Describe Saved SQL History

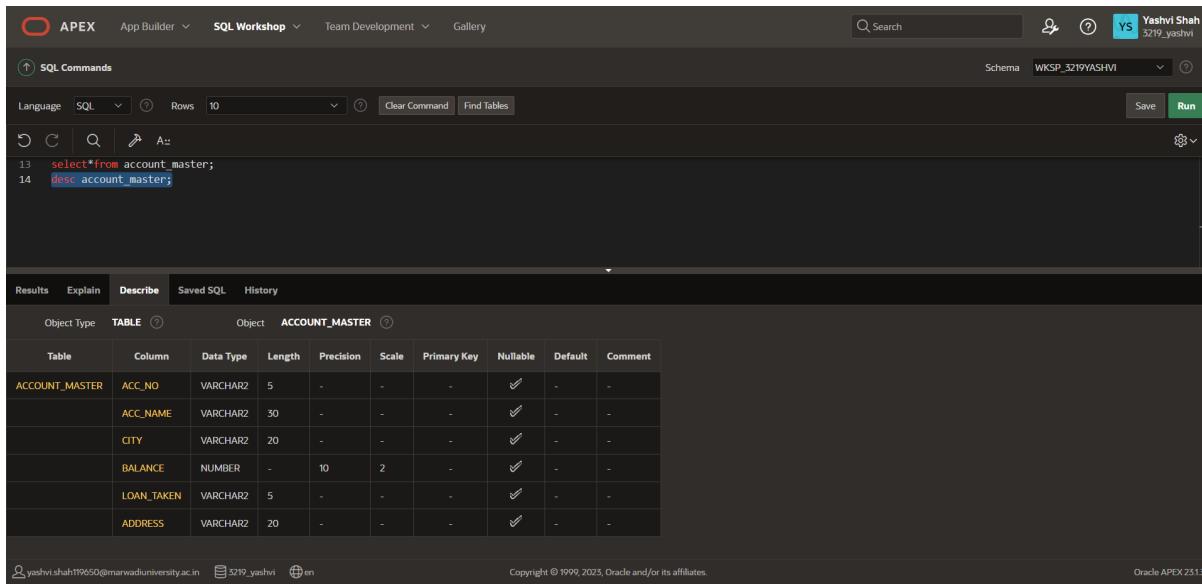
ACC_NO	ACC_NAME	CITY	BALANCE	LOAN_TAKEN	ADDRESS
A002	Patel Ramesh	Mehsana	100000	YES	-
A001	Patel Hiren	Mehsana	100000	YES	-
A003	Dave Hardik	Ahemdabad	150000	NO	-
A004	Soni Hetal	Ahemdabad	200000	NO	-
A005	Kothari Nehal	Patan	200000	YES	-

5 rows returned in 0.01 seconds Download

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8. Describe the structure of table ACCOUNT.

desc account_master;



```

APEX App Builder SQL Workshop Team Development Gallery
SQL Commands Search
Language SQL Rows 10 Clear Command Find Tables Schema WKSP_3219YASHVI
Save Run
13 select*from account_master;
14 desc account_master;

```

Results Explain **Describe** Saved SQL History

Object Type TABLE Object ACCOUNT_MASTER

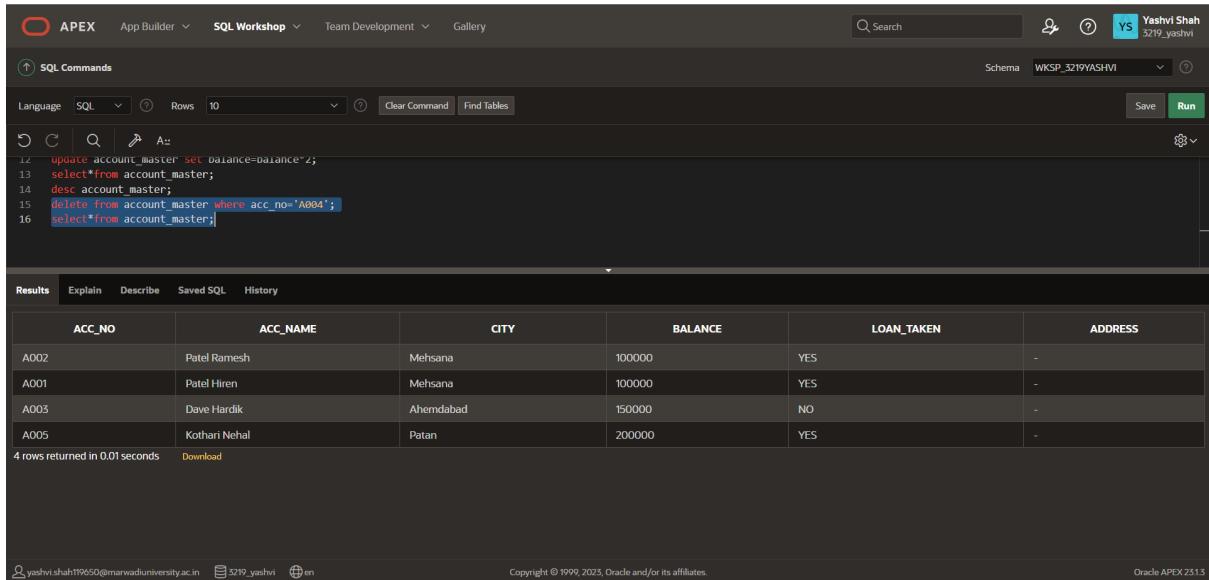
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT_MASTER	ACC_NO	VARCHAR2	5	-	-	-	✓	-	-
	ACC_NAME	VARCHAR2	30	-	-	-	✓	-	-
	CITY	VARCHAR2	20	-	-	-	✓	-	-
	BALANCE	NUMBER	-	10	2	-	✓	-	-
	LOAN_TAKEN	VARCHAR2	5	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

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9. Delete the records whose account no is A004.

delete from account_master where acc_no='A004';

select*from account_master;



The screenshot shows the Oracle APEX SQL Workshop interface. The schema is set to 'WKSP_3219YASHVI'. The code entered is:

```

1 update account_master set balance=balance*2;
2 select*from account_master;
3 desc account_master;
4 delete from account_master where acc_no='A004';
5 select*from account_master;

```

The results section displays the following data:

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

4 rows returned in 0.01 seconds

Table: LOAN.

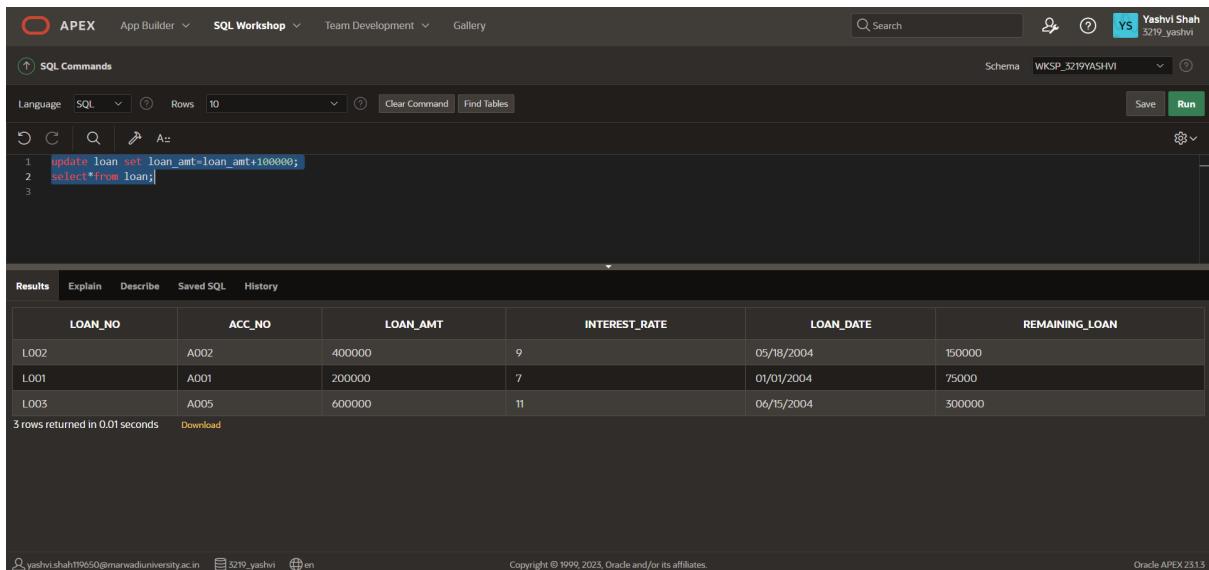
Insert the following Records if you have not inserted in PRACTICAL-1

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.

update loan set loan_amt=loan_amt+100000;

select*from loan;



The screenshot shows the Oracle APEX SQL Workshop interface. The schema is set to 'WKSP_3219YASHVI'. The code entered is:

```

1 update loan set loan_amt=loan_amt+100000;
2 select*from loan;
3

```

The results section displays the following data:

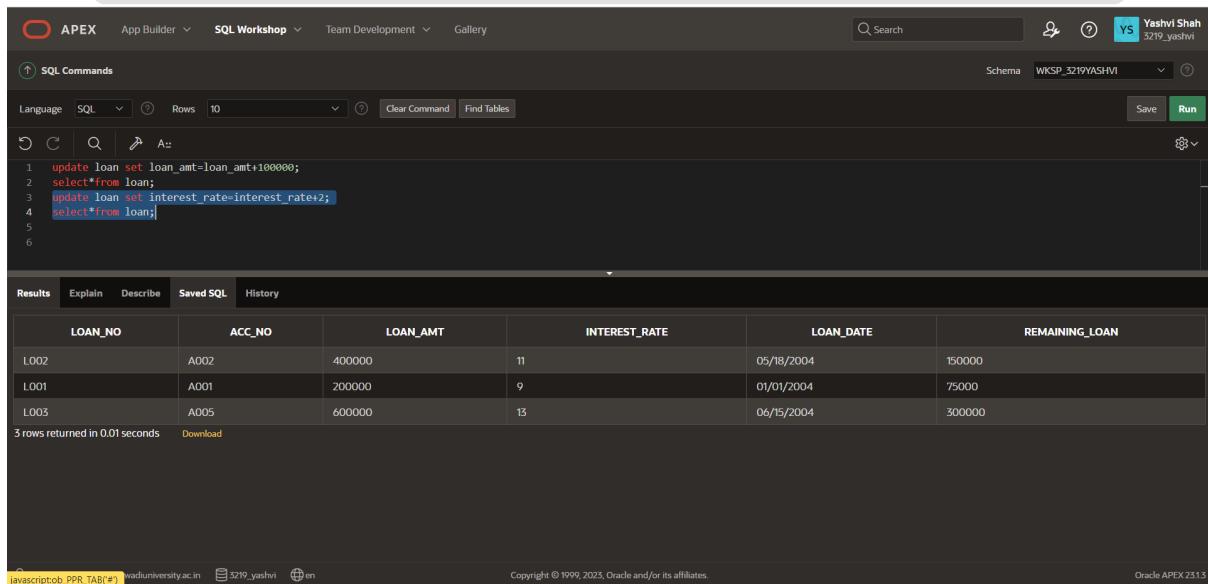
LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L002	A002	400000	9	05/18/2004	150000
L001	A001	200000	7	01/01/2004	75000
L005	A005	600000	11	06/15/2004	300000

3 rows returned in 0.01 seconds

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

update loan set interest_rate=interest_rate+2;

select*from loan;



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

```

1 update loan set loan.amt=loan.amt+100000;
2 select*from loan;
3 update loan set interest_rate=interest_rate+2;
4 select*from loan;
5
6

```

The Results tab displays the output of the query:

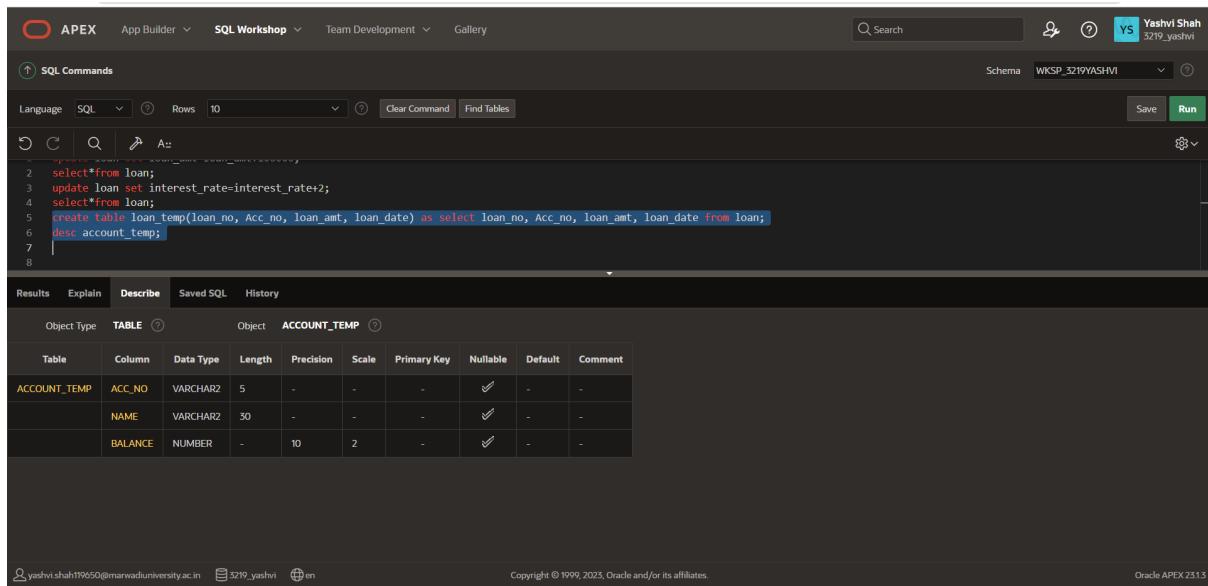
LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L002	A002	400000	11	05/18/2004	150000
L001	A001	200000	9	01/01/2004	75000
L003	A005	600000	13	06/15/2004	300000

3 rows returned in 0.01 seconds

3. Create another table LOAN_TEMP (loan_no, Acc_no, loan_amt, loan_date) from The table LOAN.

create table loan_temp(loan_no, Acc_no, loan_amt, loan_date) as select loan_no, Acc_no, loan_amt, loan_date from loan;

desc account_temp;



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

```

1
2 select*from loan;
3 update loan set interest_rate=interest_rate+2;
4 select*from loan;
5 create table loan_temp(loan_no, Acc_no, loan_amt, loan_date) as select loan_no, Acc_no, loan_amt, loan_date from loan;
6 desc account_temp;
7
8

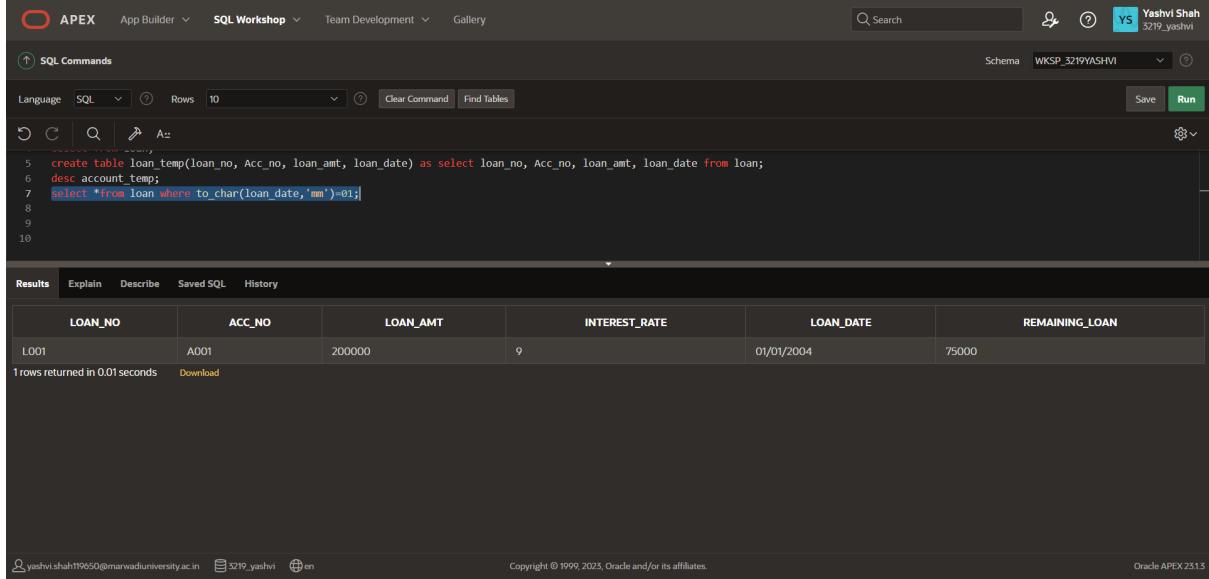
```

The Results tab displays the description of the ACCOUNT_TEMP table:

Object Type	TABLE	Object	ACCOUNT_TEMP						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT_TEMP	ACC_NO	VARCHAR2	5	-	-	-	✓	-	-
	NAME	VARCHAR2	30	-	-	-	✓	-	-
	BALANCE	NUMBER	-	10	2	-	✓	-	-

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

select *from loan where to_char(loan_date,'mm')=01;



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

```

5  create table loan_temp(loan_no, Acc_no, loan_amt, loan_date) as select loan_no, Acc_no, loan_amt, loan_date from loan;
6  desc account_temp;
7  select *from loan where to_char(loan_date,'mm')=01;
8
9
10

```

The Results tab shows the output of the query:

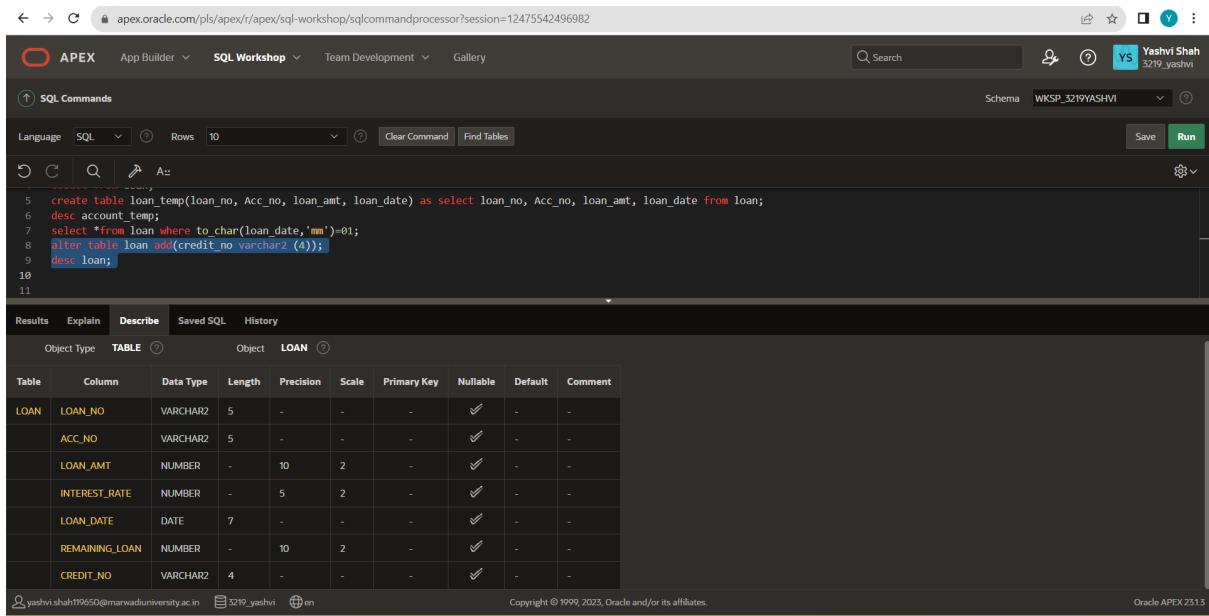
LOAN_NO	ACC_NO	LOAN_AMT	INTEREST_RATE	LOAN_DATE	REMAINING_LOAN
L001	A001	200000	9	01/01/2004	75000

1 rows returned in 0.01 seconds

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

alter table loan add(credit_no varchar2 (4));

desc loan;



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

```

5  create table loan_temp(loan_no, Acc_no, loan_amt, loan_date) as select loan_no, Acc_no, loan_amt, loan_date from loan;
6  desc account_temp;
7  select *from loan where to_char(loan_date,'mm')=01;
8  alter table loan add(credit_no varchar2 (4));
9  desc loan;
10
11

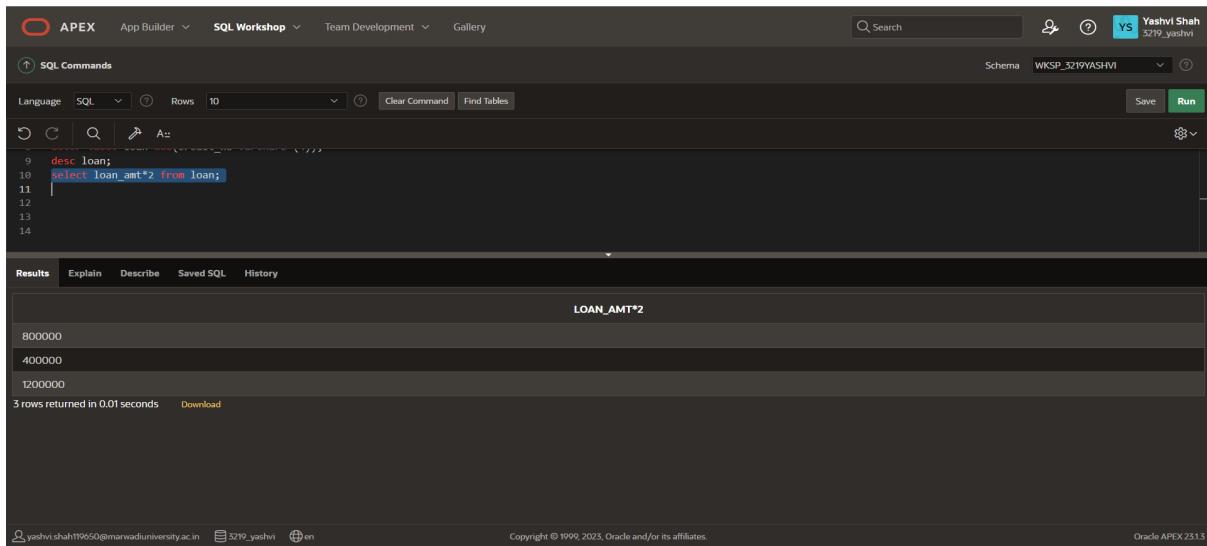
```

The Results tab shows the output of the query:

Object Type	TABLE	Object	LOAN						
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	-	✓	-	-
	CREDIT_NO	VARCHAR2	4	-	-	-	✓	-	-

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

select loan_amt*2 from loan;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run | Schema: WKSP_3219YASHVI | Search | Help | User: Yashvi Shah | 5219_yashvi

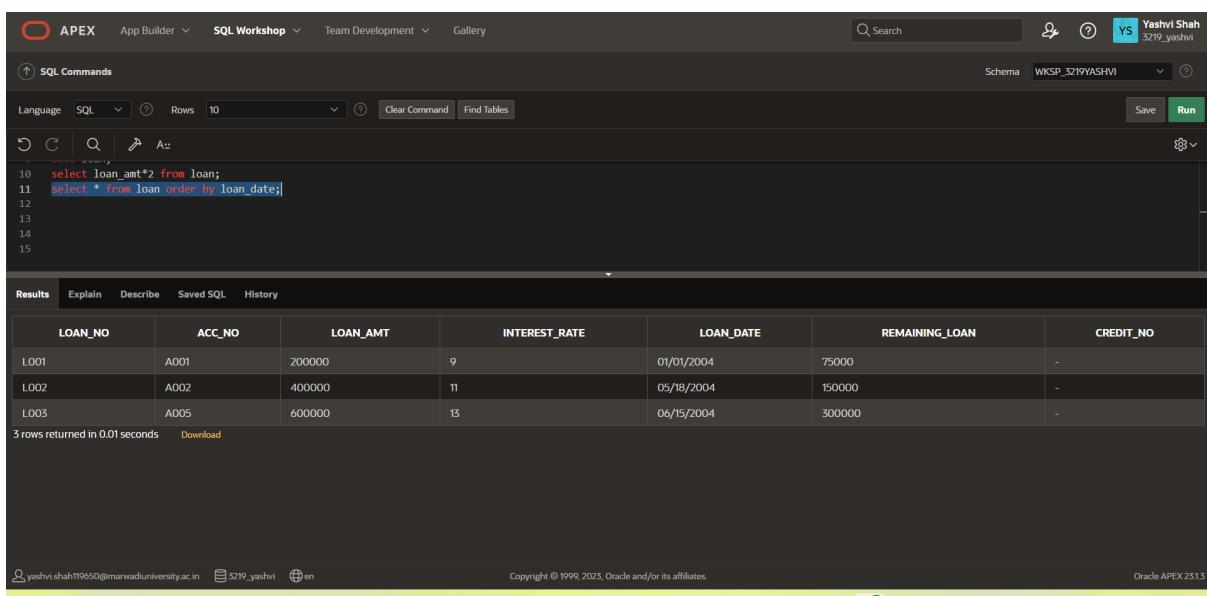
9 desc loan;
10 select loan_amt*2 from loan;
11
12
13
14

Results | Explain | Describe | Saved SQL | History | LOAN_AMT*2
800000
400000
1200000
3 rows returned in 0.01 seconds | Download | Copyright © 1999, 2023, Oracle and/or its affiliates. | Oracle APEX 23.1.3

```

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

select * from loan order by loan_date;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run | Schema: WKSP_3219YASHVI | Search | Help | User: Yashvi Shah | 5219_yashvi

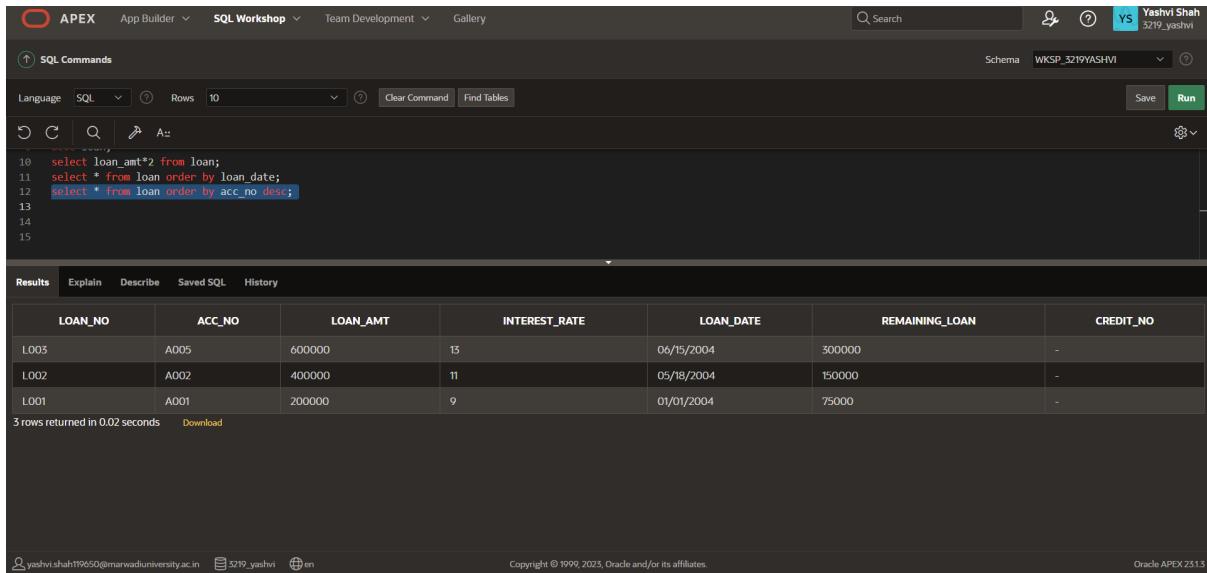
10 select loan_amt*2 from loan;
11 select * from loan order by loan_date;
12
13
14
15

Results | Explain | Describe | Saved SQL | History | 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 0.01 seconds | Download | Copyright © 1999, 2023, Oracle and/or its affiliates. | Oracle APEX 23.1.3

```

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

select * from loan order by acc_no desc;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands pane, three SQL queries are run:

```

10 select loan_amt*2 from loan;
11 select * from loan order by loan_date;
12 select * from loan order by acc_no desc;
13
14
15

```

The Results pane displays the following data:

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

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

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Practical 4

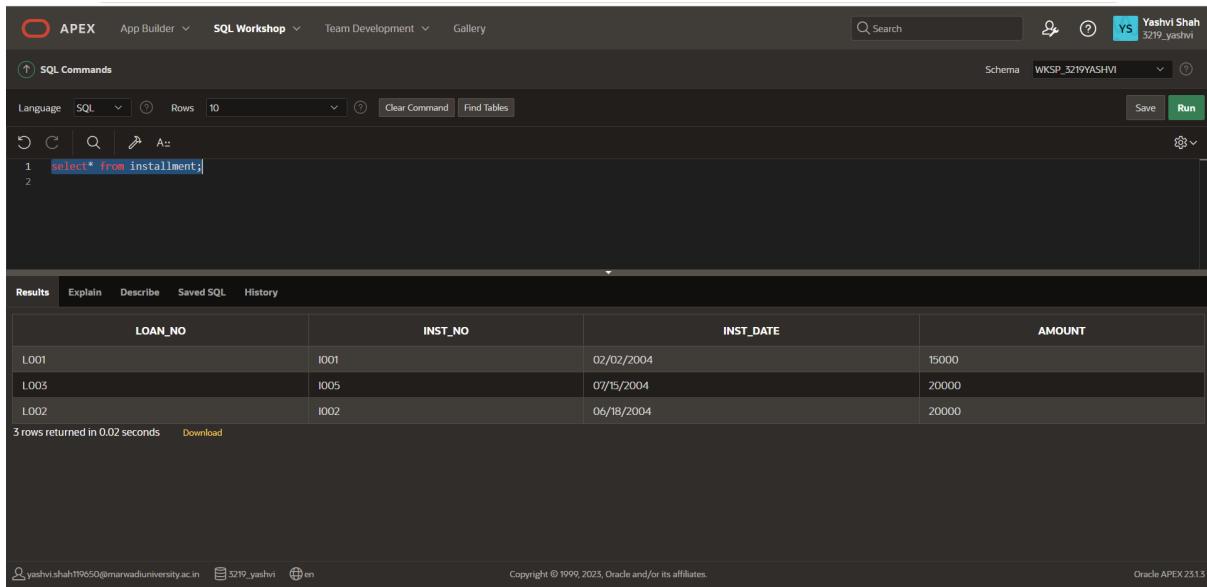
Aim: DML Commands and Related Queries

Table: INSTALLMENT.

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

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

select* from installment;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the user has run the query:

```
1 select* from installment;
2
```

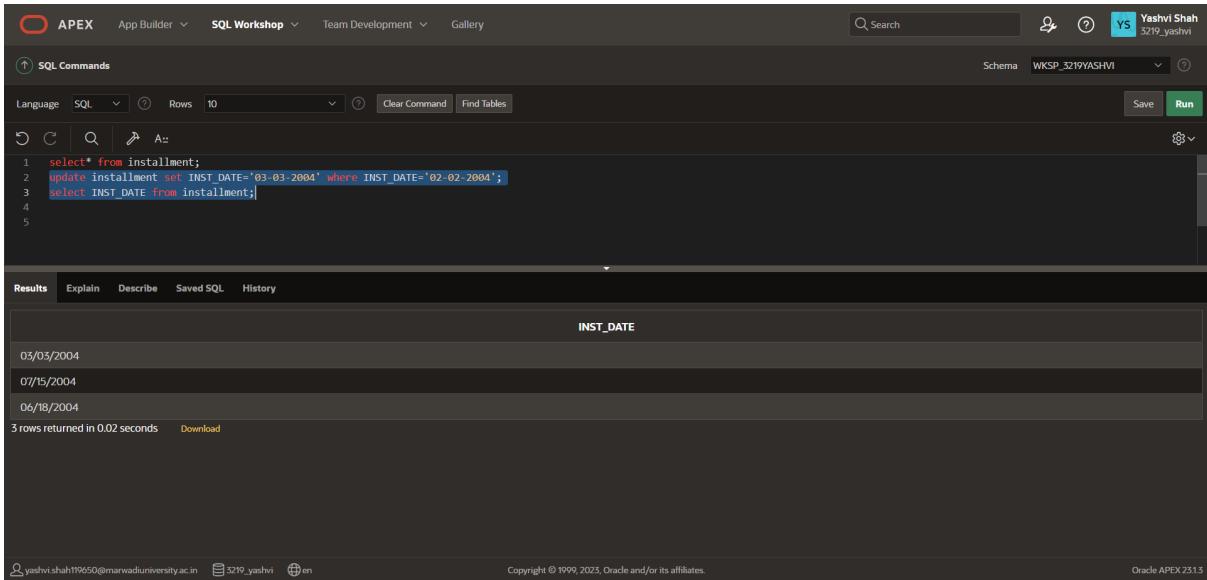
The Results tab displays the following data:

LOAN_NO	INST_NO	INST_DATE	AMOUNT
L001	I001	02/02/2004	15000
L005	I005	07/15/2004	20000
L002	I002	06/18/2004	20000

3 rows returned in 0.02 seconds

2. Change the Inst_Date '2-Feb-04' to '3-Mar-04'.

update installment set INST_DATE='03-03-2004' where INST_DATE='02-02-2004';
 select INST_DATE from installment;



SQL Commands

```

1 select* from installment;
2 update installment set INST_DATE='03-03-2004' where INST_DATE='02-02-2004';
3 select INST_DATE from installment;
4
5

```

Results

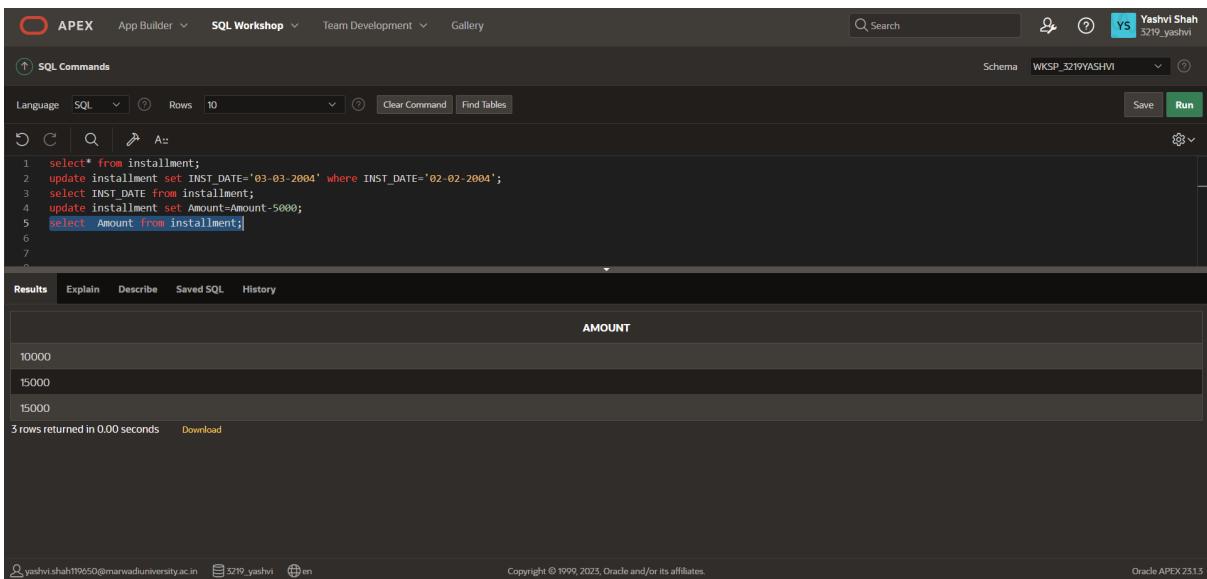
INST_DATE
03/03/2004
07/15/2004
06/18/2004

3 rows returned in 0.02 seconds Download

3. Reduce 5000 amount from all Installment holders.

update installment set Amount=Amount-5000;

select Amount from installment;



SQL Commands

```

1 select* from installment;
2 update installment set INST_DATE='03-03-2004' where INST_DATE='02-02-2004';
3 select INST_DATE from installment;
4 update installment set Amount=Amount-5000;
5 select Amount from installment;
6
7

```

Results

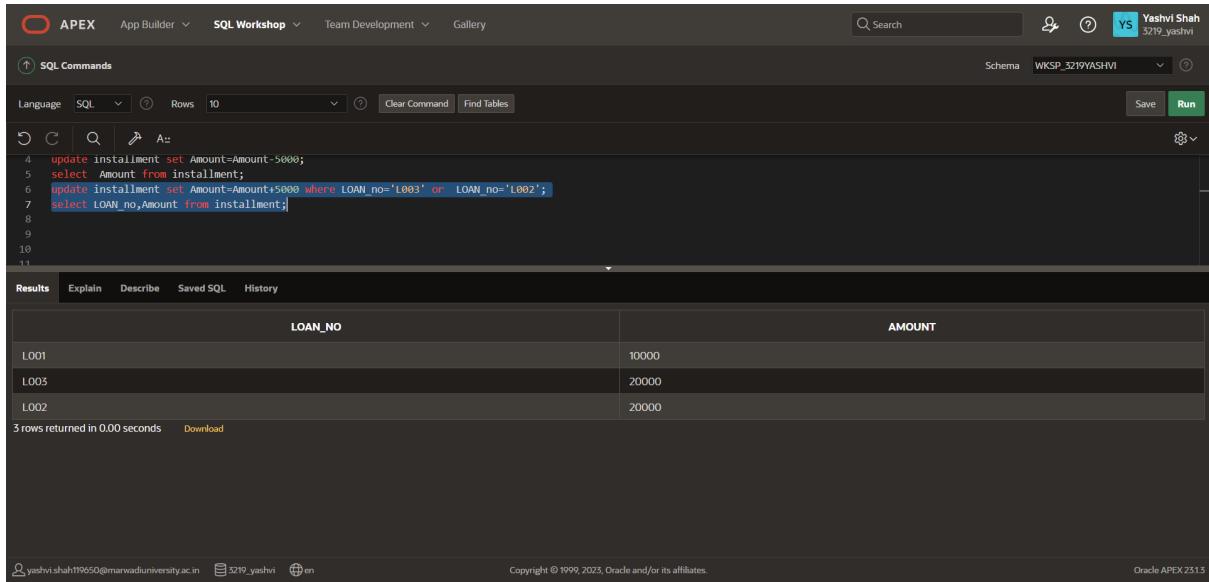
AMOUNT
10000
15000
15000

3 rows returned in 0.00 seconds Download

4. Add the amount 5000 where loan no is 'L003' and 'L002'.

update installment set Amount=Amount+5000 where LOAN_no='L003' or LOAN_no='L002';

select LOAN_no,Amount from installment;



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

```

4 update installment set Amount=Amount-5000;
5 select Amount from installment;
6 update installment set Amount=Amount+5000 where LOAN_no='L003' or LOAN_no='L002';
7 select LOAN_no,Amount from installment;
8
9
10
11

```

The Results tab displays the output of the query:

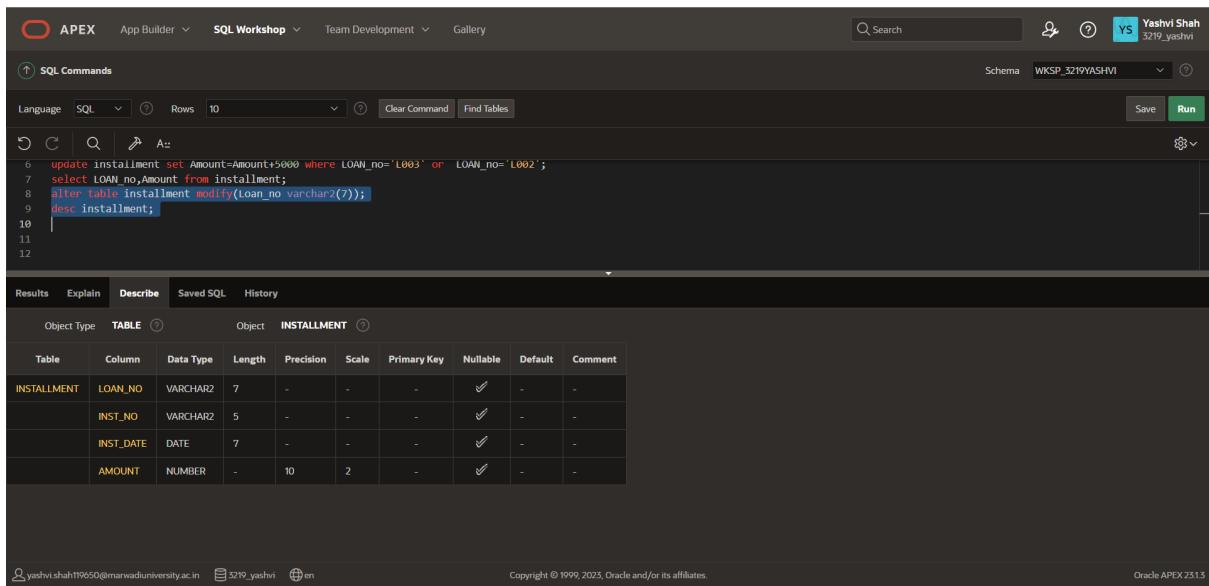
LOAN_NO	AMOUNT
L001	10000
L003	20000
L002	20000

3 rows returned in 0.00 seconds

5. Change the column size of 5 to 7 where column name is Loan_no.

alter table installment modify(Loan_no varchar2(7));

desc installment;



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

```

6 update installment set Amount=Amount+5000 where LOAN_no='L003' or LOAN_no='L002';
7 select LOAN_no,Amount from installment;
8 alter table installment modify(loan_no varchar2(7));
9 desc installment;
10
11
12

```

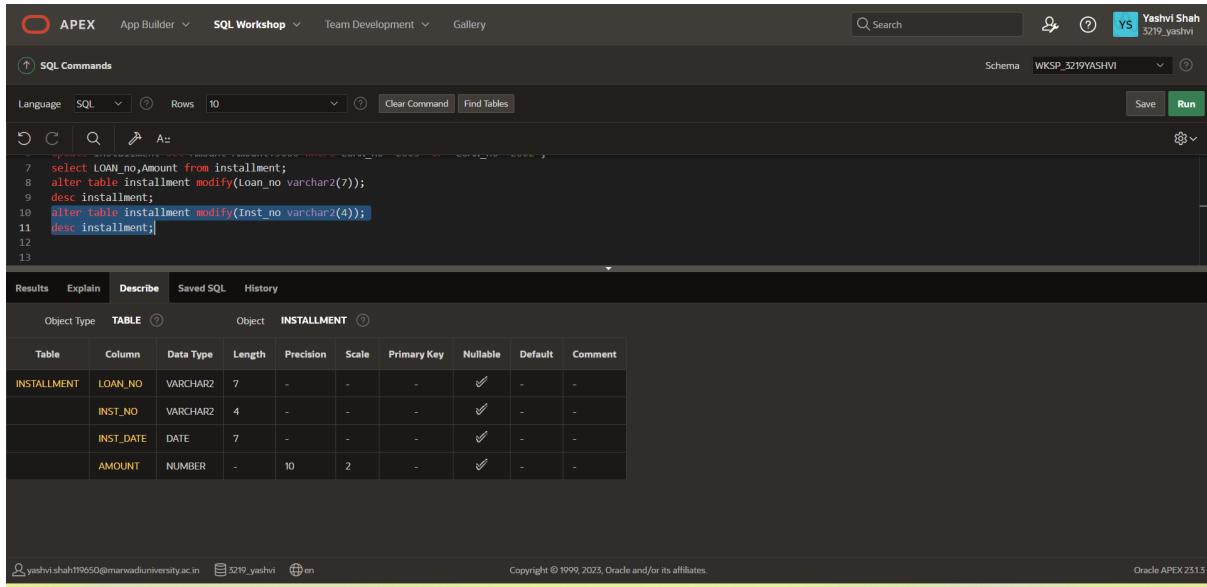
The Results tab shows the description of the INSTALLMENT table:

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	-	✓	-	-

6. Decrease the column size 5 to 4 where column name Inst_no.

alter table installment modify(Inst_no varchar2(4));

desc installment;



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

```

7 select LOAN_no,Amount from installment;
8 alter table installment modify(Loan_no varchar2(7));
9 desc installment;
10 alter table installment modify(inst_no varchar2(4));
11 desc installment;
12
13

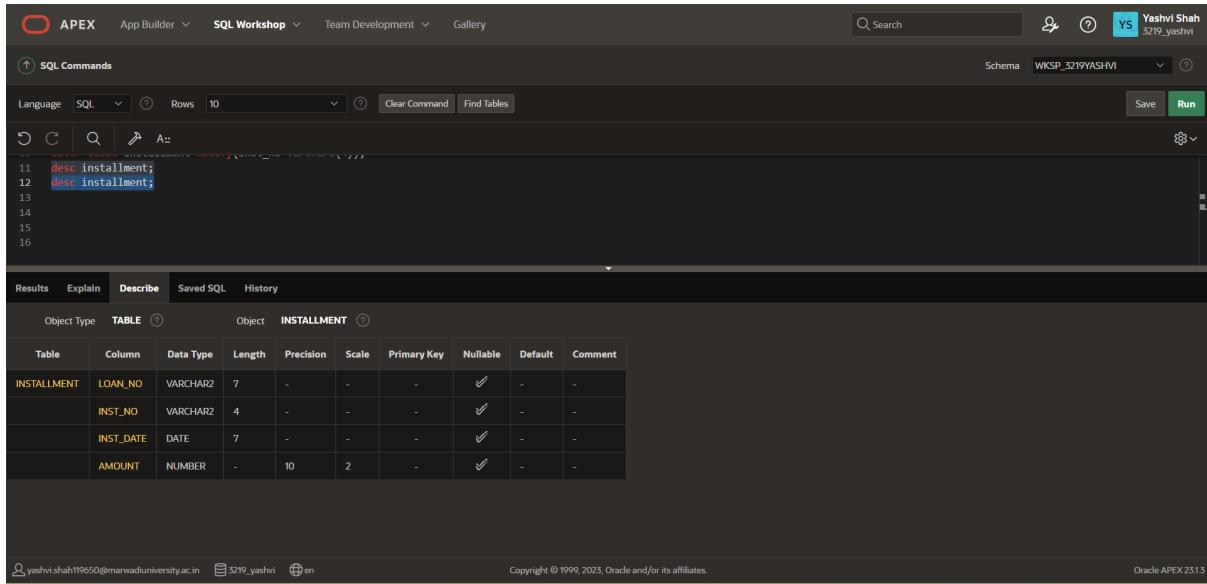
```

The Results pane displays the table structure:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INSTALLMENT	LOAN_NO	VARCHAR2	7	-	-	-	✓	-	-
	INST_NO	VARCHAR2	4	-	-	-	✓	-	-
	INST_DATE	DATE	7	-	-	-	✓	-	-
	AMOUNT	NUMBER	-	10	2	-	✓	-	-

7. Show the structure of the Table.

desc installment;



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

```

11 desc installment;
12 desc installment;
13
14
15
16

```

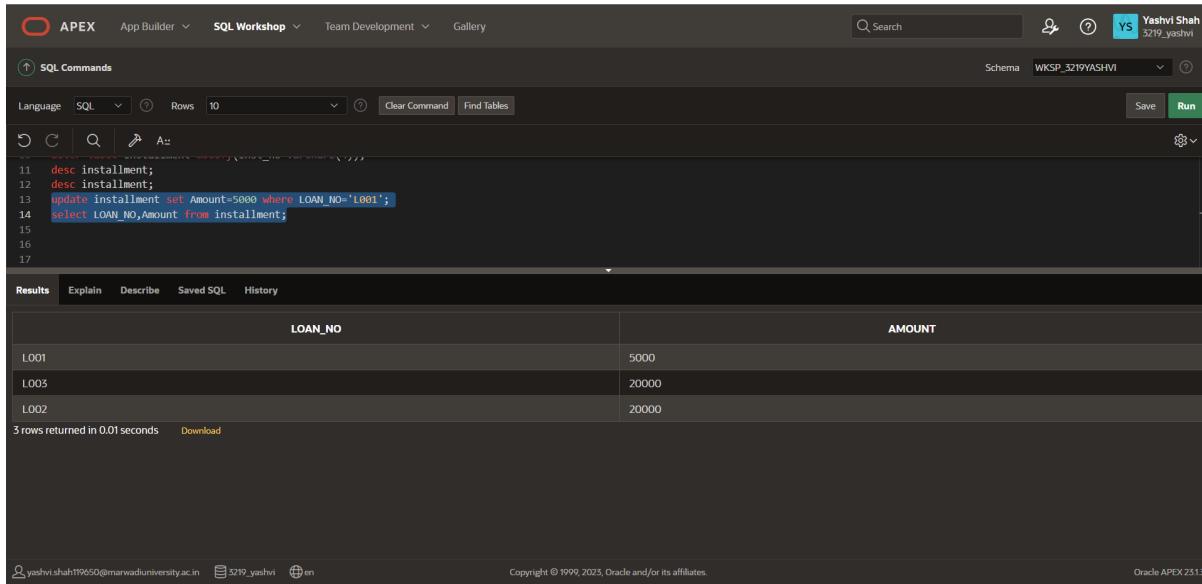
The Results pane displays the table structure:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INSTALLMENT	LOAN_NO	VARCHAR2	7	-	-	-	✓	-	-
	INST_NO	VARCHAR2	4	-	-	-	✓	-	-
	INST_DATE	DATE	7	-	-	-	✓	-	-
	AMOUNT	NUMBER	-	10	2	-	✓	-	-

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

update installment set Amount=5000 where LOAN_NO='L001';

select LOAN_NO,Amount from installment;



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

```

11 desc installment;
12 desc installment;
13 update installment set Amount=5000 where LOAN_NO='L001';
14 select LOAN_NO,Amount from installment;
15
16
17

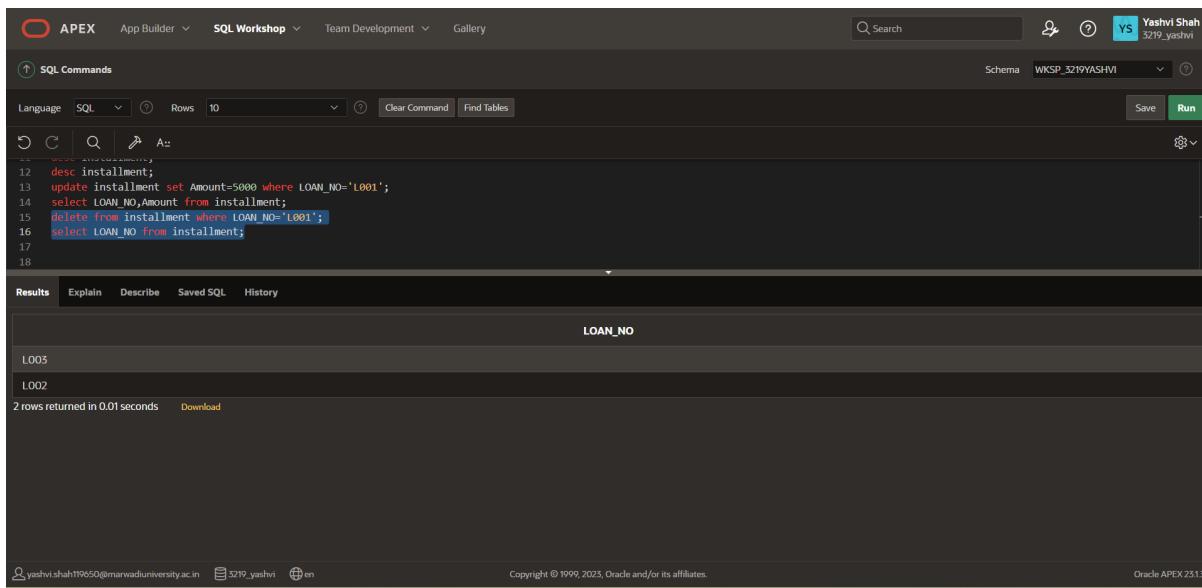
```

The Results pane displays the updated data:

LOAN_NO	AMOUNT
L001	5000
L003	20000
L002	20000

3 rows returned in 0.01 seconds

9. Perform delete operation. (Delete only particular one record)
 delete from installment where LOAN_NO='L001';
 select LOAN_NO from installment;



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

```

11 desc installment;
12 desc installment;
13 update installment set Amount=5000 where LOAN_NO='L001';
14 select LOAN_NO,Amount from installment;
15 delete from installment where LOAN_NO='L001';
16 select LOAN_NO from installment;
17
18

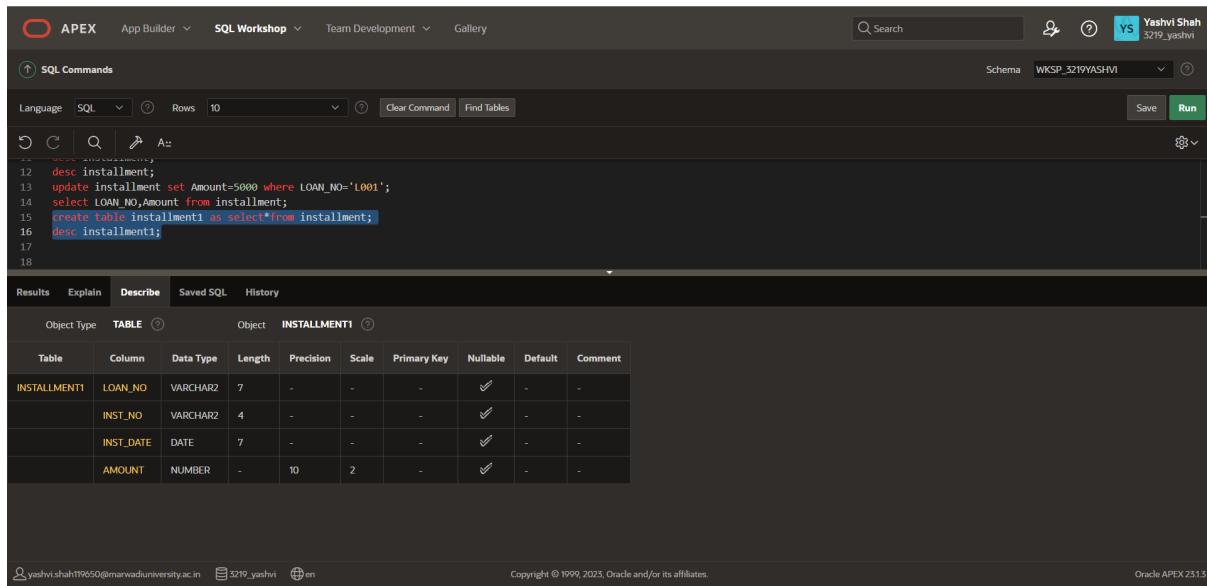
```

The Results pane displays the remaining data:

LOAN_NO
L003
L002

2 rows returned in 0.01 seconds

10. Only create a structure of table installment1 from table installment.
 create table installment1 as select*from installment;
 desc installment1;



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

```

11 desc instalment;
12 update instalment set Amount=5000 where LOAN_NO='L001';
13 select LOAN_NO,Amount from instalment;
14 create table instalment1 as select*from instalment;
15 desc instalment1;
16
17
18
  
```

The Results pane displays the description of the INSTALMENT1 table, which has four columns: LOAN_NO (VARCHAR2), INST_NO (VARCHAR2), INST_DATE (DATE), and AMOUNT (NUMBER).

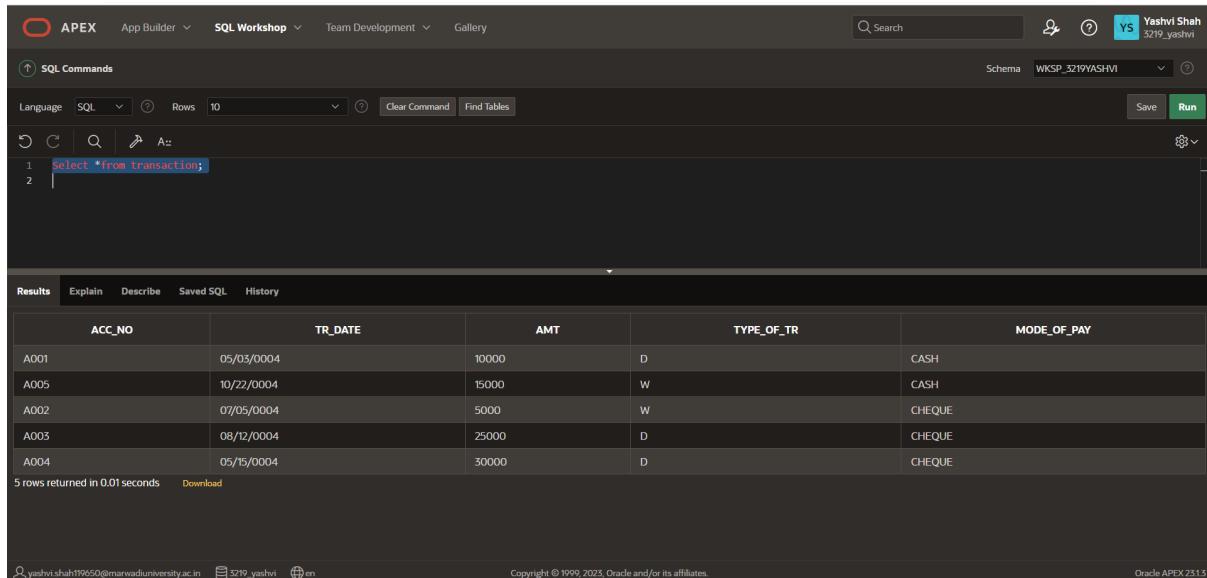
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INSTALMENT1	LOAN_NO	VARCHAR2	7	-	-	-	✓	-	-
	INST_NO	VARCHAR2	4	-	-	-	✓	-	-
	INST_DATE	DATE	7	-	-	-	✓	-	-
	AMOUNT	NUMBER	-	10	2	-	✓	-	-

Table: TRANSACTION.

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

Acc_no	Trans_Dat e	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

Select *from transaction;



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

```

1 Select *from transaction;
2
  
```

The Results pane displays the output of the query, showing five rows of data from the TRANSACTION table.

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/05/0004	10000	D	CASH
A005	10/22/0004	15000	W	CASH
A002	07/05/0004	5000	W	CHEQUE
A003	08/19/0004	25000	D	CHEQUE
A004	05/19/0004	30000	D	CHEQUE

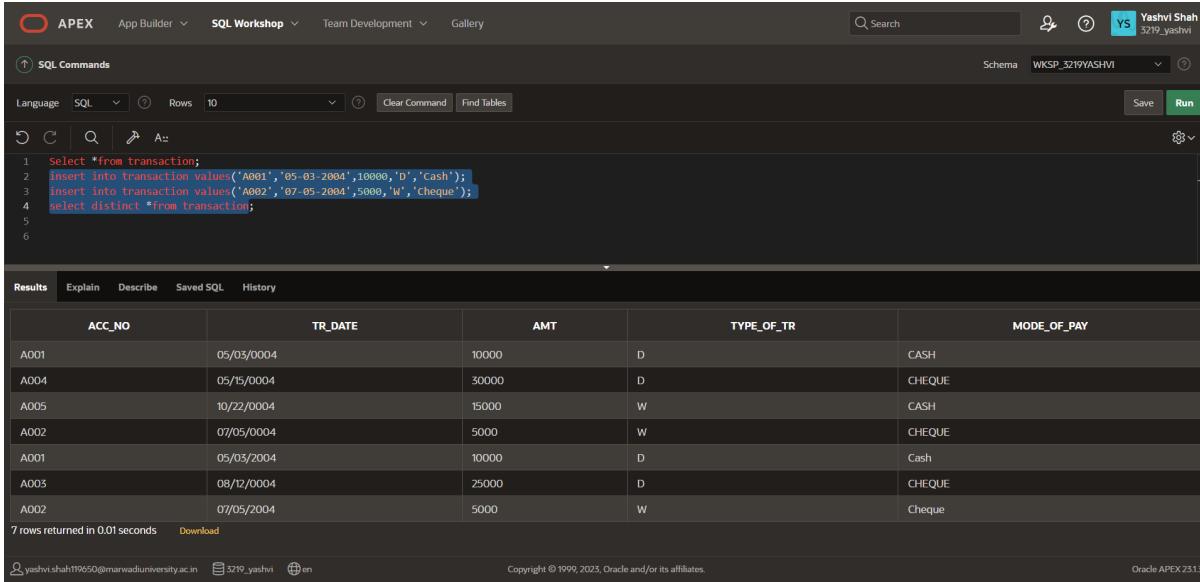
5 rows returned in 0.01 seconds [Download](#)

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

insert into transaction values('A001','05-03-2004',10000,'D','Cash');

insert into transaction values('A002','07-05-2004',5000,'W','Cheque');

select distinct *from transaction;



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

```

1 select *from transaction;
2 insert into transaction values('A001','05-03-2004',10000,'D','Cash');
3 insert into transaction values('A002','07-05-2004',5000,'W','Cheque');
4 select distinct *from transaction;
5
6

```

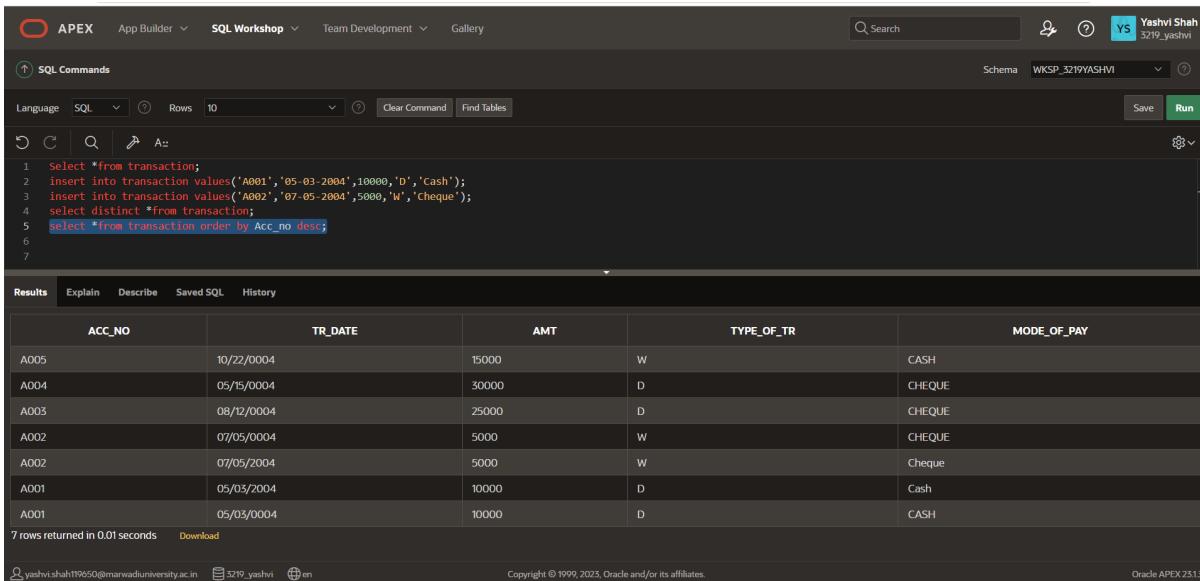
The results section displays the following data:

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A001	05/03/0004	10000	D	CASH
A004	05/15/0004	30000	D	CHEQUE
A005	10/22/0004	15000	W	CASH
A002	07/05/0004	5000	W	CHEQUE
A001	05/03/2004	10000	D	Cash
A003	08/12/0004	25000	D	CHEQUE
A002	07/05/2004	5000	W	Cheque

7 rows returned in 0.01 seconds

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

select *from transaction order by Acc_no desc;



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

```

1 select *from transaction;
2 insert into transaction values('A001','05-03-2004',10000,'D','Cash');
3 insert into transaction values('A002','07-05-2004',5000,'W','Cheque');
4 select distinct *from transaction;
5 select *from transaction order by Acc_no desc;
6
7

```

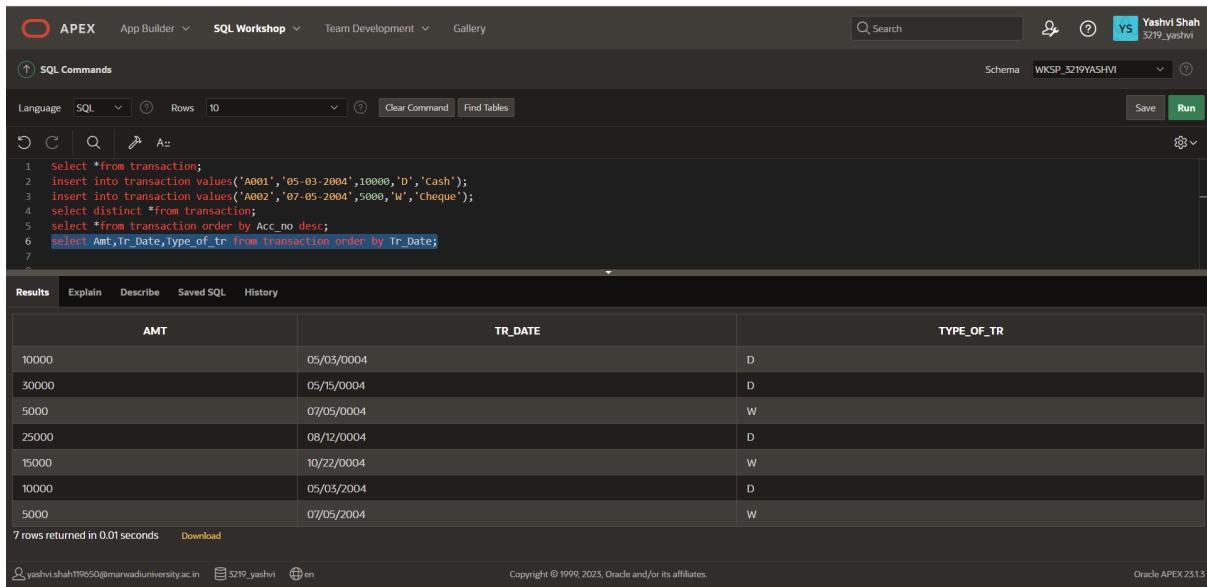
The results section displays the following data:

ACC_NO	TR_DATE	AMT	TYPE_OF_TR	MODE_OF_PAY
A005	10/22/0004	15000	W	CASH
A004	05/15/0004	30000	D	CHEQUE
A003	08/12/0004	25000	D	CHEQUE
A002	07/05/0004	5000	W	CHEQUE
A002	07/05/2004	5000	W	Cheque
A001	05/03/2004	10000	D	Cash
A001	05/03/0004	10000	D	CASH

7 rows returned in 0.01 seconds

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

select Amt,Tr_Date,Type_of_tr from transaction order by Tr_Date;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, a query is run against the 'transaction' table:

```

1 select *from transaction;
2 insert into transaction values('A001','05-03-2004',10000,'D','Cash');
3 insert into transaction values('A002','07-05-2004',5000,'W','Cheque');
4 select distinct *from transaction;
5 select *from transaction order by Acc_no desc;
6 select Amt,Tr_Date,type_of_tr from transaction order by Tr_Date;
7

```

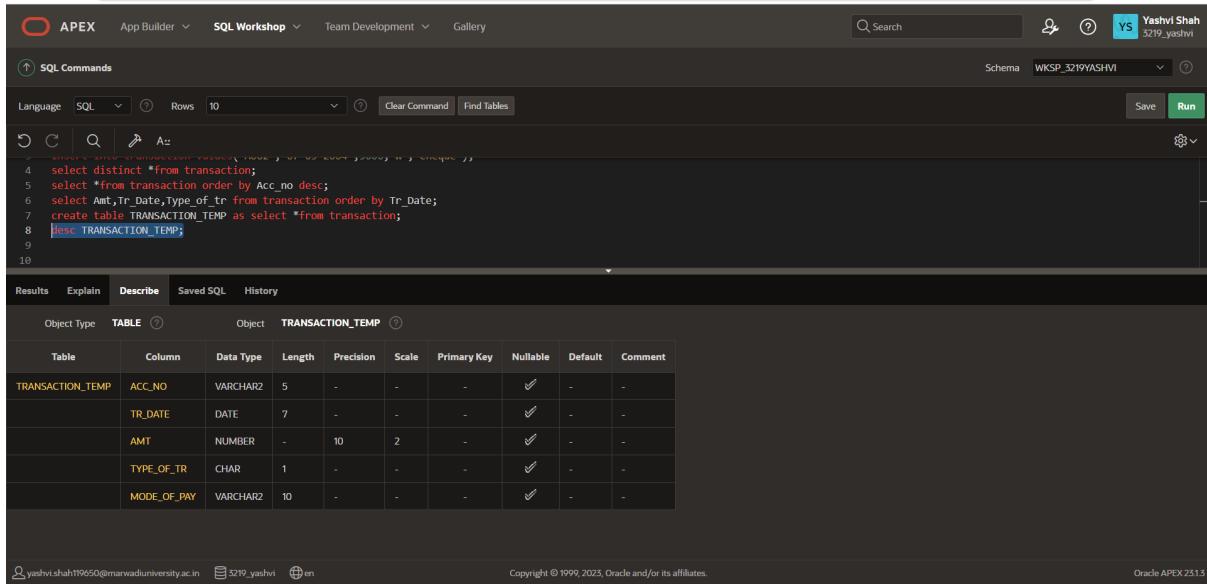
The Results tab displays the query results:

AMT	TR_DATE	TYPE_OF_TR
10000	05/03/0004	D
30000	05/15/0004	D
5000	07/05/0004	W
25000	08/12/0004	D
15000	10/22/0004	W
10000	05/03/2004	D
5000	07/05/2004	W

7 rows returned in 0.01 seconds

5. Create another table TRANSACTION_TEMP from this table.

```
create table TRANSACTION_TEMP as select *from transaction;
desc TRANSACTION_TEMP;
```



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, a query is run to create a new table:

```

4 select distinct *from transaction;
5 select *from transaction order by Acc_no desc;
6 select Amt,Tr_Date,type_of_tr from transaction order by Tr_Date;
7 create table TRANSACTION_TEMP as select *from transaction;
8 desc TRANSACTION_TEMP;
9
10

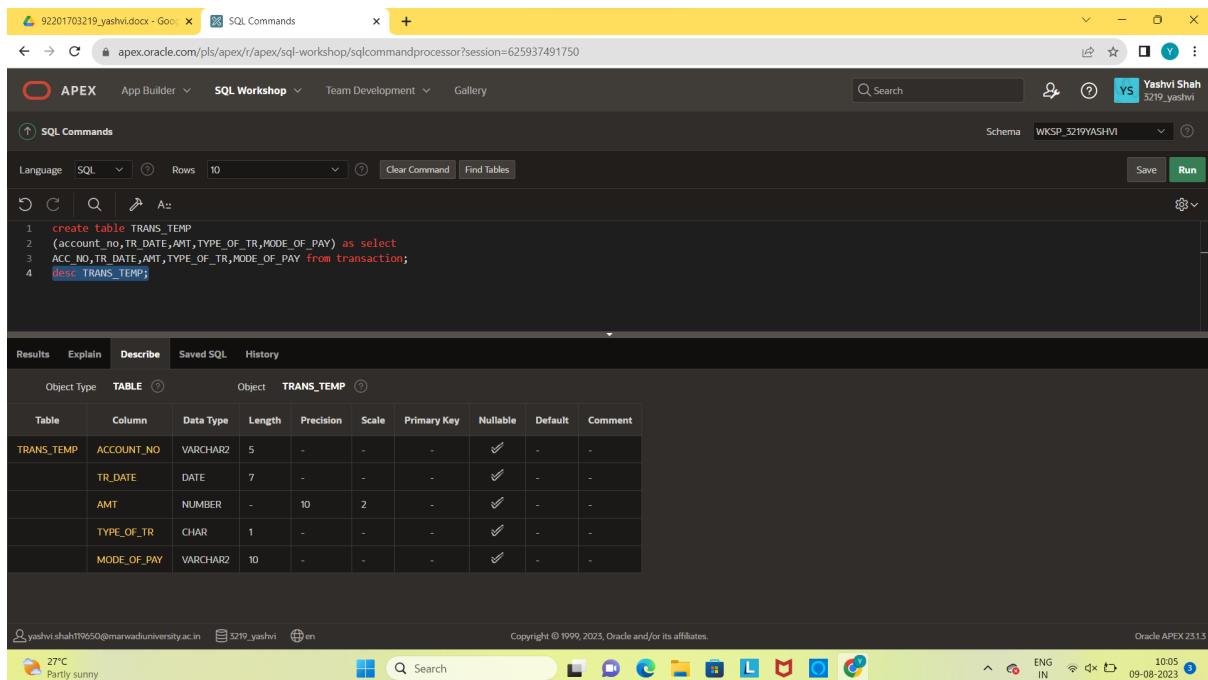
```

The Results tab shows the table definition:

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

6. Create a another table TRANS_TEMP by change the column name acc_no to account_no.

```
create table TRANS_TEMP
(account_no,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY) as select
ACC_NO,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY from transaction;
desc TRANS_TEMP;
```



```

1 create table TRANS_TEMP
2 (account_no,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY) as select
3 ACC_NO,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY from transaction;
4 desc TRANS_TEMP;

```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the creation of a temporary table named TRANS_TEMP. The table structure includes columns for account_no, TR_DATE, AMT, TYPE_OF_TR, and MODE_OF_PAY. Below the code, the 'Describe' tab is selected, showing the table's structure with columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table has five columns: ACCOUNT_NO, TR_DATE, AMT, TYPE_OF_TR, and MODE_OF_PAY.

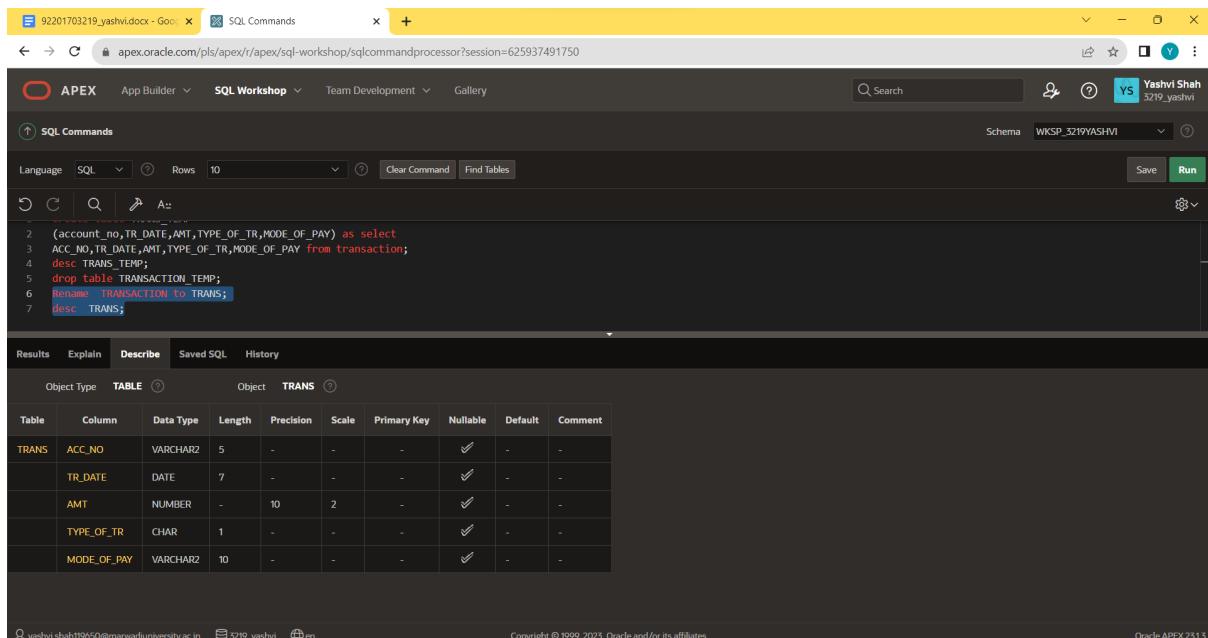
7. Delete a table TRANSACTION_TEMP.

drop table TRANSACTION_TEMP;

8. Rename the table TRANSACTION to TRANS.

Rename TRANSACTION to TRANS;

desc TRANS;



```

2 (account_no,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY) as select
3 ACC_NO,TR_DATE,AMT,TYPE_OF_TR,MODE_OF_PAY from transaction;
4 desc TRANS TEMP;
5 drop table TRANSACTION TEMP;
6 Rename TRANSACTION to TRANS;
7 desc TRANS;

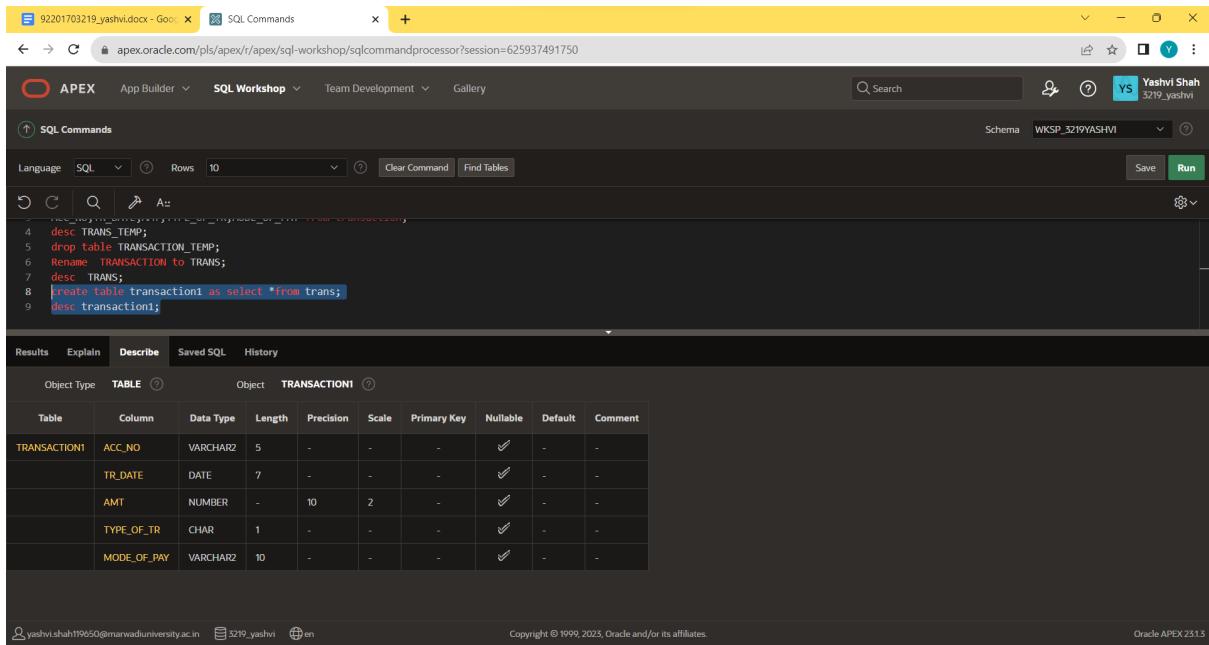
```

The screenshot shows the Oracle APEX SQL Workshop interface again. The SQL Commands tab is active, displaying the deletion of the temporary table TRANS_TEMP and the renaming of the TRANSACTION table to TRANS. The 'Describe' tab is selected, showing the table's structure with columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table has five columns: ACC_NO, TR_DATE, AMT, TYPE_OF_TR, and MODE_OF_PAY.

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

create table transaction1 as select *from trans;

desc transaction1;



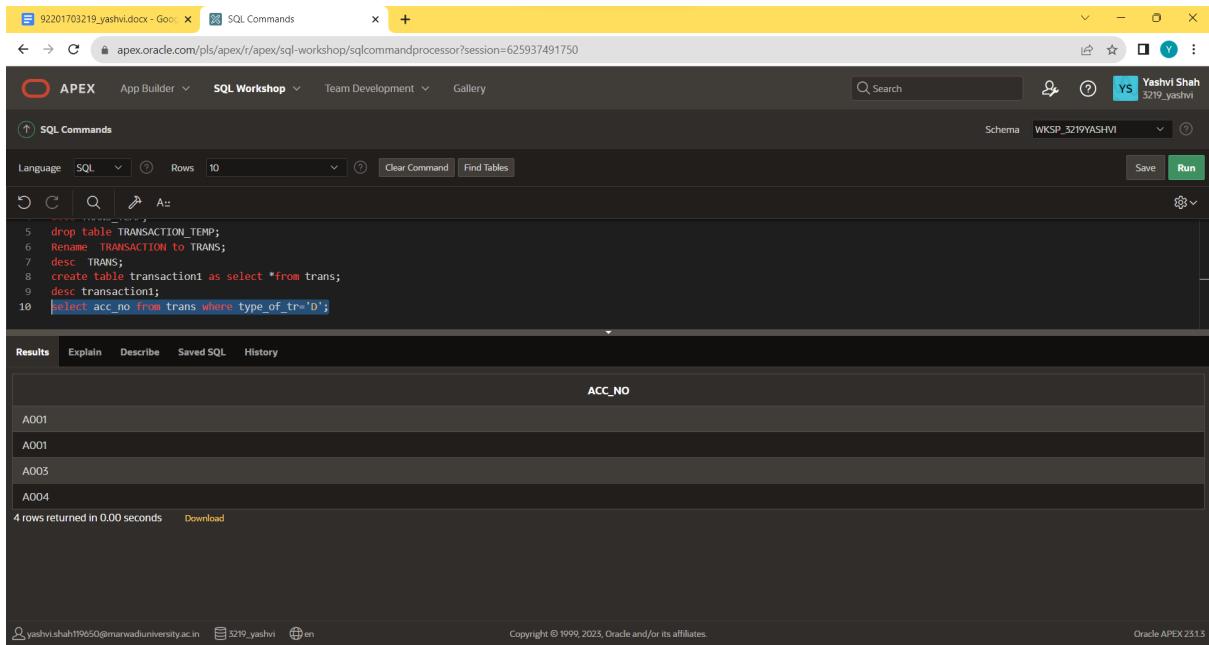
```

4 desc TRANSACTION_TEMP;
5 drop table TRANSACTION_TEMP;
6 Rename TRANSACTION to TRANS;
7 desc TRANS;
8 create table transaction1 as select *from trans;
9 desc transaction1;

```

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'.
 select acc_no from trans where type_of_tr='D';



```

5 drop table TRANSACTION_TEMP;
6 Rename TRANSACTION to TRANS;
7 desc TRANS;
8 create table transaction1 as select *from trans;
9 desc transaction1;
10 select acc_no from trans where type_of_tr='D';

```

ACC_NO
A001
A001
A003
A004

4 rows returned in 0.00 seconds

Practical 5

Aim: Constraint Based DML Commands

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

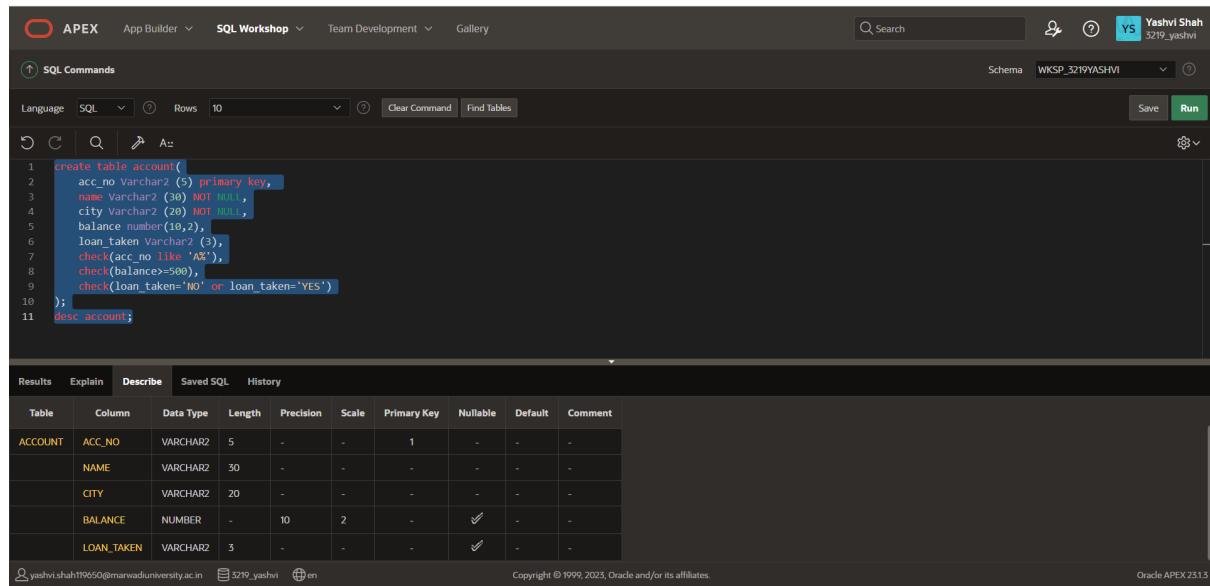
Create a table ACCOUNT.

Column name	Data Type	Size	Attribute
<u>Acc_no</u>	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')

create table account(

```
acc_no Varchar2 (5) primary key,
name Varchar2 (30) NOT NULL,
city Varchar2 (20) NOT NULL,
balance number(10,2),
loan_taken Varchar2 (3),
check(acc_no like 'A%'),
check(balance>=500),
check(loan_taken='NO' or loan_taken='YES')
);
```

desc account;



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes APEX, App Builder, SQL Workshop (selected), Team Development, and Gallery. The right side shows the user profile 'Yashvi Shah' and the schema 'WKSP_3219YASHVI'. The main area has tabs for SQL Commands, Results, Explain, Describe, Saved SQL, and History. The SQL Commands tab contains the following code:

```
create table account(
  acc_no Varchar2 (5) primary key,
  name Varchar2 (30) NOT NULL,
  city Varchar2 (20) NOT NULL,
  balance number(10,2),
  loan_taken Varchar2 (3),
  check(acc_no like 'A%'),
  check(balance>=500),
  check(loan_taken='NO' or loan_taken='YES')
);
desc account;
```

The Results tab displays the description of the ACCOUNT table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ACCOUNT	ACC_NO	VARCHAR2	5	-	-	1	-	-	-
	NAME	VARCHAR2	30	-	-	-	-	-	-
	CITY	VARCHAR2	20	-	-	-	-	-	-
	BALANCE	NUMBER	-	10	2	-	✓	-	-
	LOAN_TAKEN	VARCHAR2	3	-	-	-	✓	-	-

At the bottom, it shows the user email 'yashvi.shah119650@marwadiuniversity.ac.in', the session ID '5219_yashvi', and the Oracle APEX version '23.1'.

1. Insert the records using Practical list 1.

insert into account values(

 'A001', 'Patel Jigar', 'Mehsana', 50000, 'YES'

);

insert into account values(

 'A002', 'Patel Ramesh', 'Mehsana', 50000, 'YES'

);

insert into account values(

 'A003', 'Dave Hardik', 'Ahemdabad', 75000, 'NO'

);

insert into account values(

 'A004', 'Soni Hetal', 'Ahemdabad', 100000, 'NO'

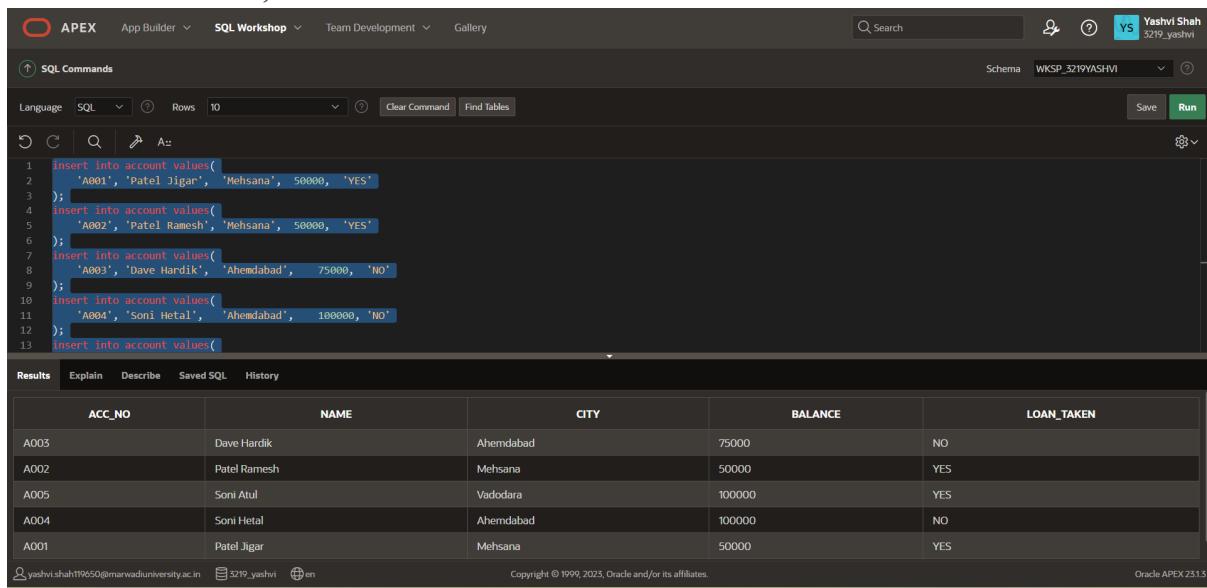
);

insert into account values(

 'A005', 'Soni Atul', 'Vadodara', 100000, 'YES'

);

select*from account;



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

```

1 insert into account values(
2   'A001', 'Patel Jigar', 'Mehsana', 50000, 'YES'
3 );
4 insert into account values(
5   'A002', 'Patel Ramesh', 'Mehsana', 50000, 'YES'
6 );
7 insert into account values(
8   'A003', 'Dave Hardik', 'Ahemdabad', 75000, 'NO'
9 );
10 insert into account values(
11   'A004', 'Soni Hetal', 'Ahemdabad', 100000, 'NO'
12 );
13 insert into account values(

```

The Results tab displays the following table:

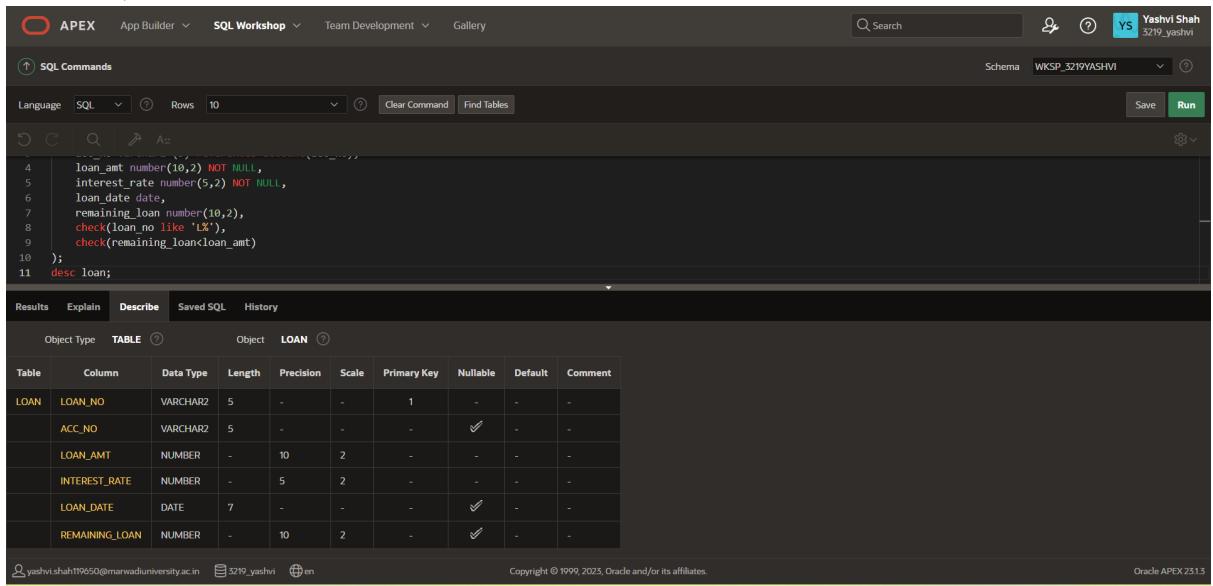
ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A003	Dave Hardik	Ahmedabad	75000	NO
A002	Patel Ramesh	Mehsana	50000	YES
A005	Soni Atul	Vadodara	100000	YES
A004	Soni Hetal	Ahmedabad	100000	NO
A001	Patel Jigar	Mehsana	50000	YES

Create a Table LOAN.

Column Name	Data Type	Size	Attributes
<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	10,2	NOT NULL

Interest_rate	Number	5, 2	NOT NULL
Loan_date	Date		
Remaining_loa n	Numbe r	1 0, 2	Remaining loan<loan amount

```
create table loan(
    loan_no Varchar2 (5) primary key,
    acc_no Varchar2 (5) references
account(acc_no),
    loan_amt number(10,2) NOT NULL,
    interest_rate number(5,2) NOT NULL,
    loan_date date,
    remaining_loan number(10,2),
    check(loan_no like 'L%'),
    check(remaining_loan<loan_amt)
);
desc loan;
```



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the SQL code for creating the LOAN table. The code includes columns for loan_no (primary key), acc_no (foreign key referencing account), loan_amt (number type), interest_rate (number type), loan_date (date type), remaining_loan (number type), and two checks: one for the loan_no format and another ensuring remaining_loan is less than loan_amt. Below the code, the Results tab is selected, showing the table definition with columns: LOAN_NO, ACC_NO, LOAN_AMT, INTEREST_RATE, LOAN_DATE, and REMAINING_LOAN. The LOAN_NO column is defined as VARCHAR2(5) and is the Primary Key. The ACC_NO column is also defined as VARCHAR2(5). The LOAN_AMT, INTEREST_RATE, and LOAN_DATE columns have their standard properties set. The REMAINING_LOAN column is defined as NUMBER(10,2). The results table also lists the Primary Key, Nullable status, Default value, and Comment for each column.

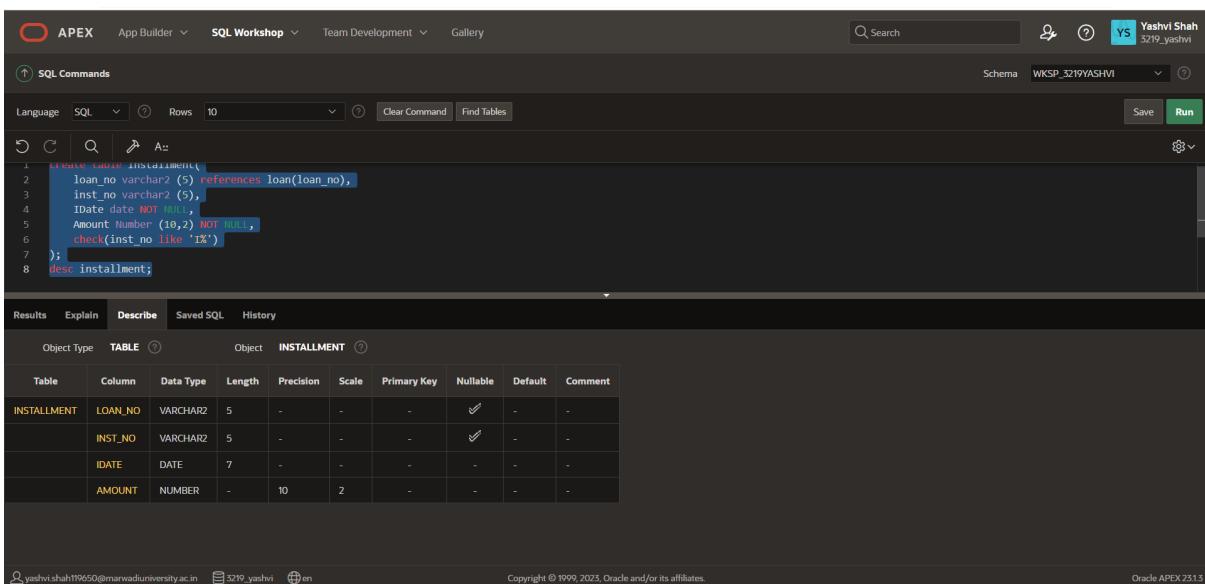
1. Insert the records using practical list-1.

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

```
create table installment(
    loan_no varchar2 (5) references loan(loan_no),
    inst_no varchar2 (5),
    IDate date NOT NULL,
    Amount Number (10,2) NOT NULL,
    check(inst_no like 'I%')
);
desc installment;
```



The screenshot shows the Oracle APEX SQL Workshop interface. In the top navigation bar, 'SQL Workshop' is selected. The main area displays the SQL command for creating the 'INSTALLMENT' table:

```
1 create table installment(
2     loan_no varchar2 (5) references loan(loan_no),
3     inst_no varchar2 (5),
4     IDate date NOT NULL,
5     Amount Number (10,2) NOT NULL,
6     check(inst_no like 'I%')
7 );
8 desc installment;
```

Below the command, the 'Describe' tab is selected, showing the table structure:

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

1. Insert the records using Practical list-1

Create a Table **TRANSACTION**.

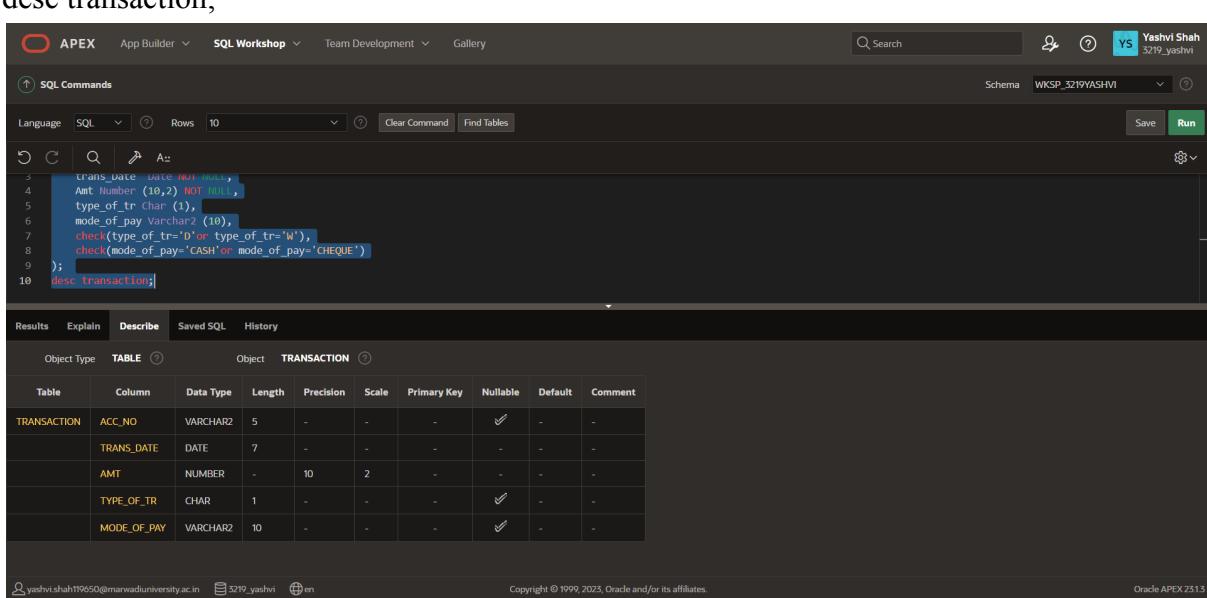
Column Name	Data Type	Size	Attributes
Acc_no	Varchar2	5	Foreign key References Acc_no of account table
Trans_Date	Date		NOT NULL

Amt	Number	10,2	NOT NULL
Type_of_tr	Char	1	Values in ('D','W')
Mode_of_pay	Varchar2	10	Values in ('cash','check')

create table transaction(

```

acc_no varchar2 (5) references account(acc_no),
trans_date Date NOT NULL,
Amt      Number (10,2) NOT NULL,
type_of_tr Char (1),
mode_of_pay Varchar2 (10),
check(type_of_tr='D'or type_of_tr='W'),
check(mode_of_pay='CASH'or mode_of_pay='CHEQUE')
);
desc transaction;
```



The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the SQL code for creating the TRANSACTION table. The code includes constraints for the primary key (trans_date), non-null values for Amt and type_of_tr, and check constraints for mode_of_pay. The transaction block ends with a desc command. Below the code, the Results tab shows the table definition with columns ACC_NO, TRANS_DATE, AMT, TYPE_OF_TR, and MODE_OF_PAY.

```

3   trans_date Date NOT NULL,
4   Amt Number (10,2) NOT NULL,
5   type_of_tr Char (1),
6   mode_of_pay Varchar2 (10),
7   check(type_of_tr='D'or type_of_tr='W'),
8   check(mode_of_pay='CASH'or mode_of_pay='CHEQUE')
9 );
10 desc transaction;
```

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

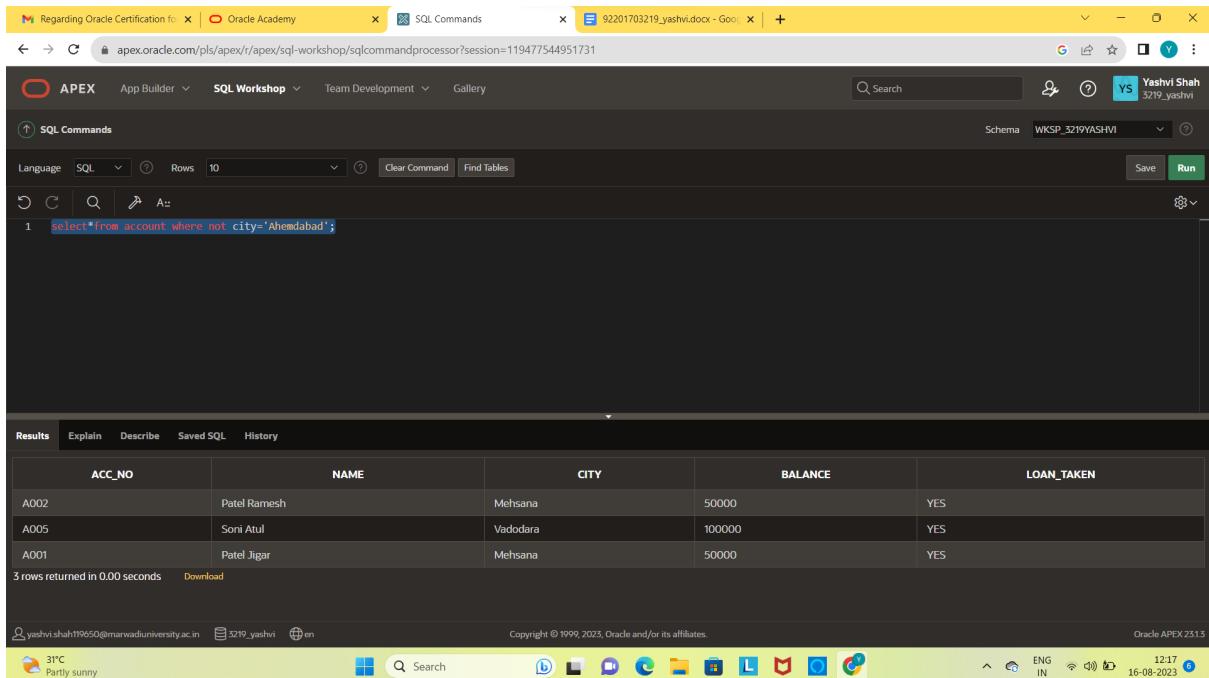
1. Insert the records using Practical list-1.

Practical 6

Aim: Functions and Queries

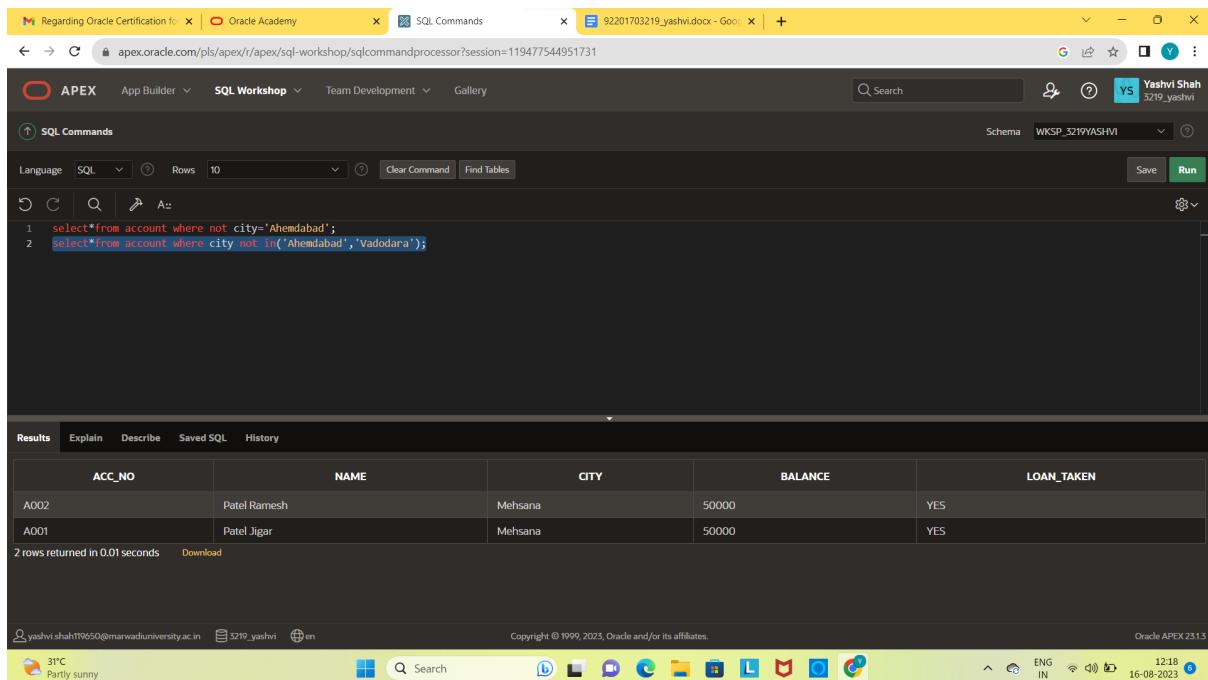
Using Operator: NOT,BETWEEN,NOT BETWEEN,IN,NOT IN

1. Retrieve specified information for the account holder who are not in ‘Ahmedabad’.
select*from account where not city='Ahmedabad';



```
Regarding Oracle Certification fo | Oracle Academy | SQL Commands | 92201703219_yashvi.docx - Google Docs | + | - | X
apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=119477544951731
APEX App Builder SQL Workshop Team Development Gallery
Search Schema WKSP_3219YASHVI
Language SQL Rows 10 Clear Command Find Tables Save Run
Select*from account where not city='Ahmedabad';
Results Explain Describe Saved SQL History
ACC_NO NAME CITY BALANCE LOAN_TAKEN
A002 Patel Ramesh Mehsana 50000 YES
A005 Soni Atul Vadodara 100000 YES
A001 Patel Jigar Mehsana 50000 YES
3 rows returned in 0.00 seconds Download
yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1.3
31°C Partly sunny Search ENG IN 12:17 16-08-2023
```

2. Retrieve specified information for the account holder who are not in ‘Ahmedabad’ or ‘Vadodara’.
select*from account where city not in('Ahmedabad','Vadodara');



```

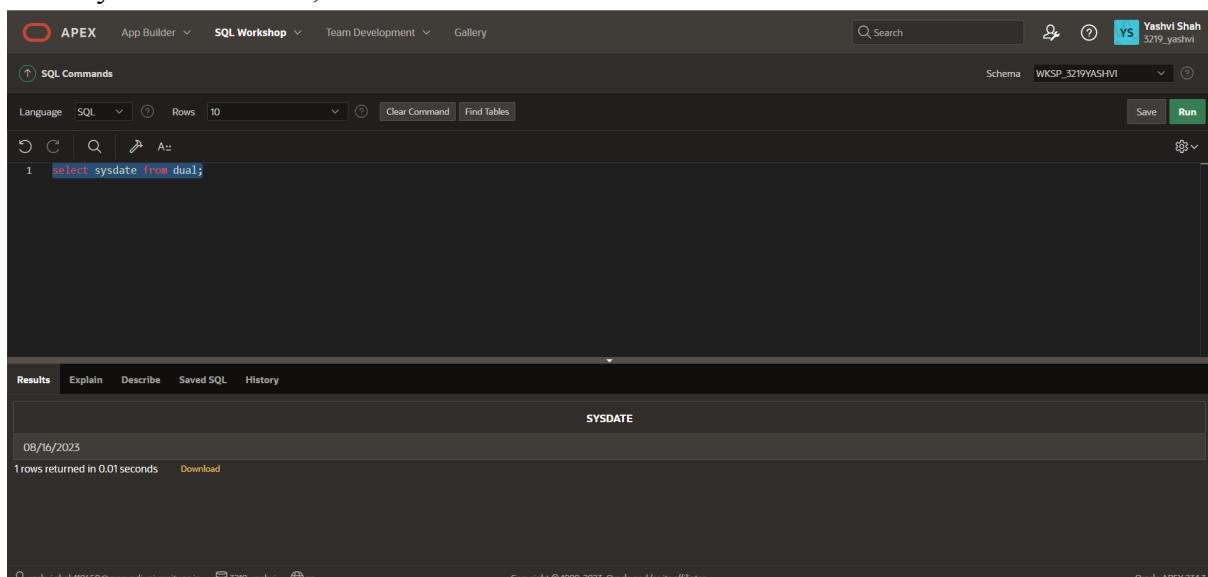
1 select*from account where not city='Ahmedabad';
2 select*from account where city not in('Ahmedabad','Vadodara');

Results
ACC_NO NAME CITY BALANCE LOAN_TAKEN
A002 Patel Ramesh Mehsana 50000 YES
A001 Patel Jigar Mehsana 50000 YES
2 rows returned in 0.01 seconds Download

```

3. Retrieve those records of Account holder whose balance between is 50000 and 100000.
4. Retrieve those records of Account holder whose balance not between is 50000 and 100000.
5. Display only those records whose amount is 5000, 25000, 30000.
6. Display only those records whose amount not in 5000, 25000, 30000.
7. Display System date.

select sysdate from dual;



```

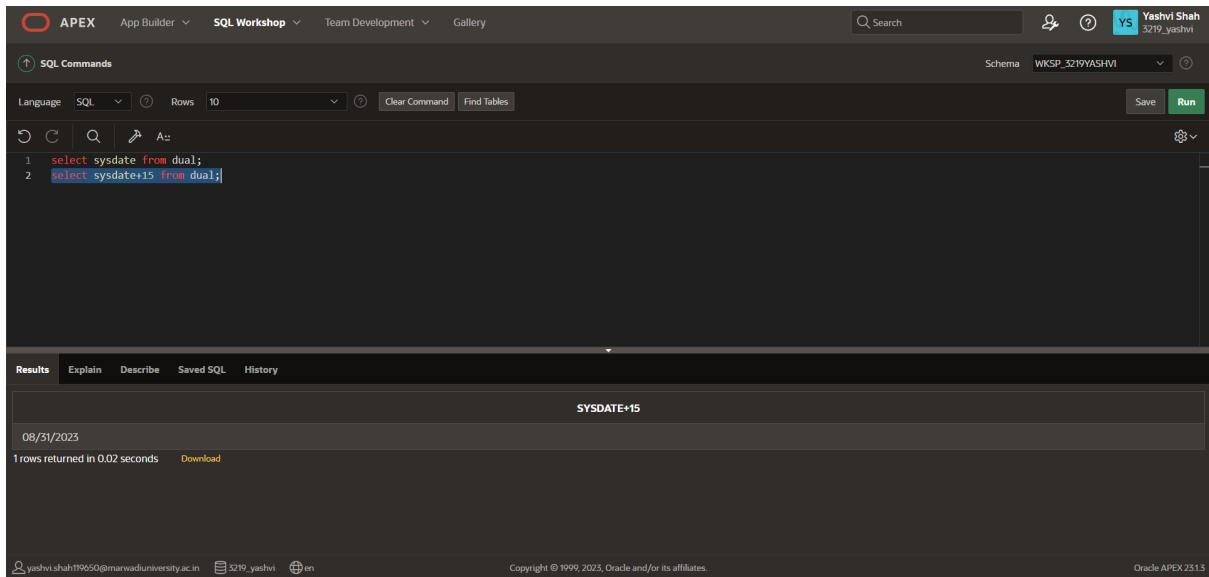
1 select sysdate from dual;

Results
SYSDATE
08/10/2023
1 rows returned in 0.01 seconds Download

```

8. Find the date, 15 days after today's date.

select sysdate+15 from dual;



Language: SQL Rows: 10

```

1 select sysdate from dual;
2 select sysdate+15 from dual;

```

Results

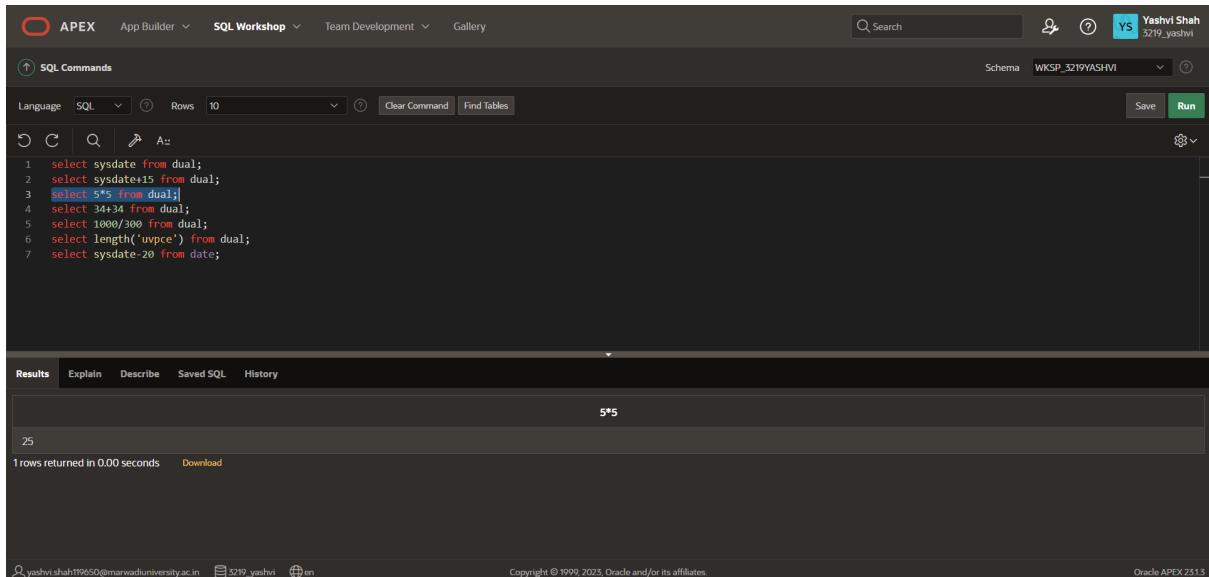
SYSDATE+15
08/31/2023

1 rows returned in 0.02 seconds Download

9. Perform following operation using DUAL table.

$5*5,34+34,1000/300,length$ of ‘uvpce’,display only month of systemdate

select $5*5$ from dual;



Language: SQL Rows: 10

```

1 select sysdate from dual;
2 select sysdate+15 from dual;
3 select 5*5 from dual;
4 select 34+34 from dual;
5 select 1000/300 from dual;
6 select length('uvpce') from dual;
7 select sysdate-20 from date;

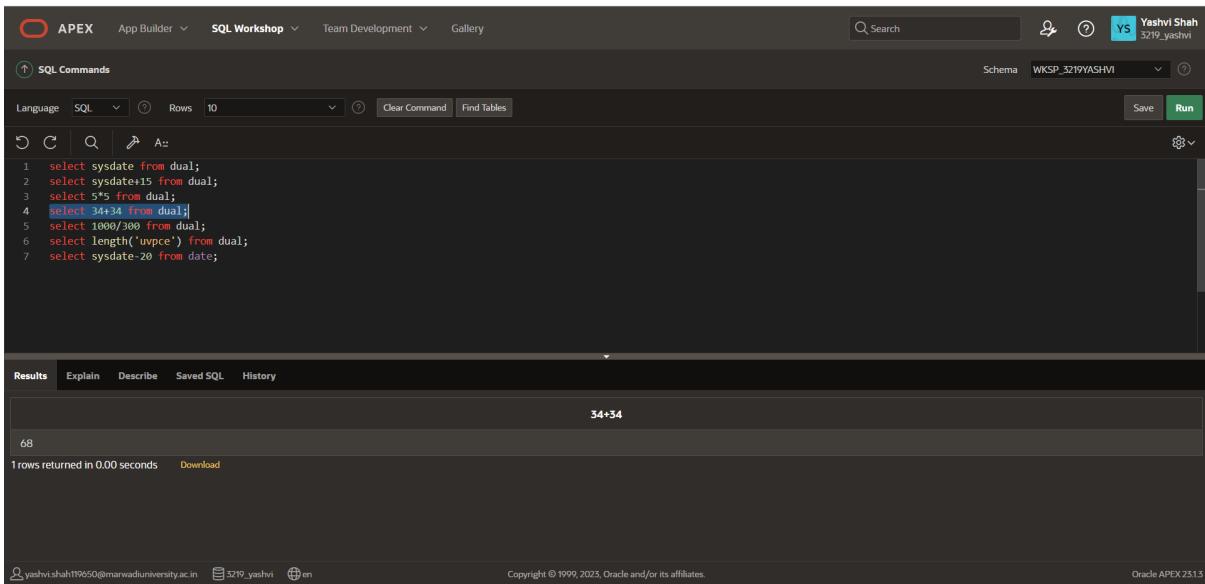
```

Results

5*5
25

1 rows returned in 0.00 seconds Download

select $34+34$ from dual;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run

1 select sysdate from dual;
2 select sysdate+15 from dual;
3 select 5*$ from dual;
4 select 34+34 from dual;
5 select 1000/300 from dual;
6 select length('uvpce') from dual;
7 select sysdate-20 from date;

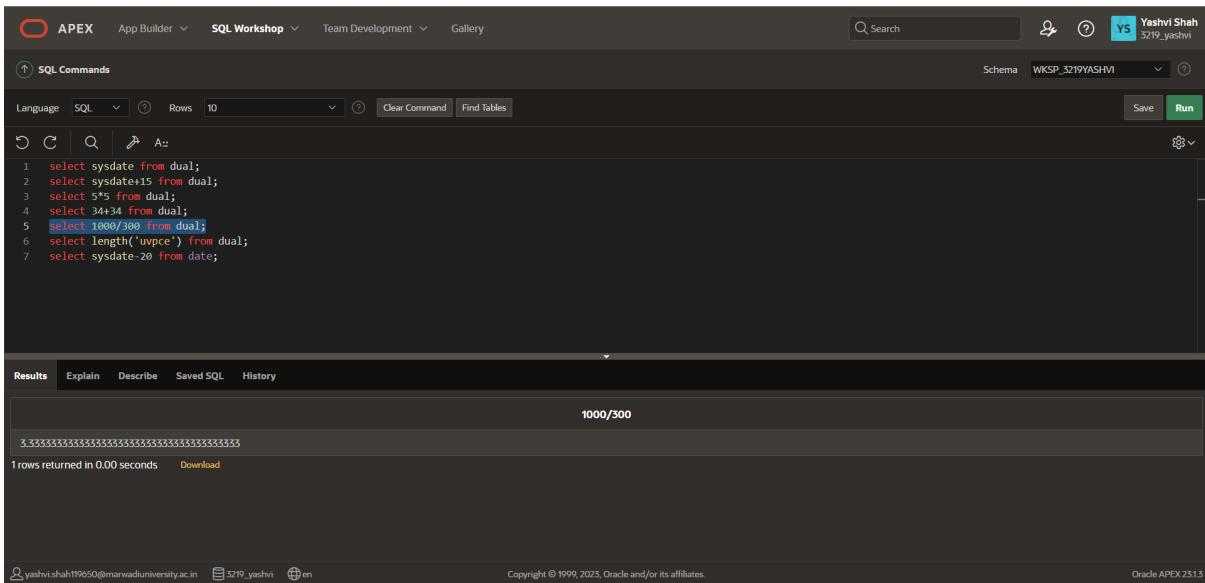
Results | Explain | Describe | Saved SQL | History

34+34
68
1 rows returned in 0.00 seconds | Download

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```

select 1000/300 from dual;



```

APEX SQL Workshop

SQL Commands
Language: SQL | Rows: 10 | Clear Command | Find Tables | Save | Run

1 select sysdate from dual;
2 select sysdate+15 from dual;
3 select 5*$ from dual;
4 select 34+34 from dual;
5 select 1000/300 from dual;
6 select length('uvpce') from dual;
7 select sysdate-20 from date;

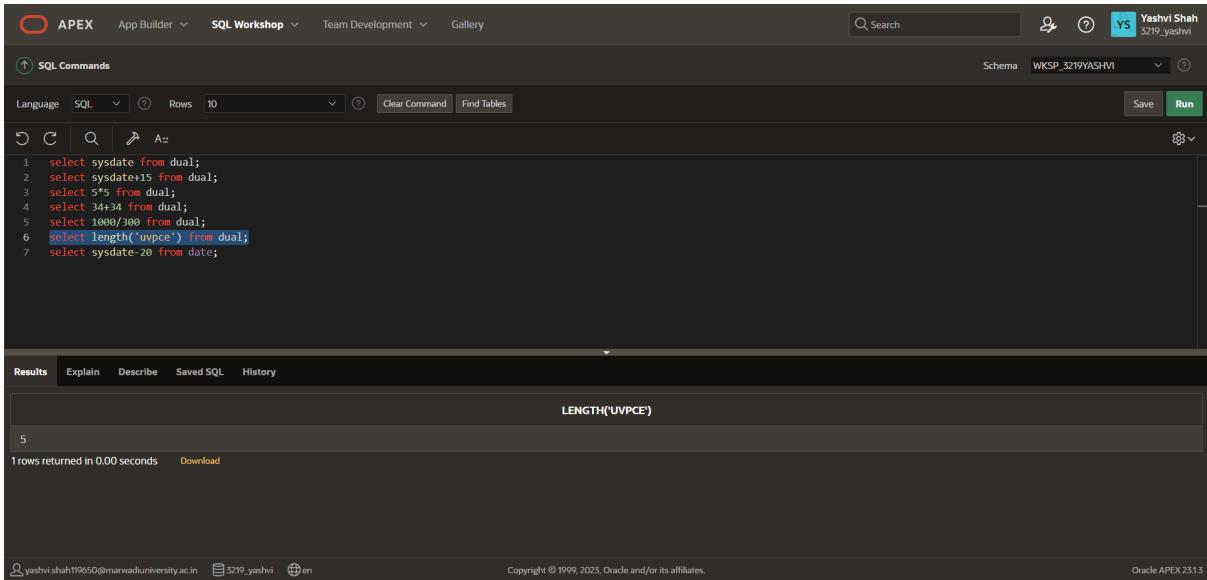
Results | Explain | Describe | Saved SQL | History

1000/300
3.3333333333333335
1 rows returned in 0.00 seconds | Download

Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 25.1.5

```

select length('uvpce') from dual;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands pane, the following query is run:

```
1 select sysdate from dual;
2 select sysdate+15 from dual;
3 select 5*5 from dual;
4 select 34+34 from dual;
5 select 1000/300 from dual;
6 select length('uvpce') from dual;
7 select sysdate-20 from date;
```

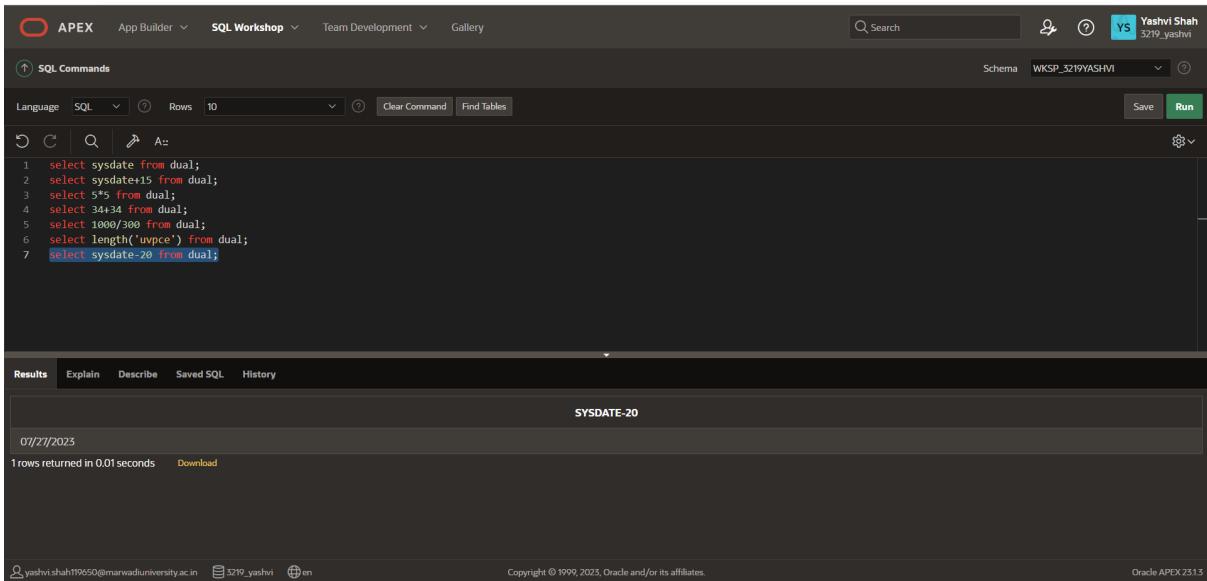
In the Results pane, the output for the sixth line is displayed:

LENGTH('UVPC')
5

1 rows returned in 0.00 seconds

10. Find the date, 20 days before today's date.

select sysdate-20 from dual;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands pane, the following query is run:

```
1 select sysdate from dual;
2 select sysdate+15 from dual;
3 select 5*5 from dual;
4 select 34+34 from dual;
5 select 1000/300 from dual;
6 select length('uvpce') from dual;
7 select sysdate-20 from dual;
```

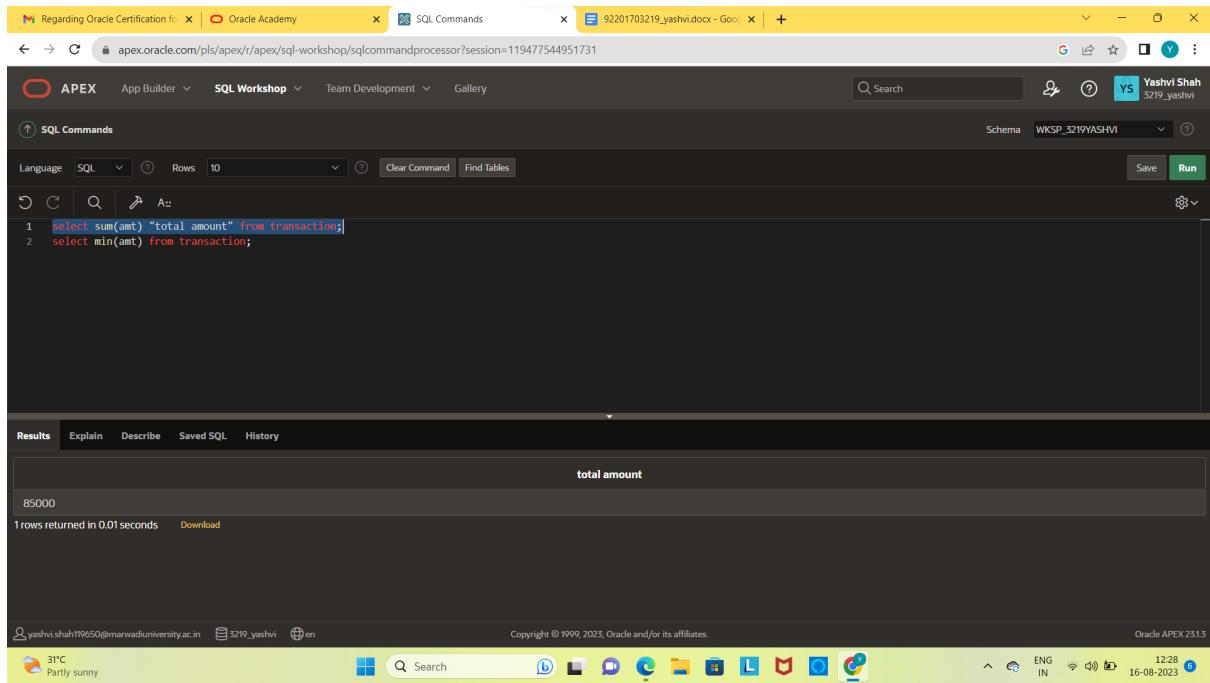
In the Results pane, the output for the seventh line is displayed:

SYSDATE-20
07/27/2023

1 rows returned in 0.01 seconds

Function Based Queries.

- Find the total transaction amount of account holder from transaction table.
select sum(amt) "total amount" from transaction;



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;

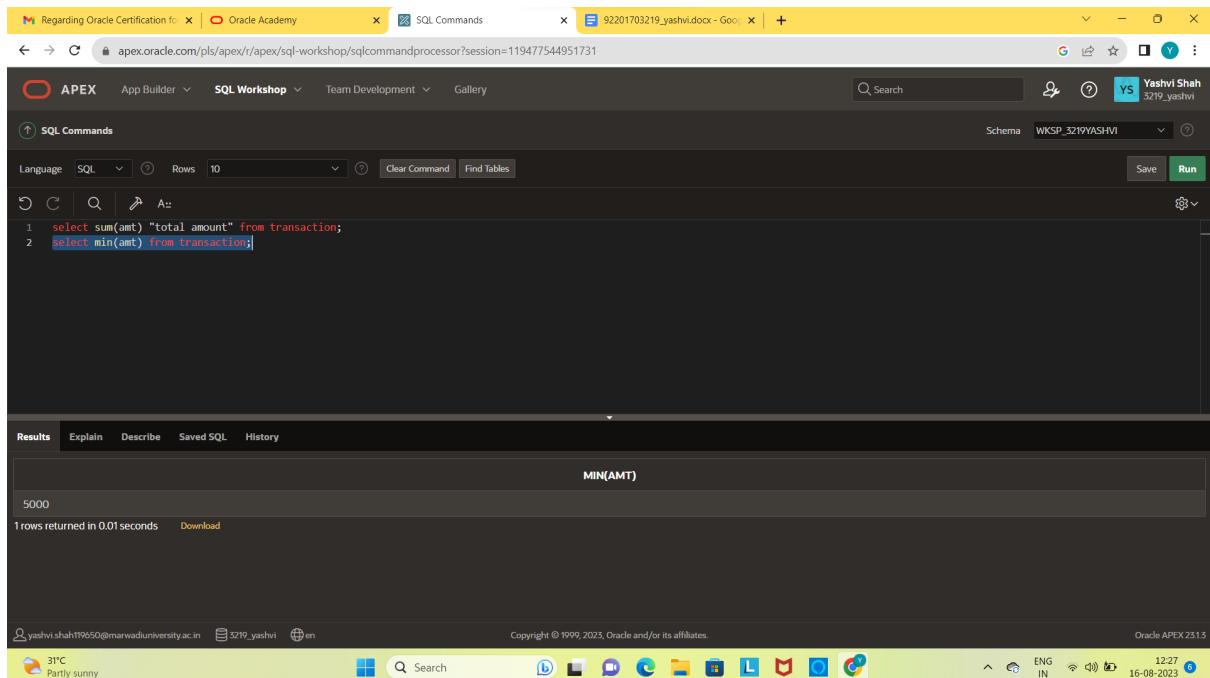
```

Results

total amount
85000

1 rows returned in 0.01 seconds Download

2. Find minimum amount of transaction.
select min(amt) from transaction;



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;

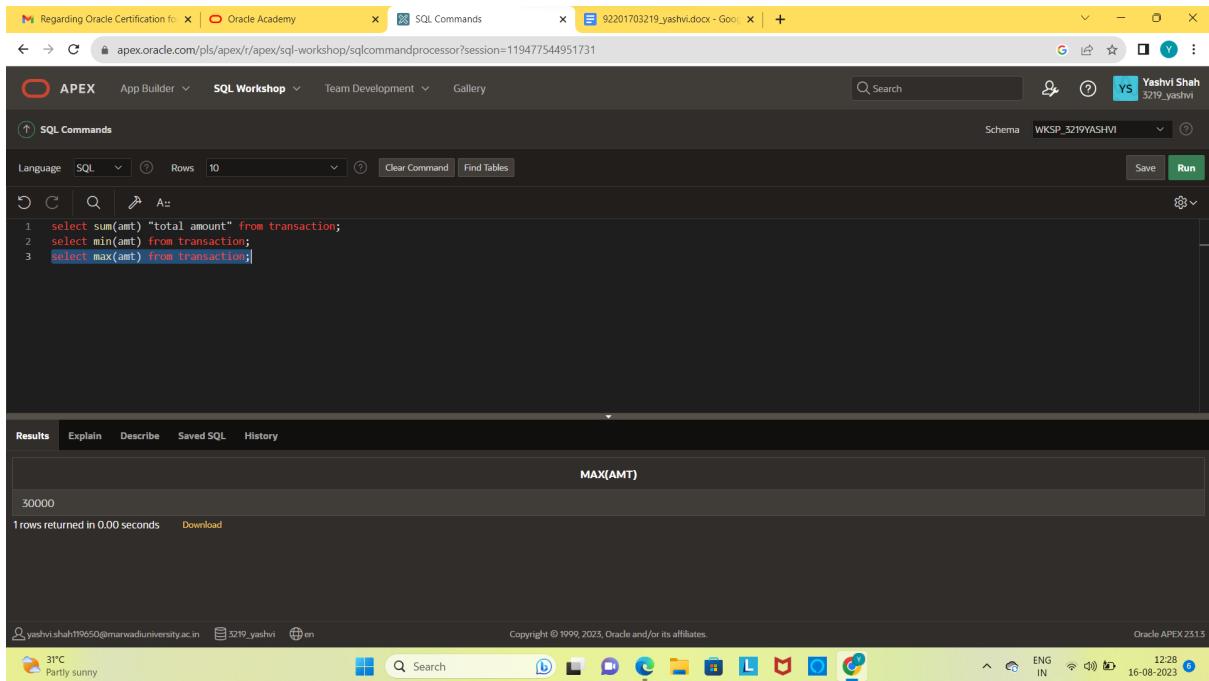
```

Results

MIN(AMT)
5000

1 rows returned in 0.01 seconds Download

3. Find maximum amount of transaction.
select max(amt) from transaction;



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;
3 select max(amt) from transaction;

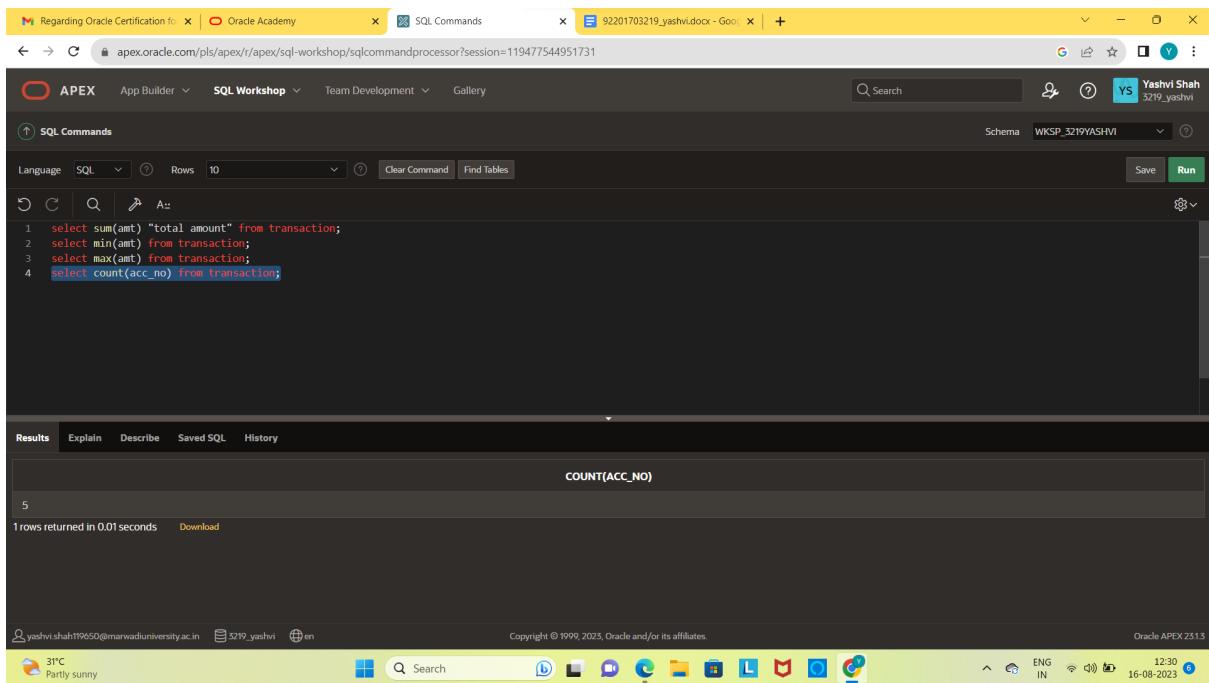
```

MAX(AMT)

30000

1 rows returned in 0.00 seconds Download

4. Count the total account holders.
`select count(acc_no) from transaction;`



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;
3 select max(amt) from transaction;
4 select count(acc_no) from transaction;

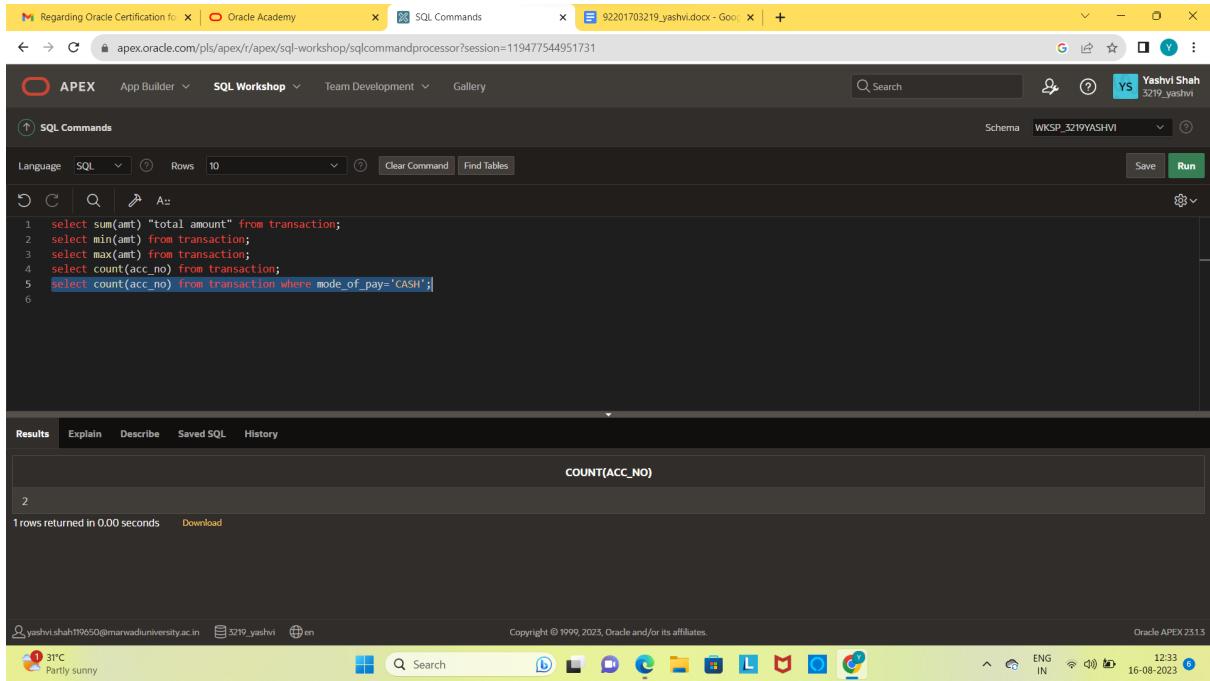
```

COUNT(ACC_NO)

5

1 rows returned in 0.01 seconds Download

5. Count only those records whose mode of payment is 'cash'.
`select count(acc_no) from transaction where mode_of_pay='CASH';`



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;
3 select max(amt) from transaction;
4 select count(acc_no) from transaction;
5 select count(acc_no) from transaction where mode_of_pay='CASH';
6

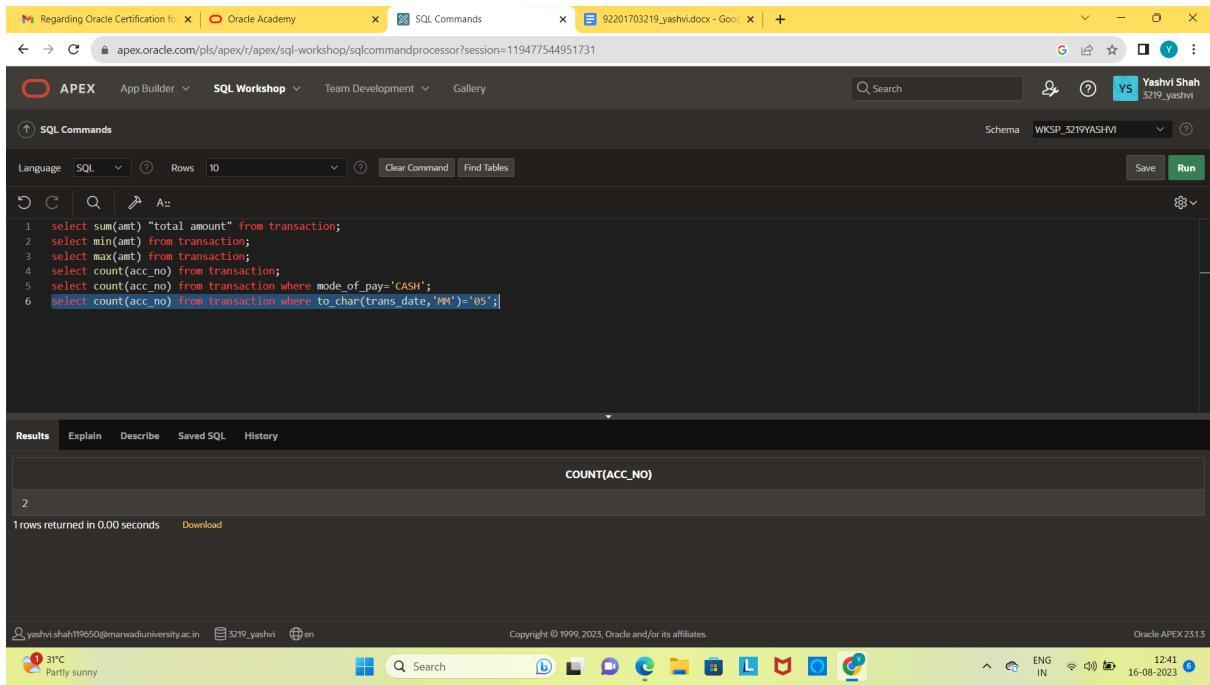
```

The screenshot shows the Oracle APEX SQL Workshop interface. A user named Yashvi Shah is logged in. The schema is set to WKSP_3219YASHVI. The query window contains the provided SQL code. The results tab shows the output:

COUNT(ACC_NO)
2

1 rows returned in 0.00 seconds. The browser status bar at the bottom indicates the date as 16-08-2023.

6. Count only those records whose transaction made in the month of 'MAY'.
`select count(acc_no) from transaction where to_char(trans_date,'MM')='05';`



```

1 select sum(amt) "total amount" from transaction;
2 select min(amt) from transaction;
3 select max(amt) from transaction;
4 select count(acc_no) from transaction;
5 select count(acc_no) from transaction where mode_of_pay='CASH';
6 select count(acc_no) from transaction where to_char(trans_date,'MM')='05';

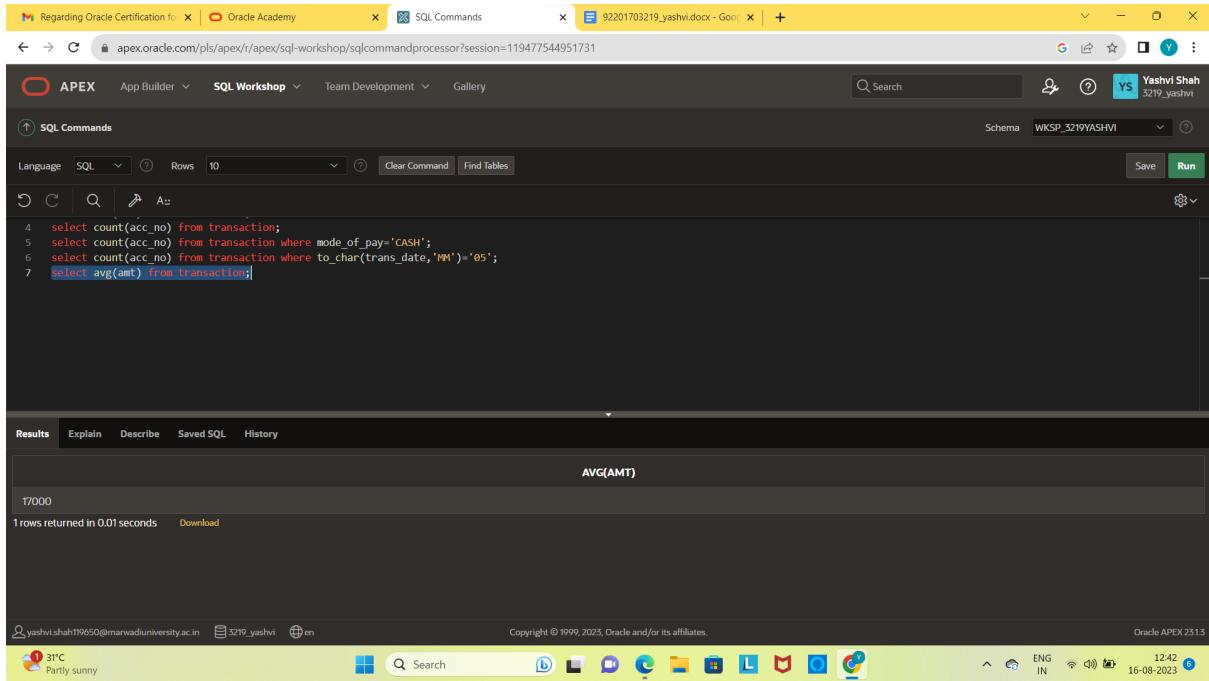
```

The screenshot shows the Oracle APEX SQL Workshop interface. A user named Yashvi Shah is logged in. The schema is set to WKSP_3219YASHVI. The query window contains the modified SQL code. The results tab shows the output:

COUNT(ACC_NO)
2

1 rows returned in 0.00 seconds. The browser status bar at the bottom indicates the date as 16-08-2023.

7. Find the average value of transaction.
`select avg(amt) from transaction;`



```

4 select count(acc_no) from transaction;
5 select count(acc_no) from transaction where mode_of_pay='CASH';
6 select count(acc_no) from transaction where to_char(trans_date,'MM')='05';
7 select avg(amt) from transaction;

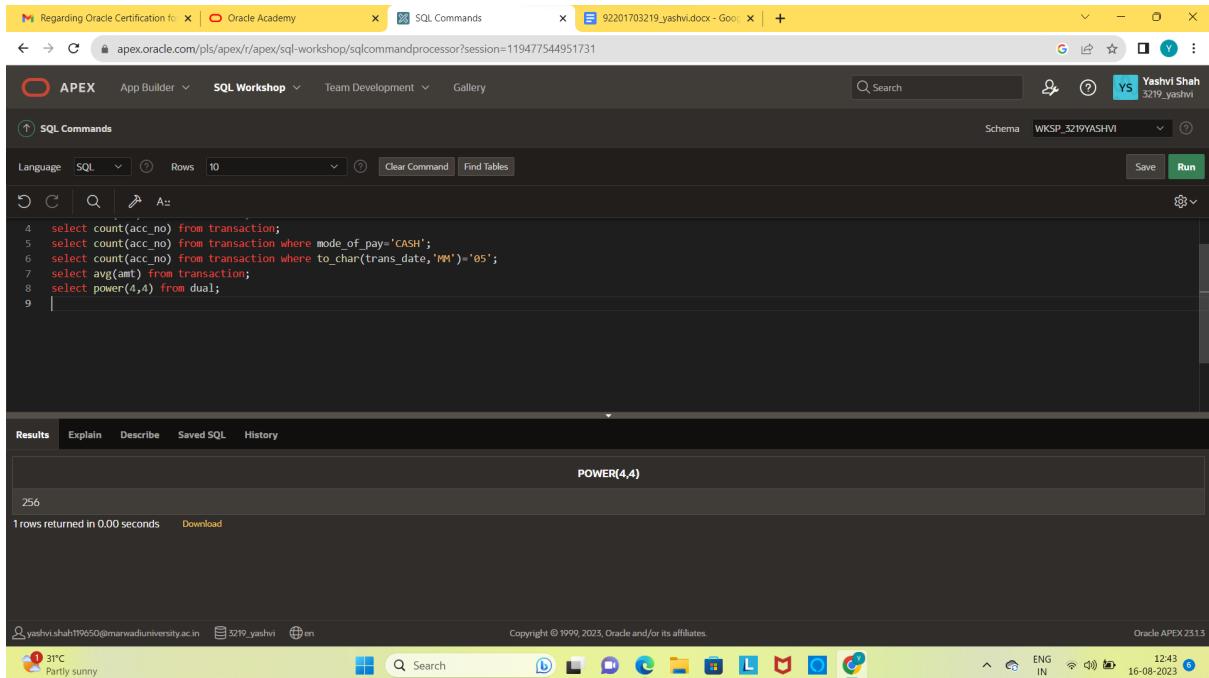
```

The results show:

Avg(Amt)
1/000

1 rows returned in 0.01 seconds

8. Display the result of 4 rest to 4.
select power(4,4) from dual;



```

4 select count(acc_no) from transaction;
5 select count(acc_no) from transaction where mode_of_pay='CASH';
6 select count(acc_no) from transaction where to_char(trans_date,'MM')='05';
7 select avg(amt) from transaction;
8 select power(4,4) from dual;
9

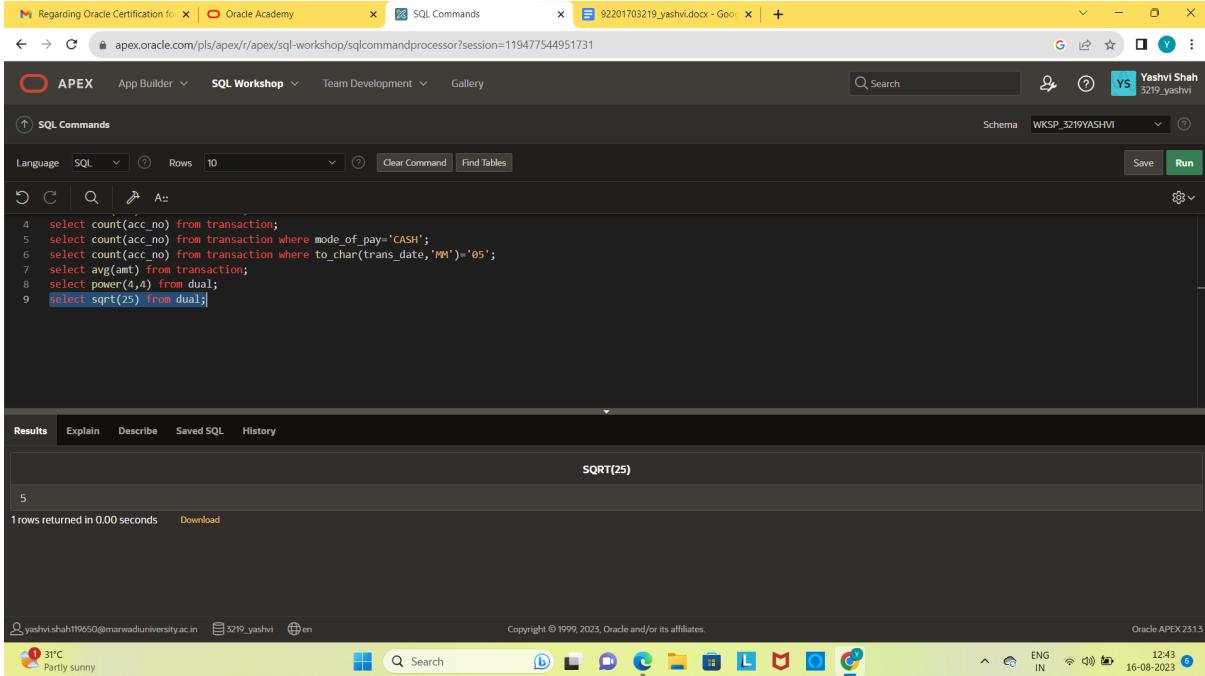
```

The results show:

POWER(4,4)
256

1 rows returned in 0.00 seconds

9. Find the square root of 25.
select sqrt(25) from dual;



The screenshot shows the Oracle APEX SQL Workshop interface. A query is being run:

```

4 select count(acc_no) from transaction;
5 select count(acc_no) from transaction where mode_of_pay='CASH';
6 select count(acc_no) from transaction where to_char(trans_date,'MM')='05';
7 select avg(camt) from transaction;
8 select power(4,4) from dual;
9 select sqrt(25) from dual;
  
```

The results show a single row with the value 5, labeled "SQRT(25)".

10. Write the query for the following Function.

LOWER, INITCAP, UPPER, SUBSTR, LENGTH, LTRIM, RTRIM, LPAD, RPAD

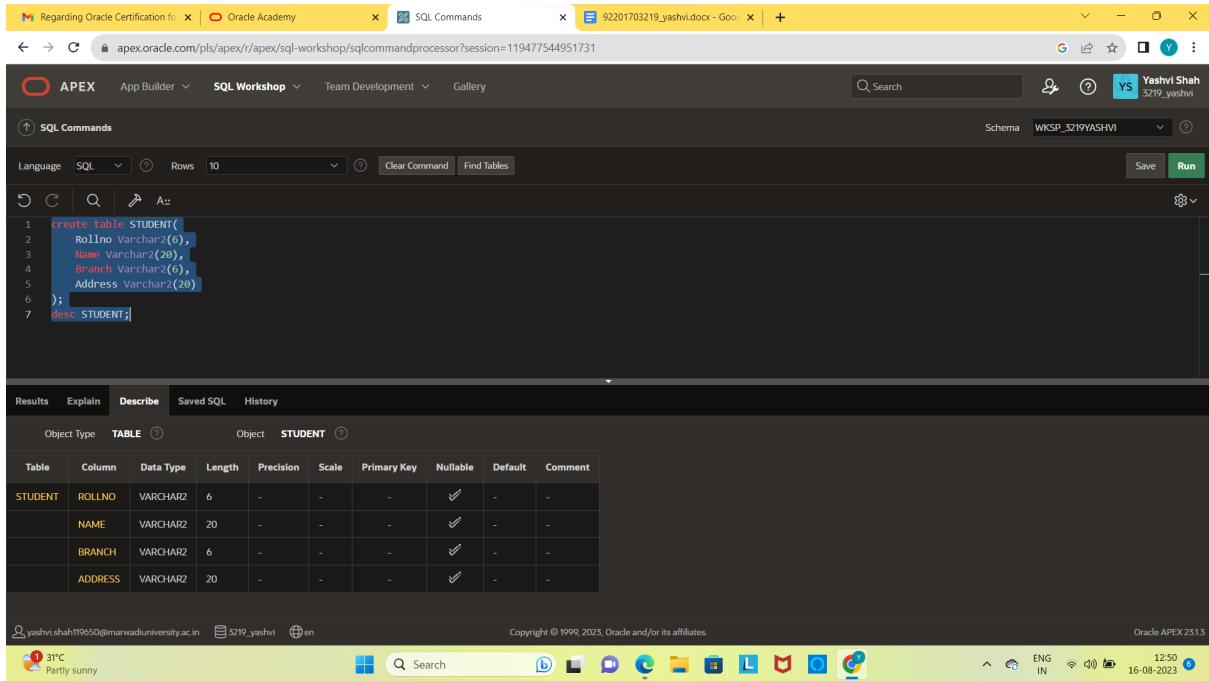
CONSTRAINTS Based queries.

Create a table: STUDENT

Name of column	Type and Size
Rollno	Varchar2(6)
Name	Varchar2(20)
Branch	Varchar2(6)
Address	Varchar2(20)

```

create table STUDENT(
  Rollno Varchar2(6),
  Name Varchar2(20),
  Branch Varchar2(6),
  Address Varchar2(20)
);
desc STUDENT;
  
```



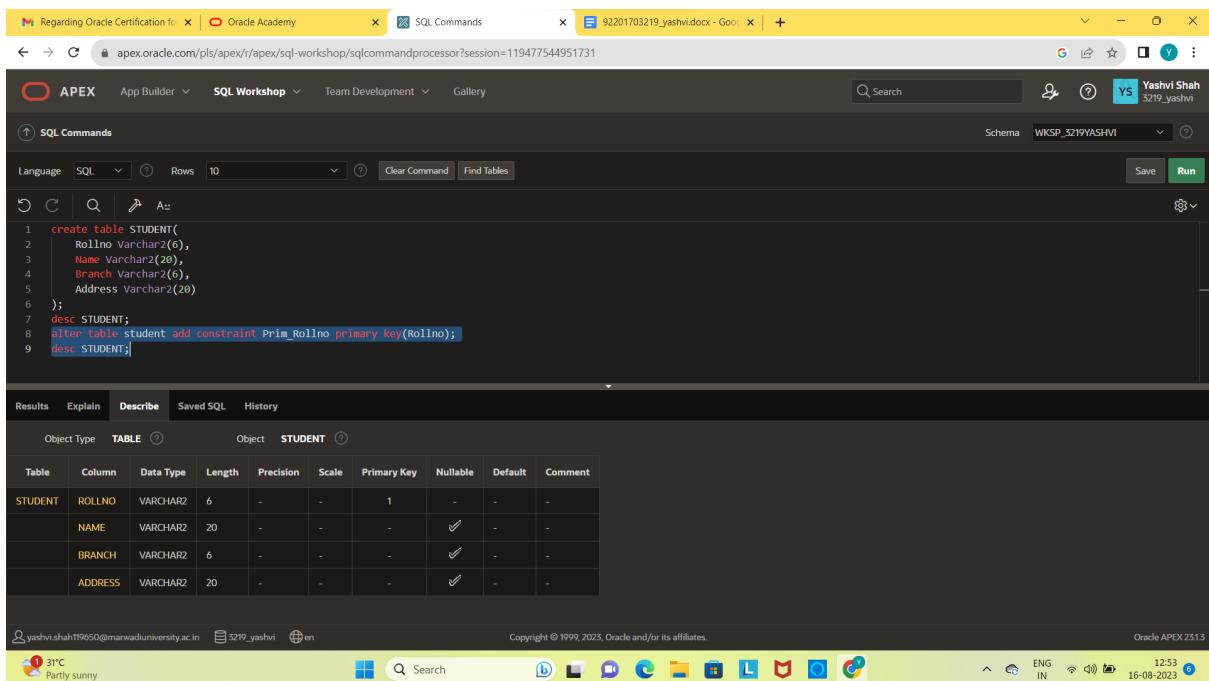
```

1 create table STUDENT(
2     Rollno Varchar2(6),
3     Name Varchar2(20),
4     Branch Varchar2(6),
5     Address Varchar2(20)
6 );
7 desc STUDENT;

```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	✓	-	-
	BRANCH	VARCHAR2	6	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

- Add PRIMARY KEY (roll no) and provide constraint name PRIM_rollno.
 alter table student add constraint Prim_Rollno primary key(Rollno);
 desc STUDENT;



```

1 create table STUDENT(
2     Rollno Varchar2(6),
3     Name Varchar2(20),
4     Branch Varchar2(6),
5     Address Varchar2(20)
6 );
7 desc STUDENT;
8 alter table student add constraint Prim_Rollno primary key(Rollno);
9 desc STUDENT;

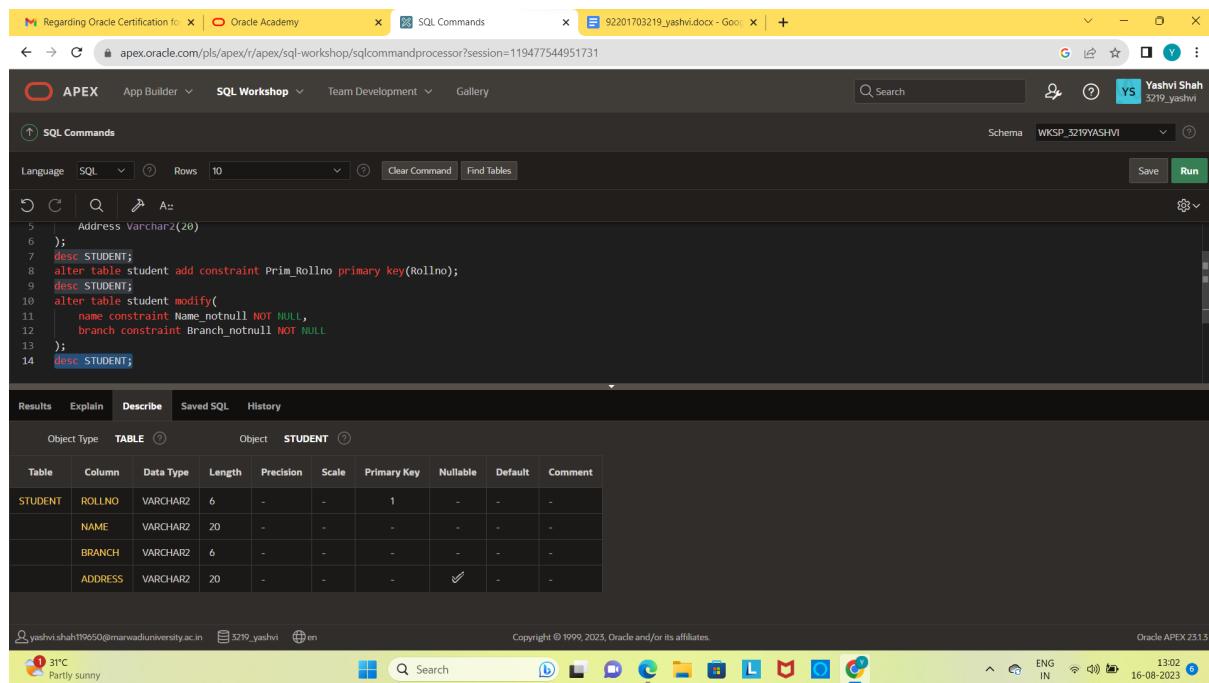
```

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	1	-	-	-
	NAME	VARCHAR2	20	-	-	-	✓	-	-
	BRANCH	VARCHAR2	6	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

- Add NOT NULL constraint to name,branch for student table.
 alter table student modify(

name constraint Name_notnull NOT NULL,
 branch constraint Branch_notnull NOT NULL

```
);
desc STUDENT;
```



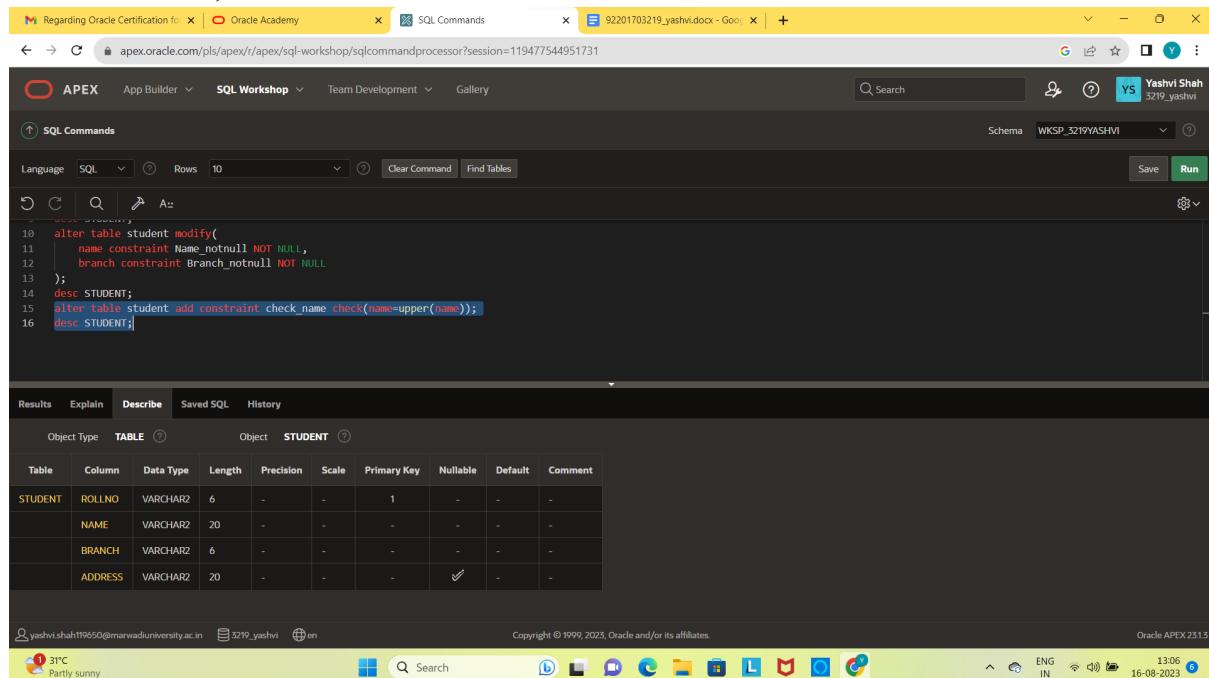
The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```
5 Address Varchar2(20)
6 );
desc STUDENT;
7 alter table student add constraint Prim_Rollno primary key(Rollno);
8 desc STUDENT;
9 alter table student modify(
10   name constraint Name_notnull NOT NULL,
11   branch constraint Branch_notnull NOT NULL
12 );
13 desc STUDENT;
14 desc STUDENT;
```

The results tab displays the description of the STUDENT table, which includes the newly added primary key constraint:

Object Type	TABLE	Object	STUDENT						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	1	-	-	-
	NAME	VARCHAR2	20	-	-	-	-	-	-
	BRANCH	VARCHAR2	6	-	-	-	-	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

3. Add check constraint and check name is in capital letter.
`alter table student add constraint check_name check(name=upper(name));`
`desc STUDENT;`



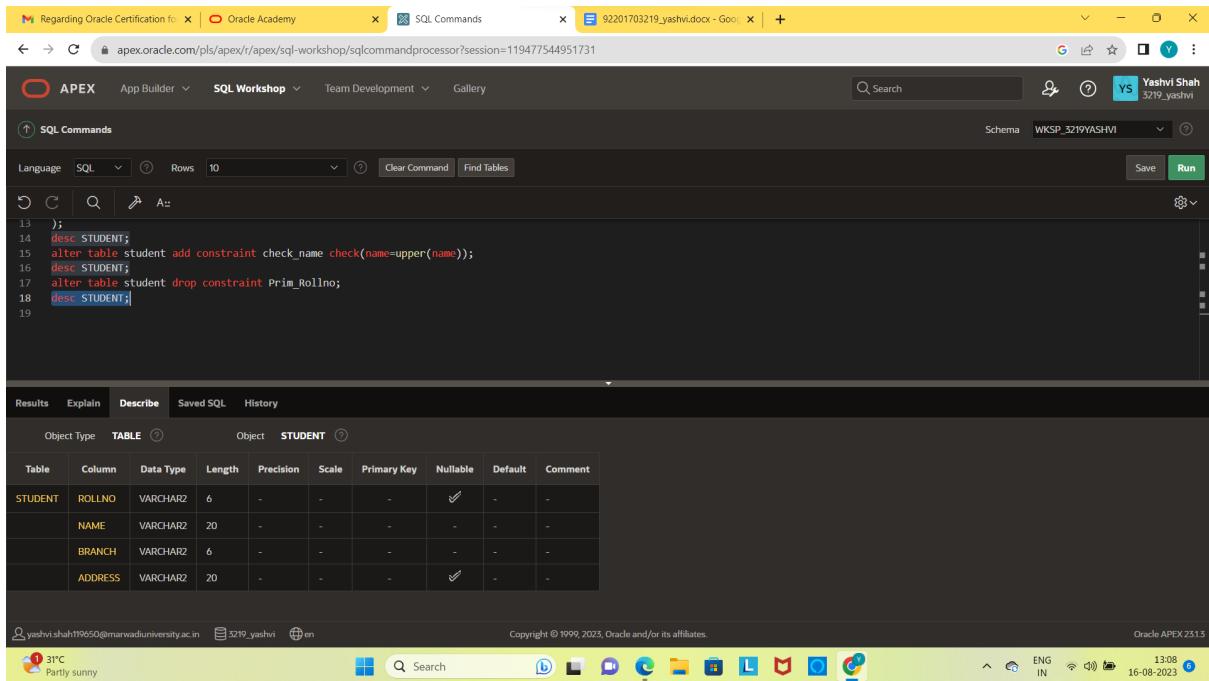
The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, the following SQL code is entered:

```
10 alter table student modify(
11   name constraint Name_notnull NOT NULL,
12   branch constraint Branch_notnull NOT NULL
13 );
14 desc STUDENT;
15 alter table student add constraint check_name check(name=upper(name));
16 desc STUDENT;
```

The results tab displays the description of the STUDENT table, which now includes the check constraint:

Object Type	TABLE	Object	STUDENT						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	1	-	-	-
	NAME	VARCHAR2	20	-	-	-	-	-	-
	BRANCH	VARCHAR2	6	-	-	-	-	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

4. Drop the primary key.
`alter table student drop constraint Prim_Rollno;`
`desc STUDENT;`



```

13 );
14 desc STUDENT;
15 alter table student add constraint check_name check(name=upper(name));
16 desc STUDENT;
17 alter table student drop constraint Prim_Rollno;
18 desc STUDENT;
19

```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab contains the above SQL code. The Results tab displays the description of the STUDENT table, which includes the newly added constraint:

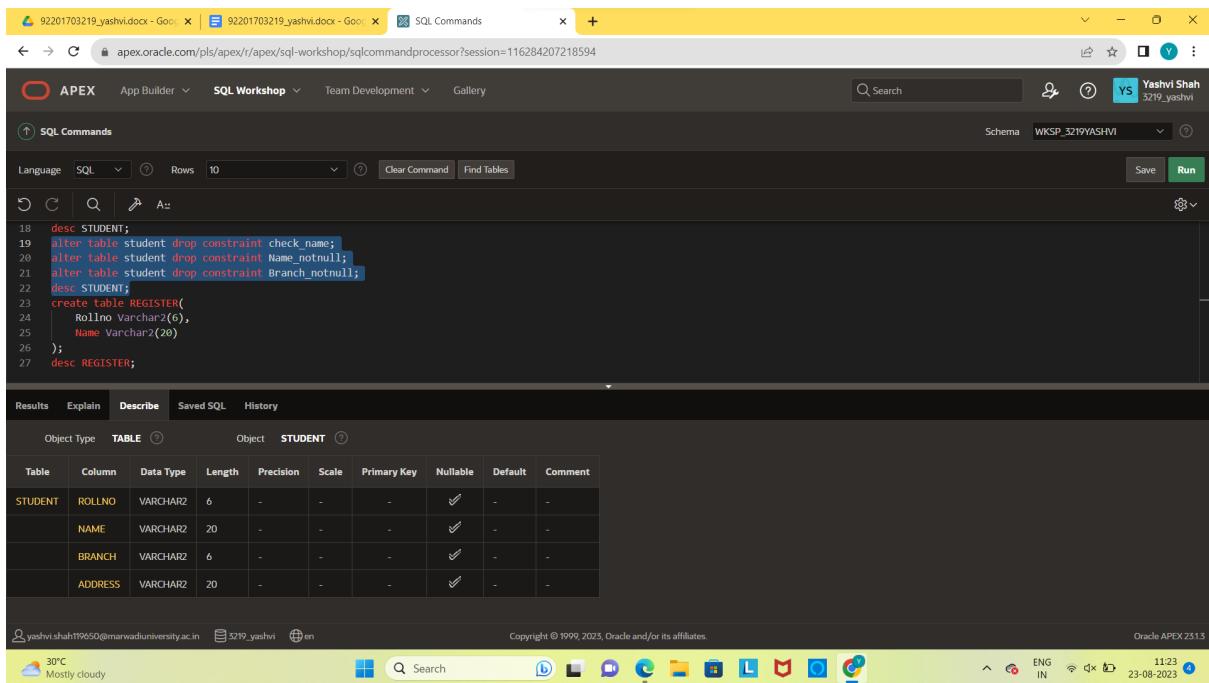
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	-	-	-
	BRANCH	VARCHAR2	6	-	-	-	-	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

5. Drop the constraint.

```

alter table student drop constraint check_name;
alter table student drop constraint Name_notnull;
alter table student drop constraint Branch_notnull;
desc STUDENT;

```



```

18 desc STUDENT;
19 alter table student drop constraint check_name;
20 alter table student drop constraint Name_notnull;
21 alter table student drop constraint Branch_notnull;
22 desc STUDENT;
23 create table REGISTER(
24   Rollno Varchar2(6),
25   Name Varchar2(20)
26 );
27 desc REGISTER;

```

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab contains the above SQL code. The Results tab displays the description of the STUDENT table, which now no longer has the constraints:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	✓	-	-
	BRANCH	VARCHAR2	6	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	20	-	-	-	✓	-	-

Create a Table REGISTER.

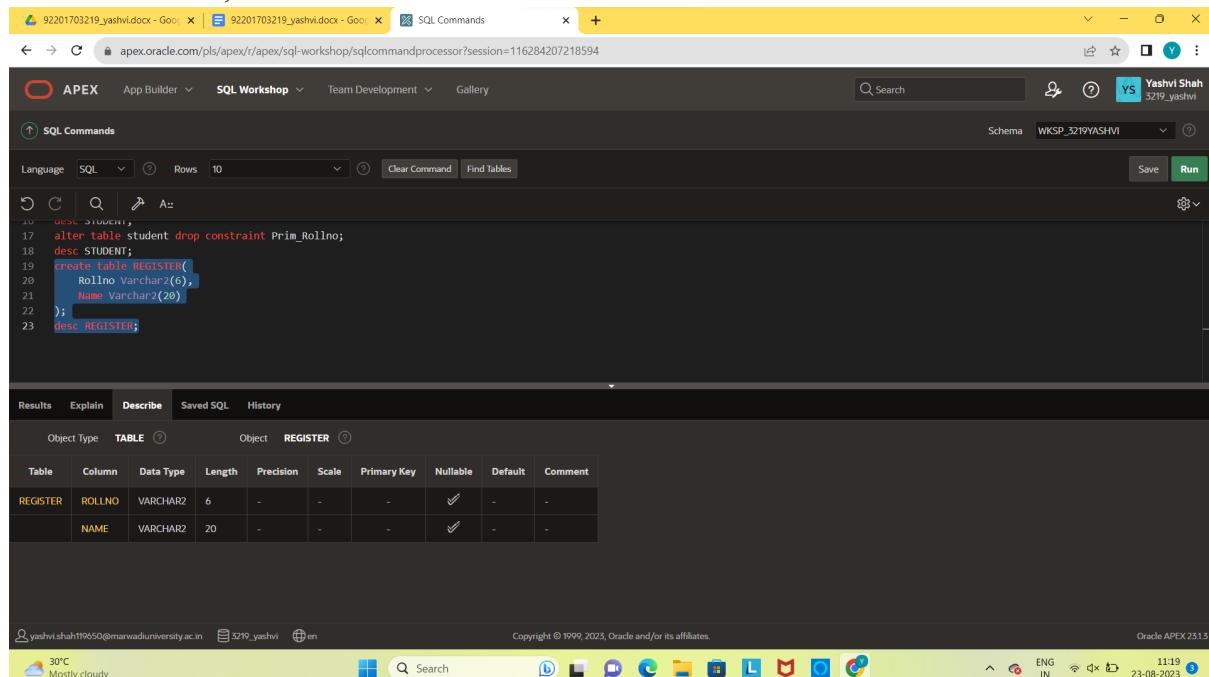
Name of column	Type and Size
Rollno	Varchar2(6)
Name	Varchar2(20)

create table REGISTER(

 Rollno Varchar2(6),
 Name Varchar2(20)

);

desc REGISTER;



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

```

desc STUDENT;
alter table student drop constraint Prim_Rollno;
desc STUDENT;
create table REGISTER(
    Rollno Varchar2(6),
    Name Varchar2(20)
);
desc REGISTER;

```

Below the code, the Results tab is selected, showing the description of the REGISTER table:

Object Type	TABLE	Object	REGISTER						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
REGISTER	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	✓	-	-

1. Provide foreign key references rollno of student table.

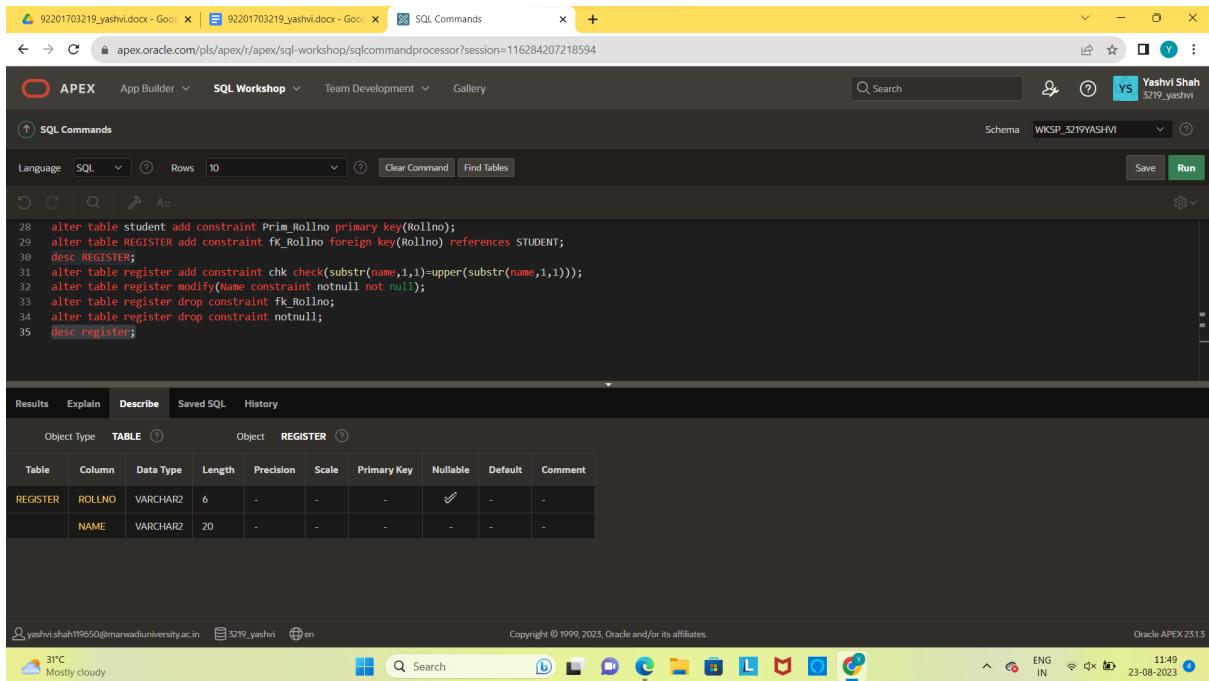
alter table REGISTER add constraint fK_Rollno foreign key(Rollno) references STUDENT;

2. Add check constraint to check name's first letter is always capital.

alter table register add constraint chk check(substr(name,1,1)=upper(substr(name,1,1)));

3. Add NOT NULL constraint to name of register table.

alter table register modify(Name constraint notnull not null);



```

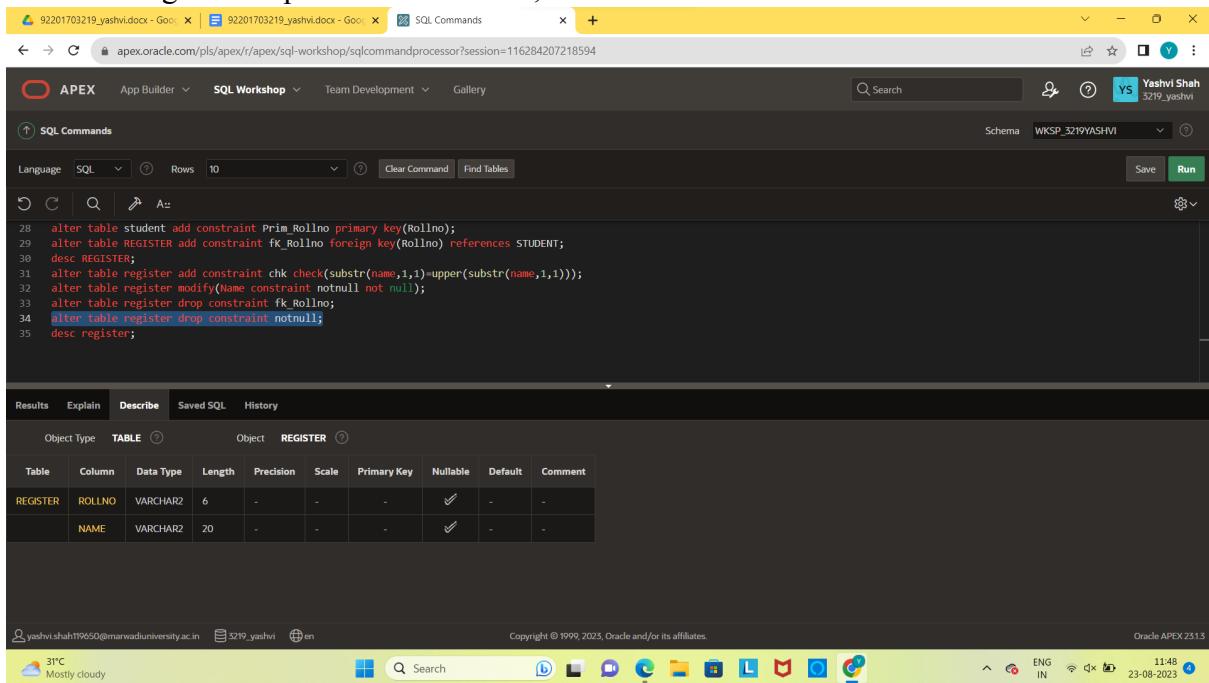
28 alter table student add constraint Prim_Rollno primary key(Rollno);
29 alter table REGISTER add constraint fk_Rollno foreign key(Rollno) references STUDENT;
30 desc REGISTER;
31 alter table register add constraint chk check(substr(name,1,1)=upper(substr(name,1,1)));
32 alter table register modify(Name constraint notnull not null);
33 alter table register drop constraint fk_Rollno;
34 alter table register drop constraint notnull;
35 desc register;

```

Object Type	TABLE	Object	REGISTER						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
REGISTER	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	-	-	-

4. Drop foreign key of REGISTER table.
`alter table register drop constraint fk_Rollno;`

5. Drop NOT NULL constraint.
`alter table register drop constraint notnull;`



```

28 alter table student add constraint Prim_Rollno primary key(Rollno);
29 alter table REGISTER add constraint fk_Rollno foreign key(Rollno) references STUDENT;
30 desc REGISTER;
31 alter table register add constraint chk check(substr(name,1,1)=upper(substr(name,1,1)));
32 alter table register modify(Name constraint notnull not null);
33 alter table register drop constraint fk_Rollno;
34 alter table register drop constraint notnull;
35 desc register;

```

Object Type	TABLE	Object	REGISTER						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
REGISTER	ROLLNO	VARCHAR2	6	-	-	-	✓	-	-
	NAME	VARCHAR2	20	-	-	-	✓	-	-

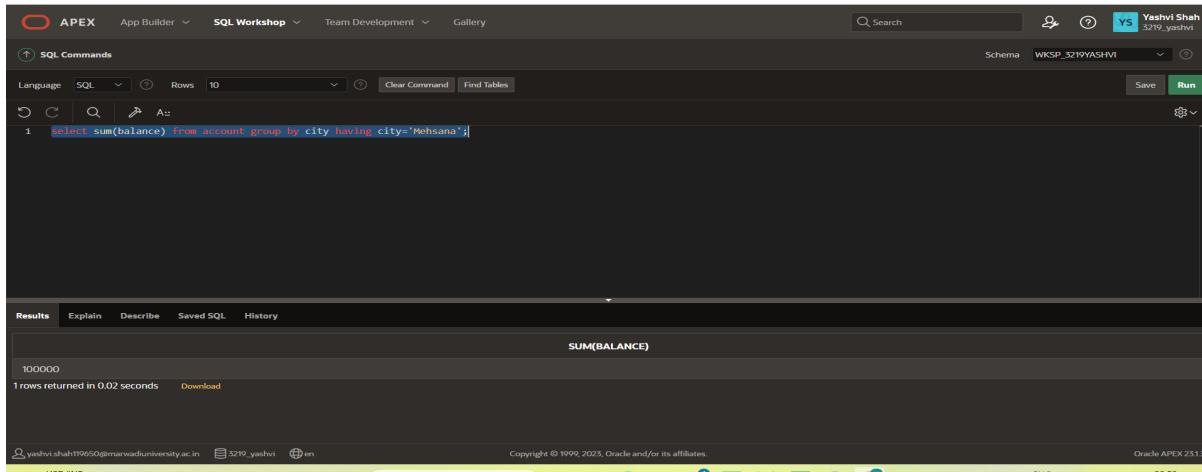
Practical 7

Aim: Implement operator, null and special operator-based queries

NOTE: for following queries use TABLES of PRACTICAL-1

- Display the sum of balance of account holders who's live in same city 'Mehsana' using group by clause.

```
select sum(balance) from account group by city having city='Mehsana';
```



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

```
1 select sum(balance) from account group by city having city='Mehsana';
```

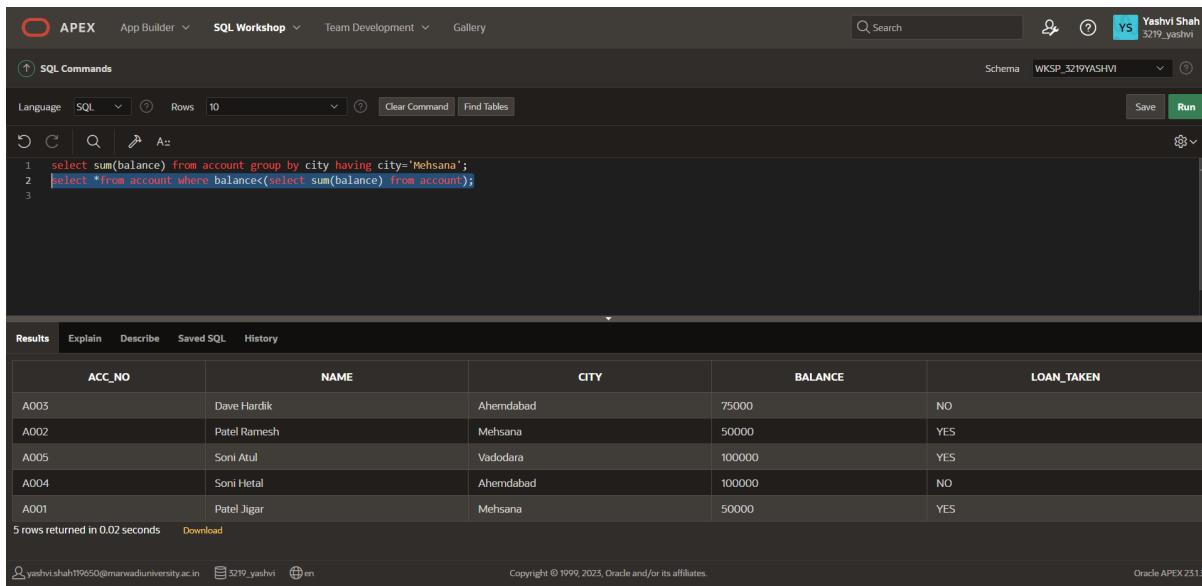
The results pane shows the output:

SUM(BALANCE)
100000

1 rows returned in 0.02 seconds

- Display the information about account where balance is less than total balance of all account holders.

```
select *from account where balance<(select sum(balance) from account);
```



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

```
1 select sum(balance) from account group by city having city='Mehsana';
2 select *from account where balance<(select sum(balance) from account);
3
```

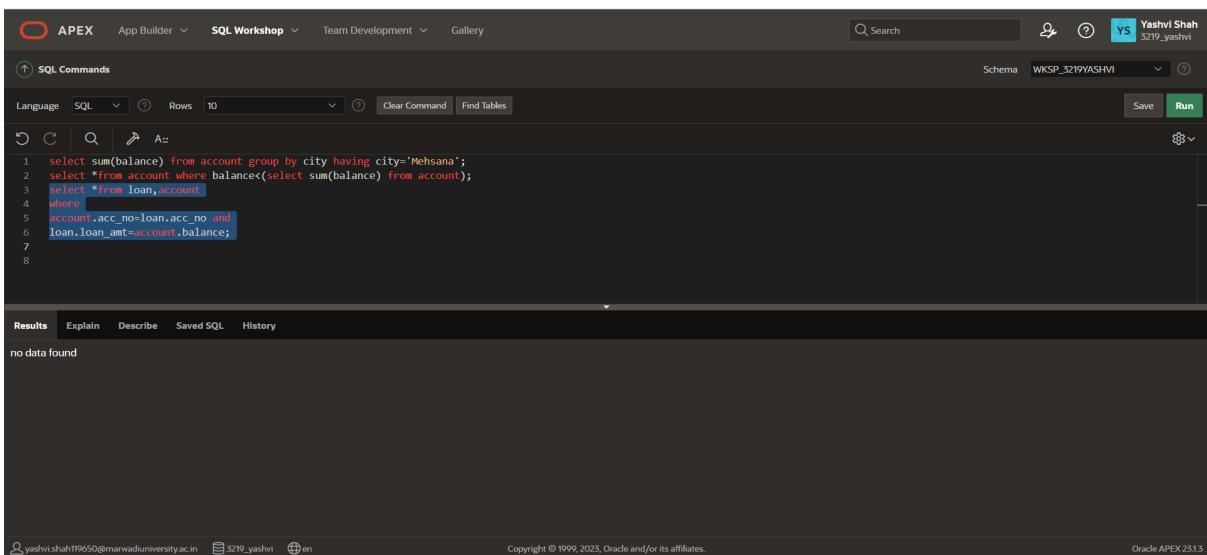
The results pane shows the output:

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

5 rows returned in 0.02 seconds

3. Displays the information of account holders whose loan amount and balance both are same.

```
select *from loan,account
where
account.acc_no=loan.acc_no and
loan.loan_amt=account.balance;
```



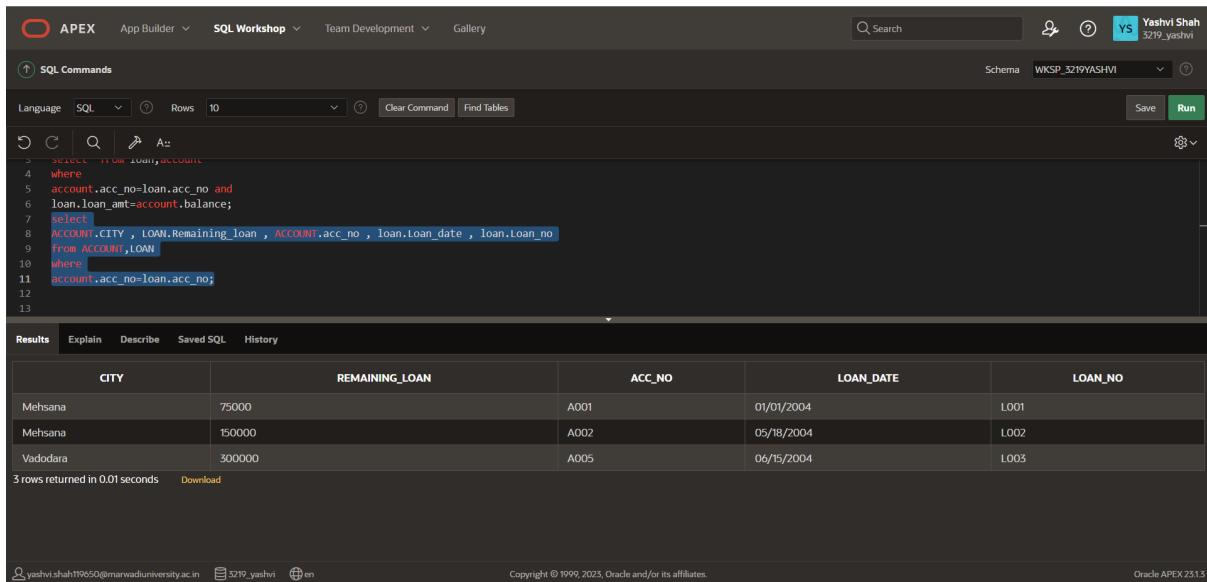
The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop' (selected), 'Team Development', and 'Gallery'. The right side shows a user profile for 'Yashvi Shah' and the schema 'WKSP_3219YASHVI'. The main area is a SQL editor with the following code:

```
1 select sum(balance) From account group by city having city='Mehsana';
2 select *from account where balance<(select sum(balance) from account);
3 select *from loan,account;
4 where
5 account.acc_no=loan.acc_no and
6 loan.loan_amt=account.balance;
7
8
```

The 'Results' tab is selected, showing the message 'no data found'.

4. Display the name of city, remaining loan amount, account, date of loan and loan number of account holders.

```
select
ACCOUNT.CITY , LOAN.Remaining_loan , ACCOUNT.acc_no , loan.Loan_date ,
loan.Loan_no
from ACCOUNT,LOAN
where
account.acc_no=loan.acc_no;
```



```

APEX App Builder SQL Workshop Team Development Gallery
SQL Commands Schema WKSP_5219YASHVI
Language SQL Rows 10 Clear Command Find Tables Save Run
SELECT * FROM LOAN,ACCOUNT
WHERE
account.acc_no=loan.acc_no AND
loan.loan_amt=account.balance;
SELECT
ACCOUNT.CITY , LOAN.Remaining_loan , ACCOUNT.acc_no , loan.Loan_date , loan.Loan_no
FROM ACCOUNT,LOAN
WHERE
account.acc_no=loan.acc_no;

```

Results Explain Describe Saved SQL History

CITY	REMAINING_LOAN	ACC_NO	LOAN_DATE	LOAN_NO
Mehsana	75000	A001	01/01/2004	L001
Mehsana	150000	A002	05/18/2004	L002
Vadodara	300000	A005	06/15/2004	L005

3 rows returned in 0.01 seconds Download

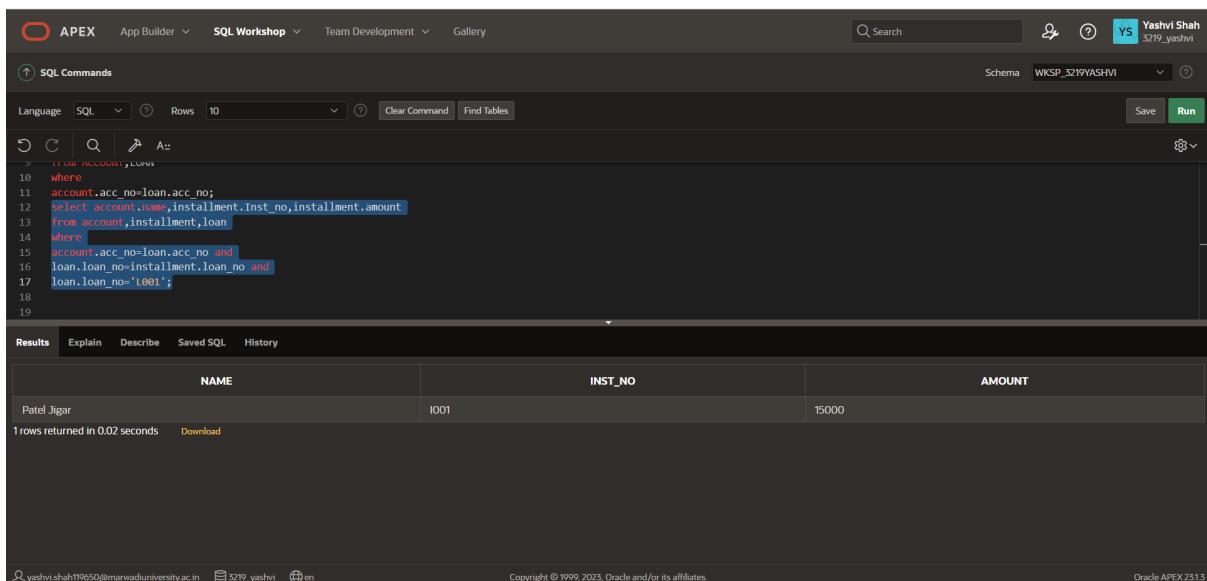
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5. Display name of account holder, installment number and installment amount Whose loan number is ‘L001’.

```

select account.name,installment.Inst_no,installment.amount
from account,installment,loan
where
account.acc_no=loan.acc_no and
loan.loan_no=installment.loan_no and
loan.loan_no='L001';

```



```

APEX App Builder SQL Workshop Team Development Gallery
SQL Commands Schema WKSP_5219YASHVI
Language SQL Rows 10 Clear Command Find Tables Save Run
SELECT * FROM ACCOUNT,LOAN
WHERE
account.acc_no=loan.acc_no;
SELECT account.name,installment.Inst_no,installment.amount
FROM account,installment,loan
WHERE
account.acc_no=loan.acc_no AND
loan.loan_no=installment.loan_no AND
loan.loan_no='L001';

```

Results Explain Describe Saved SQL History

NAME	INST_NO	AMOUNT
Patel Jigar	I001	15000

1 rows returned in 0.02 seconds Download

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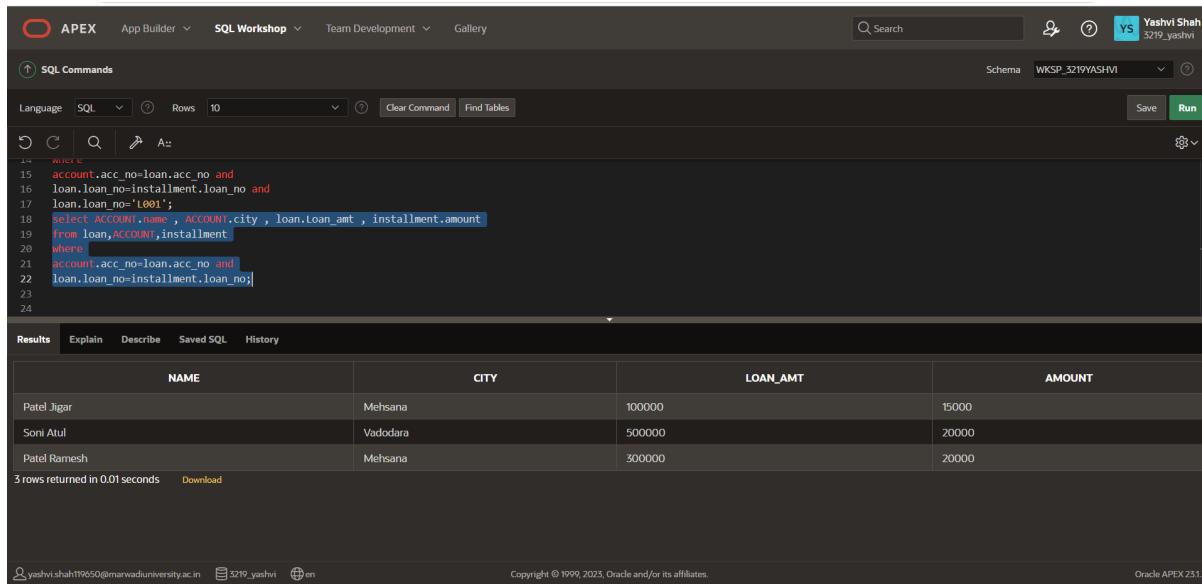
6. Display name of account holder, city, loan amount and installment amount.

```

select ACCOUNT.name , ACCOUNT.city , loan.Loan_amt , installment.amount
from loan,ACCOUNT,installment
where

```

account.acc_no=loan.acc_no and
loan.loan_no=installment.loan_no;



```

15 account.acc_no=loan.acc_no and
16 loan.loan_no=installment.loan_no
17 loan.loan_no like '100%';
18 select ACCOUNT.name , ACCOUNT.city , loan.Loan_amt , installment.amount
19 from loan,ACCOUNT,installment
20 where
21 account.acc_no=loan.acc_no and
22 loan.loan_no=installment.loan_no;
23
24

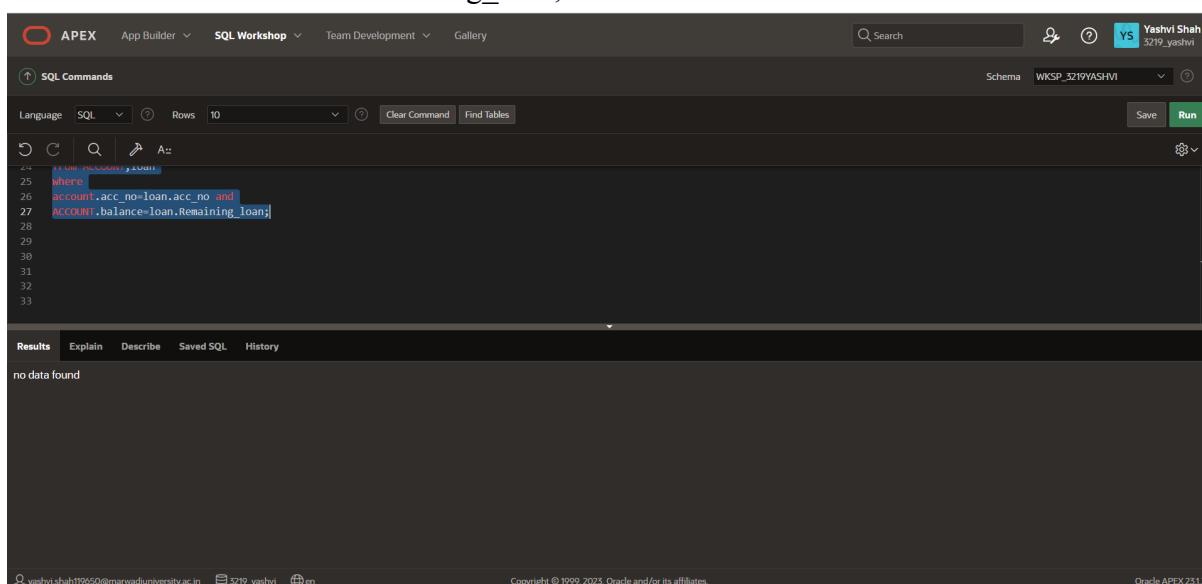
```

NAME	CITY	LOAN_AMT	AMOUNT
Patel Jigar	Mehsana	100000	15000
Soni Atul	Vadodara	500000	20000
Patel Ramesh	Mehsana	300000	20000

3 rows returned in 0.01 seconds Download

7. Display the balance of account holders whose balance and remaining loan both are same.

select ACCOUNT.name , ACCOUNT.balance
from ACCOUNT,loan
where
account.acc_no=loan.acc_no and
ACCOUNT.balance=loan.Remaining_loan;



```

14 select ACCOUNT.name , loan.Remaining_loan
15 where
16 account.acc_no=loan.acc_no and
17 ACCOUNT.balance=loan.Remaining_loan;
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

```

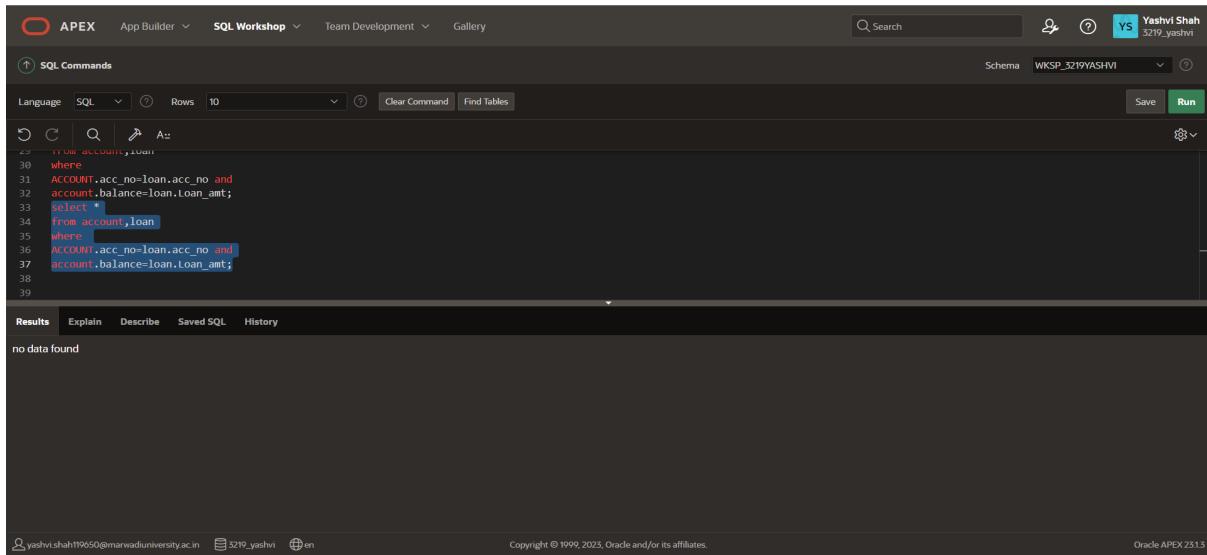
no data found

8. List of all account holders' information whose balance is same as loan amount.

select *
from account,loan

where

ACCOUNT.acc_no=loan.acc_no and
account.balance=loan.Loan_amt;



```

11  --> 11.01. account,loan
12  where
13  ACCOUNT.acc_no=loan.acc_no and
14  account.balance=loan.Loan_amt;
15  select *
16  from account,loan
17  where
18  ACCOUNT.acc_no=loan.acc_no and
19  account.balance=loan.Loan_amt;
20
21
22
23
24
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39

```

Results Explain Describe Saved SQL History

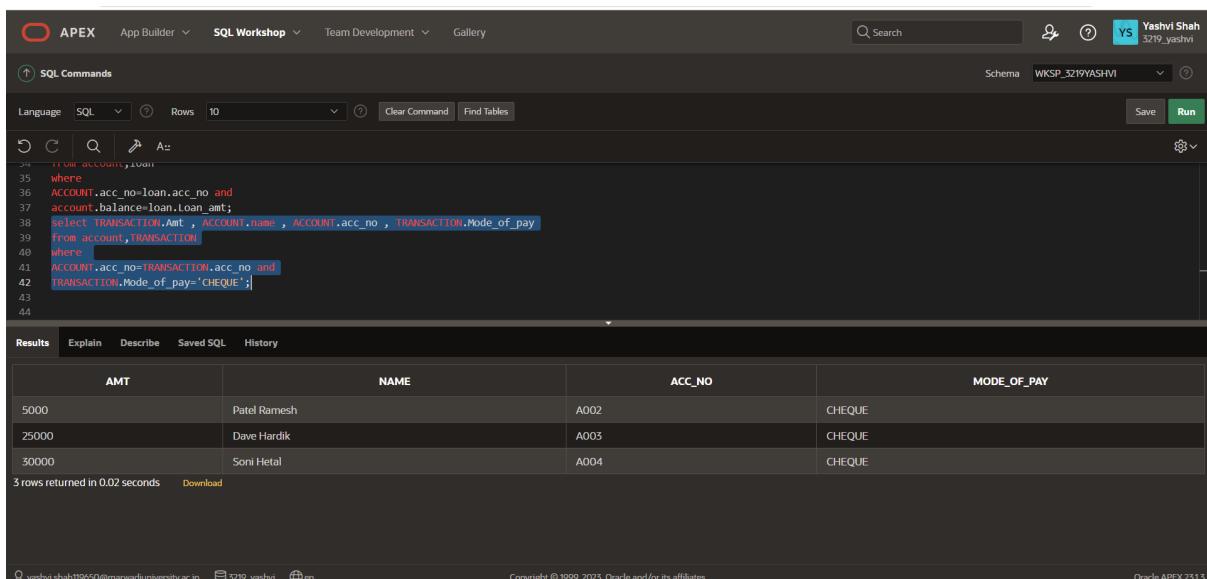
no data found

yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1.3

9. Display the amount of transaction, name of account holders, account number and mode of payment whose mode of payment is 'CHEQUE'.

select TRANSACTION.Amt , ACCOUNT.name , ACCOUNT.acc_no ,
TRANSACTION.Mode_of_pay
from account,TRANSACTION
where

ACCOUNT.acc_no=TRANSACTION.acc_no and
TRANSACTION.Mode_of_pay='CHEQUE';



```

11  --> 11.01. account,loan
12  where
13  ACCOUNT.acc_no=loan.acc_no and
14  account.balance=loan.Loan_amt;
15  select TRANSACTION.Amt , ACCOUNT.name , ACCOUNT.acc_no , TRANSACTION.Mode_of_pay
16  from account,TRANSACTION
17  where
18  ACCOUNT.acc_no=TRANSACTION.acc_no and
19  TRANSACTION.Mode_of_pay='CHEQUE';
20
21
22
23
24
25
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39
40
41
42
43
44

```

AMT	NAME	ACC_NO	MODE_OF_PAY
5000	Patel Ramesh	A002	CHEQUE
25000	Dave Hardik	A003	CHEQUE
30000	Soni Hetal	A004	CHEQUE

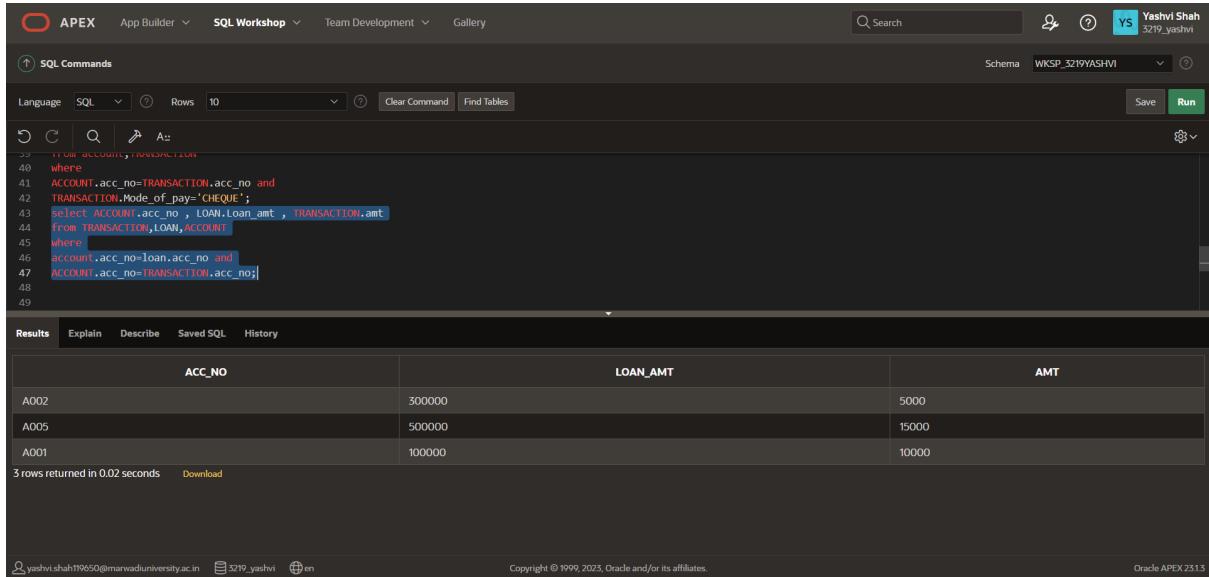
3 rows returned in 0.02 seconds Download

yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1.3

10. Display account no, loan amount, amount of transaction.

select ACCOUNT.acc_no , LOAN.Loan_amt , TRANSACTION.amt

```
from TRANSACTION,LOAN,ACCOUNT
where
account.acc_no=loan.acc_no and
ACCOUNT.acc_no=TRANSACTION.acc_no;
```



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

```
40  where
41  ACCOUNT.acc_no=TRANSACTION.acc_no and
42  TRANSACTION.Mode_of_pay='CHEQUE';
43  select ACCOUNT.acc_no , LOAN.Loan_amt , TRANSACTION.amt
44  from TRANSACTION,LOAN,ACCOUNT
45  where
46  account.acc_no=loan.acc_no and
47  ACCOUNT.acc_no=TRANSACTION.acc_no;
48
49
```

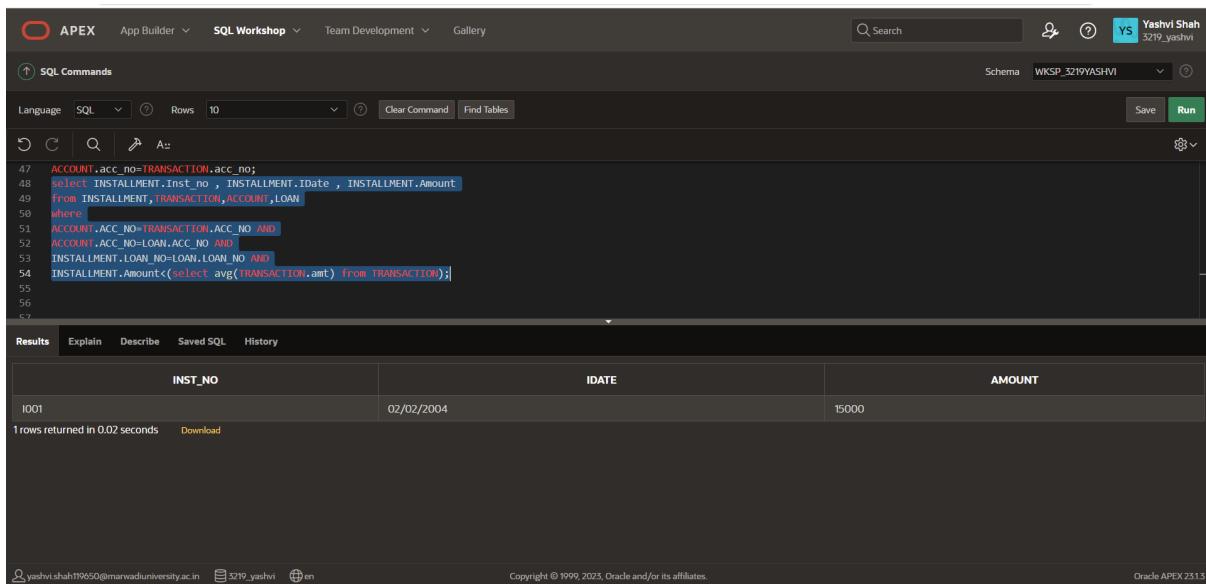
The Results tab displays the following data:

ACC_NO	LOAN_AMT	AMT
A002	300000	5000
A005	500000	15000
A001	100000	10000

3 rows returned in 0.02 seconds

11. List of installment information whose amount is less than average amount of transaction.

```
select INSTALLMENT.Inst_no , INSTALLMENT.IDate , INSTALLMENT.Amount
from INSTALLMENT,TRANSACTION,ACCOUNT,LOAN
where
ACCOUNT.ACC_NO=TRANSACTION.ACC_NO AND
ACCOUNT.ACC_NO=LOAN.ACC_NO AND
INSTALLMENT.LOAN_NO=LOAN.LOAN_NO AND
INSTALLMENT.Amount<(select avg(TRANSACTION.amt) from TRANSACTION);
```



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

```

47 ACCOUNT.ACC_NO=TRANSACTION.acc_no;
48 select INSTALLMENT.inst_no , INSTALLMENT.iDate , INSTALLMENT.Amount
49 from INSTALLMENT,TRANSACTION,ACCOUNT,LOAN
50 where
51 ACCOUNT.ACC_NO=TRANSACTION.ACC_NO AND
52 ACCOUNT.ACC_NO=LOAN.ACC_NO AND
53 INSTALLMENT.LOAN_NO=LOAN.LOAN_NO AND
54 INSTALLMENT.Amount<(select avg(TRANSACTION.amt) from TRANSACTION);
55
56
57

```

The results table shows one row of data:

INST_NO	iDATE	AMOUNT
1001	02/02/2004	15000

1 rows returned in 0.02 seconds

12. Display the sum of installment amount and transaction amount.

select sum(INSTALLMENT.Amount),sum(TRANSACTION.Amt)

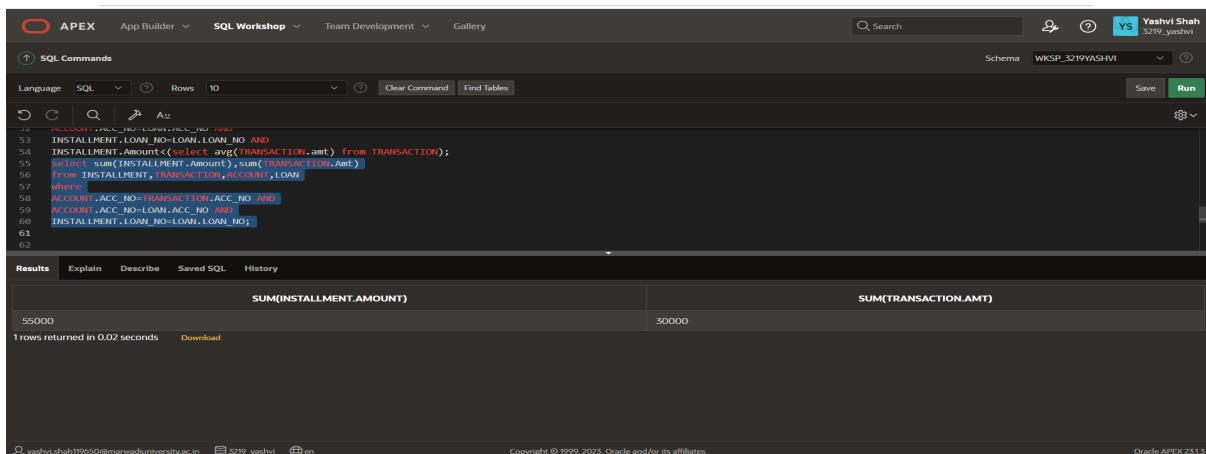
from INSTALLMENT,TRANSACTION,ACCOUNT,LOAN

where

ACCOUNT.ACC_NO=TRANSACTION.ACC_NO AND

ACCOUNT.ACC_NO=LOAN.ACC_NO AND

INSTALLMENT.LOAN_NO=LOAN.LOAN_NO;



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

```

42 ACCOUNT.ACC_NO=TRANSACTION.acc_no;
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
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77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92

```

The results table shows two rows of data:

SUM(INSTALLMENT.AMOUNT)	SUM(TRANSACTION.AMT)
55000	30000

1 rows returned in 0.02 seconds

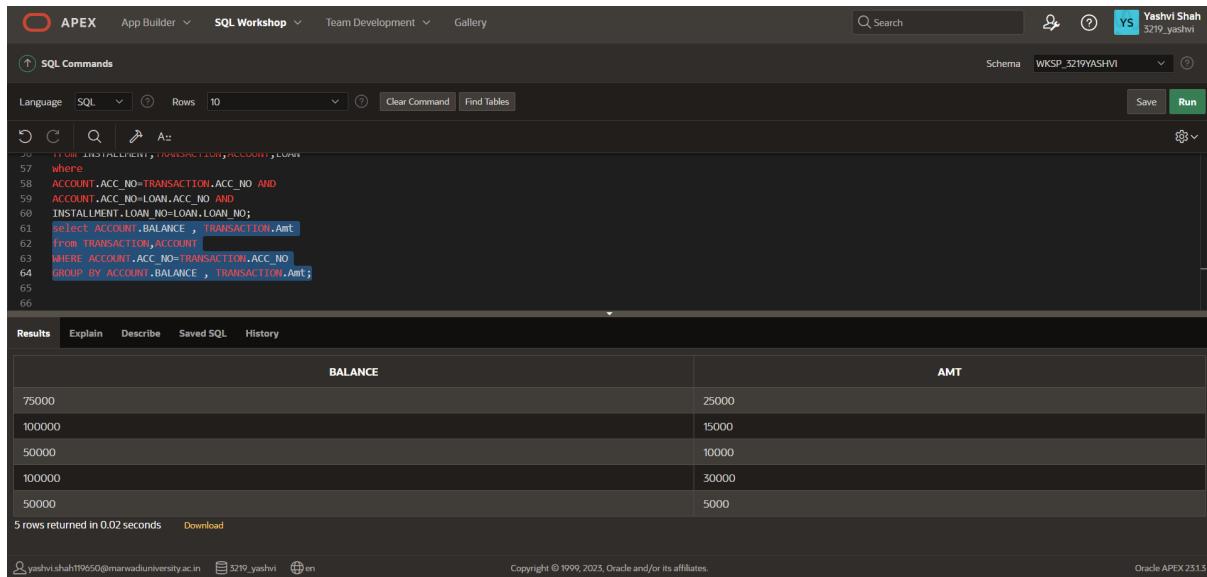
13. Display the balance and amount of transaction group by amount and balance.

select ACCOUNT.BALANCE , TRANSACTION.Amt

from TRANSACTION,ACCOUNT

WHERE ACCOUNT.ACC_NO=TRANSACTION.ACC_NO

GROUP BY ACCOUNT.BALANCE , TRANSACTION.Amt;



```

51   UNION ALL SELECT TRANSACTION.ACCT_BALANCE , TRANSACTION.AMT
52   FROM TRANSACTION,ACCOUNT
53   WHERE ACCOUNT.ACCT_NO=TRANSACTION.ACCT_NO
54   AND ACCOUNT.ACCT_NO=LOAN.ACCT_NO
55   AND TRANSACTION.ACCT_NO=LOAN.ACCT_NO;
56
57   GROUP BY ACCOUNT.ACCT_BALANCE , TRANSACTION.AMT;
58
59   ORDER BY ACCOUNT.ACCT_BALANCE , TRANSACTION.AMT;
60
61
62
63
64
65
66

```

BALANCE	AMT
75000	25000
100000	15000
50000	10000
100000	30000
50000	5000

5 rows returned in 0.02 seconds Download

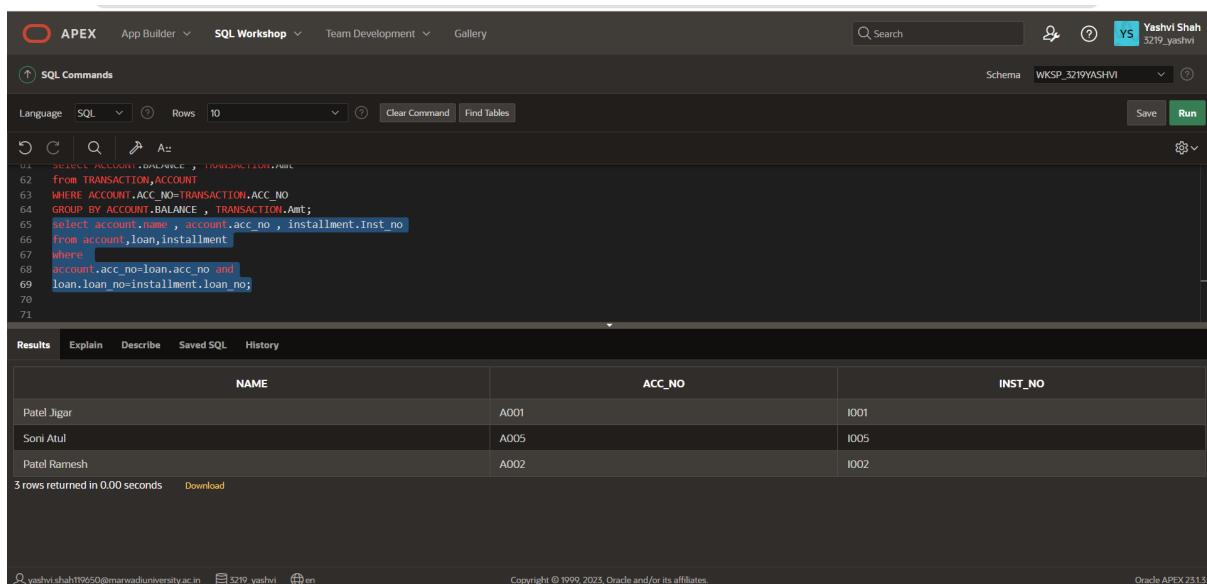
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14. List of installment number and account number of account holders.

```

select account.name , account.acc_no , installment.Inst_no
from account,loan,installment
where
account.acc_no=loan.acc_no and
loan.loan_no=installment.loan_no;

```



```

51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71

```

NAME	ACC_NO	INST_NO
Patel Jigar	A001	I001
Soni Atul	A005	I005
Patel Ramesh	A002	I002

3 rows returned in 0.00 seconds Download

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15. Display loan amount, transaction amount and mode of payment where transaction

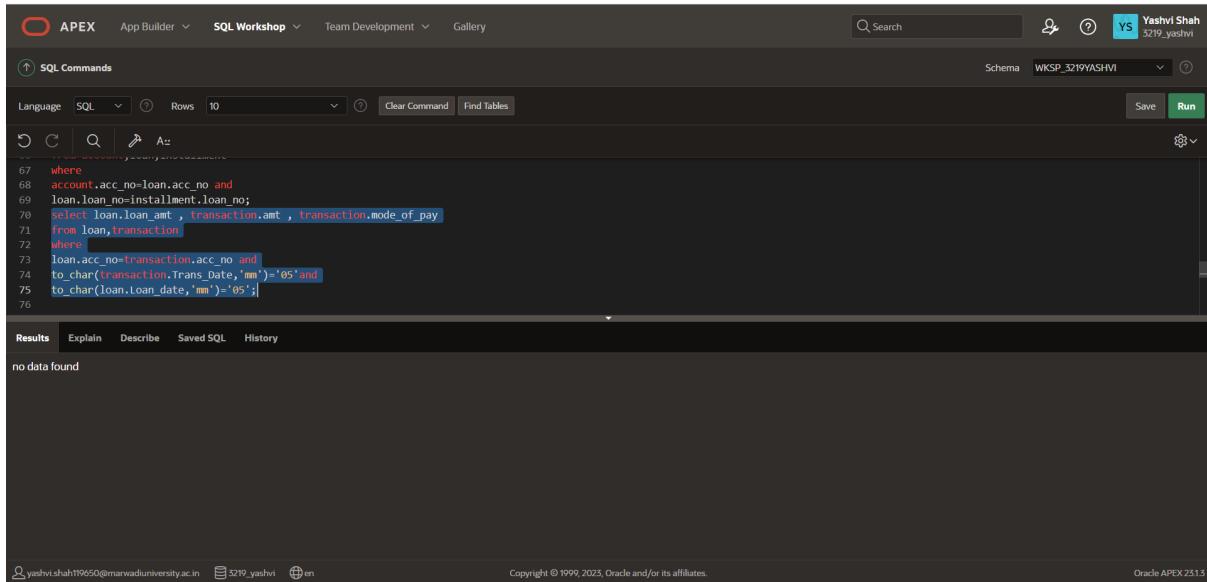
date and loan taken date both are done in month of 'MAY'.

```

select loan.loan_amt , transaction.amt , transaction.mode_of_pay
from loan,transaction
where
loan.acc_no=transaction.acc_no and
to_char(transaction.Trans_Date,'mm')='05' and

```

to_char(loan.Loan_date,'mm')='05';



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

```

67 where
68 account.acc_no=loan.acc_no and
69 loan.loan_no=installment.loan_no;
70 select loan.loan_amt , transaction.amt , transaction.mode_of_pay
71 from loan,transaction
72 where
73 loan.acc_no=transaction.acc_no and
74 to_char(transaction.Trans_Date,'mm')='05' and
75 to_char(loan.Loan_date,'mm')='05';
76

```

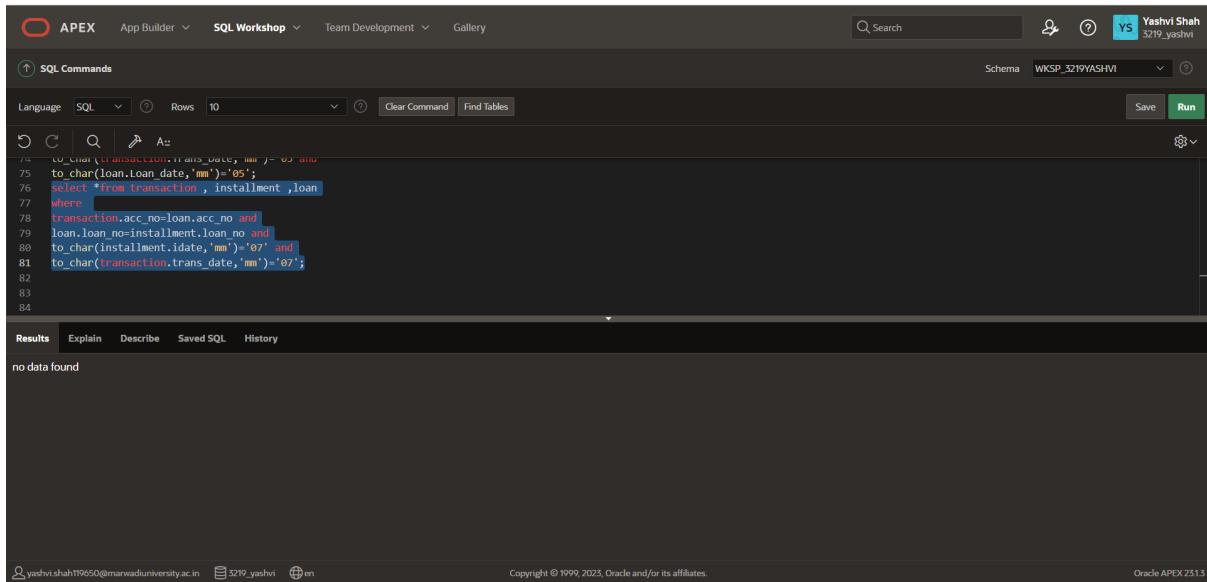
The results section shows "no data found".

16. Display all the information of installment and transaction where installment date and transaction date both are done in month of 'JULY'.

select *from transaction , installment ,loan

where

transaction.acc_no=loan.acc_no and
 loan.loan_no=installment.loan_no and
 to_char(installment.idate,'mm')='07' and
 to_char(transaction.trans_date,'mm')='07';



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

```

74 to_char(transaction.Trans_Date,'mm')='07' and
75 to_char(loan.Loan_date,'mm')='07';
76 select *from transaction , installment ,loan
77 where
78 transaction.acc_no=loan.acc_no and
79 loan.loan_no=installment.loan_no and
80 to_char(installment.idate,'mm')='07' and
81 to_char(transaction.trans_date,'mm')='07';
82
83
84

```

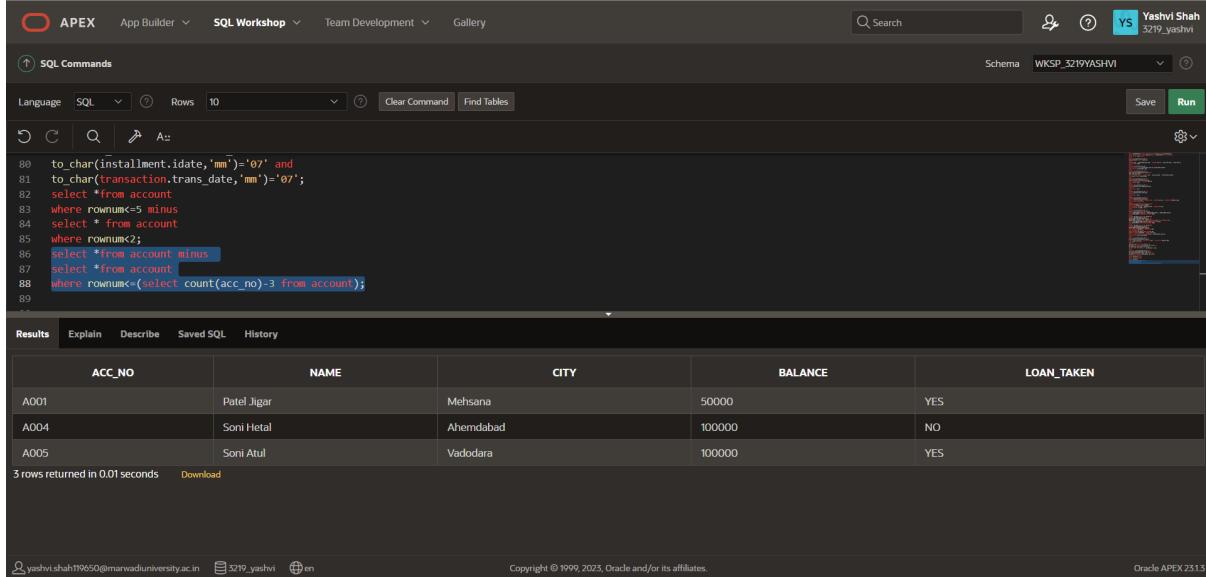
The results section shows "no data found".

17. Display the last three row of account table.

select *from account minus

select *from account

where rownum<=(select count(acc_no)-3 from account);



```

APEX SQL Workshop

Schema: WKSP_3219_YASHVI

SQL Commands
Language: SQL Rows: 10
Clear Command Find Tables
Save Run

80 to_char(installment.idate,'mm')='07' and
81 to_char(transaction.trans_date,'mm')='07';
82 select *from account
83 where rownum<=5 minus
84 select * from account
85 where rownum<2;
86 select *from account minus
87 select *from account
88 where rownum<=(select count(acc_no)-3 from account);
89

```

Results

ACC_NO	NAME	CITY	BALANCE	LOAN_TAKEN
A001	Patel Jigar	Mehsana	5000	YES
A004	Soni Hetal	Ahmedabad	100000	NO
A005	Soni Atul	Vadodara	100000	YES

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

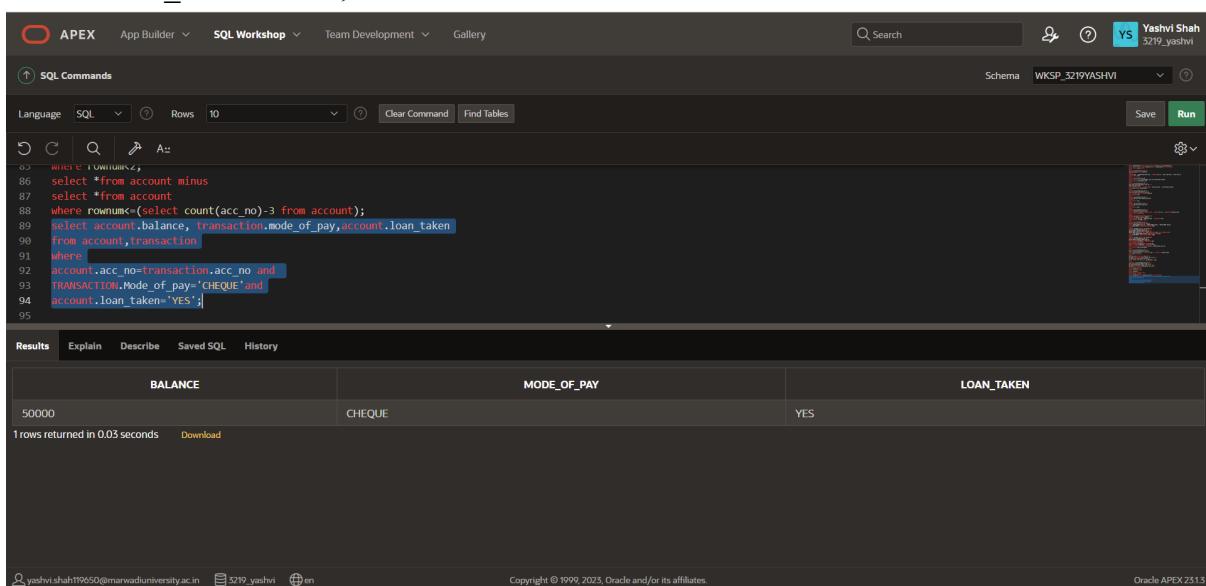
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18. Display the balance, mode of payment, loan taken status whose mode of payment is 'CHEQUE' and loan taken is 'YES'.

select account.balance, transaction.mode_of_pay,account.loan_taken
from account,transaction

where

account.acc_no=transaction.acc_no and
TRANSACTION.Mode_of_pay='CHEQUE' and
account.loan_taken='YES';



```

APEX SQL Workshop

Schema: WKSP_3219_YASHVI

SQL Commands
Language: SQL Rows: 10
Clear Command Find Tables
Save Run

85 where rownum<2;
86 select *from account minus
87 select *from account
88 where rownum<=(select count(acc_no)-3 from account);
89 select account.balance, transaction.mode_of_pay,account.loan_taken
90 from account,transaction
91 where
92 account.acc_no=transaction.acc_no and
93 TRANSACTION.Mode_of_pay='CHEQUE' and
94 account.loan_taken='YES';
95

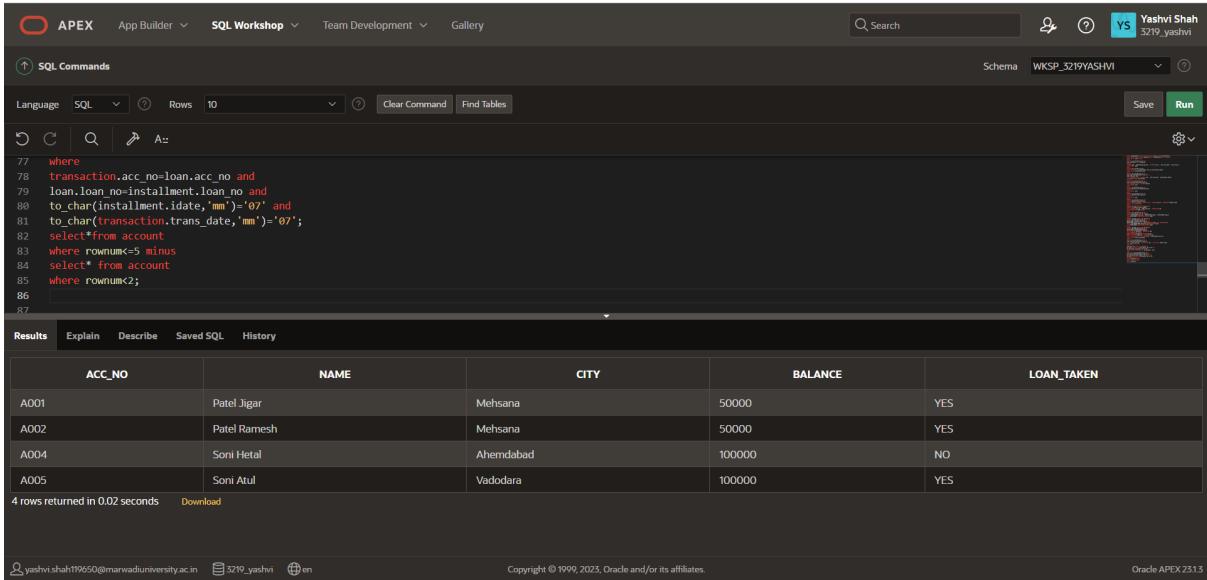
Results
BALANCE MODE_OF_PAY LOAN_TAKEN
50000 CHEQUE YES
1 rows returned in 0.03 seconds Download

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```

19. Retrieve only rows 2 to 5 from account table.

```
select*from account
where rownum<=5 minus
select* from account
where rownum<2;
```



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

```
77 where
78 transaction.acc_no=loan.acc_no and
79 loan.loan_no=installment.loan_no and
80 to_char(installment.idate,'mm')='07' and
81 to_char(transaction.trans_date,'mm')='07';
82 select*from account
83 where rownum<=5 minus
84 select* from account
85 where rownum<2;
86
87
```

The results table displays the following data:

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

4 rows returned in 0.02 seconds Download

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Oracle APEX 23.1.5

Practical 8

Aim: Implement Constraint based and Group by related queries.

TABLE: SALES MEN

Column Name	Data Type	Size	Attributes
SNUM	Varchar2	6	Primary key/first letter must start with 'S'
SNAME	Varchar2	20	Not null
CITY	Varchar2	15	
COMM	Number	5,2	

```
create table salesman(
  SNUM varchar2(6) primary key,
  SNAME varchar2(20) NOT NULL,
  CITY varchar2(15),
  COMM number(5,2),
  check(SNUM like 'S%')
);
```

Insert the following records:

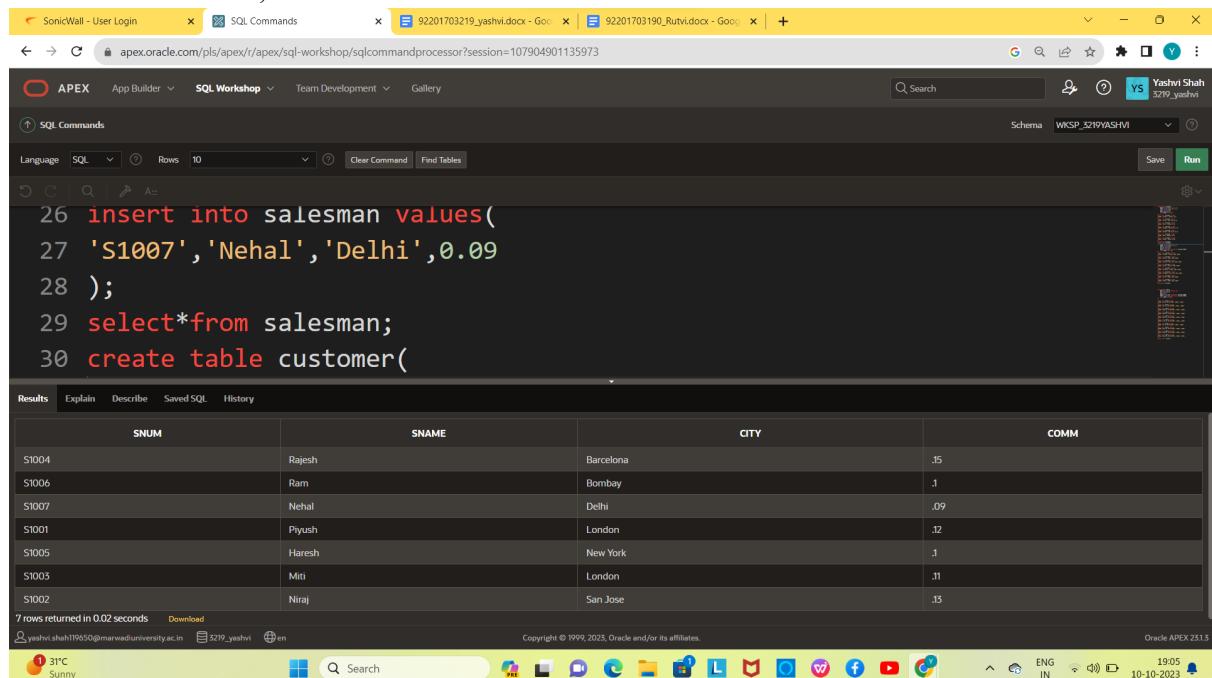
SNUM	SNAME	CITY	COMM
S1001	Piyush	London	0.12
S1002	Niraj	San Jose	0.13
S1003	Miti	London	0.11
S1004	Rajesh	Barcelona	0.15
S1005	Haresh	New York	0.10
S1006	Ram	Bombay	0.10
S1007	Nehal	Delhi	0.09

```
insert into salesman values(
  'S1001','Piyush','London',0.12
);
```

```
insert into salesman values(
  'S1002','Niraj','San Jose',0.13
);
```

```
insert into salesman values(
  'S1003','Miti','London',0.11
);
```

```
 );
insert into salesman values(
'S1004','Rajesh','Barcelona',0.15
);
insert into salesman values(
'S1005','Haresh','New York',0.10
);
insert into salesman values(
'S1006','Ram','Bombay',0.10
);
insert into salesman values(
'S1007','Nehal','Delhi',0.09
);
select*from salesmen;
```



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop' (selected), 'Team Development', and 'Gallery'. The right side shows a user profile for 'Yashvi Shah' (WKS_P_5219YASHVI). The main area displays the following SQL code:

```
26 insert into salesman values(
27 'S1007','Nehal','Delhi',0.09
28 );
29 select*from salesman;
30 create table customer(
```

Below the code, the 'Results' tab is selected, showing the output of the 'select*from salesman' query:

SNUM	SNAME	CITY	COMM
S1004	Rajesh	Barcelona	.15
S1006	Ram	Bombay	.1
S1007	Nehal	Delhi	.09
S1001	Piyush	London	.12
S1005	Haresh	New York	.1
S1003	Miti	London	.11
S1002	Niraj	San Jose	.15

At the bottom, it says '7 rows returned in 0.02 seconds'. The status bar at the bottom right shows 'Oracle APEX 23.1.3', the date '10-10-2023', and the time '19:05'.

TABLE: CUSTOMER

Column Name	Data Type	Size	Attributes
CNUM	Varchar2	6	Primary key/first letter must start with 'C'
CNAME	Varchar2	20	Not null
CITY	Varchar2	15	
RATING	Number	5	
SNUM	Varchar2	6	

```
create table customer(
CNUM varchar2(6) primary key,
```

```
CNAME varchar2(20) NOT NULL,
CITY varchar2(15),
RATING number(5),
SNUM varchar2(6) references salesman(SNUM),
check(CNUM like 'C%')
);
```

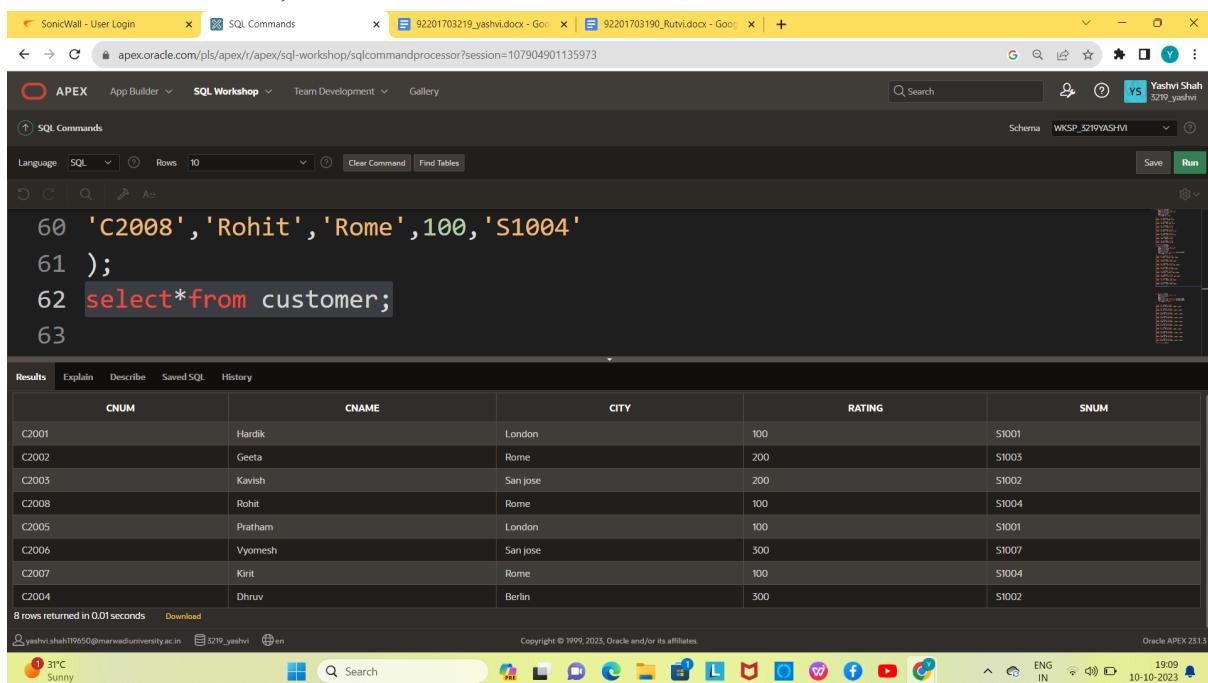
Insert the following records

CNUM	CNAME	CITY	RATI NG	SNUM
C2001	Hardik	Londo n	100	S1001
C2002	Geeta	Rome	200	S1003
C2003	Kavish	San jose	200	S1002
C2004	Dhruv	Berlin	300	S1002
C2005	Pratham	Londo n	100	S1001
C2006	Vyomesh	San jose	300	S1007
C2007	Kirit	Rome	100	S1004

```
insert into customer values(
'C2001','Hardik','London',100,'S1001'
);
insert into customer values(
'C2002','Geeta','Rome',200,'S1003'
);
insert into customer values(
'C2003','Kavish','San jose',200,'S1002'
);
insert into customer values(
'C2004','Dhruv','Berlin',300,'S1002'
);
insert into customer values(
'C2005','Pratham','London',100,'S1001'
);
insert into customer values(
'C2006','Vyomesh','San jose',300,'S1007'
);
```

```

insert into customer values(
'C2007','Kirit','Rome',100,'S1004'
);
insert into customer values(
'C2008','Rohit','Rome',100,'S1004'
);
select*from customer;
  
```



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

```

60 'C2008','Rohit','Rome',100,'S1004'
61 );
62 select*from customer;
63
  
```

The results tab shows the output of the query:

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2002	Geeta	Rome	200	S1003
C2005	Kavish	San jose	200	S1002
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2006	Vyomesh	San jose	300	S1007
C2007	Kirit	Rome	100	S1004
C2004	Dhruv	Berlin	300	S1002

8 rows returned in 0.01 seconds

TABLE: ORDER

Colu mn Name	Data Type	S i z e	Attributes
ONUM	Varchar 2	6	Primary key/first letter must start with 'O'
AMT	Numbe r	1 0 ,	Not null
ODATE	Date		
CNUM	Varchar 2	6	
SNUM	Varchar 2	6	

create table orders(

ONUM Varchar2(6) Primary key,
 AMT Number(10,2),
 ODATE Date,
 CNUM Varchar2(6) references customer(CNUM),
 SNUM Varchar2(6) references salesman(SNUM),
 check(ONUM like 'O%')
);

Insert the following records

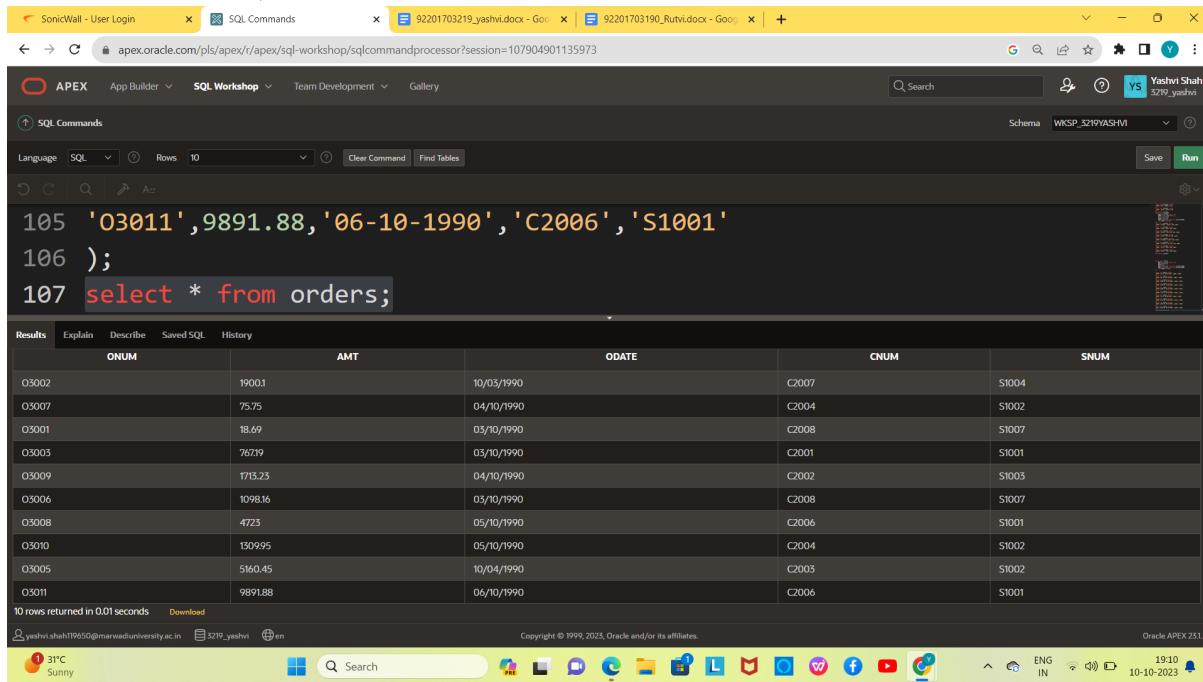
ONUM	AMT	ODATE	CNUM	SNUM
O3001	18.69	10-Mar-90	C2008	S1007
O3003	767.19	10-Mar-90	C2001	S1001
O3002	1900.10	03-Oct-90	C2007	S1004
O3005	5160.45	04-Oct-90	C2003	S1002
O3006	1098.16	10-Mar-90	C2008	S1007
O3009	1713.23	10-April-90	C2002	S1003
O3007	75.75	10-April-90	C2004	S1002
O3008	4723.00	10-May-90	C2006	S1001
O3010	1309.95	10-May-90	C2004	S1002
O3011	9891.88	10-June-90	C2006	S1001

```

insert into orders values(
'O3001',18.69,'03-10-1990','C2008','S1007'
);
insert into orders values(
'O3003',767.19,'03-10-1990','C2001','S1001'
);
insert into orders values(
'O3002',1900.10,'10-03-1990','C2007','S1004'
);
insert into orders values(
'O3005',5160.45,'10-04-1990','C2003','S1002'
);
insert into orders values(
'O3006',1098.16,'03-10-1990','C2008','S1007'
);

```

```
insert into orders values(
'03009',1713.23,'04-10-1990','C2002','S1003'
);
insert into orders values(
'03007',75.75,'04-10-1990','C2004','S1002'
);
insert into orders values(
'03008',4723.00,'05-10-1990','C2006','S1001'
);
insert into orders values(
'03010',1309.95,'05-10-1990','C2004','S1002'
);
insert into orders values(
'03011',9891.88,'06-10-1990','C2006','S1001'
);
select * from orders;
```



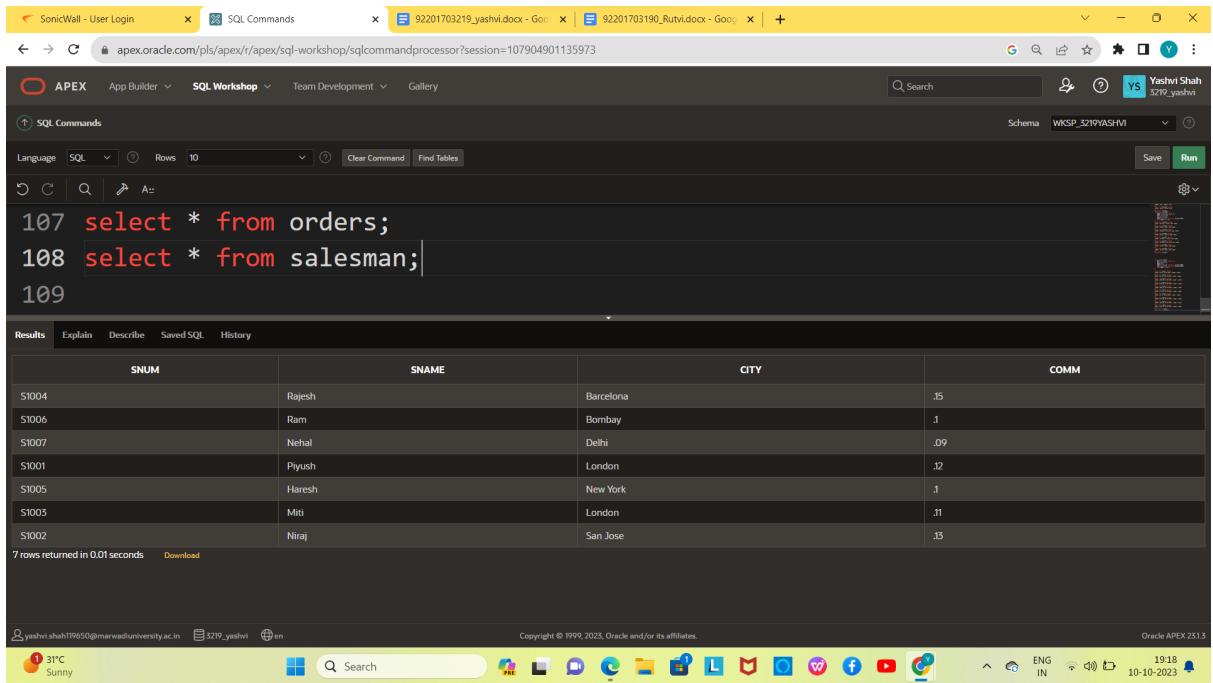
ONUM	AMT	ODATE	CNUM	SNUM
03002	1900.1	10/03/1990	C2007	S1004
03007	75.75	04/10/1990	C2004	S1002
03001	18.69	03/10/1990	C2008	S1007
03003	767.19	03/10/1990	C2001	S1001
03009	1713.23	04/10/1990	C2002	S1003
03006	1098.16	05/10/1990	C2008	S1007
03008	4723	05/10/1990	C2006	S1001
03010	1309.95	05/10/1990	C2004	S1002
03005	5160.45	10/04/1990	C2005	S1002
03011	9891.88	06/10/1990	C2006	S1001

10 rows returned in 0.01 seconds

Perform following queries.

SELECT

- Display all the information of salesmen.
select * from salesman;



```

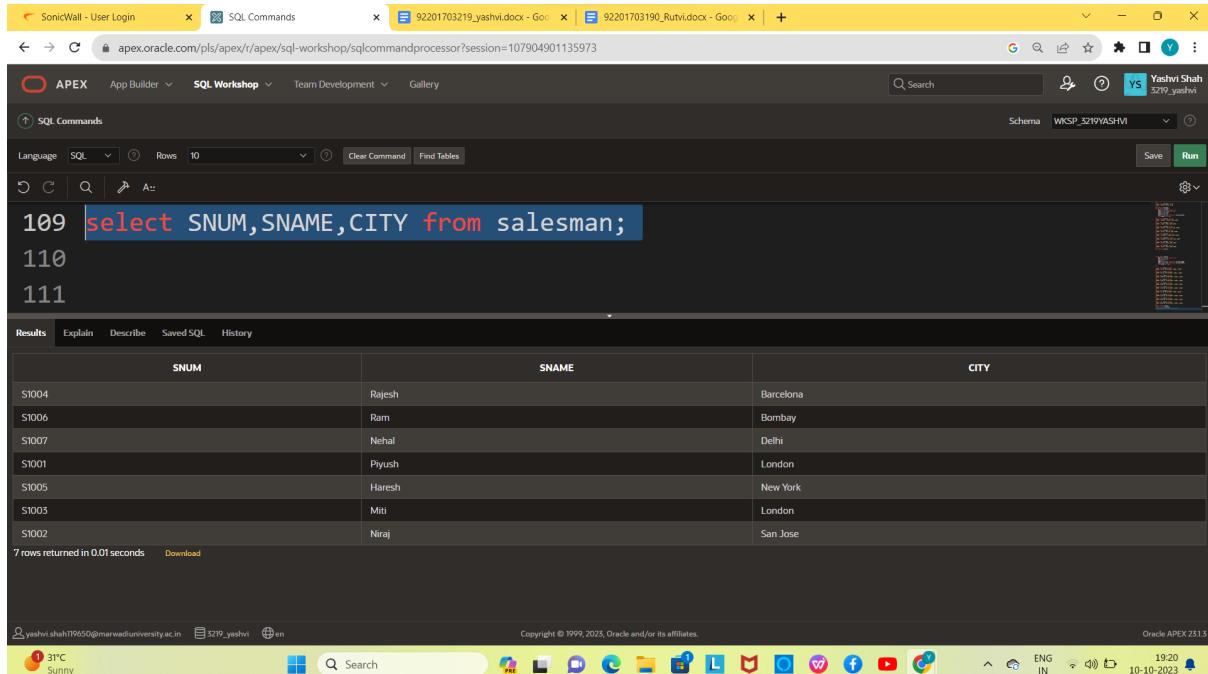
107 select * from orders;
108 select * from salesman;
109

```

SNUM	SNAME	CITY	COMM
S1004	Rajesh	Barcelona	.15
S1006	Ram	Bombay	.1
S1007	Nehal	Delhi	.09
S1001	Piyush	London	.12
S1005	Haresh	New York	.1
S1005	Miti	London	.11
S1002	Niraj	San Jose	.15

7 rows returned in 0.01 seconds Download

2. Display snum,sname,city from salesmen table.
 select SNUM,SNAME,CITY from salesman;



```

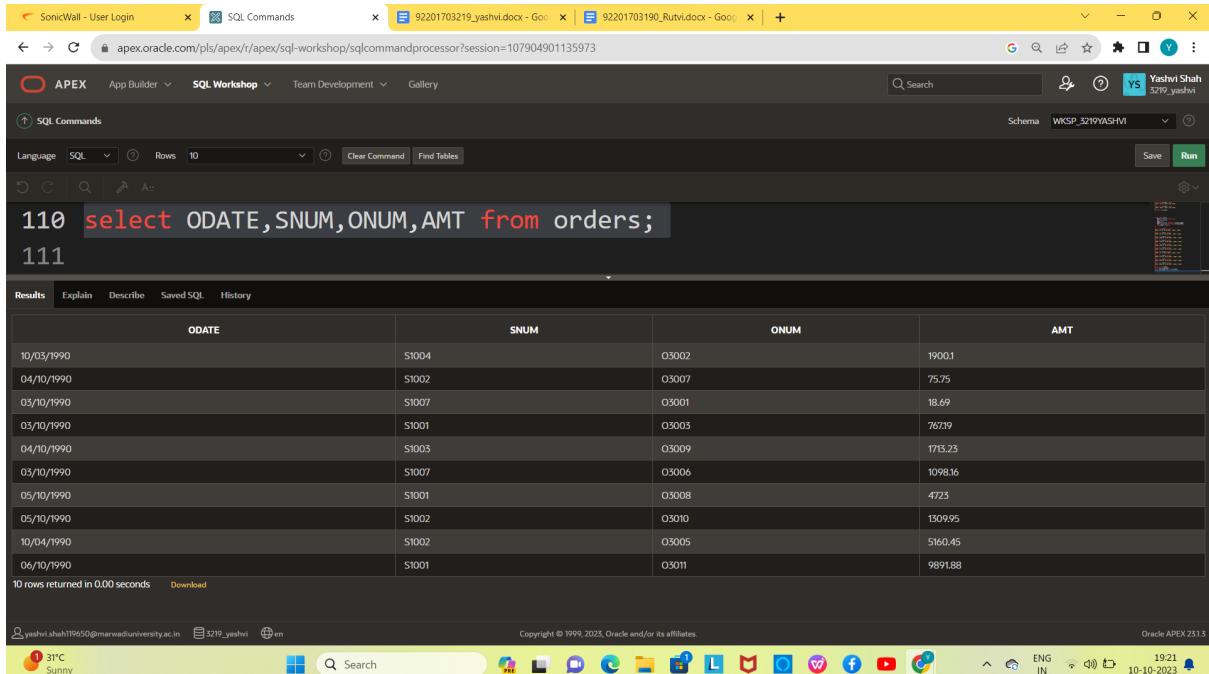
109 select SNUM,SNAME,CITY from salesman;
110
111

```

SNUM	SNAME	CITY
S1004	Rajesh	Barcelona
S1006	Ram	Bombay
S1007	Nehal	Delhi
S1001	Piyush	London
S1005	Haresh	New York
S1005	Miti	London
S1002	Niraj	San Jose

7 rows returned in 0.01 seconds Download

3. Display odate,snum,onum and amt from orders.
 select ODATE,SNUM,ONUM,AMT from orders;



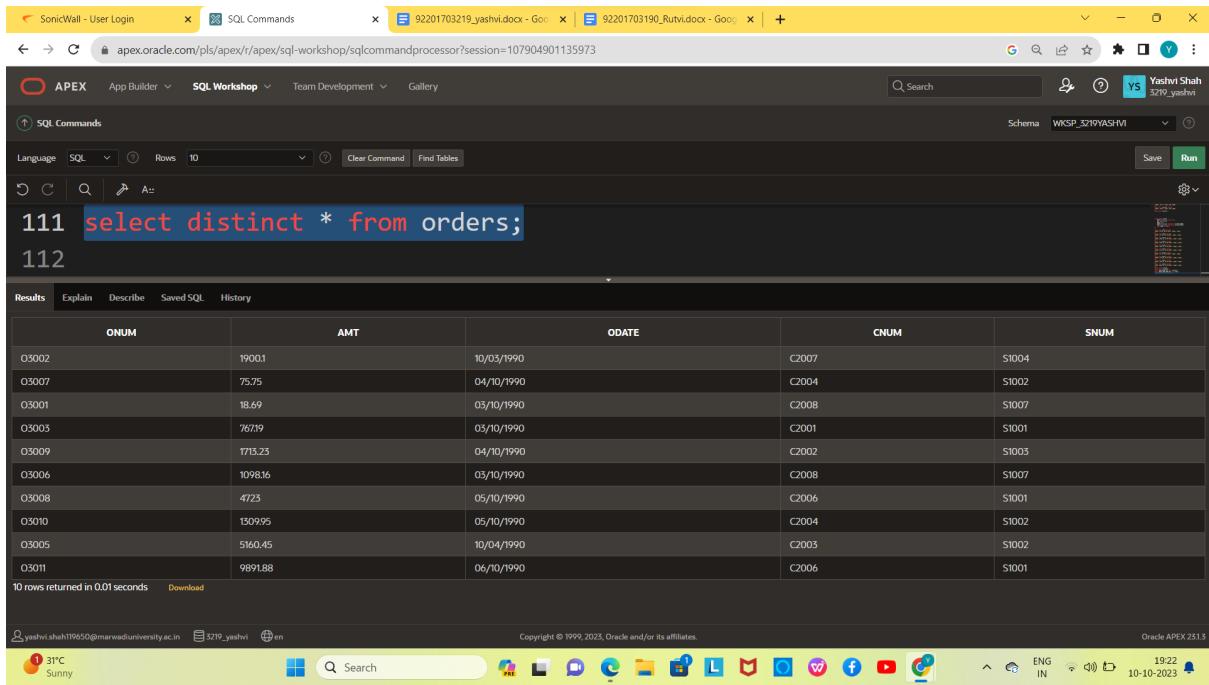
```
110 select ODATE, SNUM, ONUM, AMT from orders;
111
```

ODATE	SNUM	ONUM	AMT
10/03/1990	S1004	03002	1900.1
04/10/1990	S1002	03007	75.75
03/10/1990	S1007	03001	18.69
05/10/1990	S1001	03003	76719
04/10/1990	S1003	03009	1715.23
03/10/1990	S1007	03006	1098.16
05/10/1990	S1001	03008	4723
05/10/1990	S1002	03010	13099.5
10/04/1990	S1002	03005	5160.45
06/10/1990	S1001	03011	9891.88

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

4. Display the information of orders without duplication.

select distinct * from orders;



```
111 select distinct * from orders;
112
```

ONUM	AMT	ODATE	CNUM	SNUM
03002	1900.1	10/03/1990	C2007	S1004
03007	75.75	04/10/1990	C2004	S1002
03001	18.69	03/10/1990	C2008	S1007
03005	76719	05/10/1990	C2001	S1001
03009	1715.23	04/10/1990	C2002	S1003
03006	1098.16	03/10/1990	C2008	S1007
03008	4723	05/10/1990	C2006	S1001
03010	13099.5	05/10/1990	C2004	S1002
03005	5160.45	10/04/1990	C2003	S1002
03011	9891.88	06/10/1990	C2006	S1001

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

5. List of sname, city from salesmen where city is 'LONDON'.

select SNAME,CITY from salesman where CITY='London';

SonicWall - User Login SQL Commands

apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=107904901135973

APEX App Builder SQL Workshop Team Development Gallery

SQL Commands

Language: SQL Rows: 10 Clear Command Find Tables

Save Run

112 | select SNAME,CITY from salesman where CITY='London';

113

114

115

Results Explain Describe Saved SQL History

SNAME	CITY
Piyush	London
Miti	London

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

yashvi.shahTPW50@marrwadiuniversity.ac.in 3219_yashvi en

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31°C Sunny ENG IN 19:28 10-10-2023

6. List all records of customers where rating is equal to 100.
select * from customer where RATING=100;

SonicWall - User Login SQL Commands 92201703219_yashvi.docx - Goo... 92201703190_Rutvi.docx - Goo...

apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=107904901135973

APEX App Builder SQL Workshop Team Development Gallery Search

SQL Commands Schema WKSP_321YASHVI

Language SQL Rows 10 Clear Command Find Tables Save Run

112 select SNAME,CITY from salesman where CITY='London';
113 select * from customer where RATING=100;
114
115

Results Explain Describe Saved SQL History

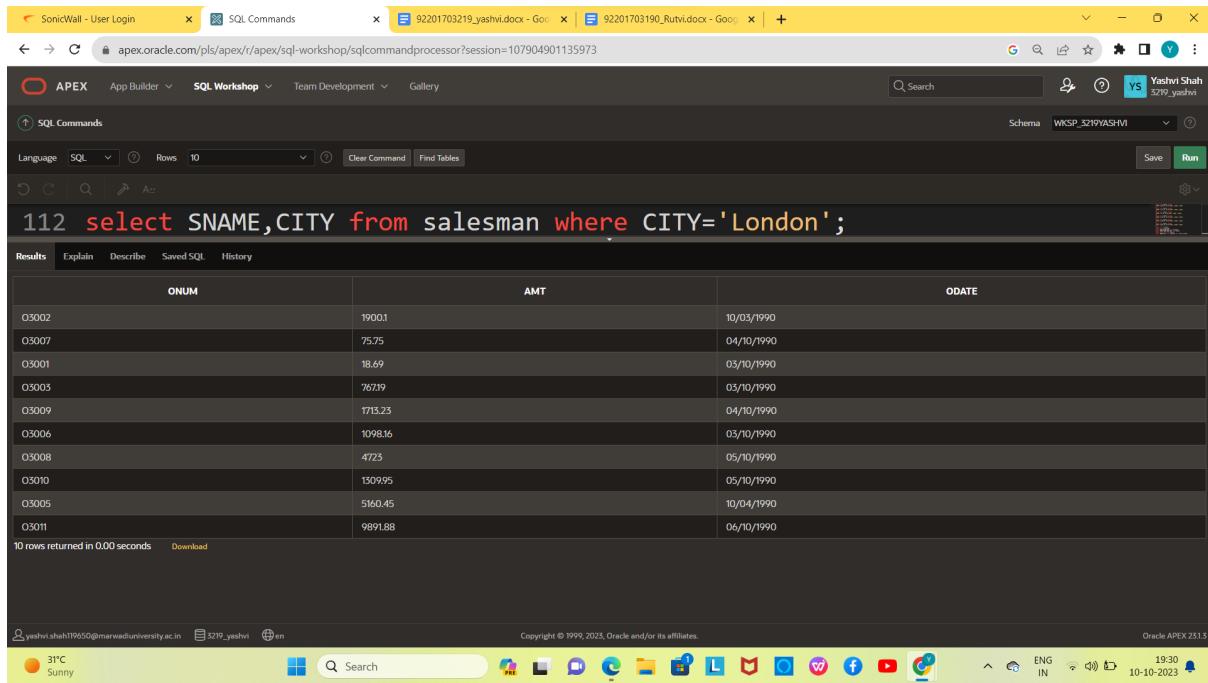
CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2007	Kirit	Rome	100	S1004

4 rows returned in 0.01 seconds Download

yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi ENG IN 10-10-2023 Oracle APEX 25.1.5

7. Write a select command that produces the order number, amount and date for all rows in the order table.

```
select ONUM,AMT,ODATE from orders;
```

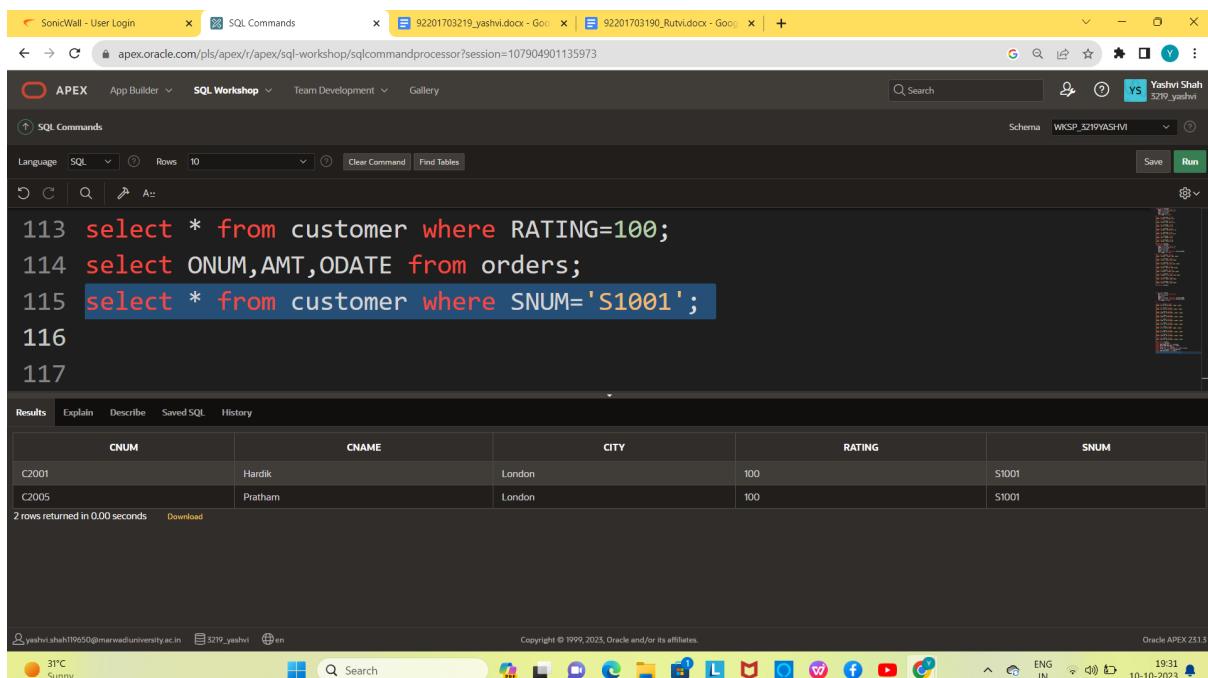


```
112 select SNAME,CITY from salesman where CITY='London';
```

ONUM	AMT	ODATE
03002	19001	10/03/1990
03007	75.95	04/10/1990
03001	18.69	03/10/1990
03003	767.19	03/10/1990
03009	1713.23	04/10/1990
03006	1098.16	03/10/1990
03008	4725	05/10/1990
03010	13099.95	05/10/1990
03005	5160.45	10/04/1990
03011	9891.88	06/10/1990

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

8. Produces all rows from the customer table for which the salesperson's number is S1001.
- ```
select * from customer where SNUM='S1001';
```

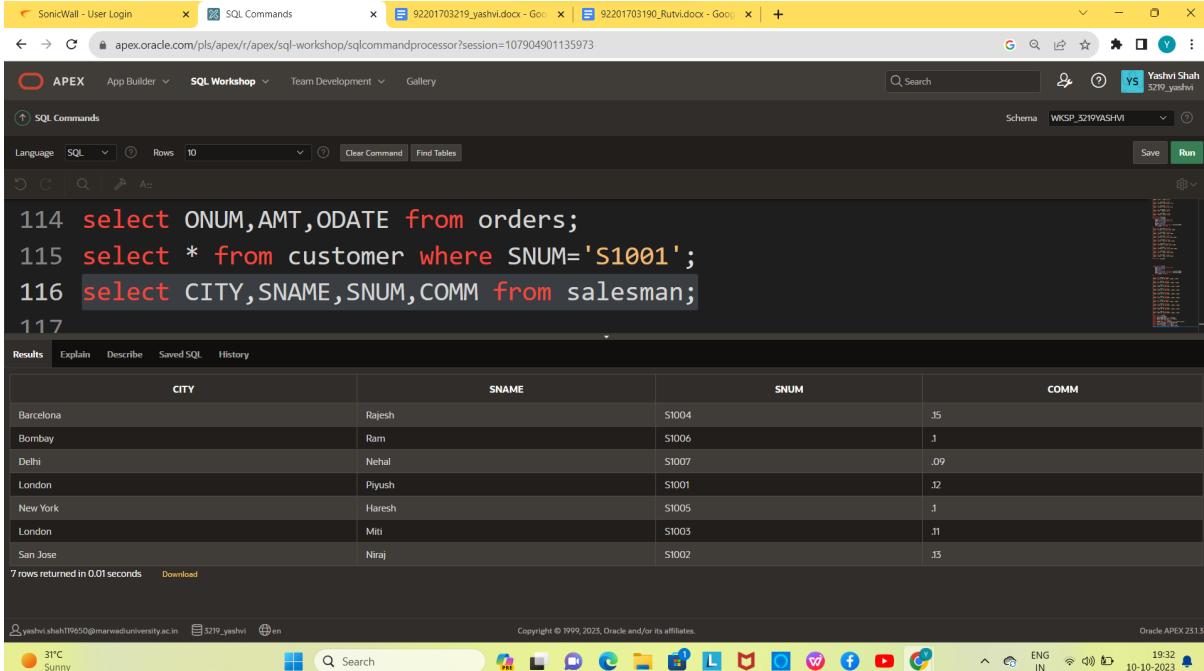


```
113 select * from customer where RATING=100;
114 select ONUM,AMT,ODATE from orders;
115 select * from customer where SNUM='S1001';
116
117
```

| CNUM  | CNAME   | CITY   | RATING | SNUM  |
|-------|---------|--------|--------|-------|
| C2001 | Hardik  | London | 100    | S1001 |
| C2005 | Pratham | London | 100    | S1001 |

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

9. Display the salesperson table with the column in the following order: city,sname,snum,comm.
- ```
select CITY,SNAME,SNUM,COMM from salesman;
```



```

114 select ONUM,AMT,ODATE from orders;
115 select * from customer where SNUM='S1001';
116 select CITY,SNAME,SNUM,COMM from salesman;
117
  
```

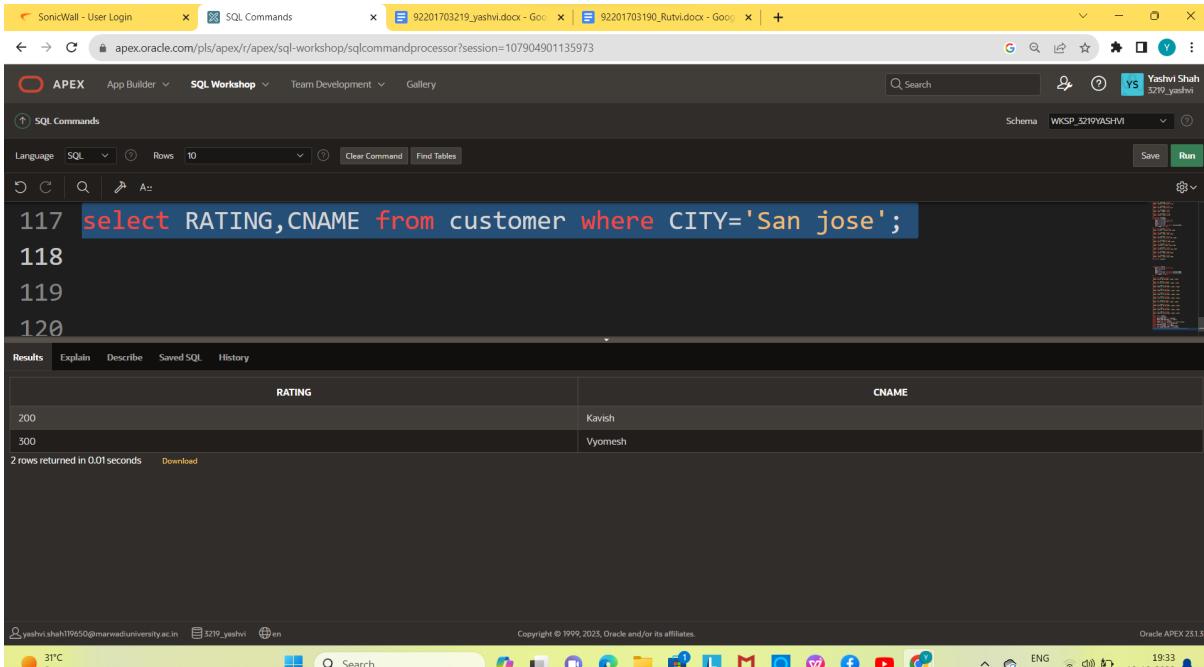
Results

CITY	SNAME	SNUM	COMM
Barcelona	Rajesh	S1004	.15
Bombay	Ram	S1006	.1
Delhi	Nehal	S1007	.09
London	Piyush	S1001	.12
New York	Haresh	S1005	.1
London	Miti	S1003	.11
San Jose	Niraj	S1002	.15

7 rows returned in 0.01 seconds Download

10. Write a select command that produces the rating followed by the name of each customer in SAN JOSE.

select RATING,CNAME from customer where CITY='San jose';



```

117 select RATING,CNAME from customer where CITY='San jose';
118
119
120
  
```

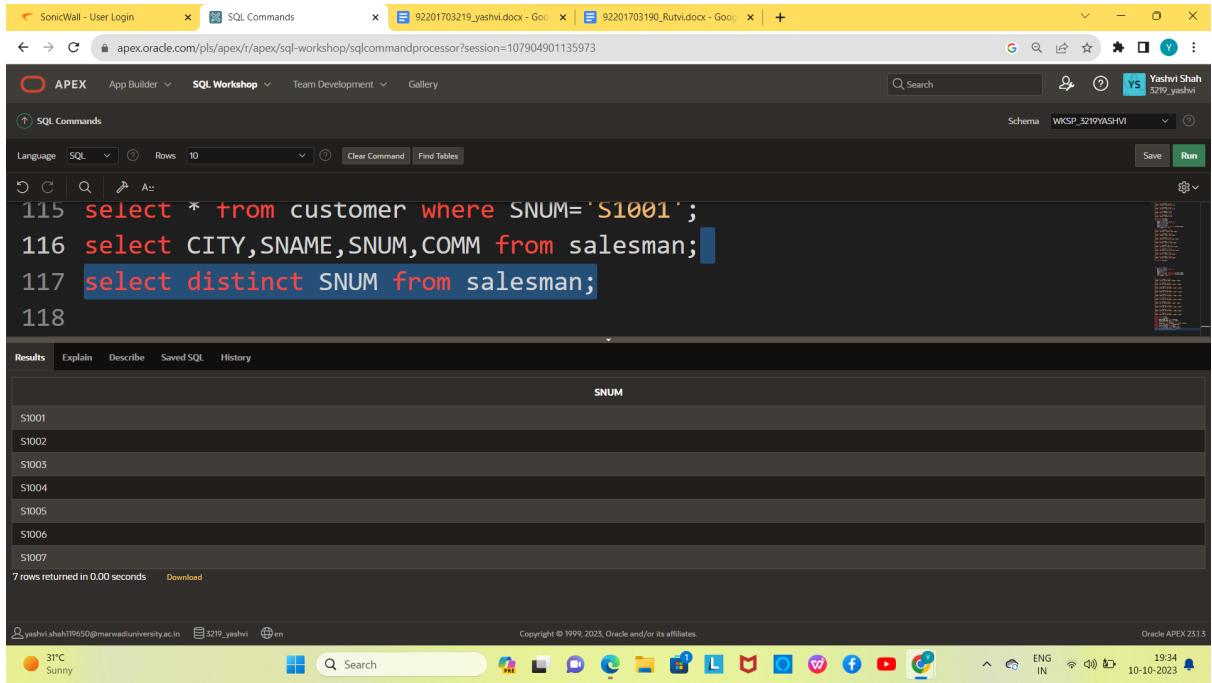
Results

RATING	CNAME
200	Kavish
500	Vyomesh

2 rows returned in 0.01 seconds Download

11. Display SNUM values of all salesmen without any repeat.

select distinct SNUM from salesman;



```
115 select * from customer where SNUM='S1001';
116 select CITY,SNAME,SNUM,COMM from salesman;
117 select distinct SNUM from salesman;
118

Results Explain Describe Saved SQL History

SNUM
S1001
S1002
S1003
S1004
S1005
S1006
S1007

7 rows returned in 0.00 seconds Download
```

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Practical 9

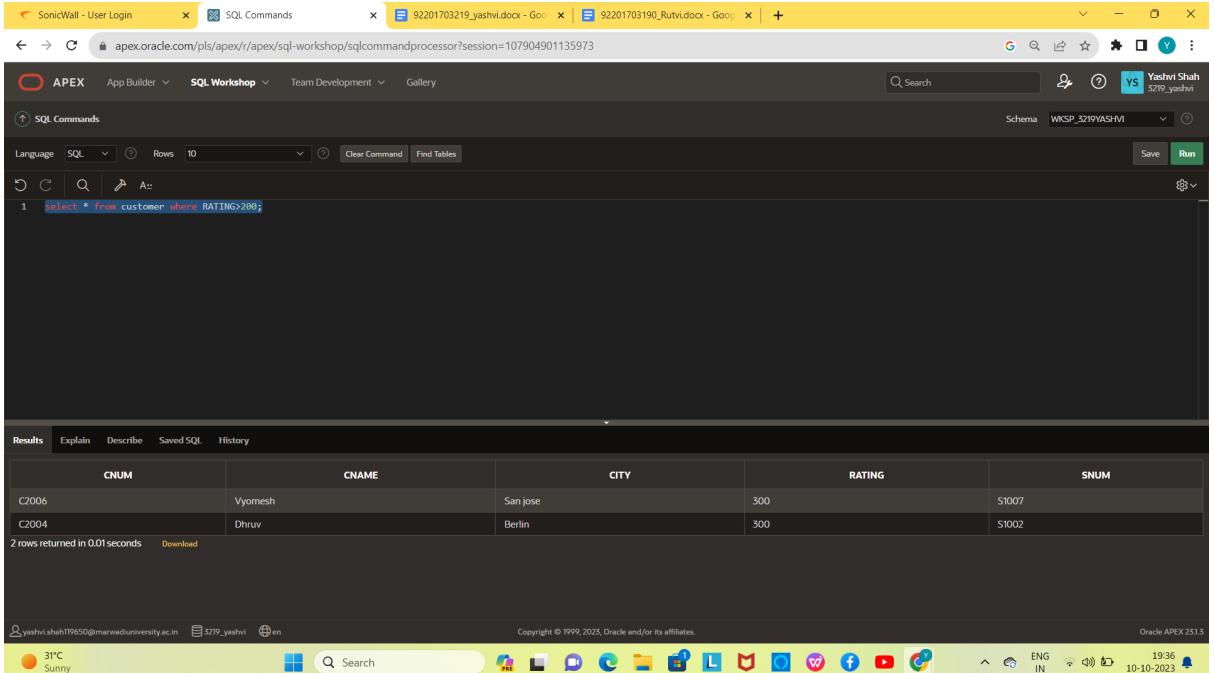
Aim: Range Function and Operator based Queries

Perform following queries on the above generated tables.

OPERATORS

1. List all customers with a rating above 200.

select * from customer where RATING>200;



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

```
1 select * from customer where RATING>200;
```

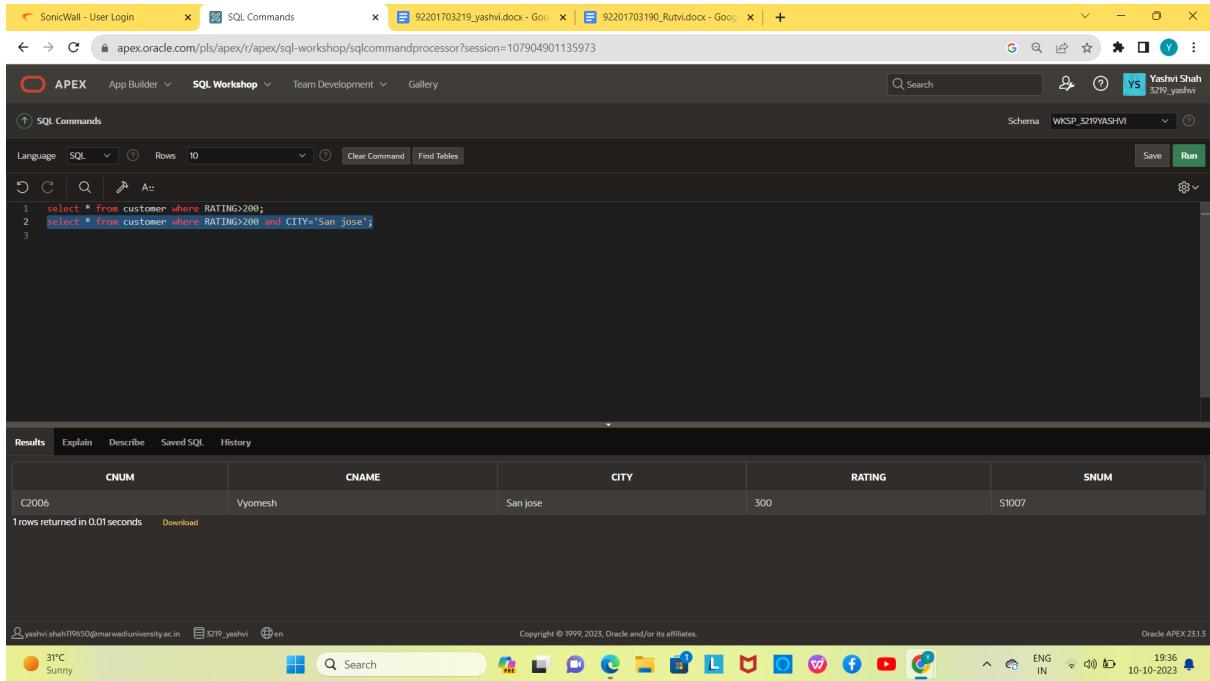
The results section displays the following data:

CNUM	CNAME	CITY	RATING	SNUM
C2006	Vyomesh	San jose	300	S1007
C2004	Dhruv	Berlin	300	S1002

2 rows returned in 0.01 seconds

2. List all customers in SAN JOSE who have a rating above 200.

select * from customer where RATING>200 and CITY='San jose';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3

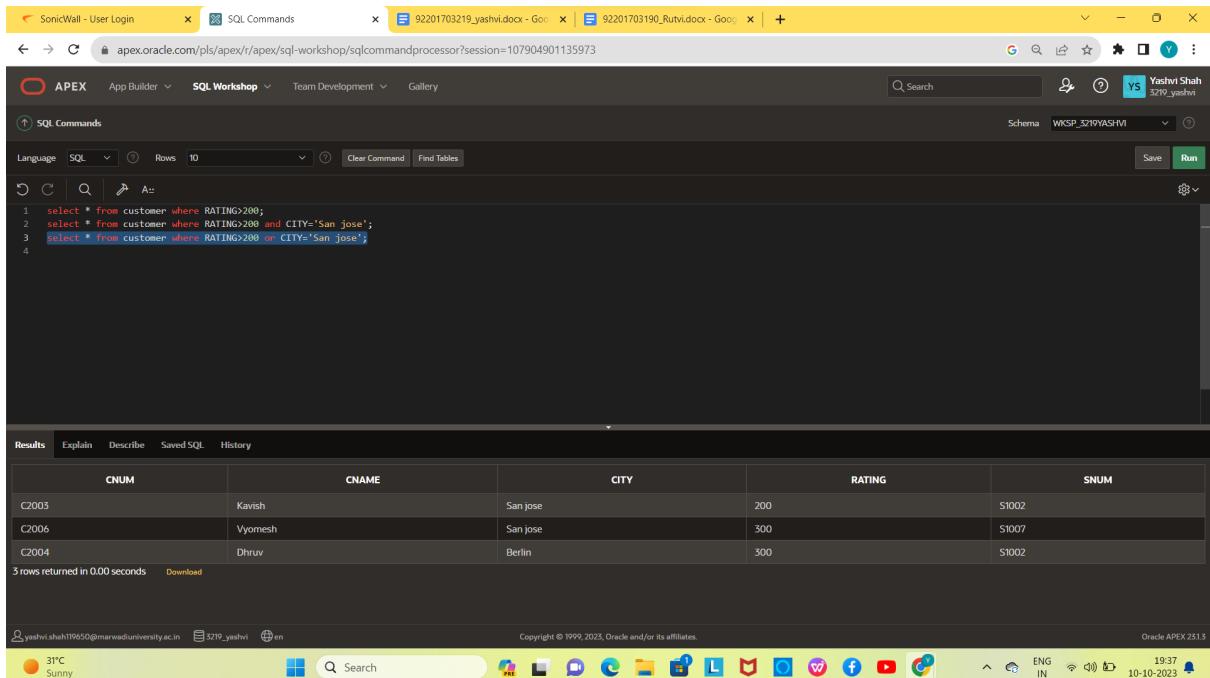
```

CNUM	CNAME	CITY	RATING	SNUM
C2006	Vyomesh	San Jose	300	S1007

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

3. List all customers who were either located in SAN JOSE or had a rating above 200.

select * from customer where RATING>200 or CITY='San Jose';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3 select * from customer where RATING>200 or CITY='San Jose';
4

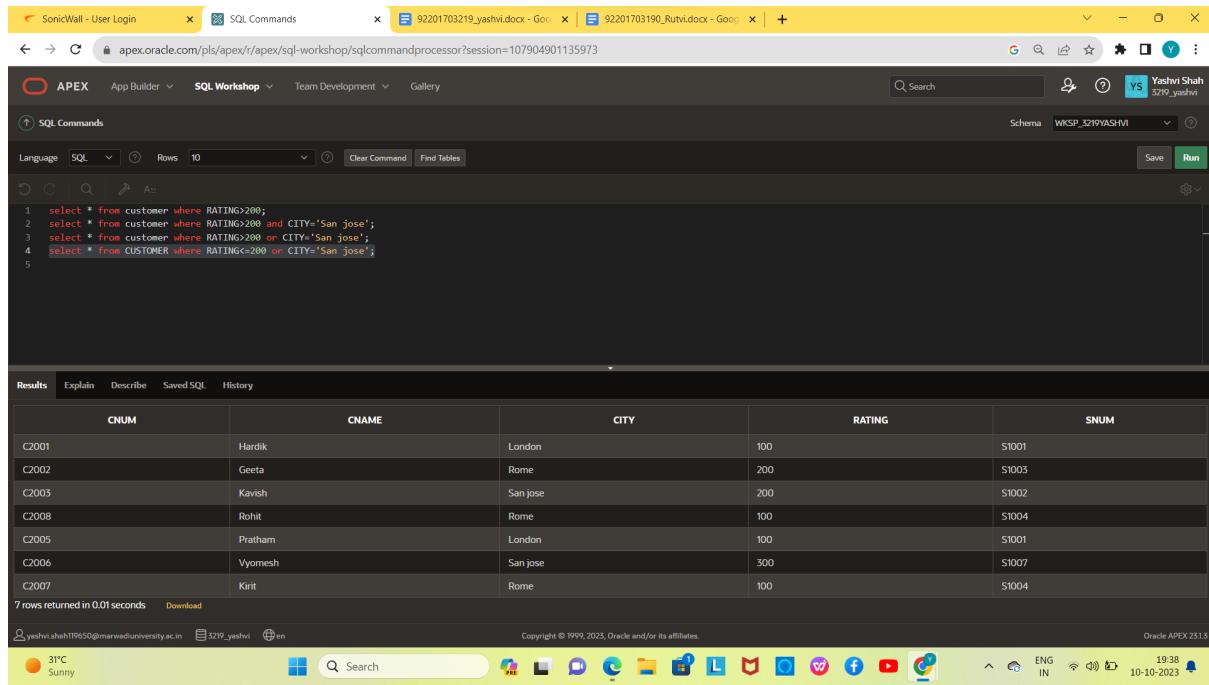
```

CNUM	CNAME	CITY	RATING	SNUM
C2005	Kavish	San Jose	200	S1002
C2006	Vyomesh	San Jose	300	S1007
C2004	Dhruv	Berlin	300	S1002

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

4. List of all customers who were either located in SAN JOSE or not rating above 200.

select * from customer where RATING<=200 or CITY='San Jose';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3 select * from customer where RATING>200 or CITY='San Jose';
4 select * from CUSTOMER where RATING<=200 or CITY='San Jose';
5

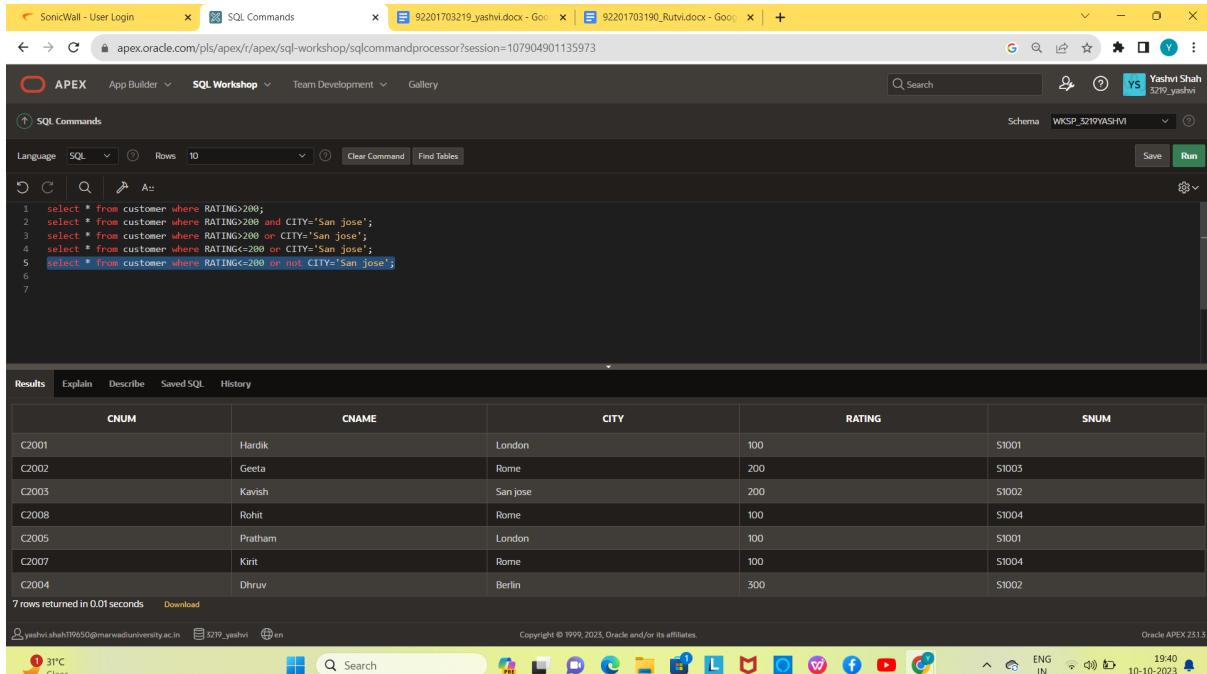
```

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2002	Geeta	Rome	200	S1003
C2003	Kavish	San Jose	200	S1002
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2006	Vyomesh	San Jose	300	S1007
C2007	Kirti	Rome	100	S1004

7 rows returned in 0.01 seconds Download

5. List of all customers who were not located in SAN JOSE or rating is not above 200.

select * from customer where RATING<=200 or not CITY='San Jose';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3 select * from customer where RATING>200 or CITY='San Jose';
4 select * from customer where RATING<=200 or CITY='San Jose';
5 select * from customer where RATING<=200 or not CITY='San Jose';
6
7

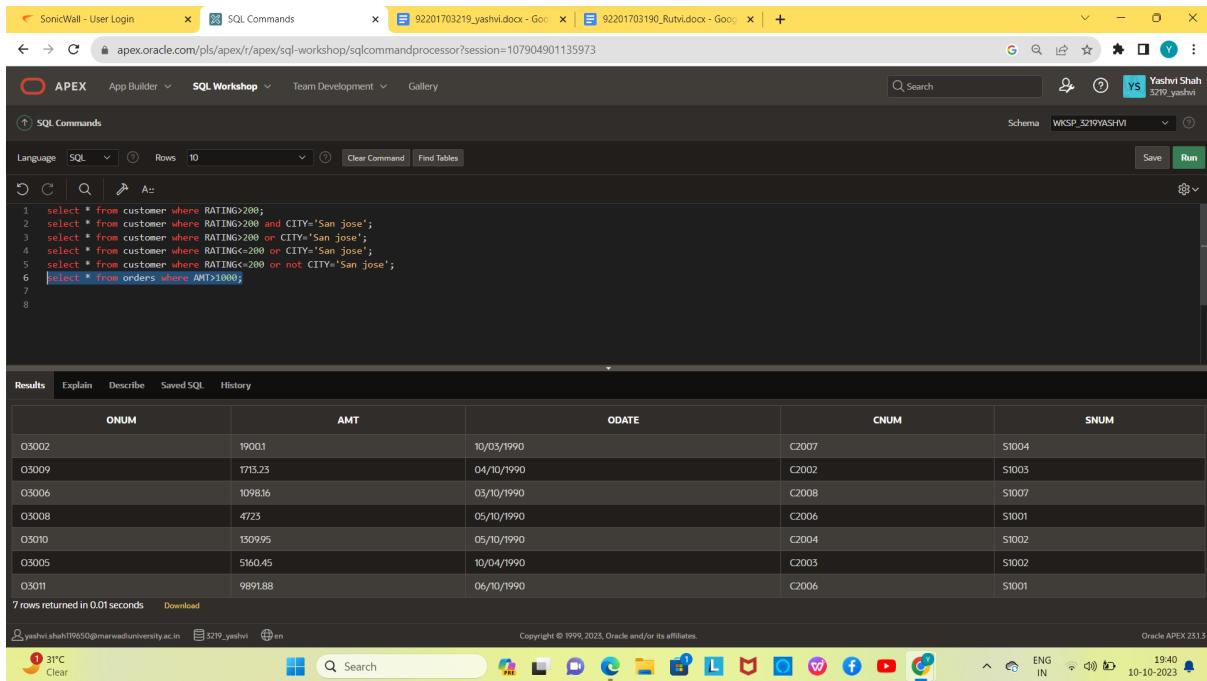
```

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2002	Geeta	Rome	200	S1003
C2005	Kavish	San Jose	200	S1002
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2007	Kirti	Rome	100	S1004
C2004	Dhruv	Berlin	300	S1002

7 rows returned in 0.01 seconds Download

6. Write a query that will give you all orders for more than \$1000.

select * from orders where AMT>1000;



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3 select * from customer where RATING>200 or CITY='San Jose';
4 select * from customer where RATING<=200 or CITY='San Jose';
5 select * from customer where RATING<=200 or not CITY='San Jose';
6 select * from orders where AMT>1000;
7
8

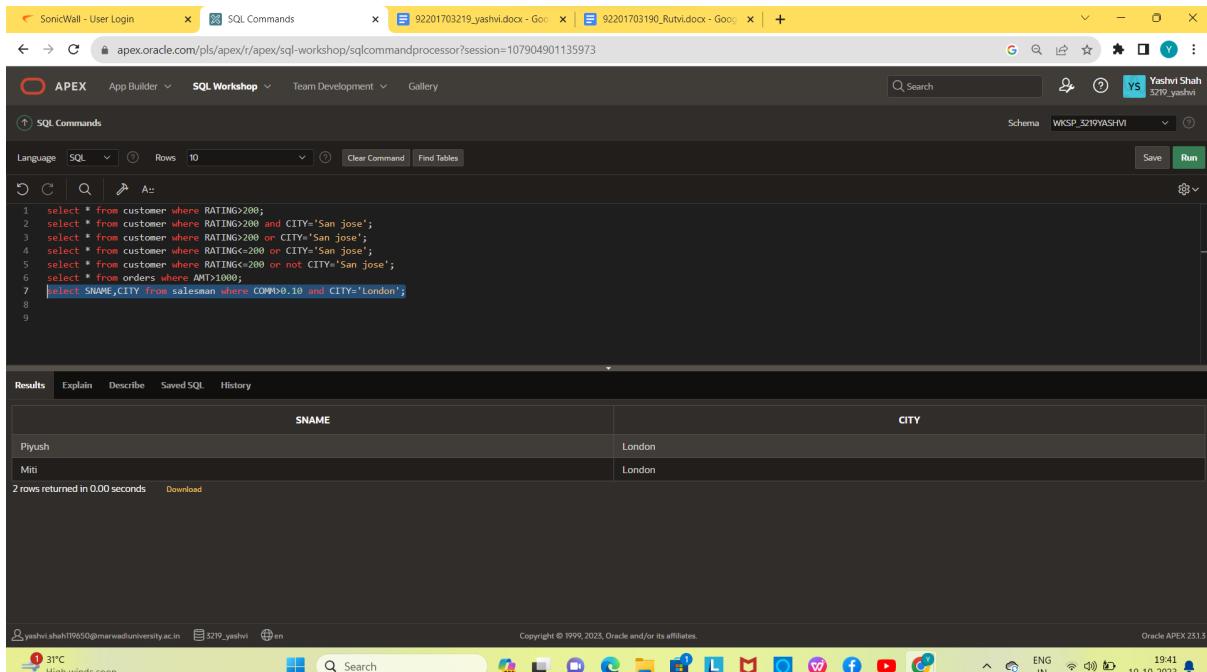
```

ONUM	AMT	ODATE	CNUM	SNUM
03002	1900.1	10/03/1990	C2007	S1004
03009	1715.23	04/10/1990	C2002	S1003
03006	1098.16	05/10/1990	C2008	S1007
03008	472.5	05/10/1990	C2006	S1001
03010	13099.95	05/10/1990	C2004	S1002
03005	5164.45	10/04/1990	C2005	S1002
03011	9891.88	06/10/1990	C2006	S1001

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

7. Write a query that will give you the names and cities of all salesmen in LONDON with a commission above 0.10.

select SNAME,CITY from salesman where COMM>0.10 and CITY='London';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San Jose';
3 select * from customer where RATING>200 or CITY='San Jose';
4 select * from customer where RATING<=200 or CITY='San Jose';
5 select * from customer where RATING<=200 or not CITY='San Jose';
6 select * from orders where AMT>1000;
7 select SNAME,CITY from salesman where COMM>0.10 and CITY='London';
8
9

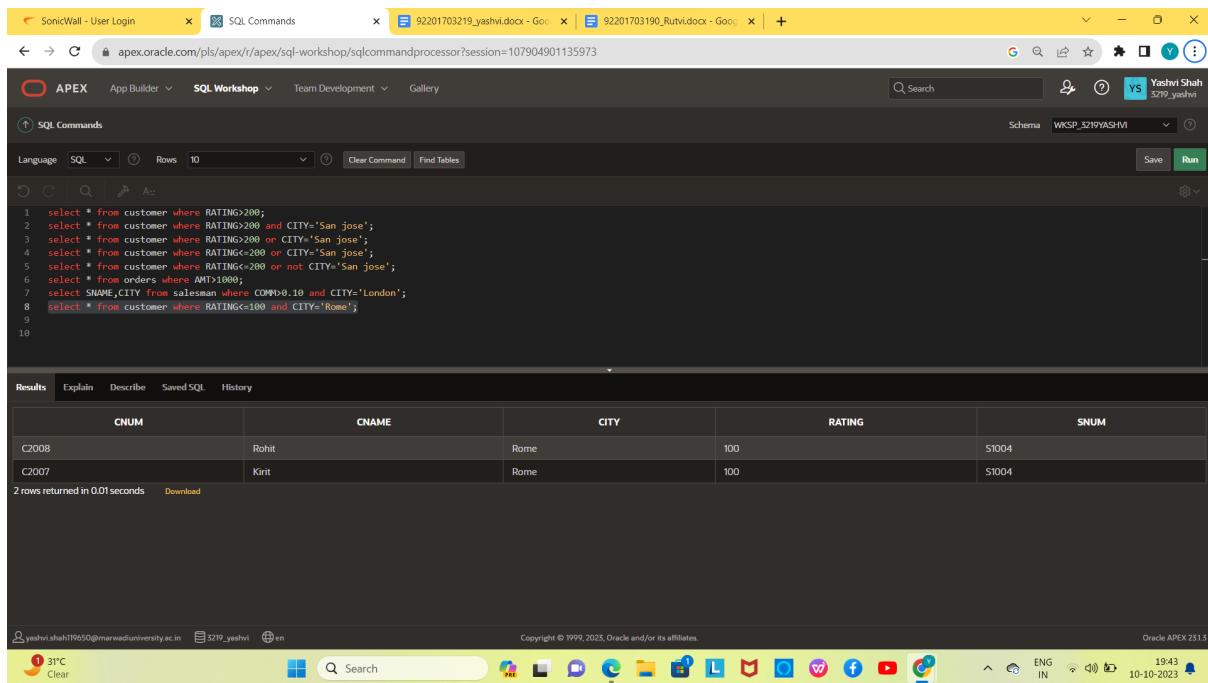
```

SNAME	CITY
Piyush	London
Miti	London

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

8. Write a query on the customers table whose output will exclude all customers with a rating <= 100 and they are located in ROME.

select * from customer where RATING<=100 and CITY='Rome';



```

1 select * from customer where RATING>200;
2 select * from customer where RATING>200 and CITY='San jose';
3 select * from customer where RATING>200 or CITY='San jose';
4 select * from customer where RATING<=200 or CITY='San jose';
5 select * from customer where RATING<=200 or not CITY='San jose';
6 select * from orders where AMT>1000;
7 select SNAME,CITY from salesman where COMM>0.10 and CITY='London';
8 select * from customer where RATING<=100 and CITY='Rome';
9
10

```

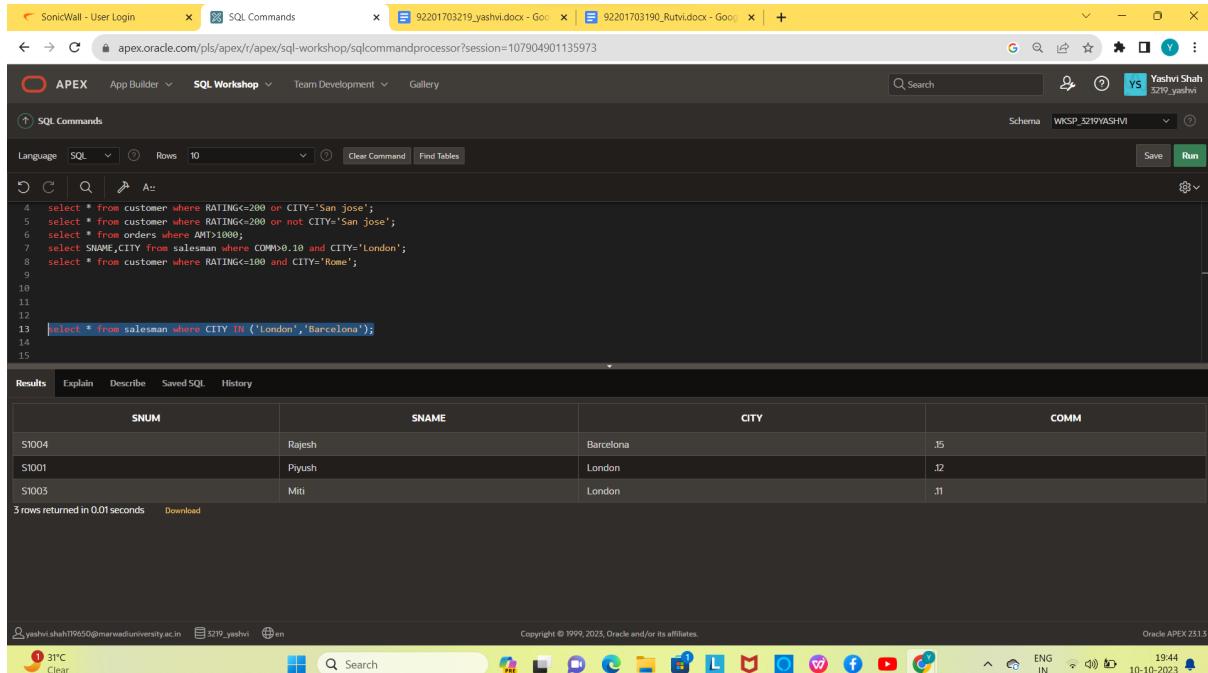
CNUM	CNAME	CITY	RATING	SNUM
C2008	Rohit	Rome	100	S1004
C2007	Kirit	Rome	100	S1004

2 rows returned in 0.01 seconds Download

SPECIAL OPERATORS

- Display all salesmen that were located in either BARCELONA or LONDON(use IN keyword).

select * from salesman where CITY IN ('London','Barcelona');



```

1 select * from customer where RATING<=200 or CITY='San jose';
2 select * from customer where RATING<=200 or not CITY='San jose';
3 select * from orders where AMT>1000;
4 select SNAME,CITY from salesman where COMM>0.10 and CITY='London';
5 select * from customer where RATING<=100 and CITY='Rome';
6
7
8
9
10
11
12
13 select * from salesman where CITY IN ('London','Barcelona');
14
15

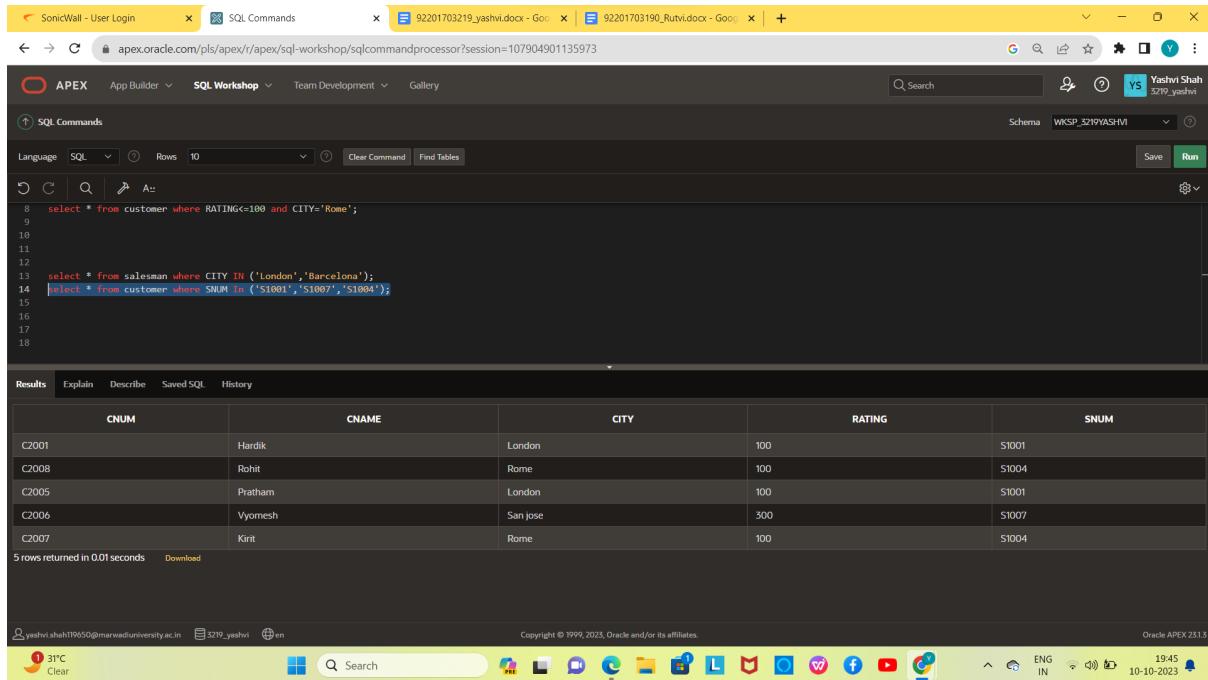
```

SNUM	SNAME	CITY	COMM
S1004	Rajesh	Barcelona	.15
S1001	Piyush	London	.12
S1003	Miti	London	.11

3 rows returned in 0.01 seconds Download

- Find all customers matched with salesmen S1001,S1007 and S1004.

select * from customer where SNUM In ('S1001','S1007','S1004');



```

8   select * from customer where RATING<=100 and CITY='Rome';
9
10
11
12
13  select * from salesman where CITY IN ('London','Barcelona');
14  select * from customer where SNUM In ('S1001','S1007','S1004');
15
16
17
18

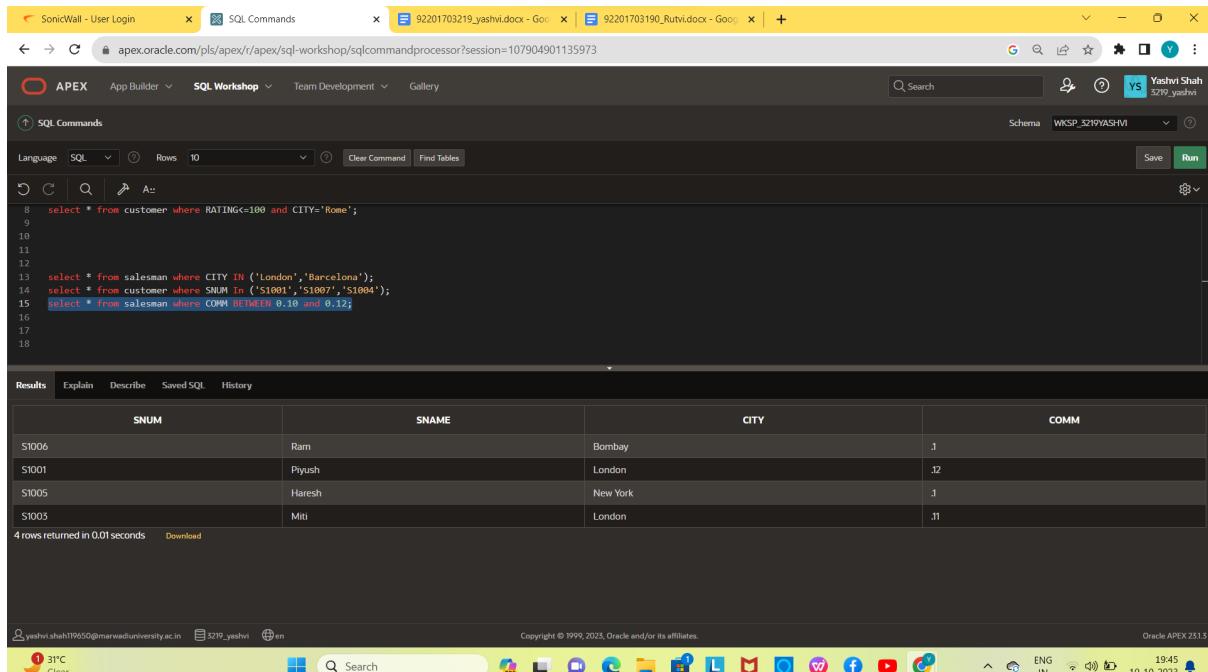
```

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2006	Vyomesh	San Jose	300	S1007
C2007	Kirit	Rome	100	S1004

5 rows returned in 0.01 seconds Download

3. Display all salesmen with commission between 0.10 and 0.12.

select * from salesman where COMM BETWEEN 0.10 and 0.12;



```

8   select * from customer where RATING<=100 and CITY='Rome';
9
10
11
12
13  select * from salesman where CITY IN ('London','Barcelona');
14  select * from customer where SNUM In ('S1001','S1007','S1004');
15  select * from salesman where COMM BETWEEN 0.10 and 0.12;
16
17
18

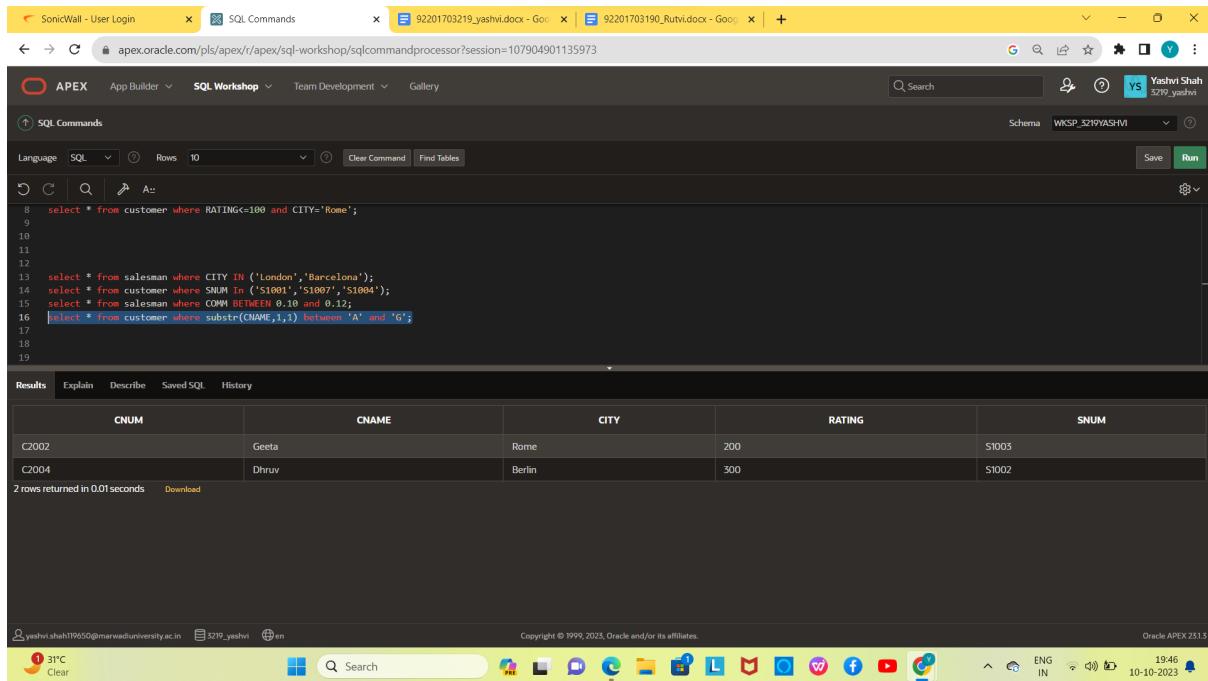
```

SNUM	SNAME	CITY	COMM
S1006	Ram	Bombay	.1
S1001	Piyush	London	.12
S1005	Haresh	New York	.1
S1005	Miti	London	.11

4 rows returned in 0.01 seconds Download

4. Select all customers whose names fall in a 'A' and 'G' alphabetical.

select * from customer where substr(CNAME,1,1) between 'A' and 'G';



SonicWall - User Login SQL Commands apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=107904901135973

APEX App Builder SQL Workshop Team Development Gallery

SQL Commands

Language: SQL Rows: 10 Clear Command Find Tables

```

8 select * from customer where RATING<=100 and CITY='Rome';
9
10
11
12
13 select * from salesman where CITY IN ('London','Barcelona');
14 select * from customer where SNUM IN ('S1001','S1007','S1004');
15 select * from salesman where COMM BETWEEN 0.10 and 0.12;
16 select * from customer where substr(CNAME,1,1) between 'A' and 'G';
17
18
19

```

Results Explain Describe Saved SQL History

CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	200	S1005
C2004	Dhruv	Berlin	300	S1002

2 rows returned in 0.01 seconds Download

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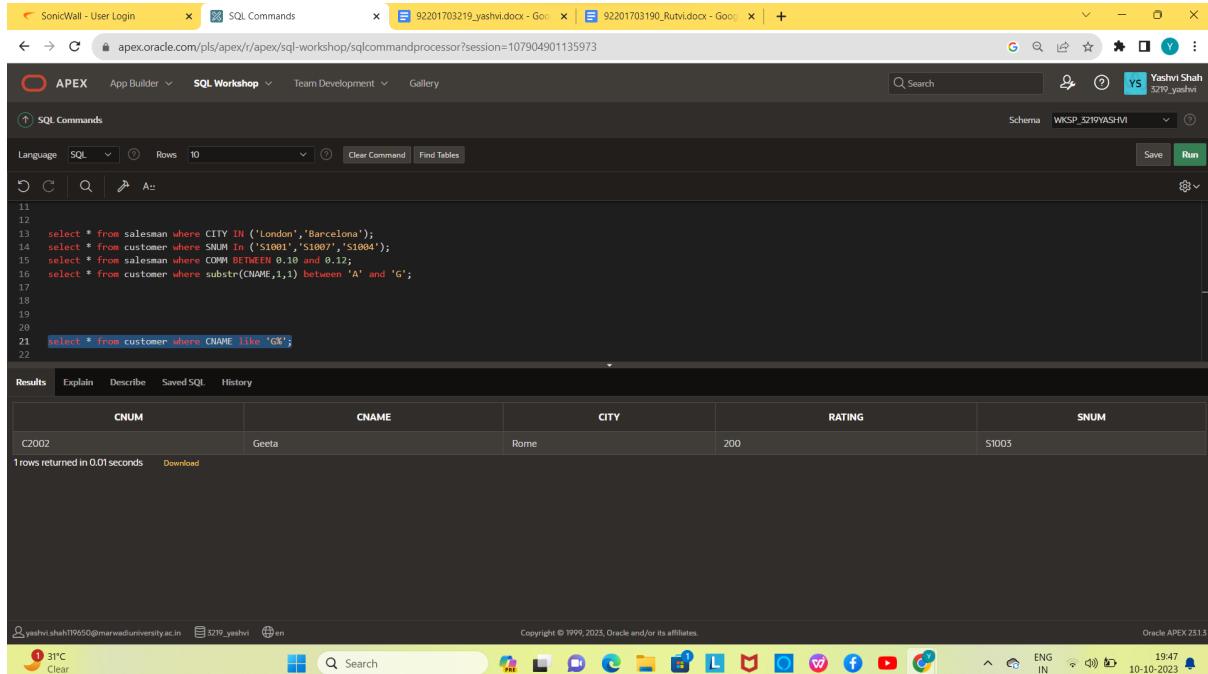
yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en

31°C Clear Search ENG IN 10-10-2023 19:46

LIKE OPERATORS.

1. List all the customers whose names begin with 'G'.

select * from customer where CNAME like 'G%';



SonicWall - User Login SQL Commands apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=107904901135973

APEX App Builder SQL Workshop Team Development Gallery

SQL Commands

Language: SQL Rows: 10 Clear Command Find Tables

```

11
12
13 select * from salesman where CITY IN ('London','Barcelona');
14 select * from customer where SNUM IN ('S1001','S1007','S1004');
15 select * from salesman where COMM BETWEEN 0.10 and 0.12;
16 select * from customer where substr(CNAME,1,1) between 'A' and 'G';
17
18
19
20
21 select * from customer where CNAME like 'G%';
22

```

Results Explain Describe Saved SQL History

CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	200	S1005

1 rows returned in 0.01 seconds Download

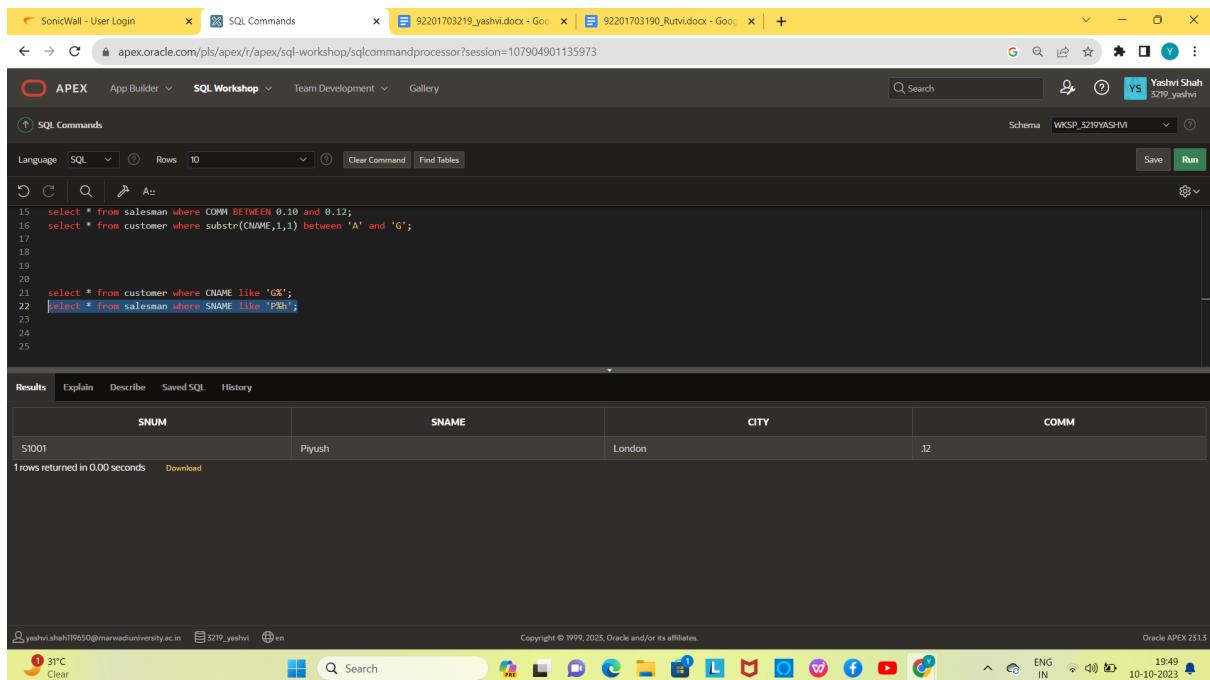
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31°C Clear Search ENG IN 10-10-2023 19:47

2. List all salesmen whose sname start with letter 'P' and end letter is 'H'.

select * from salesman where SNAME like 'P%h';



```

15 select * from salesman where COMM BETWEEN 0.10 and 0.12;
16 select * from customer where substr(CNAME,1,1) between 'A' and 'G';
17
18
19
20
21 select * from customer where CNAME like 'G%';
22 select * from salesman where SNAME like 'P%';
23
24
25

```

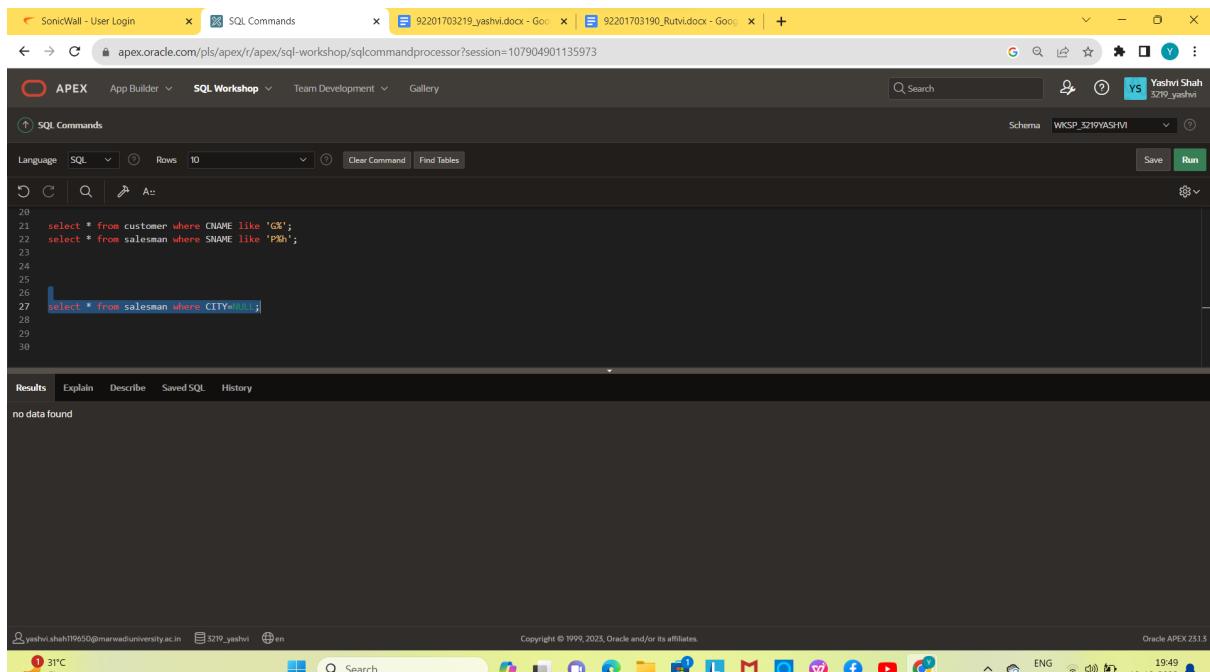
SNUM	SNAME	CITY	COMM
S1001	Piyush	London	.12

1 rows returned in 0.00 seconds Download

NULL OPERATORS

- Find all records in customer table with NULL values in the city column.

select * from salesman where CITY=NULL;



```

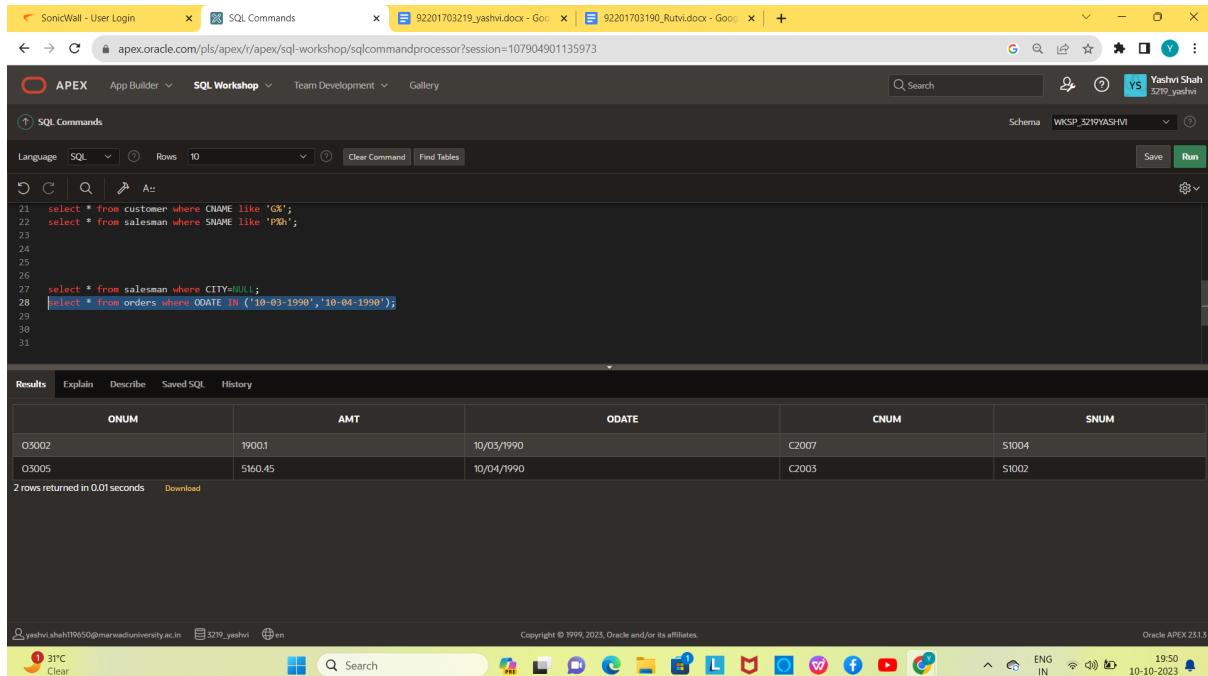
20
21 select * from customer where CNAME like 'G%';
22 select * from salesman where SNAME like 'P%';
23
24
25
26
27 select * from salesman where CITY=NULL;
28
29
30

```

no data found

- Write a two queries that will produce all orders taken on October 3rd or 4th ,1990 (use IN operator and Use BETWEEN operator)

select * from orders where ODATE IN ('10-03-1990','10-04-1990');



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

```

21 select * from customer where CNAME like 'G%';
22 select * from salesman where SNAME like 'P%';
23
24
25
26
27 select * from salesman where CITY=NULL;
28 select * from orders where ODATE IN ('10-03-1990', '10-04-1990');
29
30
31

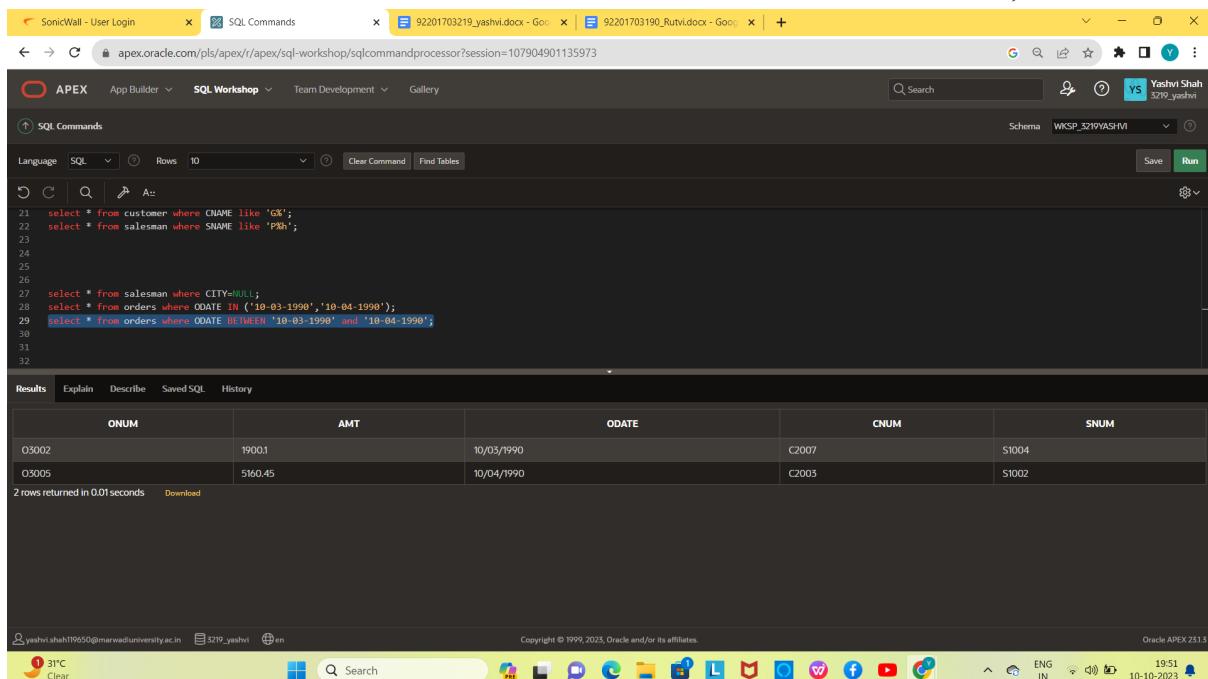
```

The Results tab shows the output of the query:

ONUM	AMT	ODATE	CNUM	SNUM
O3002	1900.1	10/03/1990	C2007	S1004
O3005	5160.45	10/04/1990	C2003	S1002

2 rows returned in 0.01 seconds

select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';



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

```

21 select * from customer where CNAME like 'G%';
22 select * from salesman where SNAME like 'P%';
23
24
25
26
27 select * from salesman where CITY=NULL;
28 select * from orders where ODATE IN ('10-03-1990', '10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30
31
32

```

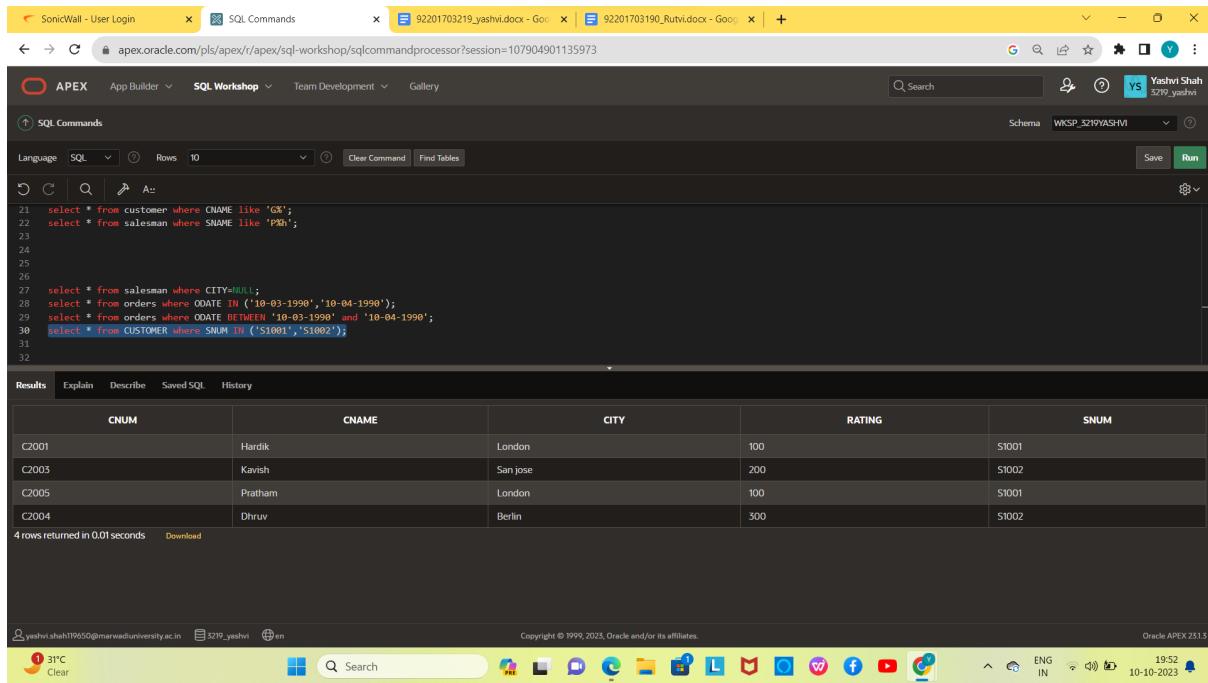
The Results tab shows the output of the query:

ONUM	AMT	ODATE	CNUM	SNUM
O3002	1900.1	10/03/1990	C2007	S1004
O3005	5160.45	10/04/1990	C2003	S1002

2 rows returned in 0.01 seconds

3. Write a query that selects all of the customers matched with S1001 and S1002.

select * from CUSTOMER where SNUM IN ('S1001','S1002');



```

21 select * from customer where CNAME like 'G%';
22 select * from salesman where SNAME like 'P%';
23
24
25
26
27 select * from salesman where CITY=NULL;
28 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001','S1002');
31
32

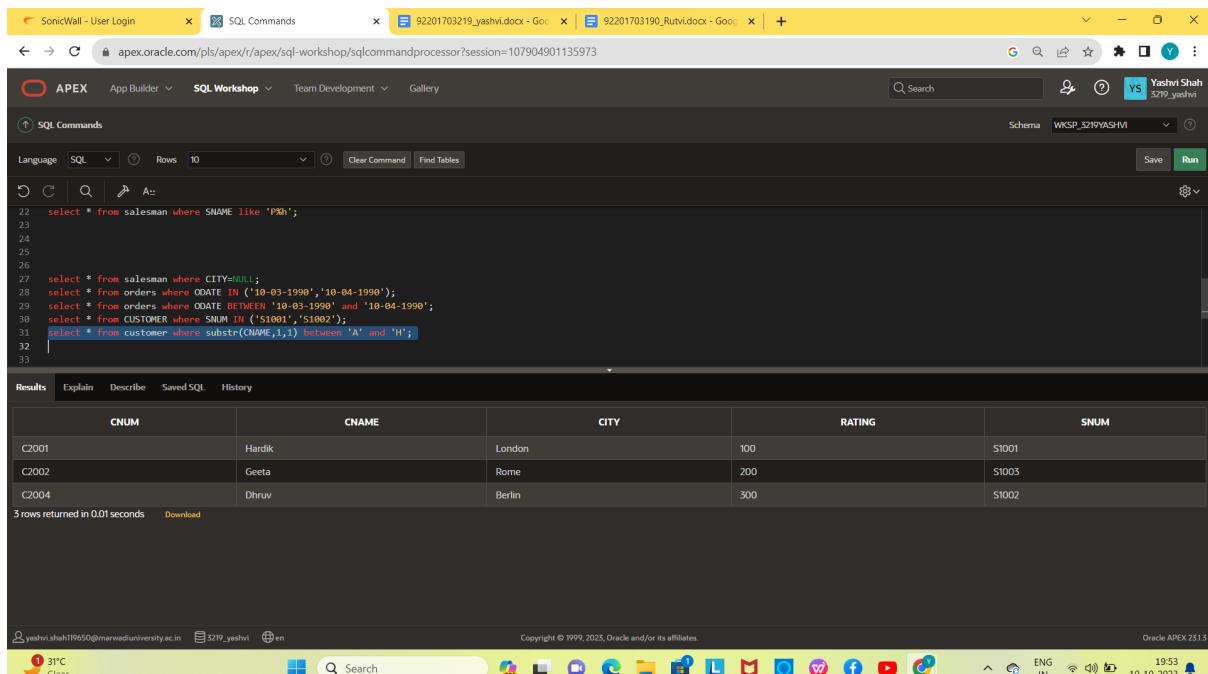
```

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2003	Kavish	San Jose	200	S1002
C2005	Pratham	London	100	S1001
C2004	Dhruv	Berlin	300	S1002

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

4. Write a query that will produce all of the customers whose names begin with a letter from A to H.

select * from customer where substr(CNAME,1,1) between 'A' and 'H';



```

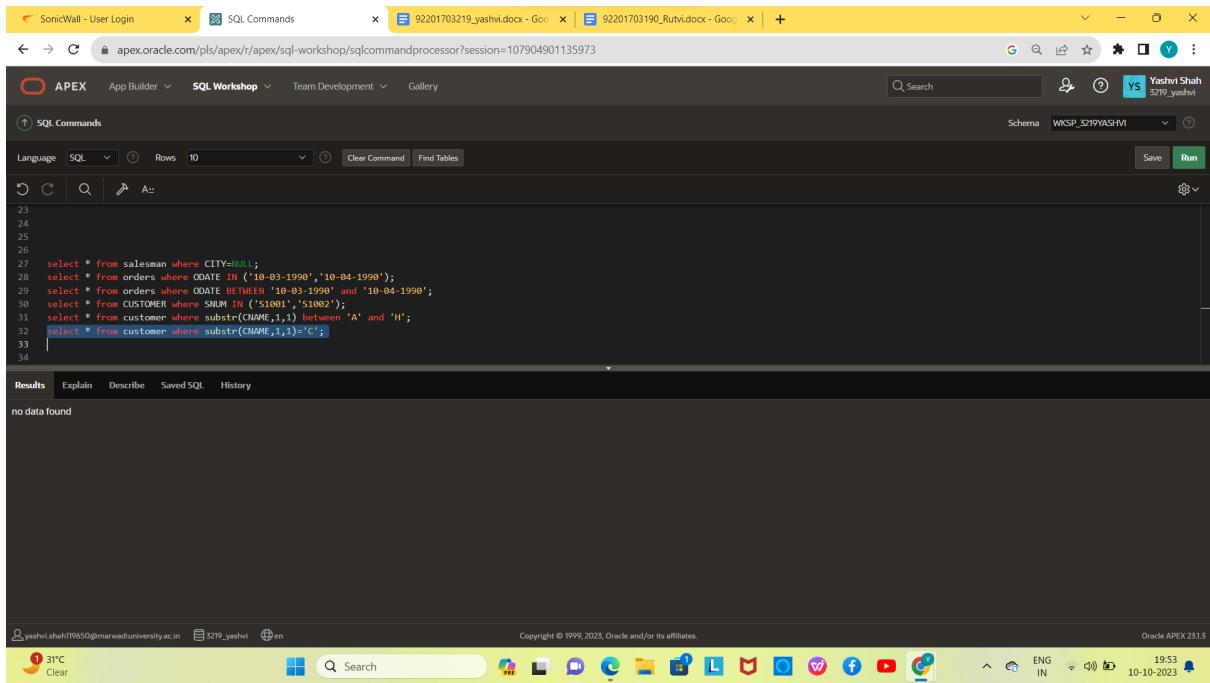
22 select * from salesman where SNAME like 'P%';
23
24
25
26
27 select * from salesman where CITY=NULL;
28 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001','S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32
33

```

CNUM	CNAME	CITY	RATING	SNUM
C2002	Geta	Rome	200	S1003
C2004	Dhruv	Berlin	300	S1002

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

5. Write a query that selects all customers whose names begin with 'C'.
select * from customer where substr(CNAME,1,1)='C';



```

23
24
25
26
27 select * from salesman where CITY=NULL;
28 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001','S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32 select * from customer where substr(CNAME,1,1)='C';
33
34

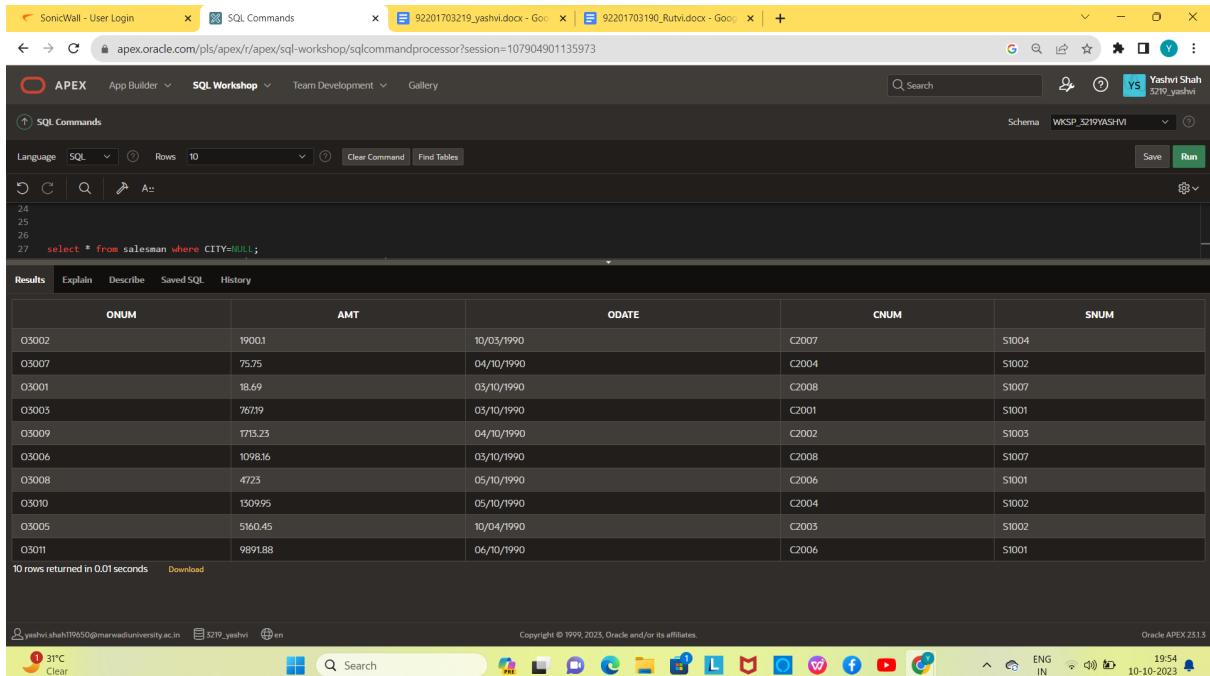
```

Results Explain Describe Saved SQL History

no data found

6. Write a query that selects all orders without ZEROS or NULLS in amt field..

select * from orders where NOT AMT=0 or NOT AMT=NULL;



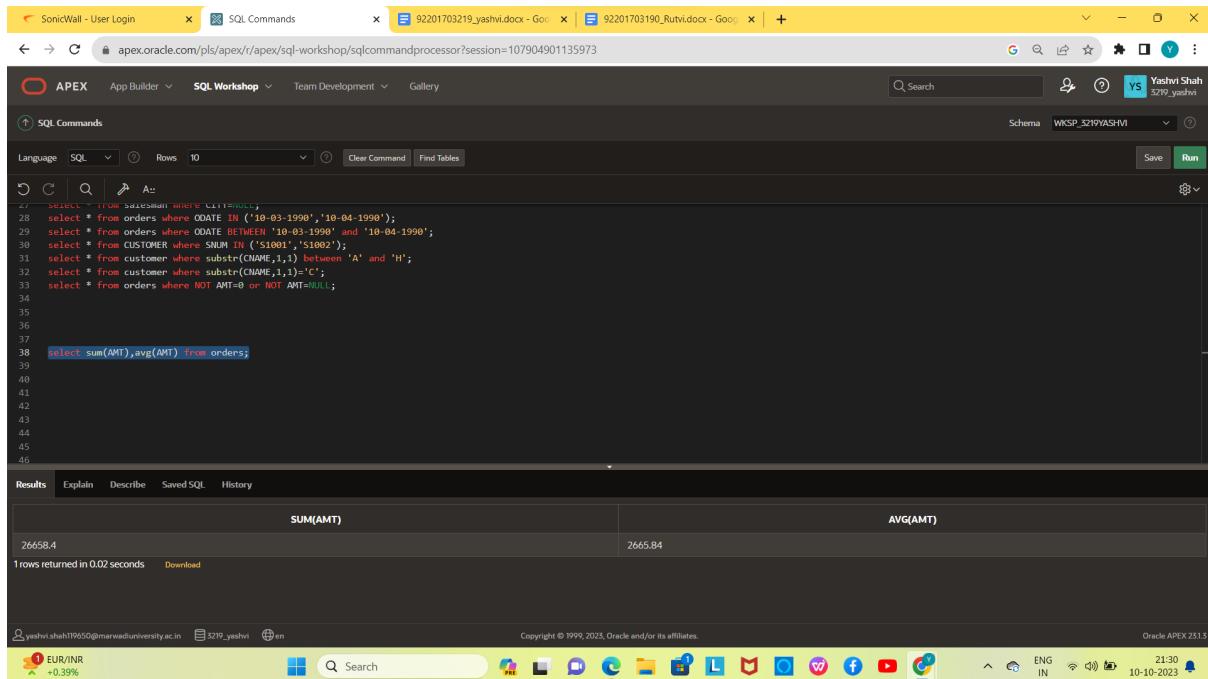
ONUM	AMT	ODATE	CNUM	SNUM
O3002	1900.1	10/03/1990	C2007	S1004
O3007	75.75	04/10/1990	C2004	S1002
O3001	18.69	05/10/1990	C2008	S1007
O3005	767.9	05/10/1990	C2001	S1001
O3009	1719.23	04/10/1990	C2002	S1003
O3006	10981.6	05/10/1990	C2008	S1007
O3008	4723	05/10/1990	C2006	S1001
O3010	1509.95	05/10/1990	C2004	S1002
O3005	5160.45	10/04/1990	C2003	S1002
O3011	9891.88	06/10/1990	C2006	S1001

10 rows returned in 0.01 seconds Download

FUNCTIONS

1. Display sum of amt,average of orders.

select sum(AMT),avg(AMT) from orders;



```

1 select * from salesman where CTY='MULC';
2 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
3 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
4 select * from CUSTOMER where SNUM IN ('S1001','S1002');
5 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
6 select * from customer where substr(CNAME,1,1)='C';
7 select * from orders where NOT AMT=0 or NOT AMT=NULL;
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36
37
38 select sum(AMT),avg(AMT) from orders;
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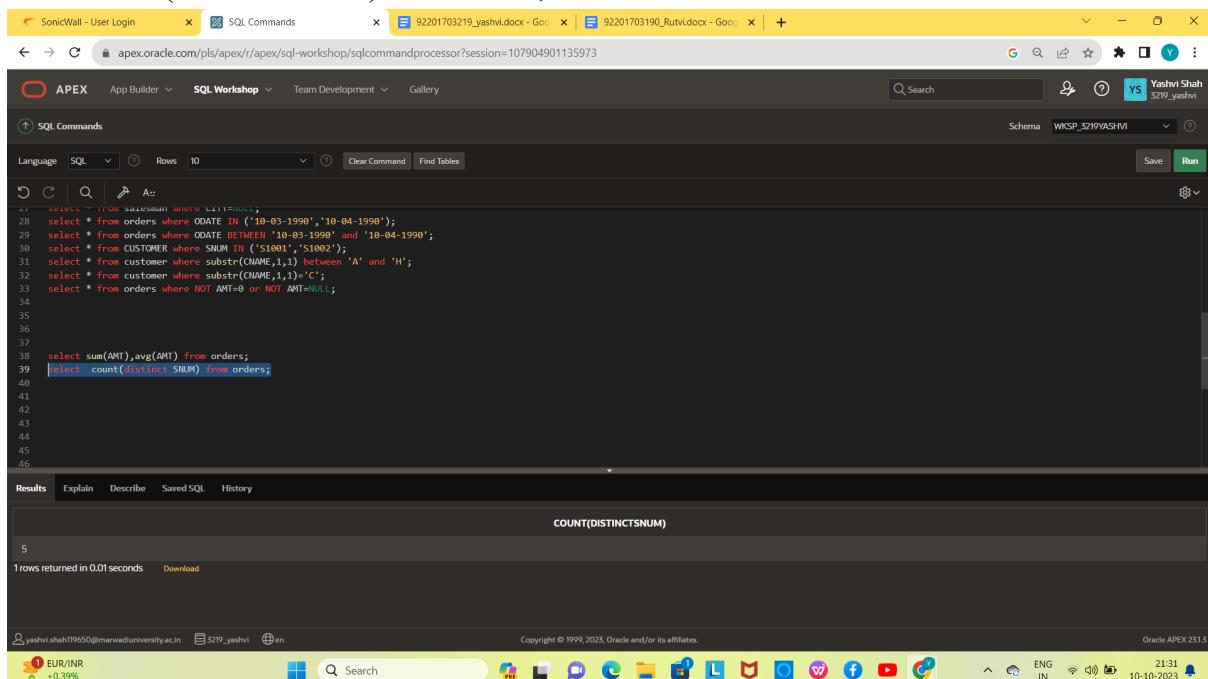
```

Results

SUM(AMT)	Avg(AMT)
26658.4	2665.84

1 rows returned in 0.02 seconds Download

2. To count the numbers of salesmen without duplication in the orders tables.
 select count(distinct SNUM) from orders;



```

1 select * from salesman where CTY='MULC';
2 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
3 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
4 select * from CUSTOMER where SNUM IN ('S1001','S1002');
5 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
6 select * from customer where substr(CNAME,1,1)='C';
7 select * from orders where NOT AMT=0 or NOT AMT=NULL;
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36
37
38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40
41
42
43
44
45
46

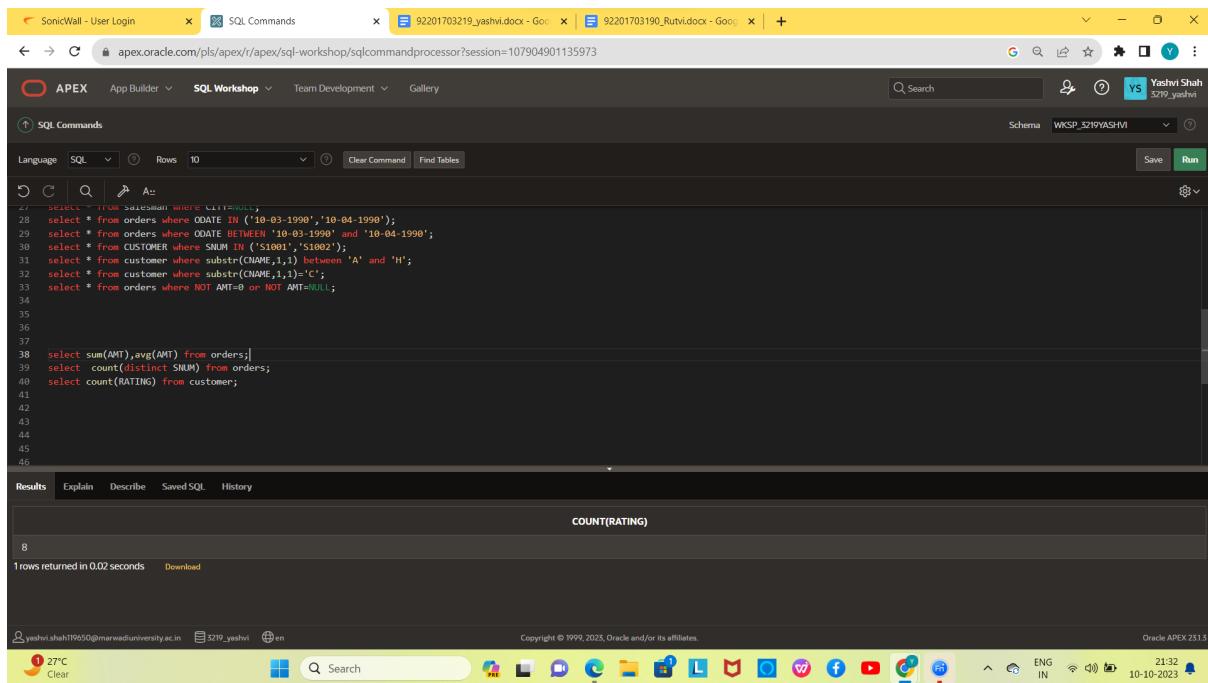
```

Results

COUNT(DISTINCT SNUM)
5

1 rows returned in 0.01 seconds Download

3. Count the rating of customers (with NULL and without NULL).
 select count(RATING) from customer;



```

27 select * from salesman where CTY='MUM';
28 select * from orders where ODATE IN ('10-03-1990', '10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001', 'S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32 select * from customer where substr(CNAME,1,1)='C';
33 select * from orders where NOT AMT=0 or NOT AMT=NULL;
34
35
36
37
38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customers;
41
42
43
44
45
46

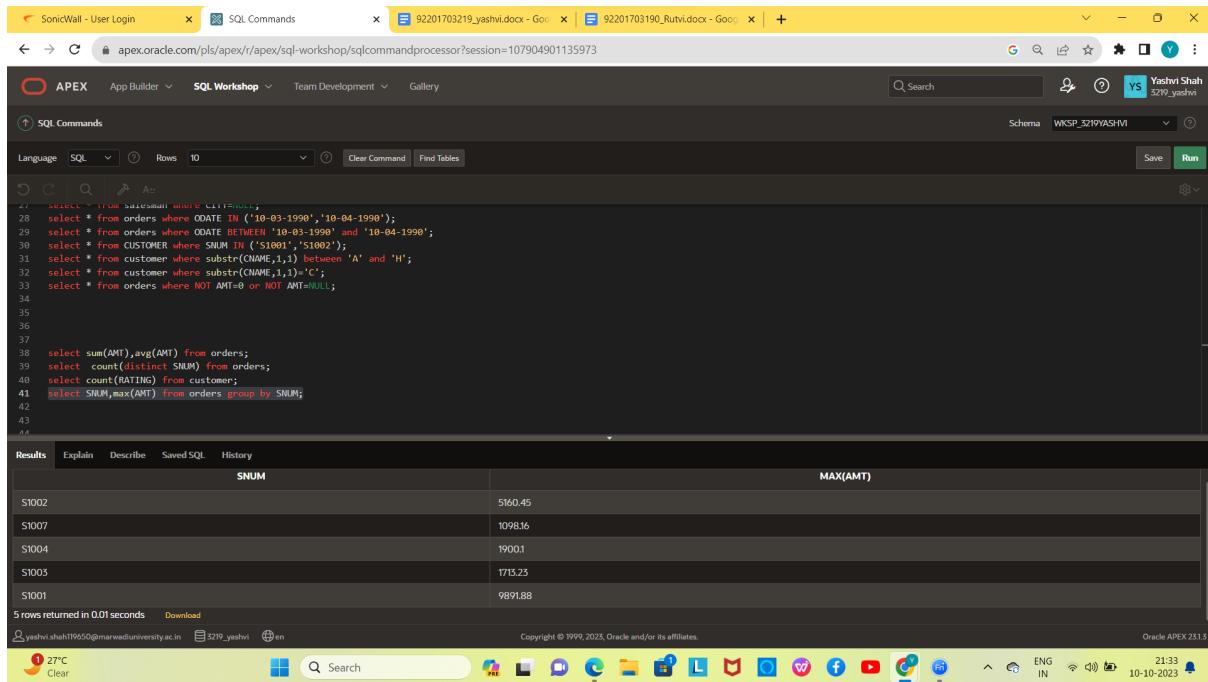
```

Results

COUNT(RATING)	
8	

1 rows returned in 0.02 seconds Download

4. Find the largest order taken by each salesperson.(hint: use group by)
 select SNUM,max(AMT) from orders group by SNUM;



```

27 select * from salesman where CTY='MUM';
28 select * from orders where ODATE IN ('10-03-1990', '10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001', 'S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32 select * from customer where substr(CNAME,1,1)='C';
33 select * from orders where NOT AMT=0 or NOT AMT=NULL;
34
35
36
37
38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customers;
41 select SNUM,max(AMT) from orders group by SNUM;
42
43
44
45
46

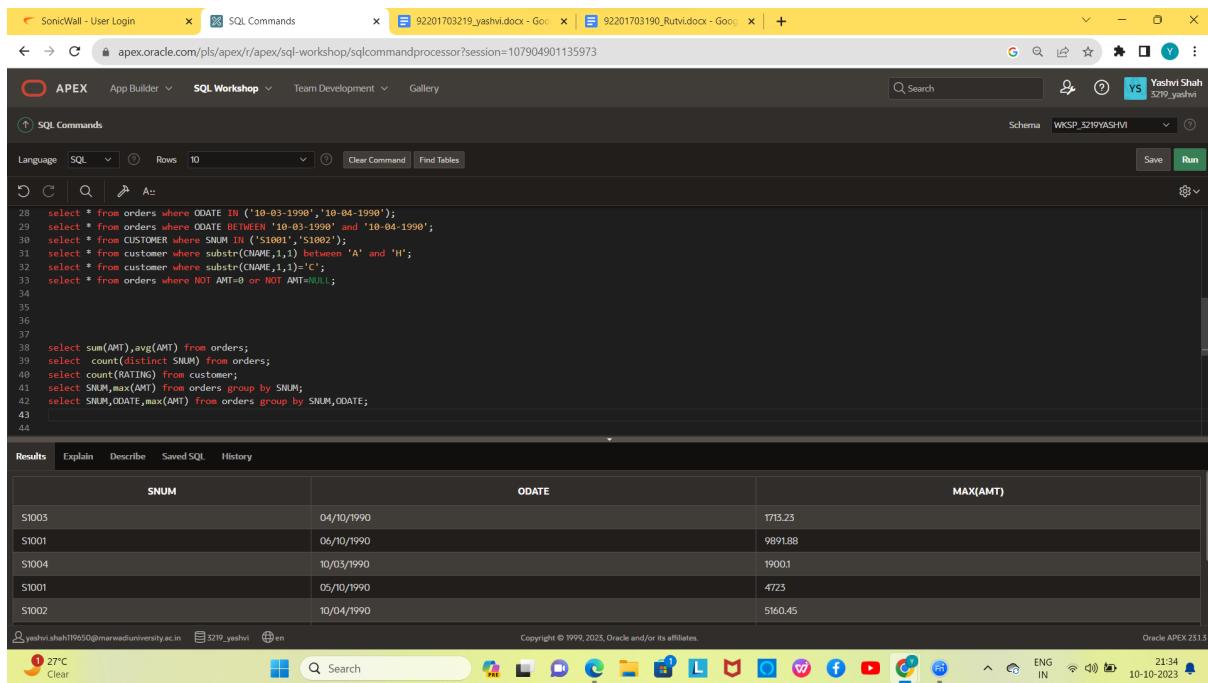
```

Results

SNUM	MAX(AMT)
S1002	5160.45
S1007	1098.36
S1004	1900.1
S1005	1715.23
S1001	9891.88

5 rows returned in 0.01 seconds Download

5. Find the largest order taken by each salesperson on each date.
 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;



```

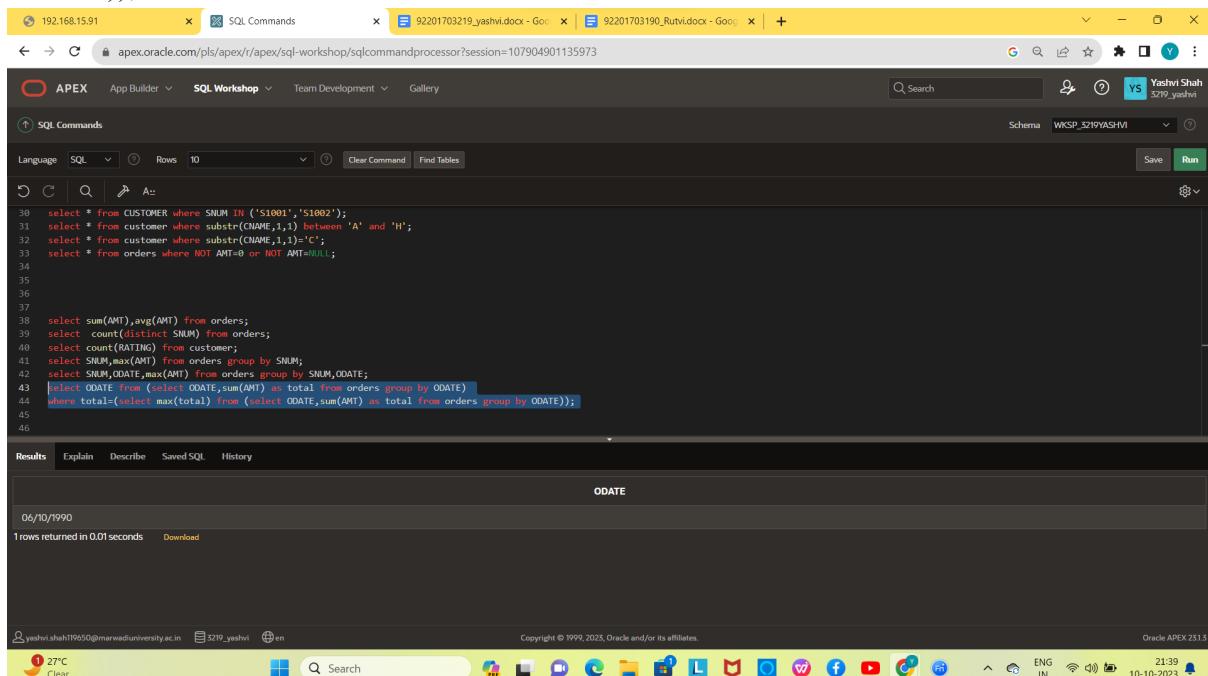
28 select * from orders where ODATE IN ('10-03-1990','10-04-1990');
29 select * from orders where ODATE BETWEEN '10-03-1990' and '10-04-1990';
30 select * from CUSTOMER where SNUM IN ('S1001','S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32 select * from customer where substr(CNAME,1,1)='C';
33 select * from orders where NOT AMT=0 or NOT AMT=NULL;
34
35
36
37
38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customer;
41 select SNUM,max(AMT) from orders group by SNUM;
42 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;
43
44

```

SNUM	ODATE	MAX(AMT)
S1005	04/10/1990	1715.25
S1001	06/10/1990	9891.88
S1004	10/03/1990	1900.1
S1001	05/10/1990	4725
S1002	10/04/1990	5160.45

6. Find out which day had the higher total amount ordered.

select ODATE from (select ODATE,sum(AMT) as total from orders group by ODATE)
where total=(select max(total) from (select ODATE,sum(AMT) as total from orders group by ODATE));



```

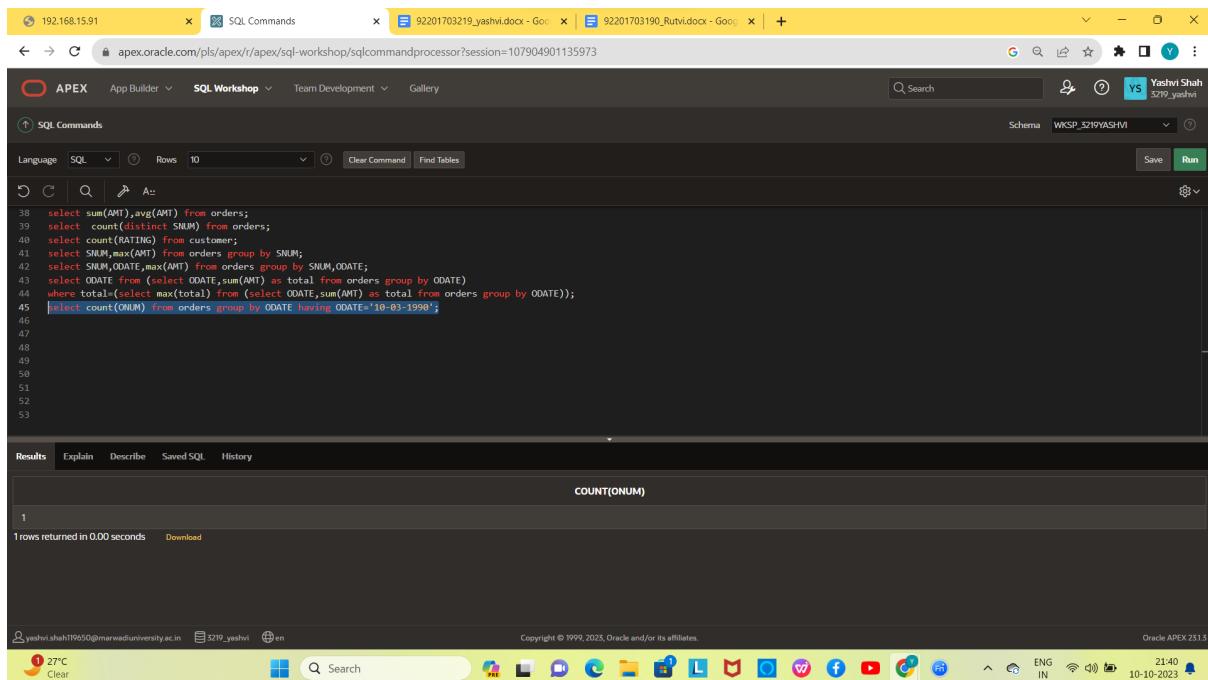
30 select * from CUSTOMER where SNUM IN ('S1001','S1002');
31 select * from customer where substr(CNAME,1,1) between 'A' and 'H';
32 select * from customer where substr(CNAME,1,1)='C';
33 select * from orders where NOT AMT=0 or NOT AMT=NULL;
34
35
36
37
38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customer;
41 select SNUM,max(AMT) from orders group by SNUM;
42 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;
43 select ODATE from (select ODATE,sum(AMT) as total from orders group by ODATE)
44 where total=(select max(total) from (select ODATE,sum(AMT) as total from orders group by ODATE));
45
46

```

ODATE
06/10/1990

7. Write a query that counts all orders for October 3rd.

select count(ONUM) from orders group by ODATE having ODATE='10-03-1990';



```

38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customer;
41 select SNUM,max(AMT) from orders group by SNUM;
42 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;
43 select ODATE from (select ODATE,sum(AMT) as total from orders group by ODATE)
44 where total=(select max(total) from (select ODATE,sum(AMT) as total from orders group by ODATE));
45 select count(ONUM) from orders group by ODATE having ODATE='10-03-1990';
46
47
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50
51
52
53

```

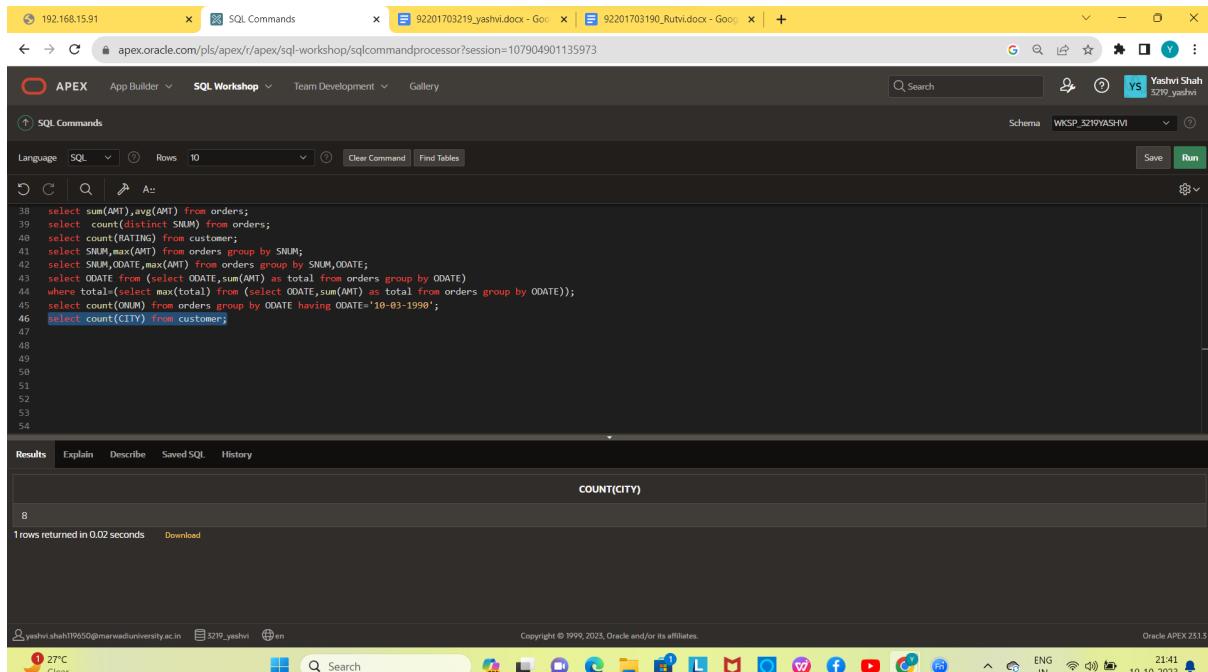
Results

COUNT(ONUM)
1

1 rows returned in 0.00 seconds Download

8. Write a query that counts the number of different non-NULL city in the customer table.

select count(CITY) from customer;



```

38 select sum(AMT),avg(AMT) from orders;
39 select count(distinct SNUM) from orders;
40 select count(RATING) from customer;
41 select SNUM,max(AMT) from orders group by SNUM;
42 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;
43 select ODATE from (select ODATE,sum(AMT) as total from orders group by ODATE)
44 where total=(select max(total) from (select ODATE,sum(AMT) as total from orders group by ODATE));
45 select count(ONUM) from orders group by ODATE having ODATE='10-03-1990';
46 select count(CITY) from customer;
47
48
49
50
51
52
53
54

```

Results

COUNT(CITY)
8

1 rows returned in 0.02 seconds Download

9. Write a query that selects the first customer in alphabetical order whose name begin with 'G'.

select * from (select * from customer where CNAME like 'G%' order by CNAME) where rownum=1;

192.168.15.91 x SQL Commands x 92201703219_yashvi.docx - Go... x 92201703190_Rutvi.docx - Go... +

apex.oracle.com/pls/apex/r/apex/sql-workshop/sqlcommandprocessor?session=107904901135973

APEX App Builder SQL Workshop Team Development Gallery

SQL Commands

Language SQL Rows 10 Clear Command Find Tables

Save Run

38 select sum(AMT),avg(AMT) from orders;

39 select count(distinct SNUM) from orders;

40 select count(RATING) from customer;

41 select SNUM,max(AMT) from orders group by SNUM;

42 select SNUM,ODATE,max(AMT) from orders group by SNUM,ODATE;

43 select ODATE from (select ODATE,sum(AMT) as total from orders group by ODATE)

44 where total=(select max(total) from (select ODATE,sum(AMT) as total from orders group by ODATE));

45 select count(ONUM) from orders group by ODATE having ODATE='10-03-1990';

46 select count(CITY) from customer;

47 select * from (select * from customer where CNAME like '%G%' order by CNAME) where rownum=1;

48

49

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52

53

54

Results Explain Describe Saved SQL History

CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	200	51003

1 rows returned in 0.01 seconds Download

yashvi.shahITW50@marwadiuniversity.ac.in 3219_yashvi en

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1 27°C Clear ENG IN 21:42 10-10-2023

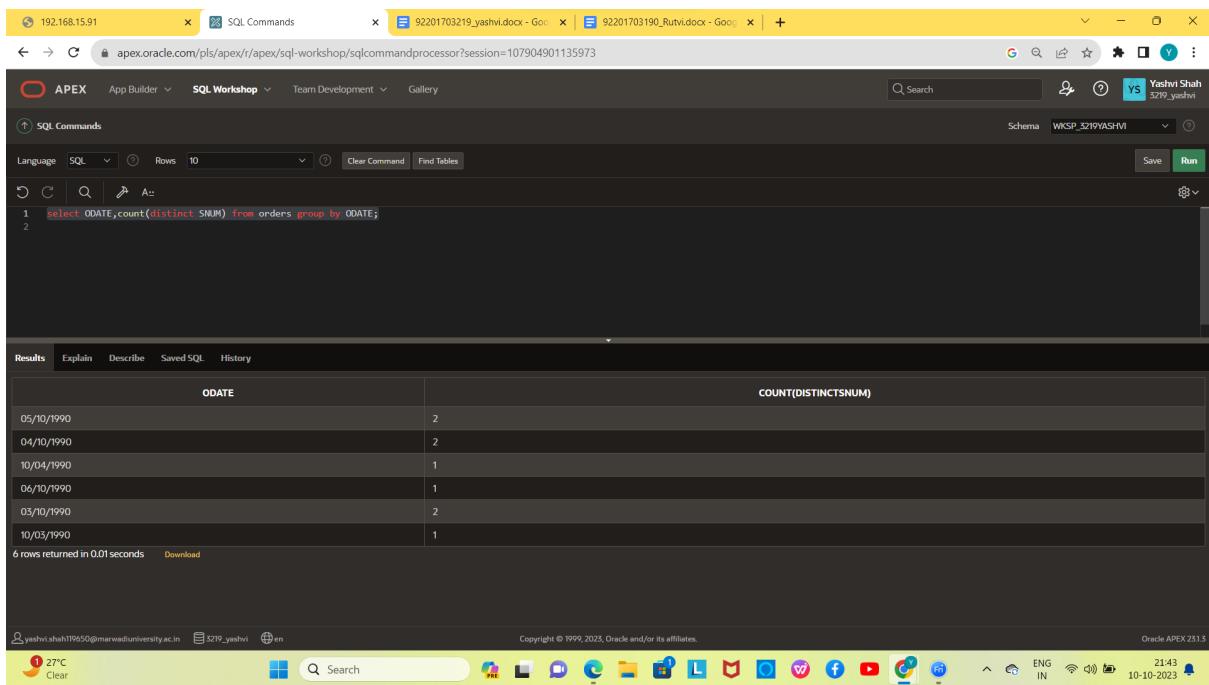
Practical 10

Aim: Join based Queries having Functions

Perform queries on above tables

1. Write a query that counts the number of salesmen registering orders for each day(if a salesperson has more than one order on a given day , he or she should be counted only once)

select ODATE,count(distinct SNUM) from orders group by ODATE;



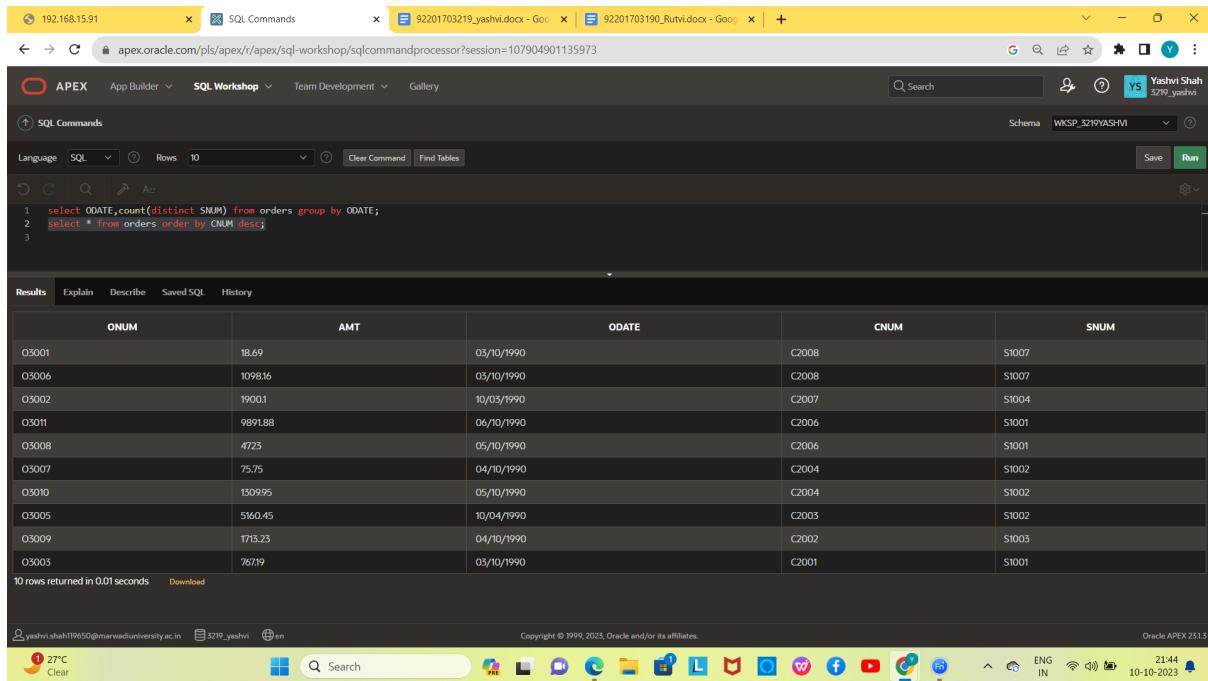
```
1 select ODATE, count(distinct SNUM) from orders group by ODATE;
2
```

ODATE	COUNT(DISTINCTSNUM)
05/10/1990	2
04/10/1990	2
10/04/1990	1
06/10/1990	1
05/10/1990	2
10/03/1990	1

6 rows returned in 0.01 seconds Download

2. Display all the information in descending orders(use column CNUM).

select * from orders order by CNUM desc;



```

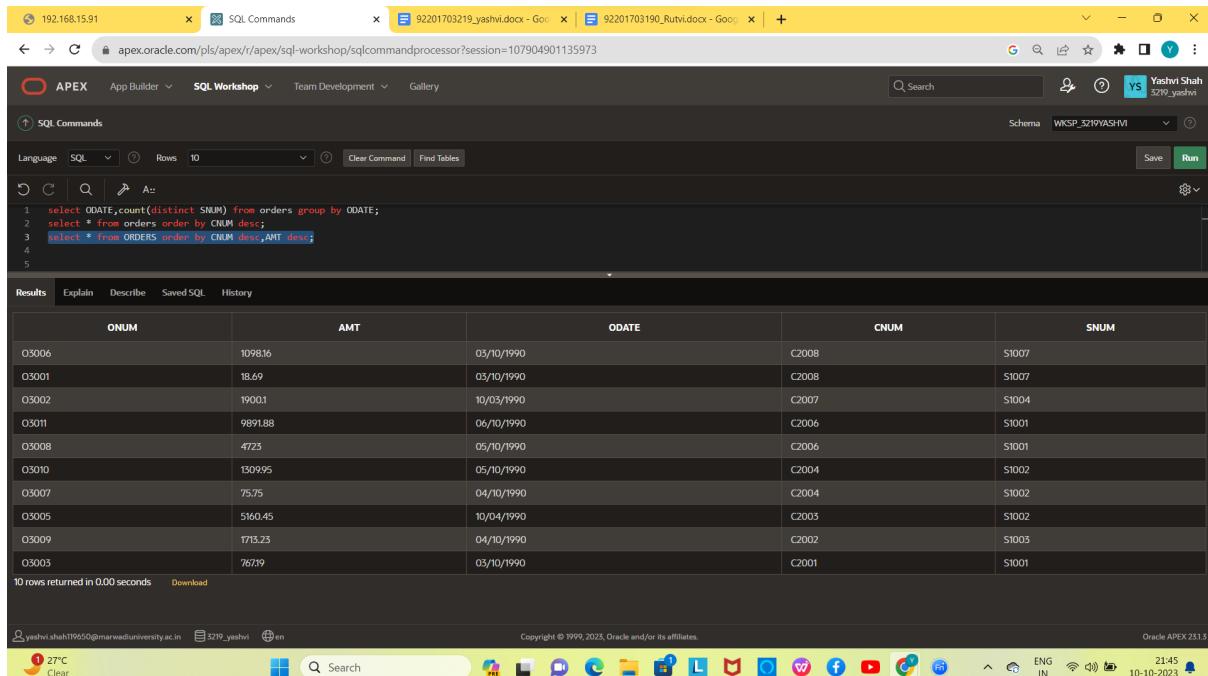
1 select ODATE, count(distinct SNUM) from orders group by ODATE;
2 select * from orders order by CNUM desc;
3

```

ONUM	AMT	ODATE	CNUM	SNUM
O3001	18.69	03/10/1990	C2008	S1007
O3006	1098.16	03/10/1990	C2008	S1007
O3002	1900.1	10/03/1990	C2007	S1004
O3011	9891.88	06/10/1990	C2006	S1001
O3008	4725	05/10/1990	C2006	S1001
O3007	75.75	04/10/1990	C2004	S1002
O3010	13099.95	05/10/1990	C2004	S1002
O3005	5160.45	10/04/1990	C2003	S1002
O3009	1713.23	04/10/1990	C2002	S1003
O3003	767.9	03/10/1990	C2001	S1001

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

3. Display all the information in descending orders(use column CNUM,AMT).
 select * from ORDERS order by CNUM desc,AMT desc;



```

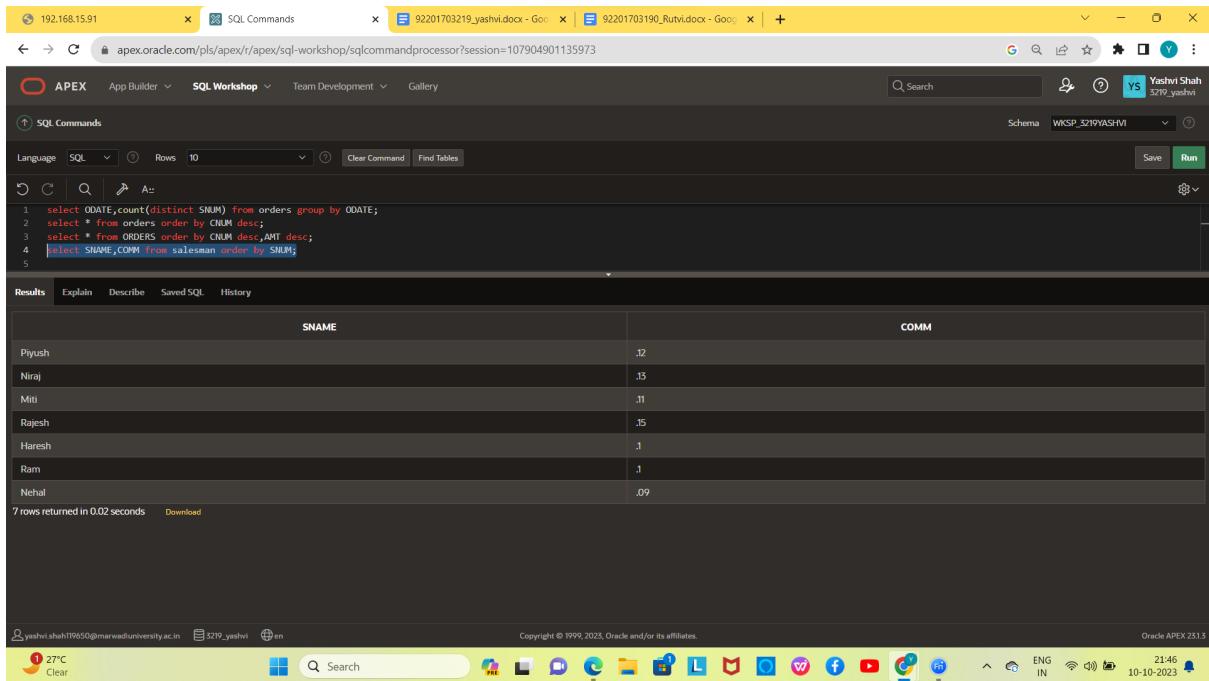
1 select ODATE, count(distinct SNUM) from orders group by ODATE;
2 select * from orders order by CNUM desc;
3 select * from ORDERS order by CNUM desc,AMT desc;
4
5

```

ONUM	AMT	ODATE	CNUM	SNUM
O3006	1098.16	03/10/1990	C2008	S1007
O3001	18.69	03/10/1990	C2008	S1007
O3002	1900.1	10/03/1990	C2007	S1004
O3011	9891.88	06/10/1990	C2006	S1001
O3008	4725	05/10/1990	C2006	S1001
O3010	13099.95	05/10/1990	C2004	S1002
O3007	75.75	04/10/1990	C2004	S1002
O3005	5160.45	10/04/1990	C2003	S1002
O3009	1713.23	04/10/1990	C2002	S1003
O3003	767.9	03/10/1990	C2001	S1001

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

4. Display sname and comm. From salesmen in descending order(in place of column name use column number).
 select SNAME,COMM from salesman order by SNUM;



```

1 select ODATE, count(distinct SNUM) from orders group by ODATE;
2 select * from orders order by CNUM desc;
3 select * from ORDERS order by CNUM desc, AMT desc;
4 select SNAME, COMM from salesman order by SNUM;
5

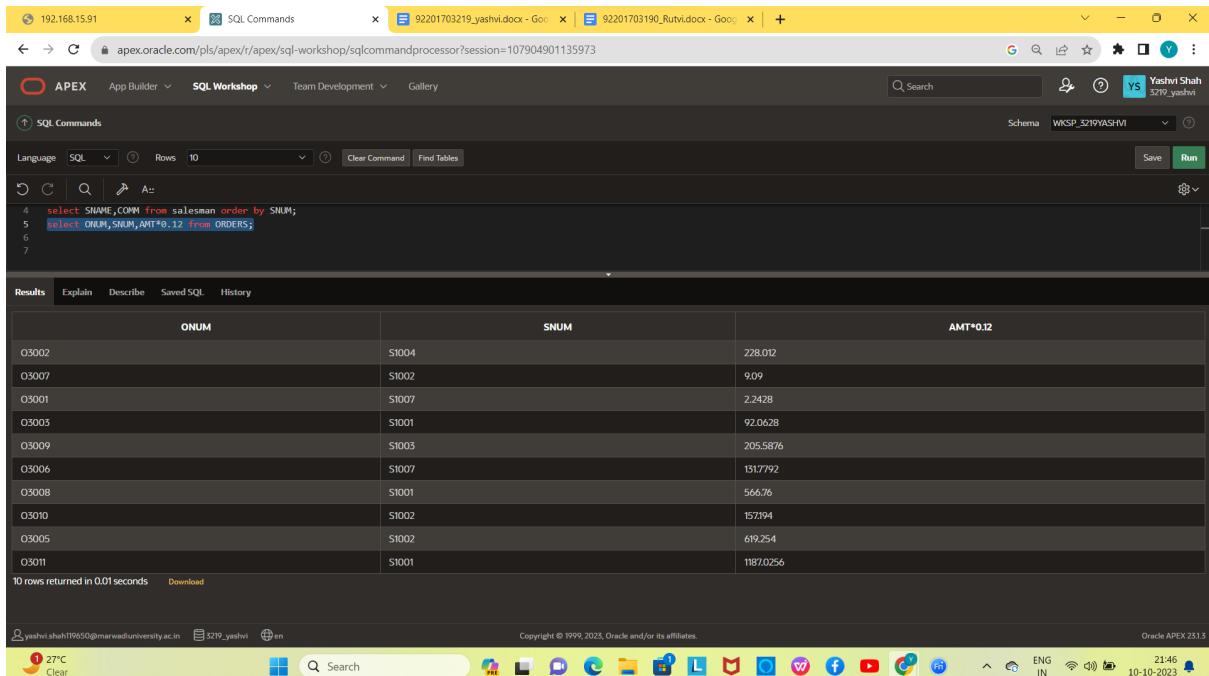
```

SNAME	COMM
Piyush	.12
Niraj	.15
Miti	.11
Rajesh	.15
Hareh	.1
Ram	.1
Nehal	.09

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

5. Assume each salesperson has a 0.12 commission. Write a query on the orders table that will produce the order number, the salesperson number and the amount of the salesperson's commission for that order.

select ONUM,SNUM,AMT*0.12 from ORDERS;



```

4 select SNAME, COMM from salesman order by SNUM;
5 select ONUM, SNUM, AMT*0.12 from ORDERS;
6
7

```

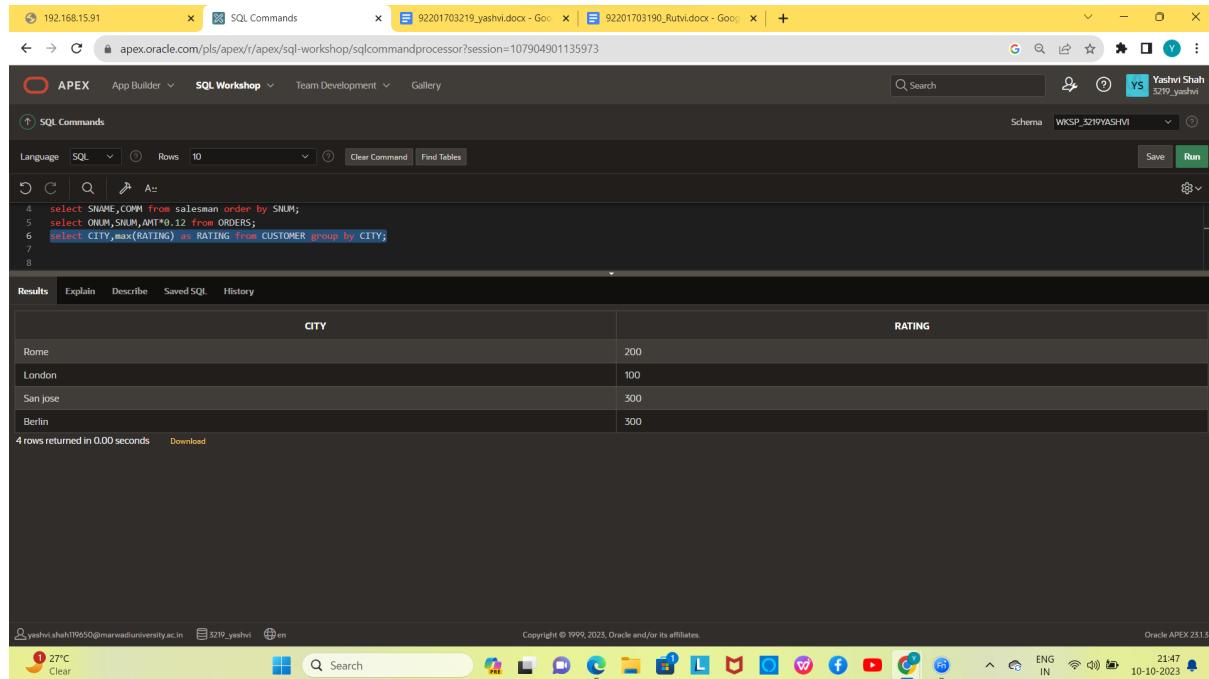
ONUM	SNUM	AMT*0.12
O3002	S1004	228.012
O3007	S1002	9.09
O3001	S1007	2.2428
O3003	S1001	92.0628
O3009	S1003	205.5876
O3006	S1007	131.7792
O3008	S1001	566.76
O3010	S1002	157.094
O3005	S1002	619.254
O3011	S1001	1187.0256

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

6. Write a query on the customers table that will find the highest rating in each city. Put the output in this form.

For the city (city) , the highest rating is: (rating).

select CITY,max(RATING) as RATING from CUSTOMER group by CITY;



```

4 select SNAME, COMM from salesman order by SNUM;
5 select ONUM, SNUM, AMT*0.12 from ORDERS;
6 select CITY, max(RATING) as RATING from CUSTOMER group by CITY;
7
8

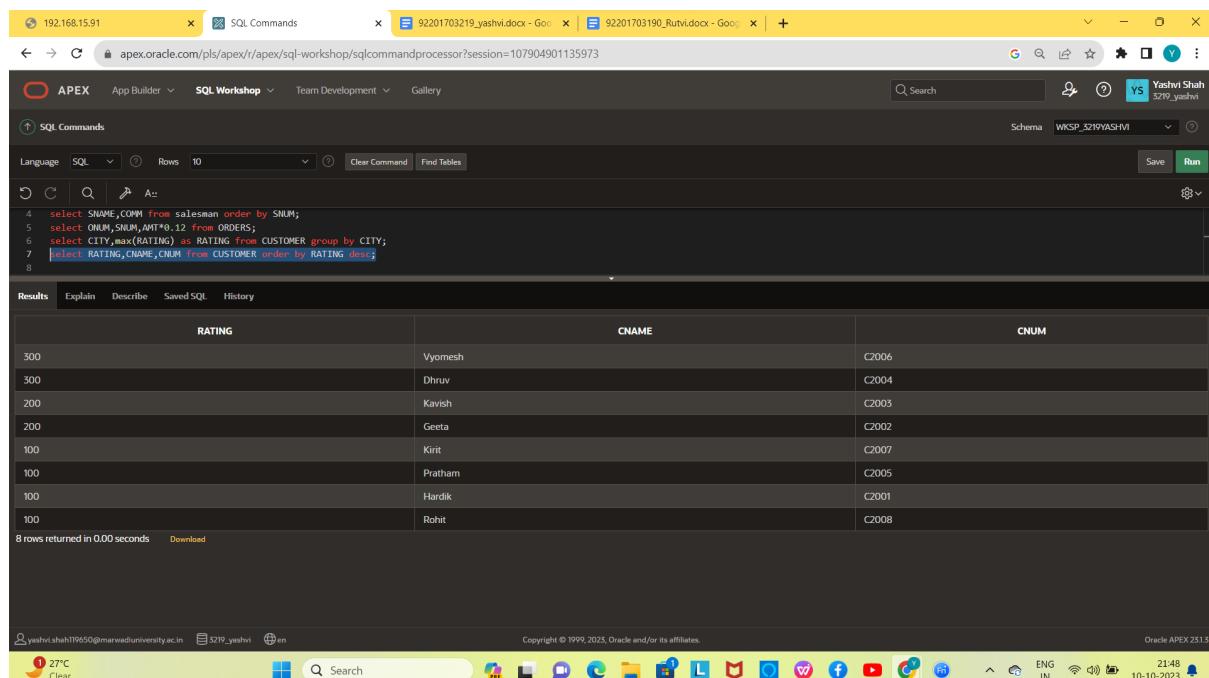
```

CITY	RATING
Rome	200
London	100
San Jose	300
Berlin	300

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

7. Write a query that lists customers in descending order of rating. Output the rating field first, followed by the customer's name and number.

select RATING,CNAME,CNUM from CUSTOMER order by RATING desc;



```

4 select SNAME, COMM from salesman order by SNUM;
5 select ONUM, SNUM, AMT*0.12 from ORDERS;
6 select CITY, max(RATING) as RATING from CUSTOMER group by CITY;
7 select RATING, CNAME, CNUM from CUSTOMER order by RATING desc;
8

```

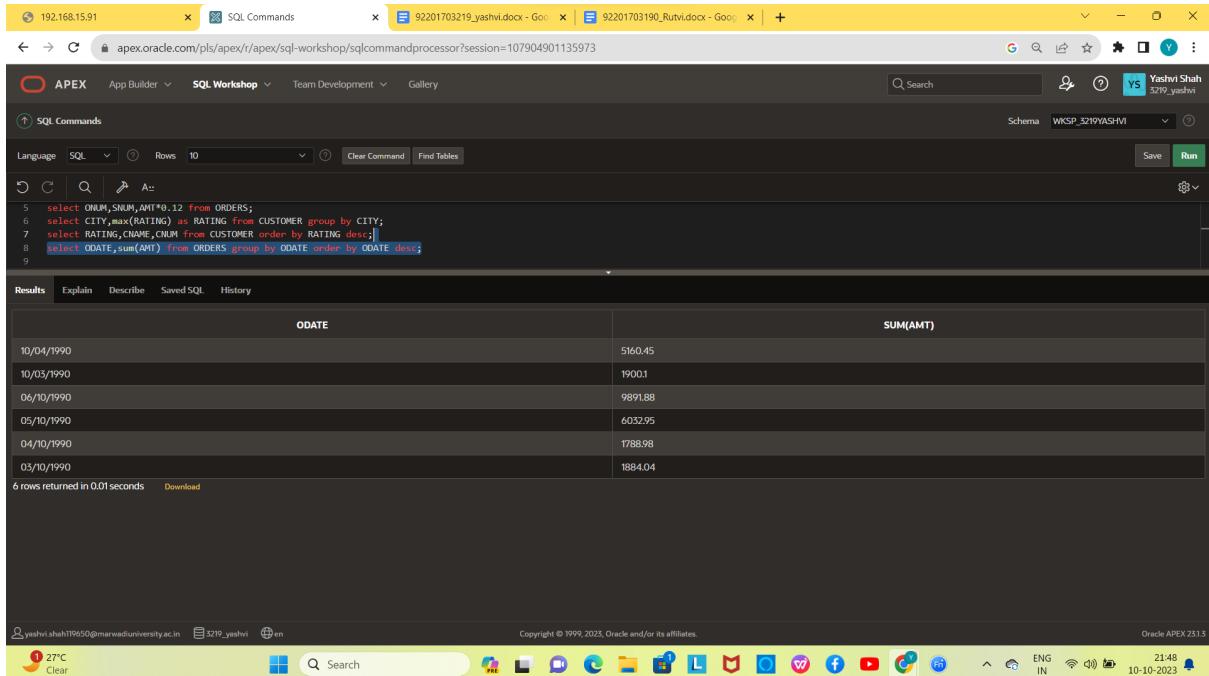
RATING	CNAME	CNUM
300	Vyomesh	C2006
300	Dhruv	C2004
200	Kavish	C2003
200	Geeta	C2002
100	Kirit	C2007
100	Pratham	C2005
100	Hardik	C2001
100	Rohit	C2008

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

8. Write a query that totals the orders for each day and places the results in descending

order.

select ODATE,sum(AMT) from ORDERS group by ODATE order by ODATE desc;



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

```

5 select ONUM,CNUM,AMT*0.12 from ORDERS;
6 select CITY,max(RATING) as RATING from CUSTOMER group by CITY;
7 select RATING,CNAME,CNUM from CUSTOMER order by RATING desc;
8 select ODATE,sum(AMT) from ORDERS group by ODATE order by ODATE desc;
9

```

The Results tab shows the output of the query:

ODATE	SUM(AMT)
10/04/1990	5160.45
10/03/1990	1900.1
06/10/1990	9891.88
05/10/1990	6032.95
04/10/1990	1788.98
03/10/1990	1884.04

6 rows returned in 0.01 seconds Download

At the bottom of the browser window, there is a toolbar with various icons and status information:

- Icons for weather (27°C), search, and other applications.
- Language: ENG IN
- Date and time: 10-10-2023, 21:48
- Notification bell icon

JOIN

9. Show the names of all customers matched with the salesmen serving them.

select

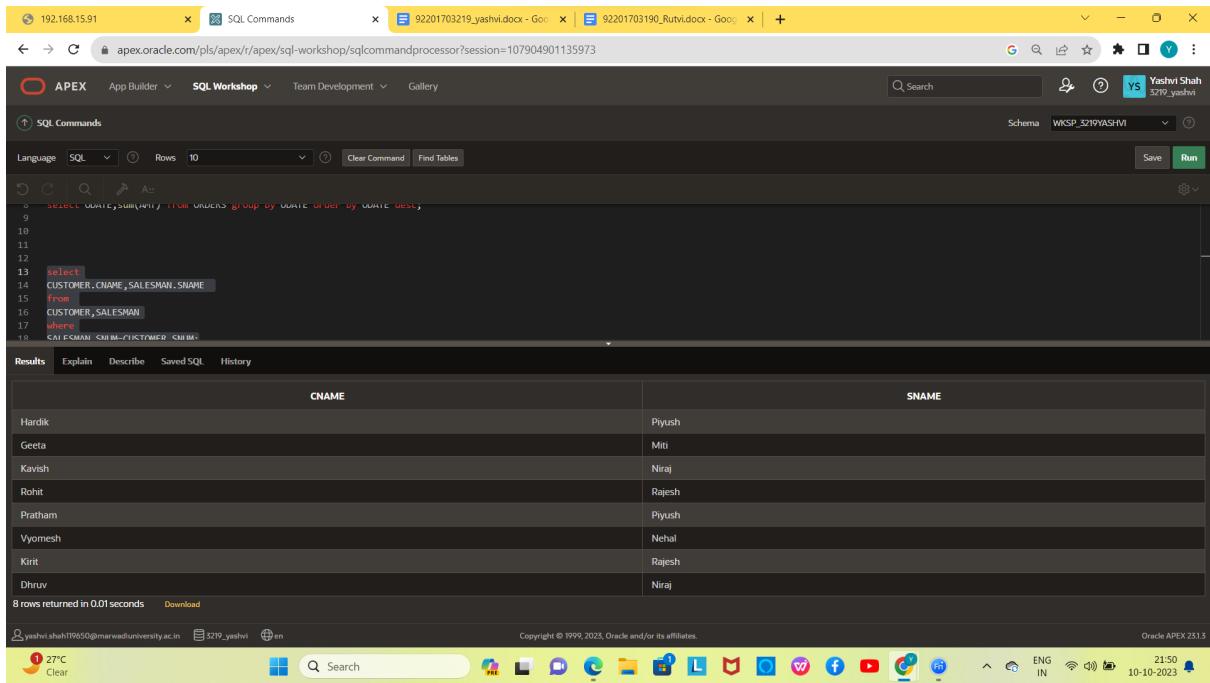
CUSTOMER.CNAME,SALESMAN.SNAME

from

CUSTOMER,SALESMAN

where

SALESMAN.SNUM=CUSTOMER.SNUM;



The screenshot shows the Oracle APEX SQL Workshop interface. In the SQL Commands tab, a query is being run:

```

0  SELECT ODATE, SUM(AMT) FROM ORDERS GROUP BY ODATE ORDER BY ODATE DESC;
9
10
11
12
13 select
14   CUSTOMER.CNAME, SALESMAN.SNAME
15   from
16   CUSTOMER,SALESMAN
17   where
18   SALESMAN.SNUM=CUSTOMER.SNUM;

```

The Results grid displays the following data:

CNAME	SNAME
Hardik	Piyush
Geta	Miti
Kavish	Niraj
Rohit	Rajesh
Pratham	Piyush
Vyomesh	Nehal
Kirit	Rajesh
Dhruv	Niraj

8 rows returned in 0.01 seconds

10. Write a query that lists each order number followed by the name of the customer who made the order.

select

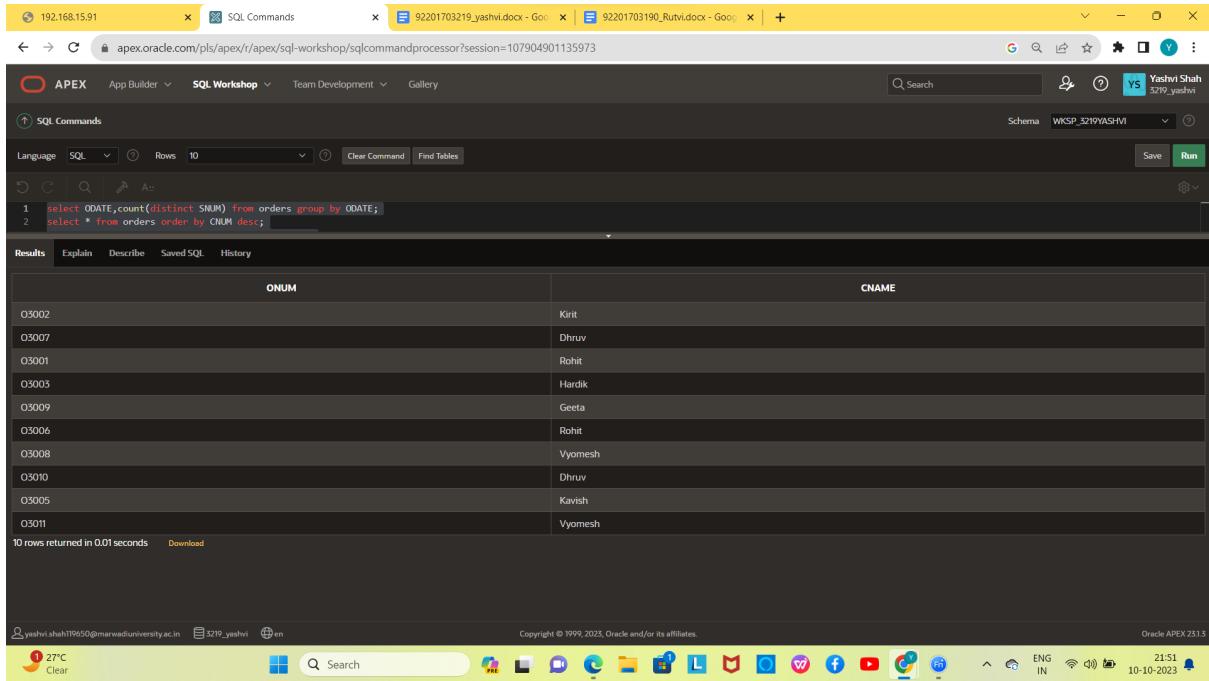
ORDERS.ONUM,CUSTOMER.CNAME

from

CUSTOMER,ORDERS

where

CUSTOMER.CNUM=ORDERS.CNUM;



The screenshot shows the Oracle APEX SQL Workshop interface. A user named Yashvi Shah is logged in. The query executed is:

```

1 select ODATE, count(distinct SNUM) from orders group by ODATE;
2 select * from orders order by CNUM desc;

```

The results table displays the following data:

ONUM	CNAME
O5002	Kiril
O5007	Dhruv
O5001	Rohit
O5005	Hardik
O5009	Geeta
O5006	Rohit
O5008	Vyomesh
O5010	Dhruv
O5005	Kavish
O5011	Vyomesh

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

11. Write a query that gives the names of both the salesperson and the customer for each order after the order number.

select

ORDERS.ONUM,CUSTOMER.CNAME,SALESMAN.SNAME

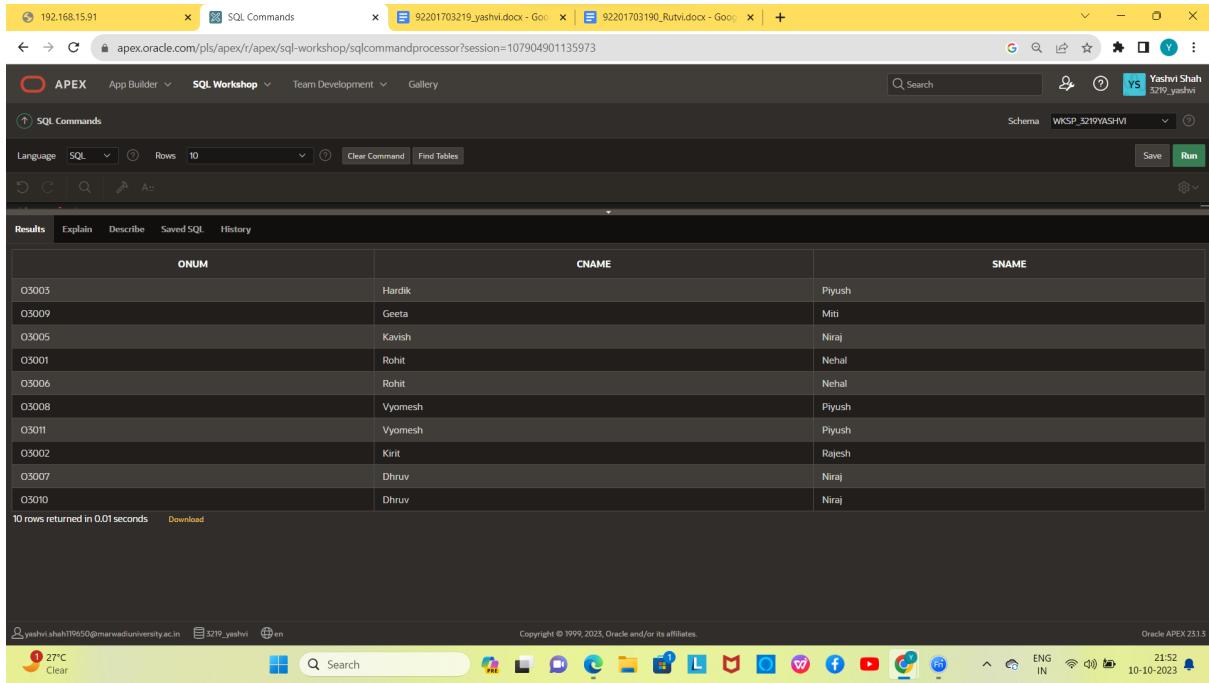
from

CUSTOMER,ORDERS,SALESMAN

where

CUSTOMER.CNUM=ORDERS.CNUM and

SALESMAN.SNUM=ORDERS.SNUM;



The screenshot shows the Oracle APEX SQL Workshop interface. The results grid displays the following data:

ONUM	CNAME	SNAME
03003	Hardik	Piyush
03009	Geeta	Miti
03005	Kavish	Niraj
03001	Rohit	Nehal
03006	Rohit	Nehal
03008	Vyomesh	Piyush
03011	Vyomesh	Piyush
03002	Kirt	Rajesh
03007	Dhruv	Niraj
03010	Dhruv	Niraj

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

12. Write a query that produces all customers serviced by salesmen with a commission above 0.12. Output the customer's name, the salesperson's name and the salesperson's rate of commission.

select

CUSTOMER.CNAME,SALESMAN.SNAME,SALESMAN.COMM

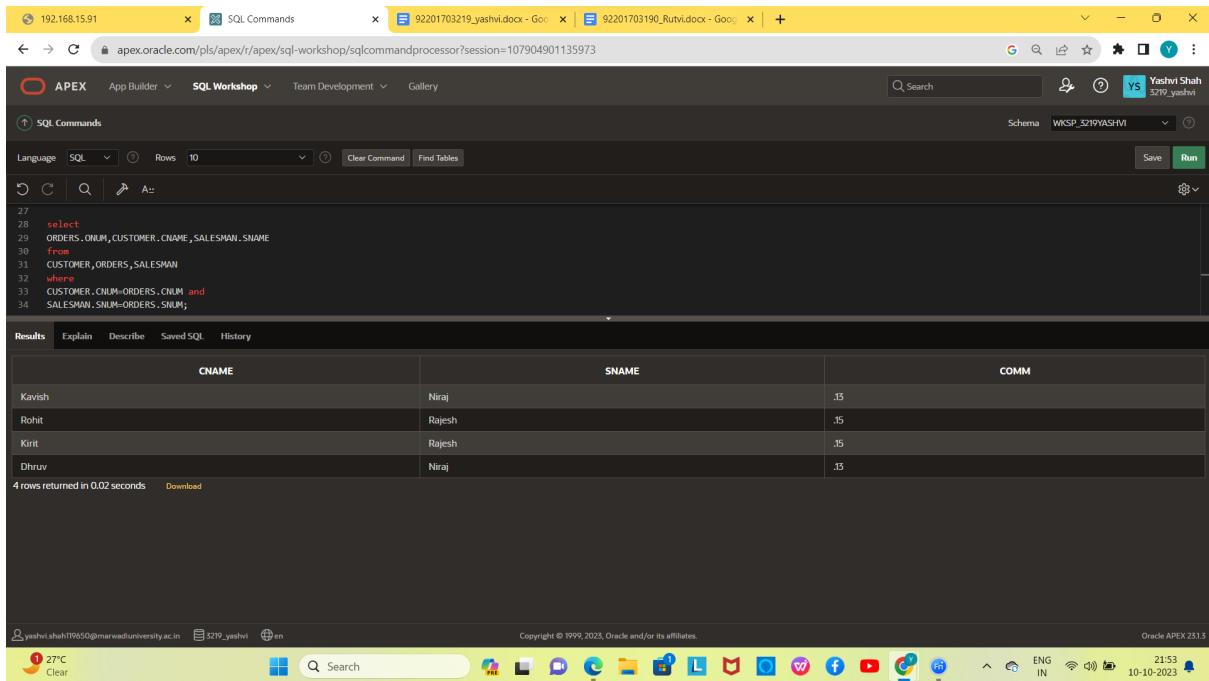
from

SALESMAN,CUSTOMER

where

SALESMAN.SNUM=CUSTOMER.SNUM and

SALESMAN.COMM>0.12;



The screenshot shows the Oracle APEX SQL Workshop interface. A query is being run:

```

27
28 select
29 ORDERS.ONUM,CUSTOMER.CNAME,SALESMAN.SNAME
30 From
31 CUSTOMER,ORDERS,SALESMAN
32 where
33 CUSTOMER.CNUM=ORDERS.CNUM and
34 SALESMAN.SNUM=ORDERS.SNUM;

```

The results table displays the following data:

CNAME	SNAME	COMM
Kavish	Niraj	.15
Rohit	Rajesh	.15
Kirit	Rajesh	.15
Dhiruv	Niraj	.15

4 rows returned in 0.02 seconds Download

13. Write a query that calculates the amount of the salesperson's commission on each order by a customer with a rating above 100.

select

ORDERS.ONUM,ORDERS.AMT*SALESMAN.COMM,CUSTOMER.RATING

from

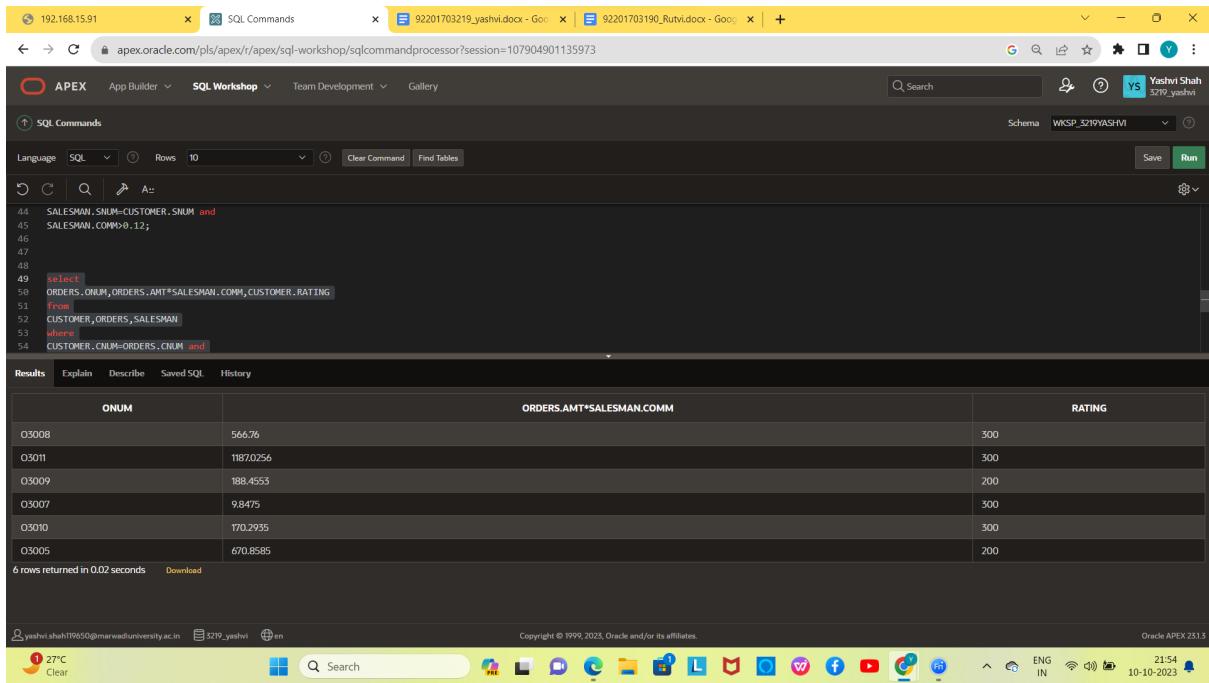
CUSTOMER,ORDERS,SALESMAN

where

CUSTOMER.CNUM=ORDERS.CNUM and

SALESMAN.SNUM=ORDERS.SNUM and

CUSTOMER.RATING>100;



The screenshot shows the Oracle APEX SQL Workshop interface. A query is being run against the database:

```

44  SALESMAN.SNUM=CUSTOMER.SNUM and
45  SALESMAN.COMM=0.12;
46
47
48
49  select
50  ORDERS.ONUM,ORDERS.AMT*SALESMAN.COMM,CUSTOMER.RATING
51  from
52  CUSTOMER_ORDERS,SALESMAN
53  where
54  CUSTOMER.CNUM=ORDERS.CNUM and

```

The results table displays the following data:

ONUM	ORDERS.AMT*SALESMAN.COMM	RATING
O3008	566.76	300
O3011	1187.0256	300
O3009	188.4553	200
O3007	9.8475	300
O3010	170.2935	300
O3005	670.8585	200

6 rows returned in 0.02 seconds Download

OTHERS

14. List all customer located in cities where salesperson ‘PIYUSH’ has customer.

select

CUSTOMER.CNAME,CUSTOMER.CITY

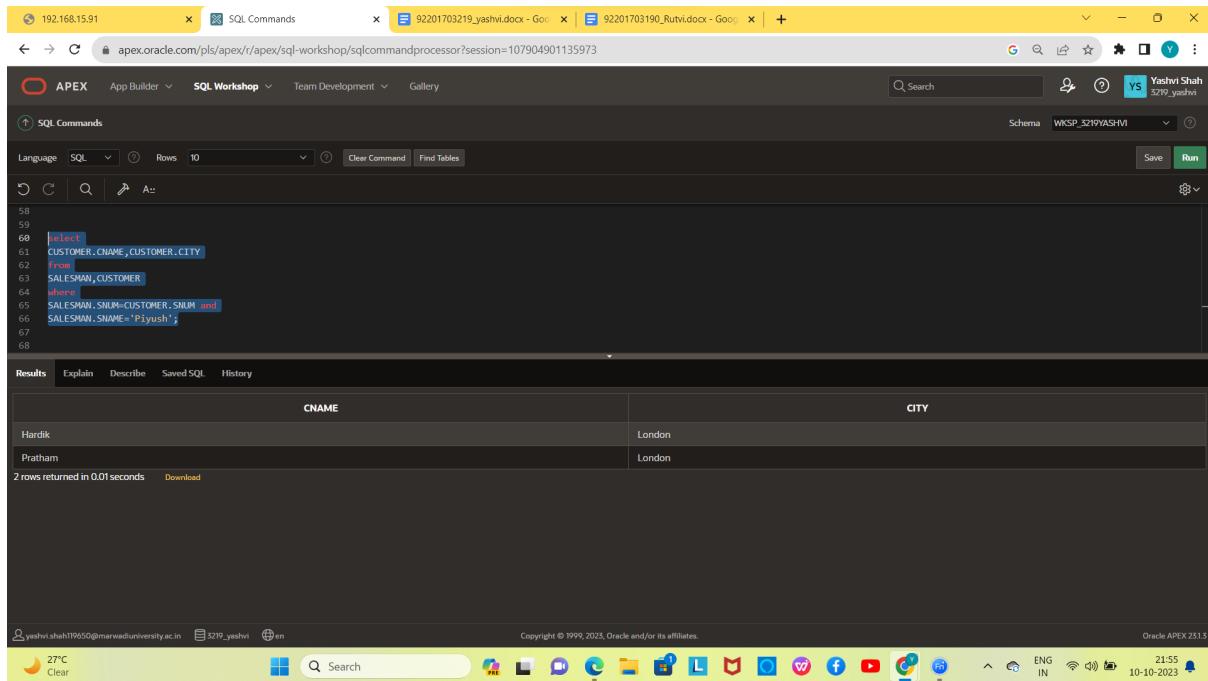
from

SALESMAN,CUSTOMER

where

SALESMAN.SNUM=CUSTOMER.SNUM and

SALESMAN.SNAME='Piyush';



```

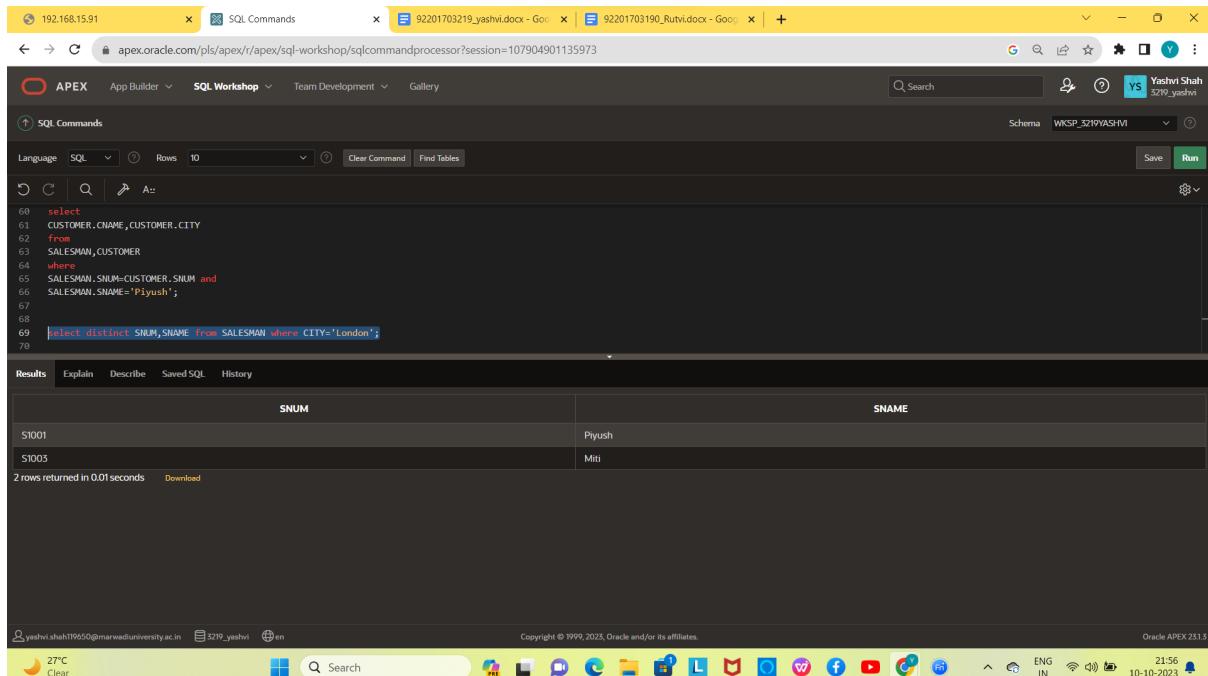
58
59
60 select
61 CUSTOMER.CNAME,CUSTOMER.CITY
62 from
63 SALESMAN,CUSTOMER
64 where
65 SALESMAN.SNUM=CUSTOMER.SNUM and
66 SALESMAN.SNAME='Piyush';
67
68

```

CNAME	CITY
Hardik	London
Pratham	London

2 rows returned in 0.01 seconds Download

15. List all salesmen who are living in same city without duplicate rows.
 select distinct SNUM,SNAME from SALESMAN where CITY='London';



```

60 select
61 CUSTOMER.CNAME,CUSTOMER.CITY
62 from
63 SALESMAN,CUSTOMER
64 where
65 SALESMAN.SNUM=CUSTOMER.SNUM and
66 SALESMAN.SNAME='Piyush';
67
68
69 select distinct SNUM,SNAME from SALESMAN where CITY='London';
70

```

SNUM	SNAME
S1001	Piyush
S1005	Miti

2 rows returned in 0.01 seconds Download

16. Extract all orders of 'PIYUSH'.

```

select
ORDERS.ONUM
from

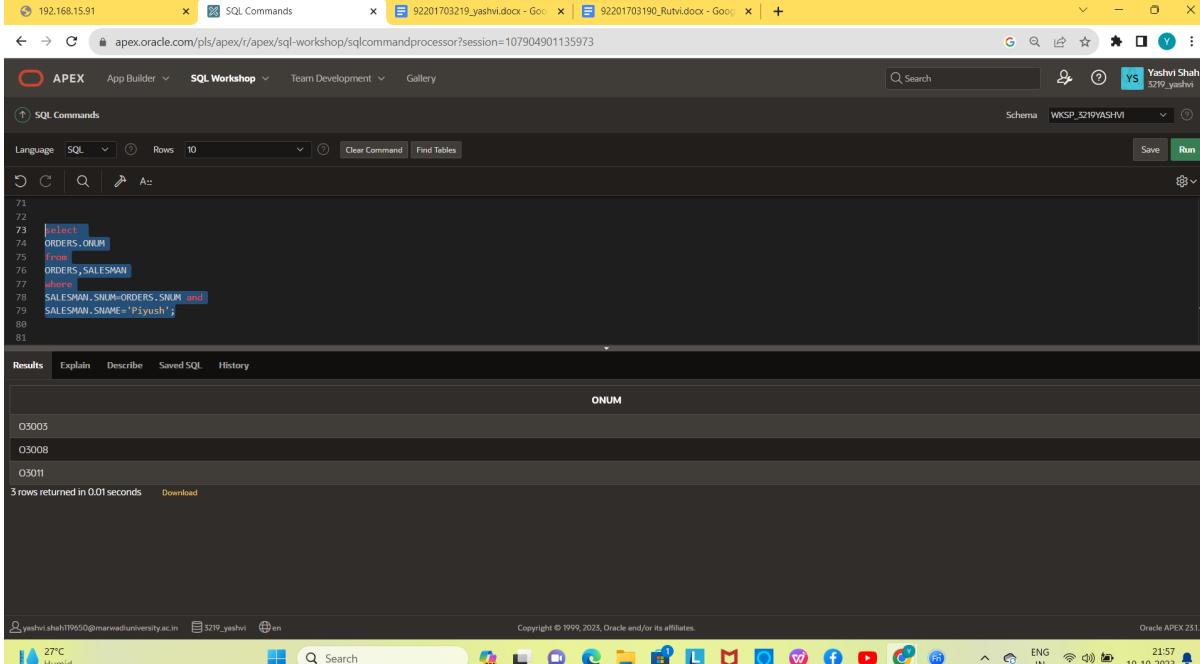
```

ORDERS,SALESMAN

where

SALESMAN.SNUM=ORDERS.SNUM and

SALESMAN.SNAME='Piyush';



```

71
72   SELECT
73     ORDERS.ONUM
74   FROM
75     ORDERS,SALESMAN
76   WHERE
77     SALESMAN.SNUM=ORDERS.SNUM and
78     SALESMAN.SNAME='Piyush';
80
81

```

The screenshot shows the Oracle APEX SQL Workshop interface. The query has been run, and the results are displayed in the 'Results' tab. The output shows three rows of data, each containing a value for the column 'ONUM'. The rows are labeled 03005, 03008, and 03011.

17. Extract all orders of LONDON'S salesmen.

select

ORDERS.ONUM

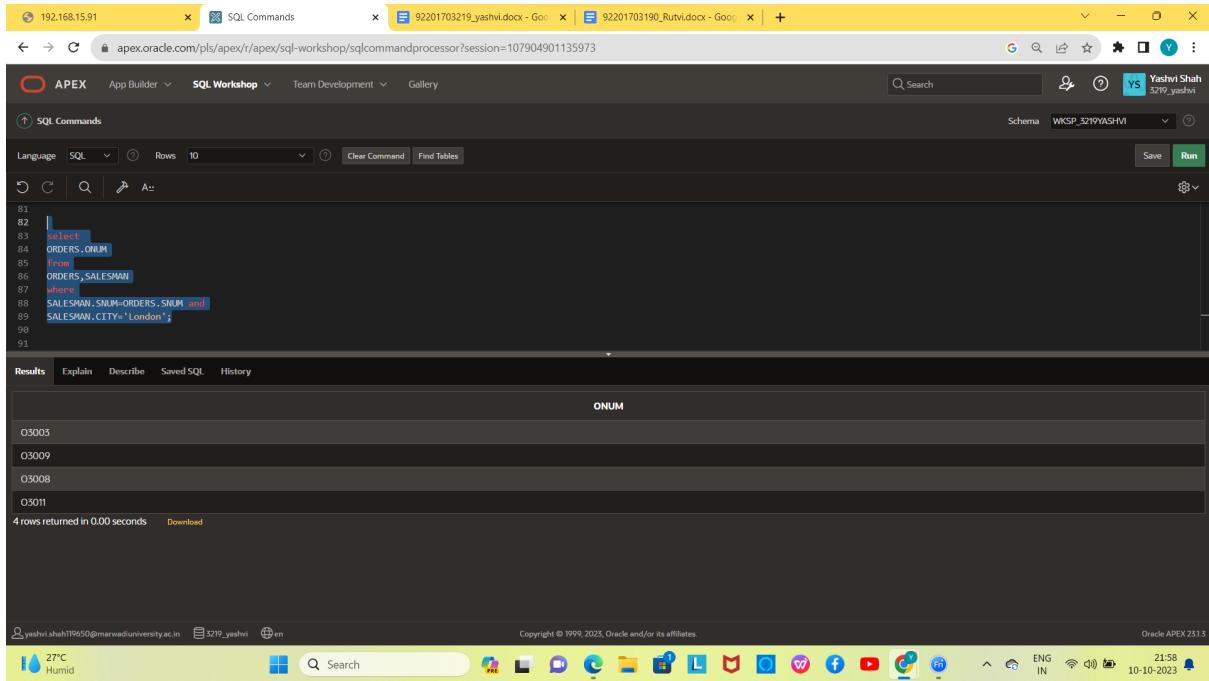
from

ORDERS,SALESMAN

where

SALESMAN.SNUM=ORDERS.SNUM and

SALESMAN.CITY='London';



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:

```

81
82  select
83    ORDERS.CNUM
84   from
85    ORDERS,SALESMAN
86   where
87     SALESMAN.SNUM=ORDERS.SNUM and
88     SALESMAN.CITY='London';
89
90
91

```

The results section shows the output:

ONUM
O5005
O5009
O5008
O5011

Below the table, it says "4 rows returned in 0.00 seconds".

18. Find all customers whose cnum is 1000 above than the snum of ‘PIYUSH’.

select

CUSTOMER.CNUM

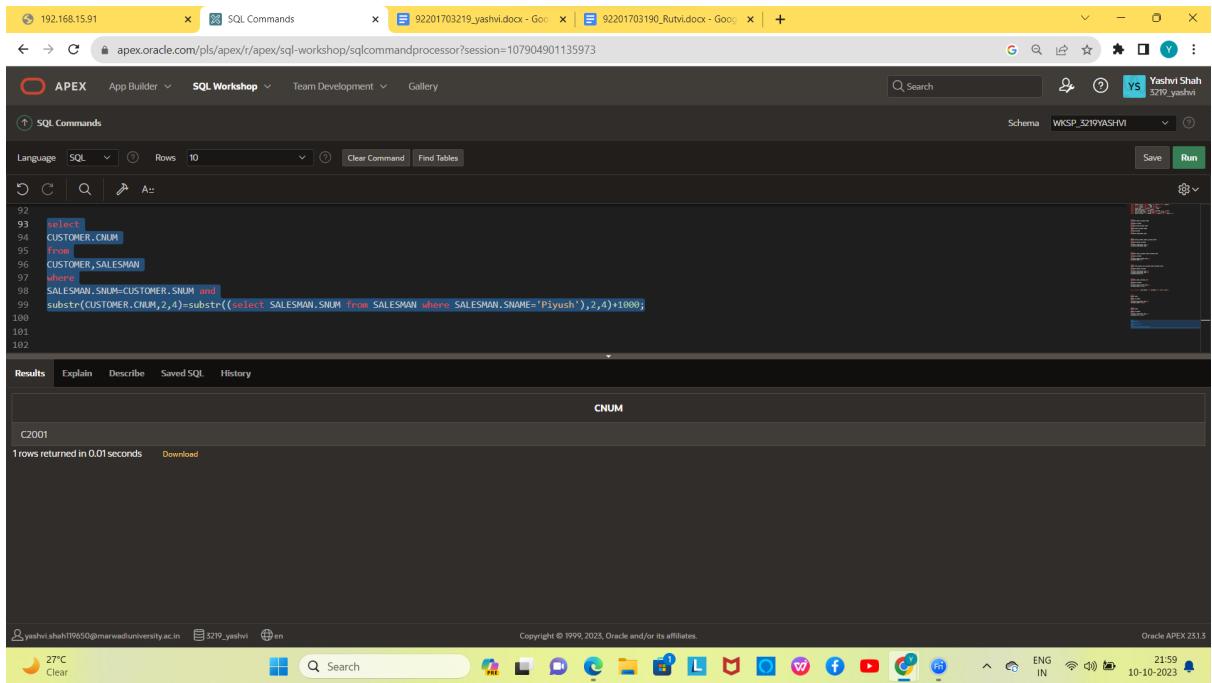
from

CUSTOMER,SALESMAN

where

SALESMAN.SNUM=CUSTOMER.SNUM and

substr(CUSTOMER.CNUM,2,4)=substr((select SALESMAN.SNUM from SALESMAN where SALESMAN.SNAME='Piyush'),2,4)+1000;



```

92
93 select
94 CUSTOMER.CNUM
95 from
96 CUSTOMER,SALESMAN
97 where
98 SALESMAN.SNUM=CUSTOMER.SNUM and
99 substr((CUSTOMER.CNUM,2,4)=substr((select SALESMAN.SNUM from SALESMAN where SALESMAN.SNAME='Piyush'),2,4)+1000;
100
101
102

```

Results

CNUM
C2001

1 rows returned in 0.01 seconds Download

19. Count the no. of customers with the rating above than average Rating of 'LONDON'.

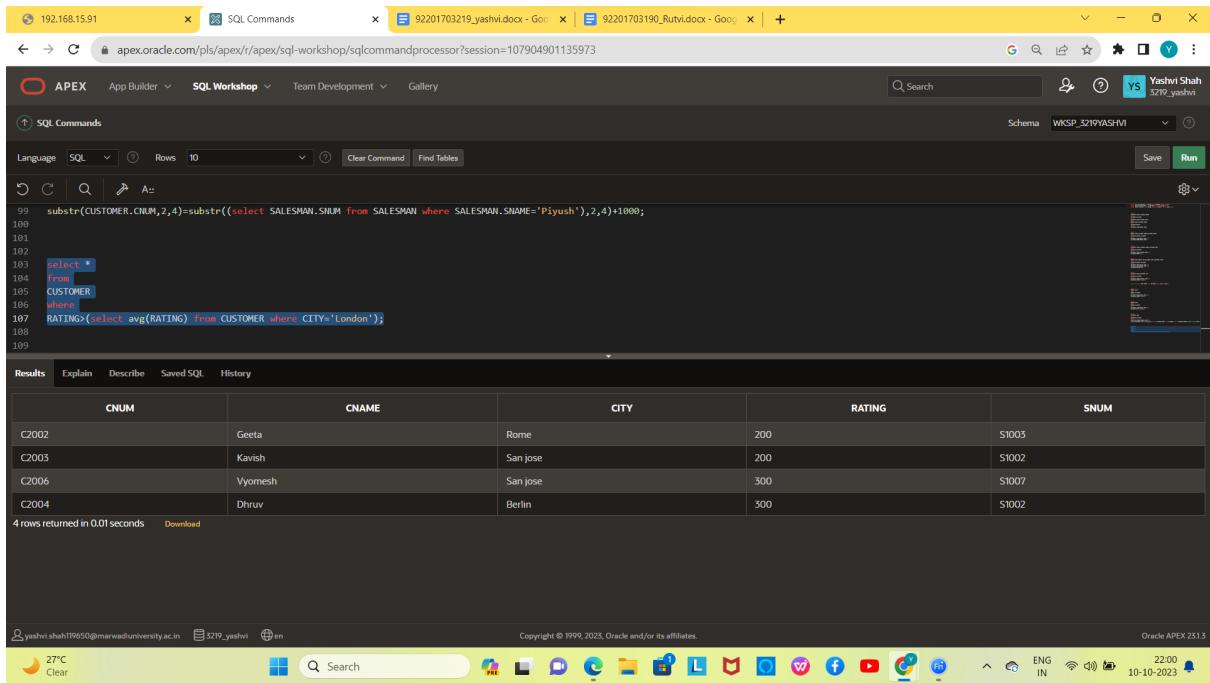
select *

from

CUSTOMER

where

RATING>(select avg(RATING) from CUSTOMER where CITY='London');



```

99 substr(CUSTOMER.CNUM,2,4)=substr((select SALESMAN.SNUM from SALESMAN where SALESMAN.SNAME='Piyush'),2,4)+1000;
100
101
102
103 select *
104 from
105 CUSTOMER
106 where
107 RATING>(select avg(RATING) from CUSTOMER where CITY='London');
108
109

```

CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	200	S1005
C2003	Kavish	San jose	200	S1002
C2006	Vyomesh	San jose	300	S1007
C2004	Dhruv	Berlin	300	S1002

4 rows returned in 0.01 seconds Download

20. Produce the name and rating of all customers who have above average Rating.

select

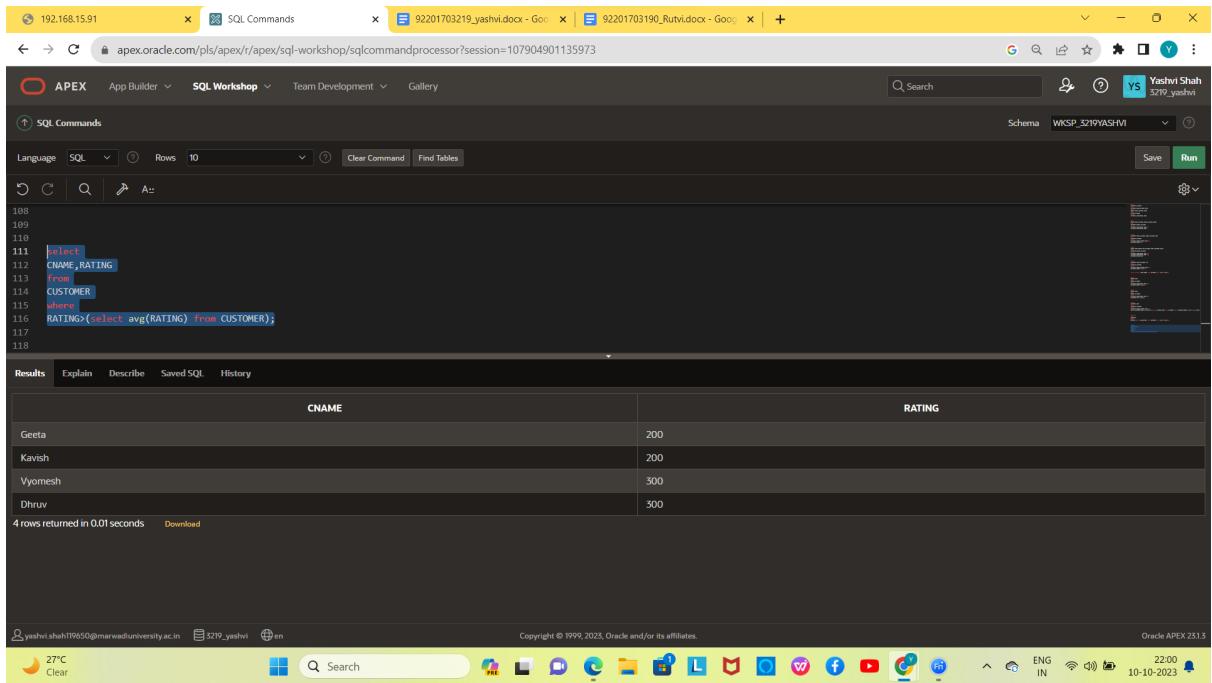
CNAME,RATING

from

CUSTOMER

where

RATING>(select avg(RATING) from CUSTOMER);



The screenshot shows a browser window with three tabs open. The active tab is 'SQL Commands' in the Oracle APEX interface. The query entered is:

```

108
109
110
111 select
112    CNAME , RATING
113   from
114    CUSTOMER
115  where
116    RATING > (select avg(RATING) from CUSTOMER);
117
118

```

The results table shows the following data:

CNAME	RATING
Geeta	200
Karish	200
Vyomesh	300
Dhruv	300

4 rows returned in 0.01 seconds. The system status bar at the bottom indicates: yashvi.shah19650@marwadiuniversity.ac.in 3219_yashvi en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.1. 27°C Clear ENG IN 22:00 10-10-2023

21. List all salesmen with customers located in their cities.

select

SNAME,CNAME,SALESMAN.CITY "scity",CUSTOMER.CITY "ccity"

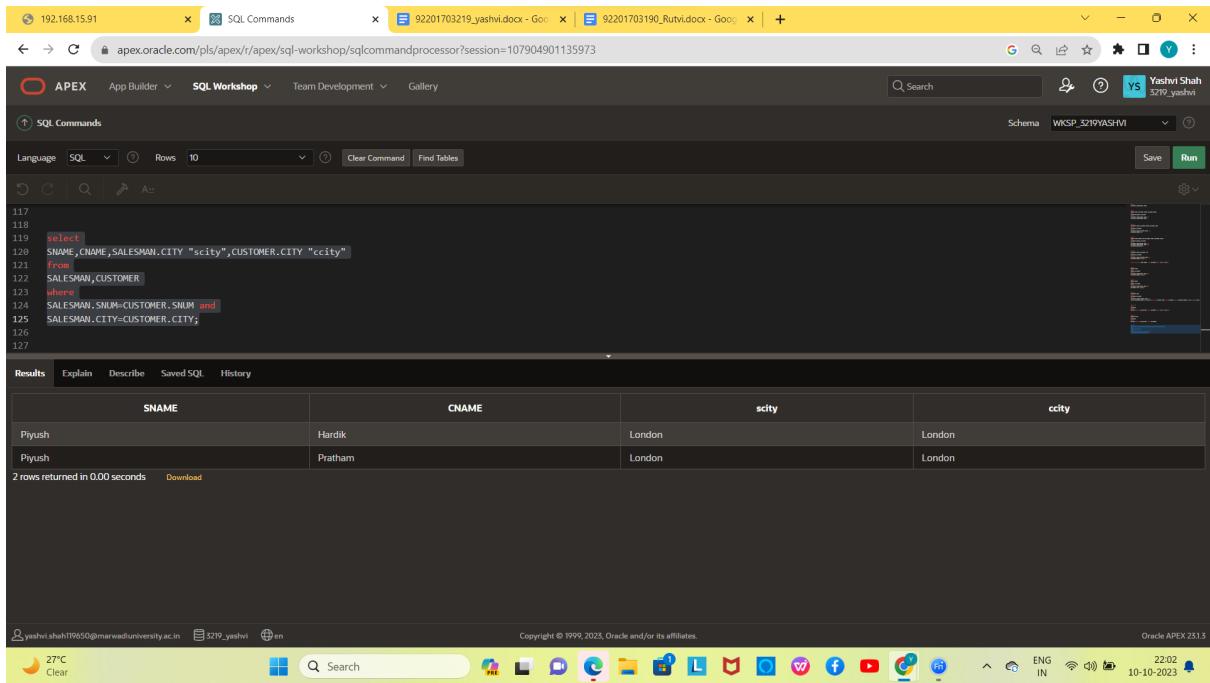
from

SALESMAN,CUSTOMER

where

SALESMAN.SNUM=CUSTOMER.SNUM and

SALESMAN.CITY=CUSTOMER.CITY;



The screenshot shows the Oracle APEX SQL Workshop interface. A query is being run:

```

117
118 select
119 SNAME ,CNAME ,SALESMAN.CITY "scity" ,CUSTOMER.CITY "ccity"
120
121 from
122 SALESMAN,CUSTOMER
123 where
124 SALESMAN.SNUM=CUSTOMER.SNUM and
125 SALESMAN.CITY=CUSTOMER.CITY;
126
127

```

The results table shows two rows:

SNAME	CNAME	scity	ccity
Piyush	Hardik	London	London
Piyush	Pratham	London	London

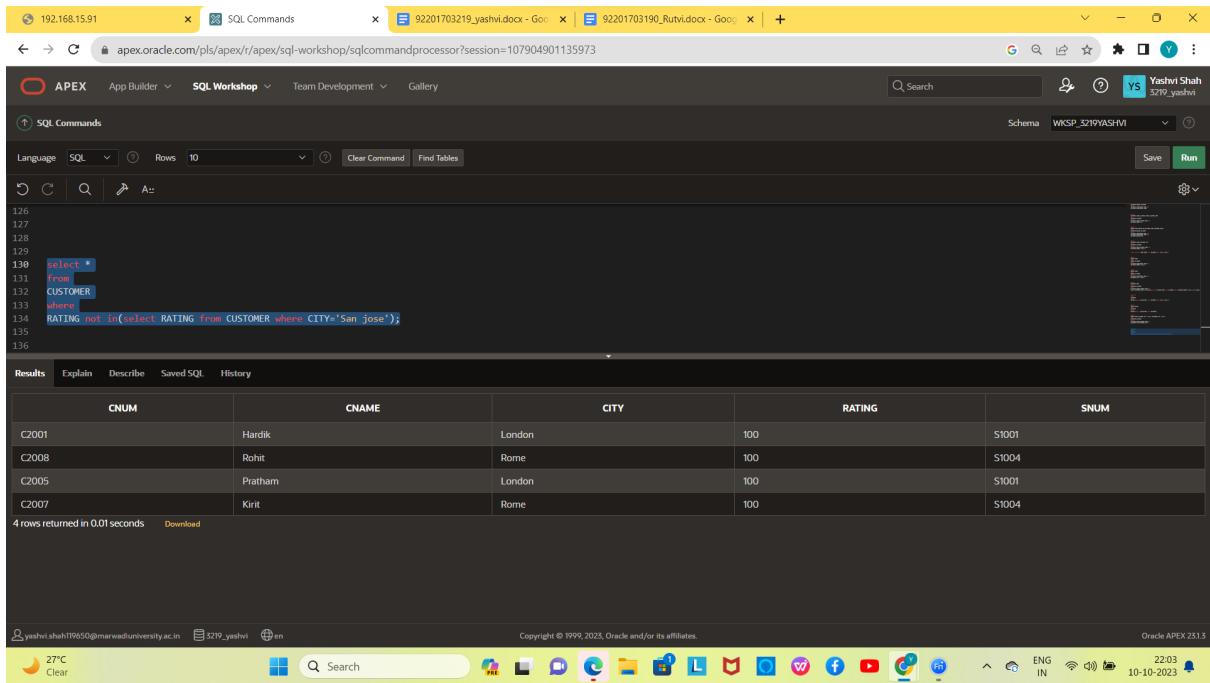
2 rows returned in 0.00 seconds [Download](#)

22. Select all customers whose rating doesn't match with any rating customer of 'SAN JOSE'.

```

select *
from
CUSTOMER
where
RATING not in(select RATING from CUSTOMER where CITY='San jose');

```



The screenshot shows the Oracle APEX SQL Workshop interface. A user is executing a SQL query:

```

126
127
128
130 select *
131 from CUSTOMER
132 where RATING not in(select RATING from CUSTOMER where CITY='San Jose');
133
134
135
136
  
```

The results table displays the following data:

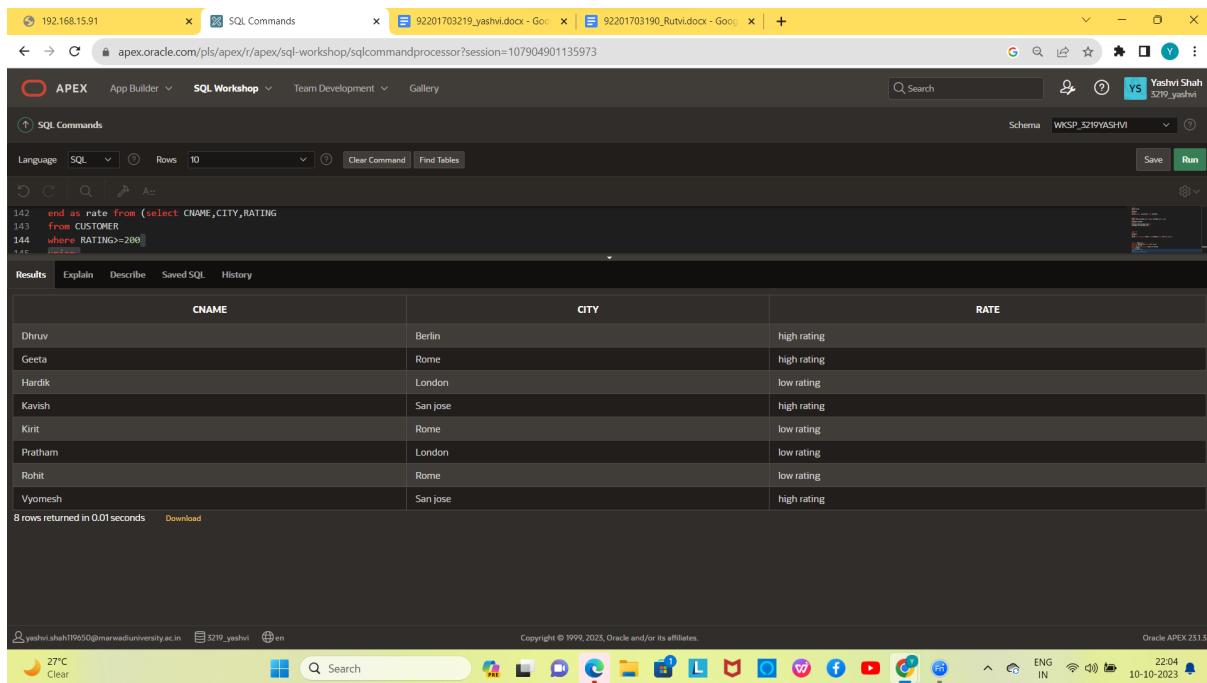
CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	100	S1001
C2008	Rohit	Rome	100	S1004
C2005	Pratham	London	100	S1001
C2007	Kirti	Rome	100	S1004

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

23. Create a union of two queries that shows the names,cities and ratings of all customers. Those with rating of ≥ 200 should display 'HIGH RATING' and those with < 200 should display 'LOW RATING'.

```

select CNAME,CITY,
case when RATING<=200 THEN 'high rating'
else 'low rating'
end as rate from (select CNAME,CITY,RATING
from CUSTOMER
where RATING<=200
union
select CNAME,CITY,RATING
from CUSTOMER
where RATING>200);
  
```



Screenshot of Oracle APEX SQL Workshop showing a query result. The query is:

```

142 end as rate from (select CNAME,CITY,RATING
143 from CUSTOMER
144 where RATING>=200);
  
```

The results table shows the following data:

CNAME	CITY	RATE
Dhruv	Berlin	high rating
Geeta	Rome	high rating
Hardik	London	low rating
Kavish	San Jose	high rating
Krit	Rome	low rating
Pratham	London	low rating
Rohit	Rome	low rating
Vyomesh	San Jose	high rating

8 rows returned in 0.01 seconds

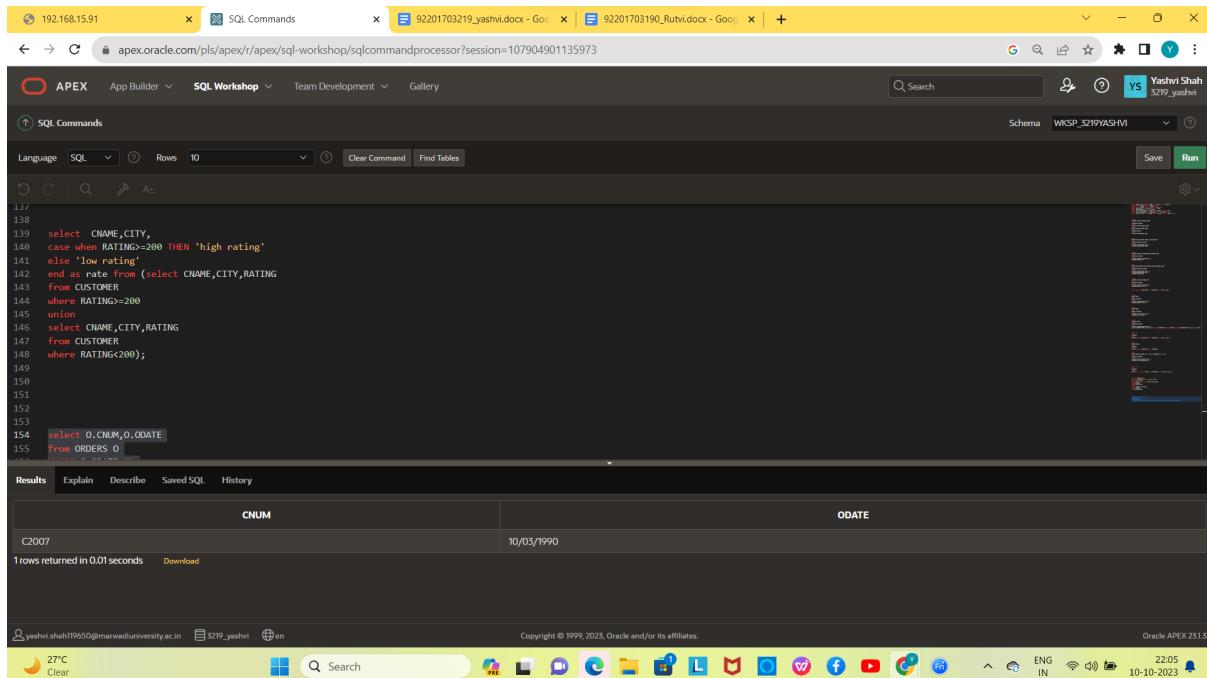
24. Find all customers with orders on 3rd october 1990 using correlate sub query.

select O.CNUM,O.ODATE

from ORDERS O

WHERE O.ODATE IN

(select I.ODATE from ORDERS I where I.ODATE=O.ODATE and I.ODATE='10-03-1990');



Screenshot of Oracle APEX SQL Workshop showing a query result. The query is:

```

137
138 select CNAME,CITY,
139 case when RATING>=200 THEN 'high rating'
140 else 'low rating'
141 end as rate from (select CNAME,CITY,RATING
142 from CUSTOMER
143 where RATING>=200
144 union
145 select CNAME,CITY,RATING
146 from CUSTOMER
147 where RATING<200);
  
```

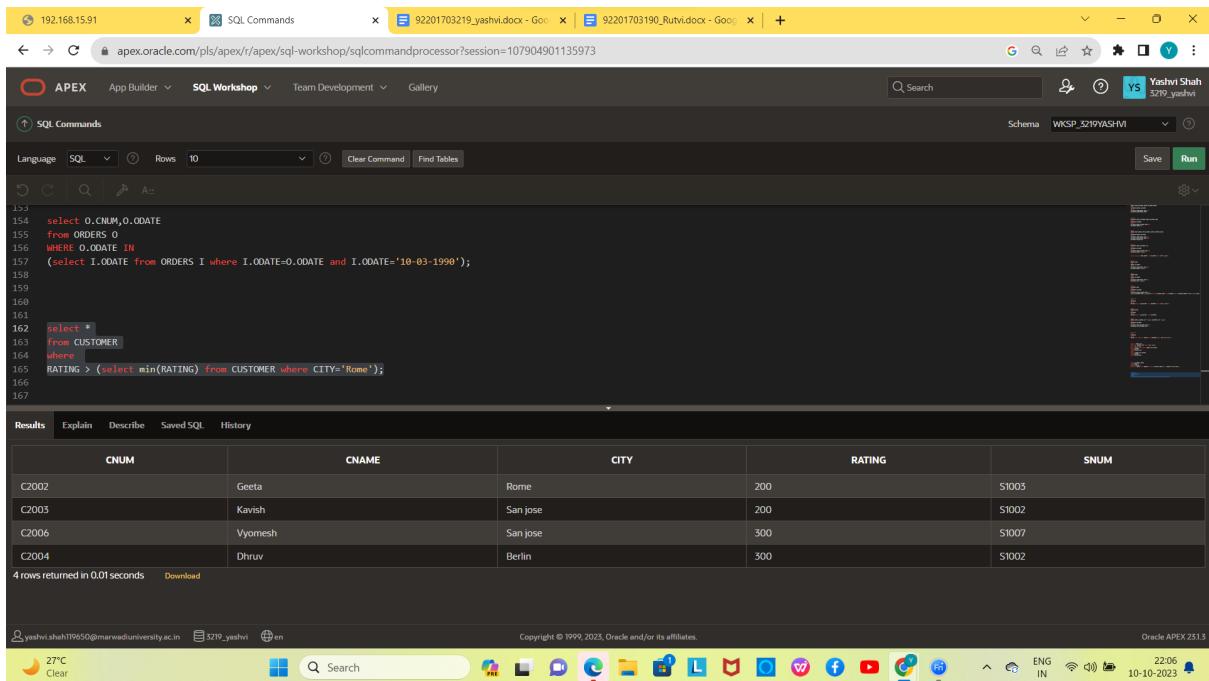
The results table shows the following data:

CNUM	ODATE
C2007	10/03/1990

1 rows returned in 0.01seconds

25. Find all customers having rating greater than any customer in 'ROME'.

```
select *
from CUSTOMER
where
RATING > (select min(RATING) from CUSTOMER where CITY='Rome');
```



The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes tabs for 'APEX', 'App Builder', 'SQL Workshop' (which is selected), 'Team Development', and 'Gallery'. The right side of the interface shows a schema browser with various database objects like tables, views, and procedures. The main workspace displays the SQL command entered:

```
153
154 select O.CNUM,O.ODATE
155   from ORDERS O
156  WHERE O.ODATE IN
157    (select I.ODATE from ORDERS I where I.ODATE=O.ODATE and I.ODATE='10-03-1990');
158
159
160
161
162 select *
163   from CUSTOMER
164  where
165 RATING > (select min(RATING) from CUSTOMER where CITY='Rome');
166
167
```

Below the command, the 'Results' tab is selected, showing the output of the query:

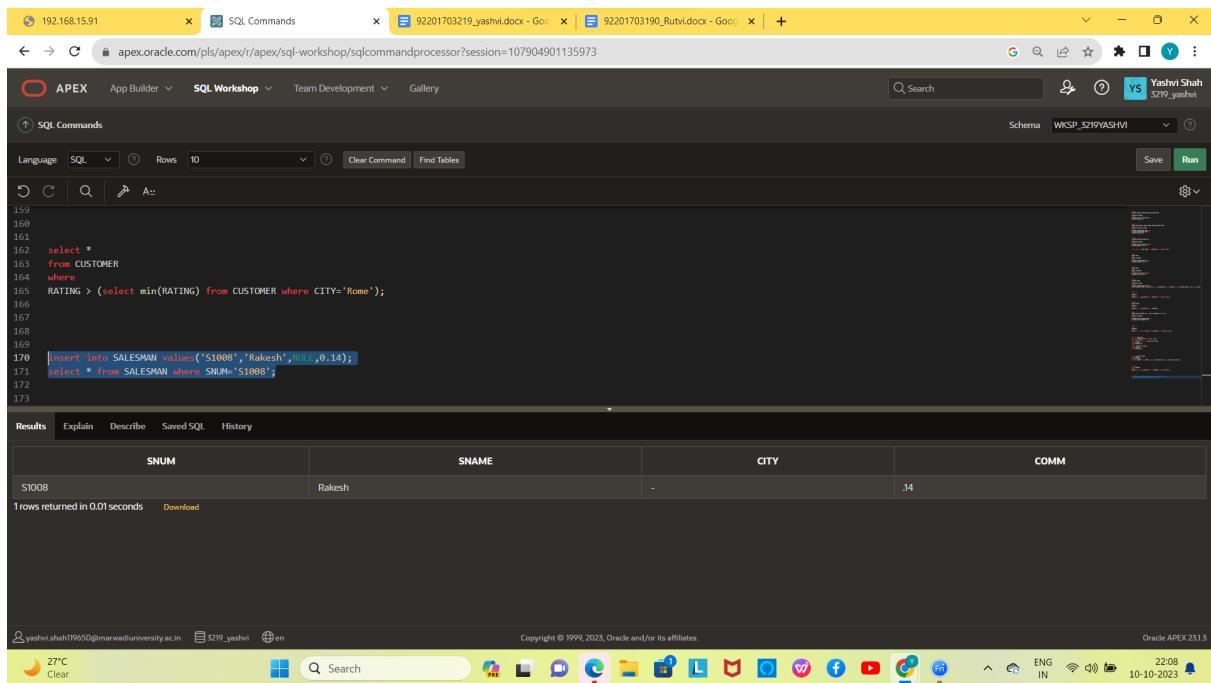
CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	200	S1003
C2005	Kavish	San Jose	200	S1002
C2006	Vyomesh	San Jose	300	S1007
C2004	Dhruv	Berlin	300	S1002

4 rows returned in 0.01 seconds

26. Insert a row into salesmen table with the values snum is s1008,salesmen name is ‘RAKESH’, city is unknown and commission is 14%.

```
insert into SALESMAN values('S1008','Rakesh',NULL,0.14);
```

```
select * from SALESMAN where SNUM='S1008';
```



```

159
160
161 select *
162   from CUSTOMER
163  where
164    RATING > (select min(RATING) from CUSTOMER where CITY='Rome');
165
166
167
168
169
170 insert into SALESMAN values('S1008','Rakesh', .14);
171 select * from SALESMAN where SNUM='S1008';
172
173

```

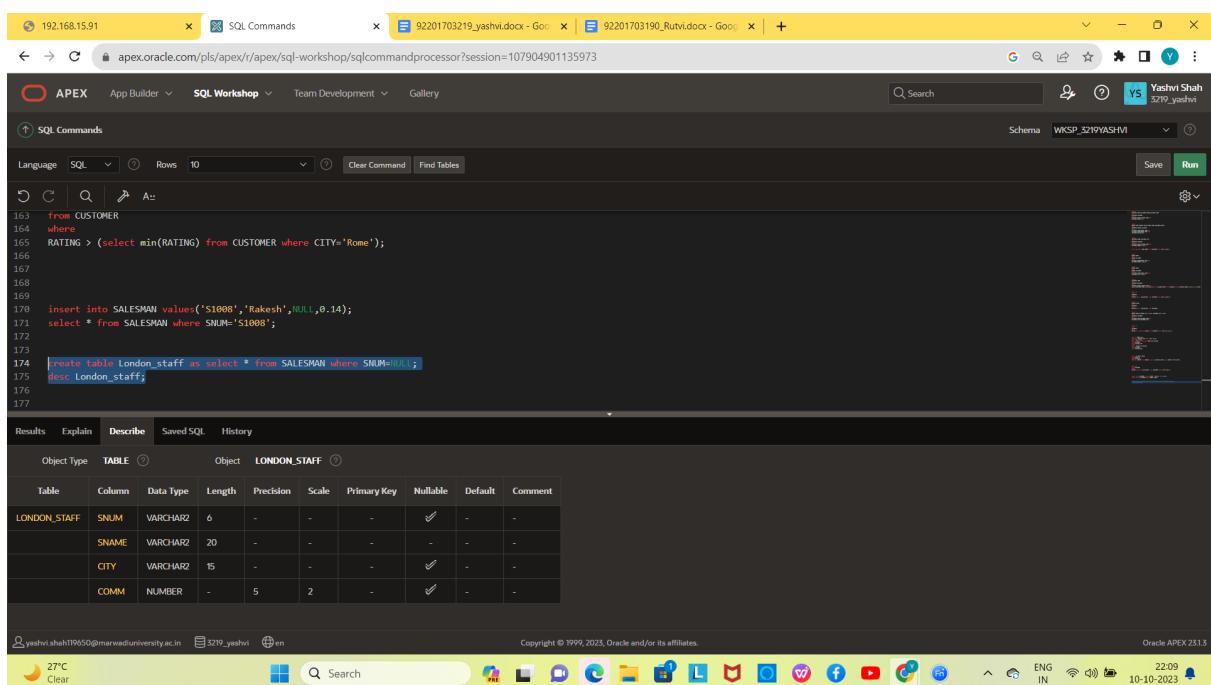
SNUM	SNAME	CITY	COMM
S1008	Rakesh	-	.14

1 rows returned in 0.01seconds Download

27. Create another table London_staff having same structure as salesmen table.

create table London_staff as select * from SALESMAN where SNUM=NULL;

desc London_staff;



```

163
164
165
166
167
168
169
170
171
172
173
174
175
176
177

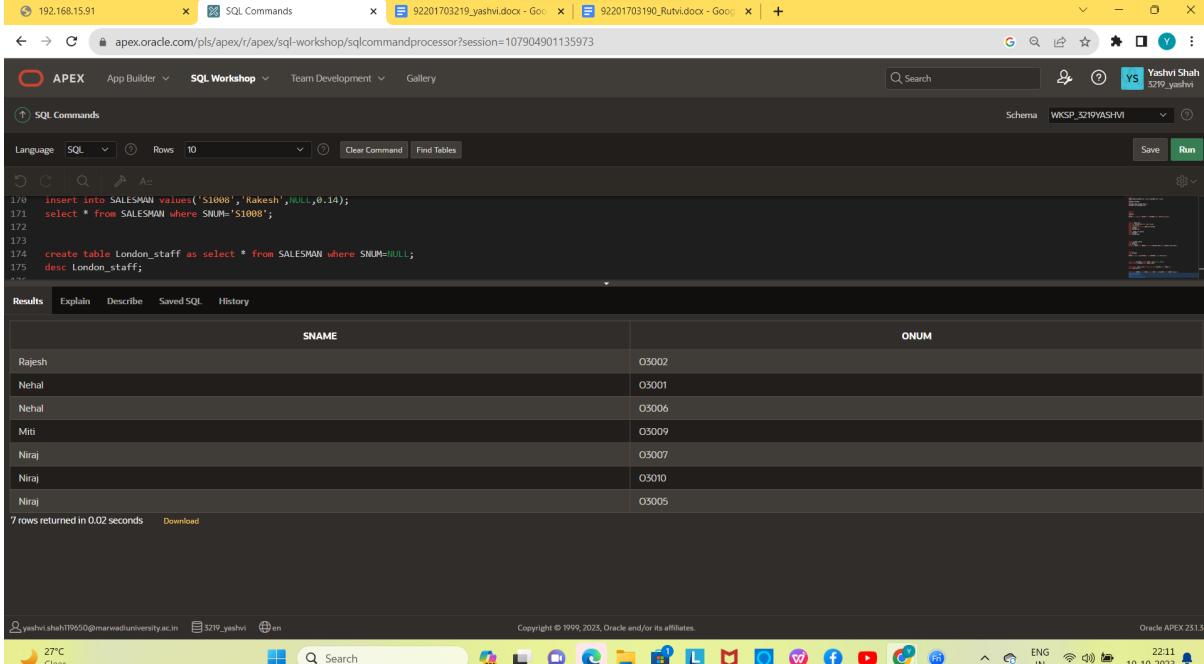
```

Object Type	TABLE	Object	LONDON_STAFF						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
LONDON_STAFF	SNUM	VARCHAR2	6	-	-	-	✓	-	-
	SNAME	VARCHAR2	20	-	-	-	✓	-	-
	CITY	VARCHAR2	15	-	-	-	✓	-	-
	COMM	NUMBER	-	5	2	-	✓	-	-

28. Delete all orders from customer ‘PIYUSH’ from the order table.

delete from ORDERS where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');

```
select SNAME,ONUM
from SALESMAN,ORDERS
where
SALESMAN.SNUM=ORDERS.SNUM;
```



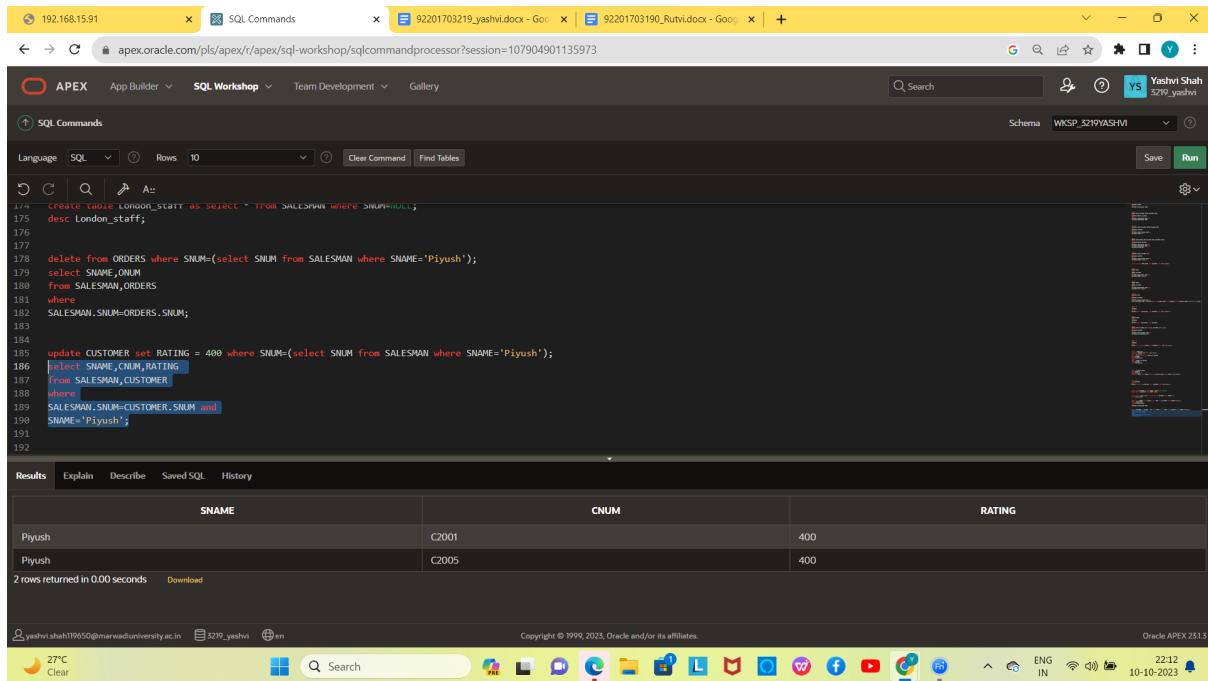
SNAME	ONUM
Rajesh	O3002
Nehal	O3001
Nehal	O3006
Miti	O3009
Niraj	O3007
Niraj	O3010
Niraj	O3005

7 rows returned in 0.02 seconds. Download

29. Set the ratings of all the customers of PIYUSH to 400.

```
update CUSTOMER set RATING = 400 where SNUM=(select SNUM from SALESMAN
where SNAME='Piyush');
```

```
select SNAME,CNUM,RATING
from SALESMAN,CUSTOMER
where
SALESMAN.SNUM=CUSTOMER.SNUM and
SNAME='Piyush';
```



```

1/4  Create Table LONDON_STAFF as select * from SALESMAN where SNUM=100;
1/5  desc LONDON_STAFF;
1/6
1/7
1/8  delete from ORDERS where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');
1/9  select SNAME,CNUM
1/10   from SALESMAN,ORDERS
1/11  where
1/12  SALESMAN.SNUM=ORDERS.SNUM;
1/13
1/14
1/15  update CUSTOMER set RATING = 400 where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');
1/16  |select SNAME,CNUM,RATING
1/17  |from SALESMAN,CUSTOMER,
1/18  |where
1/19  |SALESMAN.SNUM=CUSTOMER.SNUM and
1/20  |SNAME='Piyush';
1/21
1/22

```

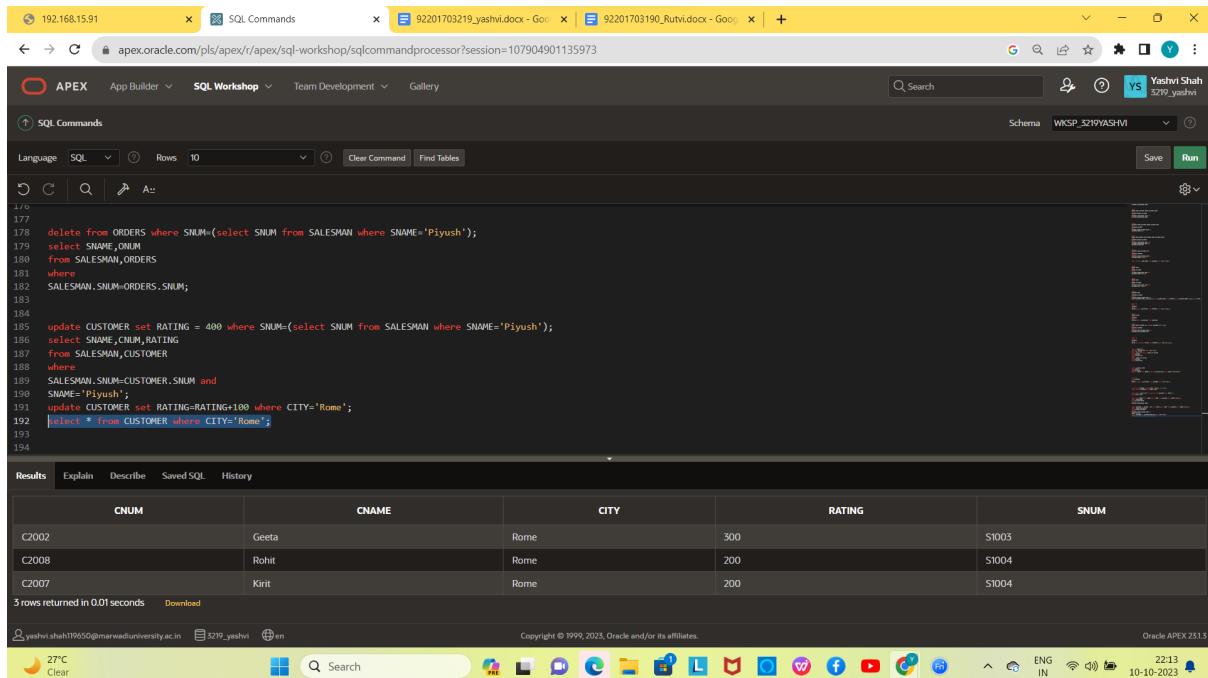
SNAME	CNUM	RATING
Piyush	C2001	400
Piyush	C2005	400

2 rows returned in 0.00 seconds Download

30. Increase the rating of all the customers in ROME by 100.

update CUSTOMER set RATING=RATING+100 where CITY='Rome';

select * from CUSTOMER where CITY='Rome';



```

1/1  update CUSTOMER set RATING = 400 where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');
1/2  |select SNAME,CNUM
1/3  |from SALESMAN,ORDERS
1/4  |where
1/5  |SALESMAN.SNUM=ORDERS.SNUM;
1/6
1/7
1/8  update CUSTOMER set RATING = 400 where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');
1/9  |select SNAME,CNUM,RATING
1/10 |from SALESMAN,CUSTOMER
1/11 |where
1/12 |SALESMAN.SNUM=CUSTOMER.SNUM and
1/13 |SNAME='Piyush';
1/14  update CUSTOMER set RATING=RATING+100 where CITY='Rome';
1/15  |select * from CUSTOMER where CITY='Rome';
1/16
1/17

```

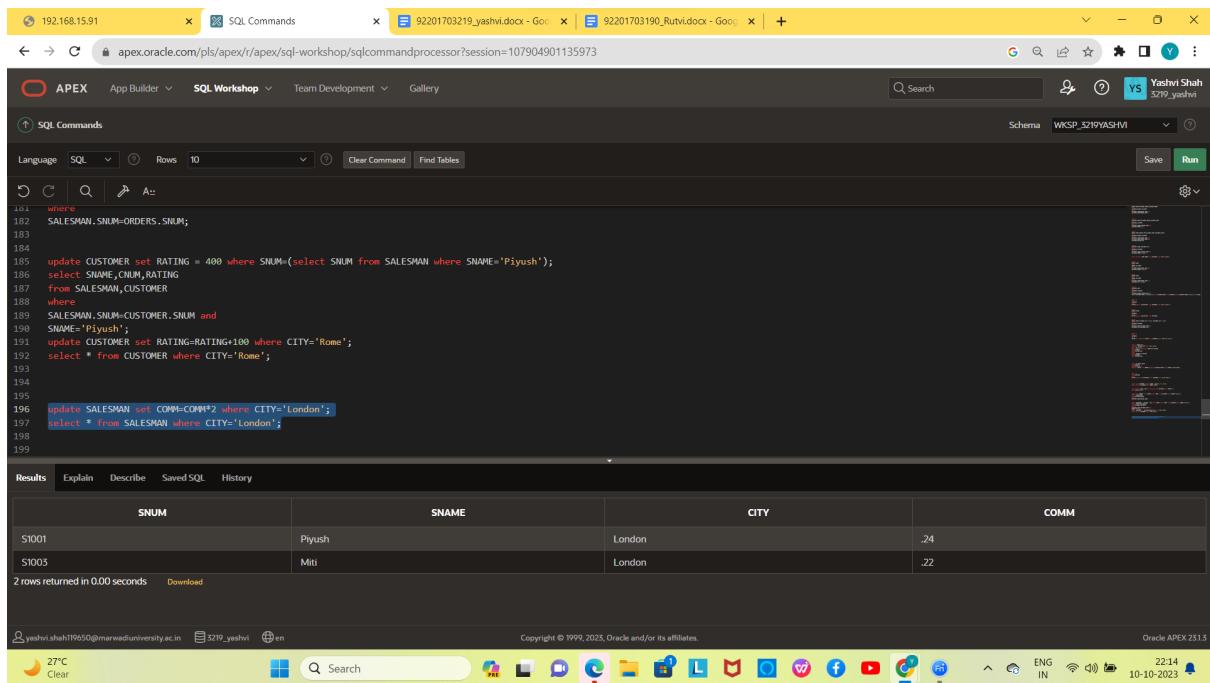
CNUM	CNAME	CITY	RATING	SNUM
C2002	Geeta	Rome	300	S1003
C2008	Rohit	Rome	200	S1004
C2007	Kirit	Rome	200	S1004

3 rows returned in 0.01 seconds Download

31. Double the commission of all salesmen of LONDON.

update SALESMAN set COMM=COMM*2 where CITY='London';

select * from SALESMAN where CITY='London';



```

181 where
182 SALESMAN.SNUM=ORDERS.SNUM;
183
184 update CUSTOMER set RATING = 400 where SNUM=(select SNUM from SALESMAN where SNAME='Piyush');
185 select SNAME,CNUM,RATING
186 from SALESMAN,CUSTOMER
187 where
188 SALESMAN.SNUM=CUSTOMER.SNUM and
189 SNAME='Piyush';
190 update CUSTOMER set RATING=RATING+100 where CITY='Rome';
191 select * from CUSTOMER where CITY='Rome';
192
193
194
195
196 update SALESMAN set COMM=COMM*2 where CITY='London';
197 select * from SALESMAN where CITY='London';
198
199

```

Results

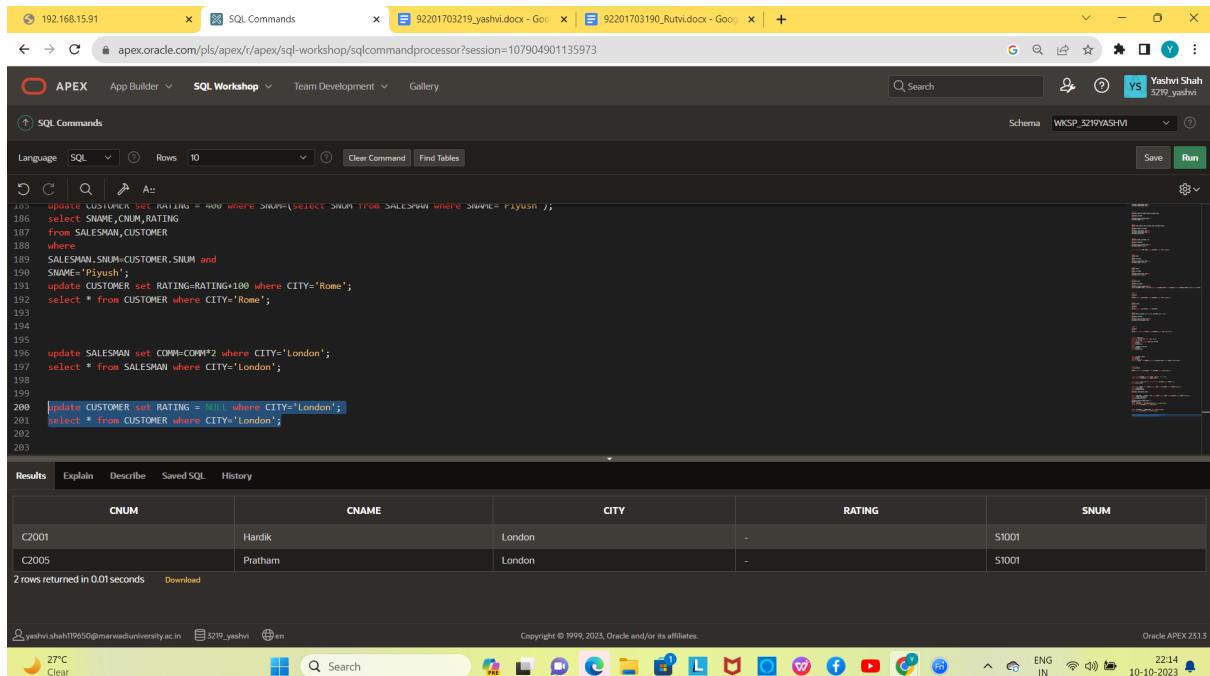
SNUM	SNAME	CITY	COMM
S1001	Piyush	London	24
S1005	Miti	London	22

2 rows returned in 0.00 seconds

32. Set ratings for all customers in LONDON to NULL.

update CUSTOMER set RATING = NULL where CITY='London';

select * from CUSTOMER where CITY='London';



```

181 update CUSTOMER set RATING = NULL where SNUM=(SELECT SNUM FROM SALESMAN WHERE SNAME='Piyush');
182 select SNAME,CNUM,RATING
183 from SALESMAN,CUSTOMER
184 where
185 SALESMAN.SNUM=CUSTOMER.SNUM and
186 SNAME='Piyush';
187 update CUSTOMER set RATING=RATING+100 where CITY='Rome';
188 select * from CUSTOMER where CITY='Rome';
189
190
191 update SALESMAN set COMM=COMM*2 where CITY='London';
192 select * from SALESMAN where CITY='London';
193
194
195
196 update CUSTOMER set RATING = NULL where CITY='London';
197 select * from CUSTOMER where CITY='London';
198
199

```

Results

CNUM	CNAME	CITY	RATING	SNUM
C2001	Hardik	London	-	S1001
C2005	Pratham	London	-	S1001

2 rows returned in 0.01seconds

33. Delete all salesmen who have at least one customer with a rating of 100 from salesmen table.

Practical 11

Aim: Understand and implement Conditions and looping in PL/SQL

1. Write a Pl/SQL program using FOR loop to insert ten rows into a database table.
2. Write a Pl/SQL program to print integers from 1 to 10 by using PL/SQL FOR loop
3. Create the procedure for palindrome of given number

Practical 12

Aim: Implement a PL/SQL Block.

1. Given the table ORDER (ONUM, AMT, ODATE, CNUM, SNUM) write a cursor to select the five highest amount (AMT) order details from the table.
2. To write a Cursor to display the list of customers who are living in San jose or London.

Practical 13

Aim Implement a Procedure and Function for given Statement

1. Calculatehra,da,gross and net by using PL/SQL program

Basic	HRA	DA
15000	12%	8%
12000	10%	6%
9000	7%	4%
OTHERS	5%	200/-

2. Write a function to accept employee number as parameter and return Basic +HRA together as single column

Practical 14

Aim: Understand and Implement Triggers.

1. Whenever order amount is updated and its value becomes more than 5000 a trigger has to be raised preventing the operation.