```
================================================================================
                              EXPERIMENT NO. 03
================================================================================
```

Author : Diksha Gupta.
Roll no.: 03 [27A]
Date : 25-SEPTEMBER-2022.

```
================================================================================
```

AIM : To facilitate creation of views, synonyms, sequences, indexes and savepoints on underlying database and to demonstrate their usage through queries on the database. [group by]

PROBLEM STATEMENT:

Establish the Academic Database schema, for demonstrating creation, updating and usage of Oracle objects - views, synonyms, indexes, sequences and savepoints. Execute queries based on the logical schemata given below...

STUDENT (ROLL, LNAME, FNAME, EMAIL, ENROLL, ADVISOR, PHONE, REG DT)

STAFF (SID, NAME, BRANCH, DESG,JOIN_DT)

DEPT (DNAME, BRANCH, INTAKE, YR_EST, HOD)

***************************** **QUERY-02** ***
   Create a sequence STAFF_SQ with appropriate starting value and maximum
   range such that you can use it to populate STAFF table the tuples listed below.
   [Use STAFF_SQ.NEXTVAL, STAFF_SQ.CURRVAL to access sequence values).

        106, DAT, Deo Narayan Mishra, Assistant, 13-Oct-2013
        107, CSEC, Sanjeev Bamireddy, Associate, 12-May-2018
        108, CSE, Jasmine Arora, Assistant, 11-Aug-2017
        109, CSE, Vallabh Pai, Assistant, 17-Sep-2018
        110, AIML, Harmeet Khullar, Assistant, 17-Mar-2019

   Verify whether the sequencehas been created [use USER_SEQUENCES view] alongwith
   other sequences on current schema tables. After populating STAFF table, remove
   the sequence.
****

```
CREATE SEQUENCE STAFF_SQ
  START WITH 106
    MAXVALUE 150
      MINVALUE 100
        NOCYCLE
         ORDER
           NOCACHE;
```

Sequence created.

```
SELECT SEQUENCE_NAME , MIN_VALUE , MAX_VALUE
  FROM USER_SEQUENCES
    WHERE SEQUENCE_NAME = 'STAFF_SQ';
```

        SEQUENCE_NAME   MNV MXV
        -------------------- ---- ----
        STAFF_SQ   100 150

```
SELECT OBJECT_NAME, OBJECT_ID, OBJECT_TYPE FROM USER_OBJECTS
    WHERE OBJECT_NAME = 'STAFF_SQ';


    OBJECT_NAME  OBJECT_ID  OBJECT_TYPE
    -----------  ---------  -----------
    STAFF_SQ         79734  SEQUENCE

    1 row selected.


SELECT SEQUENCE_NAME , MIN_VALUE , MAX_VALUE
    FROM USER_SEQUENCES;

    SEQUENCE_NAME         MNV  MXV
    --------------------  ---- ----
    STAFF_SQ               100  150


SELECT STAFF_SQ.NEXTVAL
    FROM DUAL;

        NEXTVAL
    ----------
           106


INSERT INTO STAFF
    VALUES (STAFF_SQ.CURRVAL ,'Deo Narayan Mishra' , 'DAT' ,'Assistant' ,
    '13-OCT-2013');
1 row created.


INSERT INTO STAFF
    VALUES (STAFF_SQ.NEXTVAL ,'Sanjeev Bamireddy' , 'CSEC' ,'Associate' ,
    '12-MAY-2018');
```

```
INSERT INTO STAFF

    VALUES (STAFF_SQ.NEXTVAL ,'Jasmine Arora' , 'CSE' ,'Assistant' ,

      '11-AUG-2017');

1 row created.


INSERT INTO STAFF

    VALUES (STAFF_SQ.NEXTVAL ,'Vallabh Pai' , 'CSE' ,'Assistant' ,

      '17-SEP-2018');

1 row created.


INSERT INTO STAFF

    VALUES (STAFF_SQ.NEXTVAL ,'Harmeet Khullar' , 'AIML' ,'Assistant' ,

      '17-MAR-2019');

1 row created.


SELECT SID , NAME , BRANCH , JOIN_DT

    FROM STAFF ;


       SID NAME                     BRAN DESG      JOIN_DT
---------- ------------------------ ---- --------- ---------
       101 Kamalkant Marathe        CSE  Professor 12-JUN-05
       102 Adishesh Vidyarthi       AIML Associate 22-JUL-06
       103 Manishi Singh            DAT  Professor 10-NOV-07
       104 Aasawari Deodhar         CSE  Associate 13-OCT-08
       105 Geetika Goenka           CSEC Professor 15-NOV-09
       106 Deo Narayan Mishra       DAT  Assistant 13-OCT-13
       107 Sanjeev Bamireddy        CSEC Associate 12-MAY-18
       108 Jasmine Arora            CSE  Assistant 11-AUG-17
       109 Vallabh Pai              CSE  Assistant 17-SEP-18
       110 Harmeet Khullar          AIML Assistant 17-MAR-19

10 rows selected.
```

```
DROP SEQUENCE STAFF_SQ;

Sequence dropped.


SELECT OBJECT_NAME, OBJECT_ID, OBJECT_TYPE
  FROM USER_OBJECTS
    WHERE OBJECT_NAME = 'STAFF_SQ';

no rows selected


SELECT *
  FROM USER_SEQUENCES
    WHERE SEQUENCE_NAME = 'STAFF_SQ';

no rows selected
```

```
********************************* QUERY-03 *************************************
  Write SQL code to roll number, print first name, last name, advisor name for
  your roll number.
*******************************************************************************
```

```
SELECT ROLL, FNAME, LNAME, ADVISOR
  FROM STUDENT
   WHERE ROLL=27;



    ROLL FNAME          LNAME           ADVISOR
---------- --------------- --------------- ----------
      27 Diksha         Gupta                107



1 row selected.
```

```
********************************* QUERY-04 *************************************
  While Academic Database was configured few constraints were not enforced
  as mentioned in the logical schema. Identify (by listing them table-by-table)
  these constraints (PK & FK) and enforce them.

*******************************************************************************

        SELECT CONSTRAINT_NAME, TABLE_NAME

          FROM USER_CONSTRAINTS
            WHERE TABLE_NAME
              IN ('STUDENT','STAFF', 'DEPT')
                ORDER BY TABLE_NAME;


    CONSTRAINT_NAME       TABLE_NAME
    ------------------    ------------------
    SYS_C008486           DEPT
    SYS_C008485           DEPT
    SYS_C008484           DEPT
    DEPT_PK_BRANCH        DEPT
    DEPT_CK_YR_EST        DEPT
    SYS_C008482           DEPT
    SYS_C008508           DEPT
    DEPT_CK_BRANCH        DEPT
    DEPT_CK_INTAKE        DEPT
    SYS_C008483           DEPT
    STAFF_CK_DESG         STAFF
    STAFF_CK_SID          STAFF
    SYS_C008495           STAFF
    SYS_C008493           STAFF
    SYS_C008492           STAFF
    SYS_C008491           STAFF
    STAFF_FK_DEPT         STAFF
    SYS_C008494           STAFF
    STAFF_PK_SID          STAFF
    SYS_C008502           STUDENT
    SYS_C008503           STUDENT
    STUDENT_CK_ROLL       STUDENT
    SYS_C008507           STUDENT
    SYS_C008506           STUDENT
    STUDENT_PK_ROLL       STUDENT
    SYS_C008501           STUDENT
    SYS_C008500           STUDENT
```

```
ALTER TABLE STUDENT
  ADD CONSTRAINT STUDENT_FK_STAFF_SID
    FOREIGN KEY(ADVISOR) REFERENCES STAFF(SID);


Table altered.



SELECT TABLE_NAME, CONSTRAINT_NAME, CONSTRAINT_TYPE
    FROM USER_CONSTRAINTS
      WHERE CONSTRAINT_NAME='STUDENT_FK_STAFF_SID';


TABLE_NAME           CONSTRAINT_NAME            C
-------------------- -------------------------- -
STUDENT              STUDENT_FK_STAFF_SID       R


1 row selected.



SELECT CONSTRAINT_NAME, TABLE_NAME
    FROM USER_CONSTRAINTS
      WHERE TABLE_NAME
        IN ('STUDENT','STAFF', 'DEPT')
          ORDER BY TABLE_NAME;



CONSTRAINT_NAME          TABLE_NAME
------------------------ --------------------
DEPT_PK_BRANCH           DEPT
DEPT_CK_YR_EST           DEPT
SYS_C008508              DEPT
SYS_C008482              DEPT
DEPT_CK_INTAKE           DEPT
SYS_C008484              DEPT
SYS_C008485              DEPT
SYS_C008486              DEPT
DEPT_CK_BRANCH           DEPT
```

```
SYS_C008483              DEPT
STAFF_FK_DEPT            STAFF
STAFF_PK_SID             STAFF
STAFF_CK_DESG            STAFF
STAFF_CK_SID             STAFF
SYS_C008495              STAFF
SYS_C008494              STAFF
SYS_C008493              STAFF
SYS_C008492              STAFF
SYS_C008491              STAFF
SYS_C008500              STUDENT
STUDENT_PK_ROLL          STUDENT
SYS_C008506              STUDENT
STUDENT_FK_STAFF_SID     STUDENT
SYS_C008507              STUDENT
SYS_C008503              STUDENT
SYS_C008502              STUDENT
SYS_C008501              STUDENT
STUDENT_CK_ROLL          STUDENT

28 rows selected.
```

*********************************** **QUERY-05** ************************************
  Write SQL code that will create a temporary table (view) named STUDENT_VW on
  STUDENT table projecting the attributes ENROLL, LNAME, FNAME, ROLL, REG_DT,
  ADVISOR.List the contents of STUDENT_VW.
****

```
    CREATE OR REPLACE VIEW STUDENT_VW
      AS SELECT ENROLL, LNAME, FNAME, ROLL, REG_DT, ADVISOR
        FROM STUDENT;

    View created.
```

```
SELECT TNAME , TABTYPE ,CLUSTERID
  FROM TAB
    WHERE TNAME='STUDENT_VW';


TNAME            TABTYPE        CLUSTERID
--------------- ------------- ----------
STUDENT_VW       VIEW
```

```
SELECT *
  FROM STUDENT_VW;


ENROLL         LNAME          FNAME                ROLL REG_DT     ADVISOR
------------- --------------- --------------- ---------- --------- ----------
20CSU1001CSU1 Mujumdar        Aarya                    1 08-JAN-21        101
20CSU1002CSU1 Tiwari          Aditi                    2 08-JAN-21        102
20CSU1003CSU1 Shukla          Anushka                  3 08-JAN-21        103
20CSU1004CSU1 Jha             Aparna                   4 08-JAN-21        104
20CSU1005CSU1 Soni            Ayushi                   5 08-JAN-21        105
20CSU1006CSU1 Dhakate         Harshada                 6 08-JAN-21        106
20CSU1007CSU1 Barkhade        Hrishita                 7 11-JAN-21        107
20CSU1008CSU1 Sah             Neha                     8 11-JAN-21        108
20CSU1009CSU1 Roy             Oshika                   9 11-JAN-21        109
20CSU1010CSU1 Mohabansi       Pakhee                  10 11-JAN-21        110
20CSU1011CSU1 Akre            Prachiti                11 11-JAN-21        101
20CSU1012CSU1 Mundhada        Pranjal                 12 08-JAN-21        102
20CSU1013CSU1 Joshi           Pranjali                13 08-JAN-21        103
20CSU1014CSU1 Sharma          Rajshree                14 08-JAN-21        104
20CSU1015CSU1 Tiwari          Rashmi                  15 08-JAN-21        105
20CSU1016CSU1 Khandelwal      Reema                   16 11-JAN-21        106
20CSU1017CSU1 Jain            Riya                    17 08-JAN-21        107
20CSU1018CSU1 Anasane         Samiksha                18 08-JAN-21        108
20CSU1019CSU1 Asati           Samiksha                19 08-JAN-21        109
20CSU1020CSU1 Tatiwar         Samruddhi               20 09-JAN-21        110
20CSU1021CSU1 Balpande        Sanskruti               21 08-JAN-21        101
20CSU1022CSU1 Mahajan         Shradha                 22 08-JAN-21        102
20CSU1023CSU1 Gupta           Shristi                 23 08-JAN-21        103
20CSU1024CSU1 Jain            Shruti                  24 09-JAN-21        104
```

20CSU1025CSU1	Dhakate	Srushti	25	08-JAN-21	105
20CSU1026CSU1	Valecha	Varsha	26	09-JAN-21	106
21CSU1126CSU1	Gupta	Diksha	27	11-NOV-21	107
21CSU1127CSU1	Sayyed	Juhie	28	11-NOV-21	108
20CSU1027CSU1	Rocque	Aaron	31	08-JAN-21	109
20CSU1028CSU1	Warkad	Adwait	32	08-JAN-21	110
20CSU1029CSU1	Kumar	Ajay	33	08-JAN-21	101
20CSU1030CSU1	Surana	Akshat	34	11-JAN-21	102
20CSU1031CSU1	Singh	Amish	35	08-JAN-21	103
20CSU1032CSU1	Thakur	Arpit	36	08-JAN-21	104
20CSU1033CSU1	Wanjari	Bhushan	37	11-JAN-21	105
20CSU1034CSU1	Chandan	Darshan	38	08-JAN-21	106
20CSU1035CSU1	Dongare	Divesh	39	08-JAN-21	107
20CSU1036CSU1	Pathak	Gaurav	40	09-JAN-21	108
20CSU1037CSU1	Nimbalkar	Gunjan	41	08-JAN-21	109
20CSU1038CSU1	Sherekar	Harsh	42	09-JAN-21	110
20CSU1039CSU1	Mandavgade	Janak	43	15-JAN-21	101
20CSU1040CSU1	Jibhakate	Jayesh	44	15-JAN-21	102
20CSU1041CSU1	Chaudhari	Jaiwin	45	15-JAN-21	103
20CSU1042CSU1	Jora	Kunwar	46	08-JAN-21	104
20CSU1043CSU1	Munot	Kush	47	08-JAN-21	105
20CSU1044CSU1	Chowdhury	Mihir	48	09-JAN-21	106
20CSU1045CSU1	Dudhbade	Mrugal	49	08-JAN-21	107
20CSU1046CSU1	Morayya	Nipun	50	08-JAN-21	108
20CSU1047CSU1	Nandha	Piyush	51	09-JAN-21	109
20CSU1048CSU1	Gujar	Prathamesh	52	08-JAN-21	110
20CSU1049CSU1	Rajbhoj	Prathamesh	53	09-JAN-21	101
20CSU1050CSU1	Thakare	Rajesh	54	08-JAN-21	102
20CSU1051CSU1	Khatod	Raman	55	15-JAN-21	103
20CSU1052CSU1	Dubey	Rishabh	56	15-JAN-21	104
20CSU1053CSU1	Bhojwani	Rohit	57	15-JAN-21	105
20CSU1054CSU1	Malu	Rushikesh	58	08-JAN-21	106
20CSU1055CSU1	Hablani	Sachal	59	08-JAN-21	107
20CSU1056CSU1	Mandal	Sagar	60	08-JAN-21	108
20CSU1057CSU1	Chharra	Sahil	61	08-JAN-21	109
20CSU1058CSU1	Suchak	Saurabh	62	15-JAN-21	110
20CSU1059CSU1	Baghele	Shivam	63	15-JAN-21	101
20CSU1060CSU1	Shah	Siddharth	64	15-JAN-21	102

```
20CSU1061CSU1 Thakre        Sopan          65 11-JAN-21         103
20CSU1062CSU1 Pandey        Sudhanshu      66 09-JAN-21         104
20CSU1063CSU1 Laira         Swyam          67 11-JAN-21         105
20CSU1064CSU1 Sathawane     Utkarsh        68 11-JAN-21         106
20CSU1065CSU1 Singh         Varunpreet     69 15-JAN-21         107
20CSU1066CSU1 Khergade      Vedant         70 15-JAN-21         108
20CSU1067CSU1 Kashyap       Vikram         71 15-JAN-21         109
20CSU1068CSU1 Tiwari        Vinit          72 11-JAN-21         110
20CSU1069CSU1 Agrawal       Yash           73 11-JAN-21         101
20CSU1070CSU1 Tekade        Yash           74 09-JAN-21         104
21CSU1128CSU1 Baser         Rahul          75 11-NOV-21         109
21CSU1129CSU1 Wankhedkar    Yash           77 10-NOV-21         108
21CSU1130CSU1 Joshi         Varun          78 10-NOV-21         110

75 rows selected.
```

*********************************** **QUERY-06**************************************
  Two students Naveen Namjoshi (81) and Tushar Tipnis (82) were admitted on
  November 13, 2021 and were assigned to staff members 109 and 110 respectively.
  Write SQL code to insert these student records into STUDENT_VW and
  observe the effect on STUDENT table.
****

```
    INSERT INTO STUDENT_VW VALUES
        ('21CSU1231CSU1', 'Namjoshi', 'Navin', 81, '13-NOV-2021',109);

    1 row created.



     INSERT INTO STUDENT_VW VALUES
        ('21CSU1232CSU1', 'Tipnis', 'Tushar', 82, '13-NOV-2021',110);

    1 row created.
```

```
COMMIT;

Commit complete.



SELECT * FROM STUDENT_VW
    WHERE REG_DT = '13-NOV-21';


     ENROLL         LNAME      FNAME      ROLL REG_DT    ADVISOR

     -------------- ---------- ---------- ---- --------- ----------

     21CSU1231CSU1 Namjoshi    Navin        81 13-NOV-21        109

     21CSU1232CSU1 Tipnis      Tushar       82 13-NOV-21        110


2 rows selected.



SELECT *
  FROM STUDENT
    WHERE ROLL IN (81,82);



ROLL LNAME      FNAME      EMAIL      ENROLL        ADVISOR PHONE      REG_DT

---- ---------- ---------- ---------- ------------- ------- ---------- ---------

  81 Namjoshi   Navin                 21CSU1231CSU1     109            13-NOV-21

  82 Tipnis     Tushar                21CSU1232CSU1     110            13-NOV-21


2 rows selected.
```

******************************** **QUERY-07** ********************************
    Write SQL code to create a view STUDENT_VW_RO on STUDENT table with

    READ ONLY option with same attribute set as in STUDENT_VW. List the contents

    of STUDENT_VW_RO. Now insert a record - 83, Cinderella Goldsmith, 101,

    17-Nov-2021 - into STUDENT_VW_RO. Observe the effect.
****

```
CREATE OR REPLACE VIEW STUDENT_VW_RO
   AS SELECT * FROM STUDENT_VW
     WITH READ ONLY;


View created.


SELECT VIEW_NAME, READ_ONLY FROM USER_VIEWS
    WHERE VIEW_NAME='STUDENT_VW_RO';


    VIEW_NAME        R
    --------------- -
    STUDENT_VW_RO    Y


    1 row selected.




SELECT OBJECT_NAME, OBJECT_ID, OBJECT_TYPE FROM USER_OBJECTS
    WHERE OBJECT_NAME = 'STUDENT_VW_RO';




    OBJECT_NAME      OBJECT_ID OBJECT_TYPE
    --------------- ---------- ----------------------
    STUDENT_VW_RO        79715 VIEW


    1 row selected.
```

```
SELECT *
   FROM TAB
     WHERE TNAME='STUDENT_VW_RO';


      TNAME            TABTYPE          CLUSTERID
      --------------- ------------- ----------
      STUDENT_VW_RO   VIEW


      1 row selected.




SELECT *
   FROM CAT
    WHERE TABLE_NAME='STUDENT_VW_RO';


      TABLE_NAME           TABLE_TYPE
      -------------------- -----------
      STUDENT_VW_RO        VIEW


1 row selected.




SELECT CONSTRAINT_NAME, TABLE_NAME
   FROM USER_CONSTRAINTS
     WHERE TABLE_NAME = 'STUDENT_VW_RO';


CONSTRAINT_NAME            TABLE_NAME
------------------------ --------------------
SYS_C008555                STUDENT_VW_RO


1 row selected.
```

```
INSERT INTO STUDENT_VW_RO VALUES
    ('21CSU1233CSU1', 'Cindrella', 'Goldsmith', 83, '17-NOV-2021',101);
INSERT INTO STUDENT_VW_RO VALUES
*
ERROR at line 1:
ORA-42399: cannot perform a DML operation on a read-only view
```

```
SELECT *
    FROM STUDENT_VW_RO;
```

```
    ENROLL          LNAME      FNAME      ROLL REG_DT    ADVISOR
    ------------- ---------- ---------- ---- --------- -------
    20CSU1001CSU1 Mujumdar   Aarya         1 08-JAN-21     101
    20CSU1002CSU1 Tiwari     Aditi         2 08-JAN-21     102
    20CSU1003CSU1 Shukla     Anushka       3 08-JAN-21     103
    20CSU1004CSU1 Jha        Aparna        4 08-JAN-21     104
    20CSU1005CSU1 Soni       Ayushi        5 08-JAN-21     105
    20CSU1006CSU1 Dhakate    Harshada      6 08-JAN-21     106
    20CSU1007CSU1 Barkhade   Hrishita      7 11-JAN-21     107
    20CSU1008CSU1 Sah        Neha          8 11-JAN-21     108
    20CSU1009CSU1 Roy        Oshika        9 11-JAN-21     109
    20CSU1010CSU1 Mohabansi  Pakhee       10 11-JAN-21     110
    20CSU1011CSU1 Akre       Prachiti     11 11-JAN-21     101
    20CSU1012CSU1 Mundhada   Pranjal      12 08-JAN-21     102
    20CSU1013CSU1 Joshi      Pranjali     13 08-JAN-21     103
    20CSU1014CSU1 Sharma     Rajshree     14 08-JAN-21     104
    20CSU1015CSU1 Tiwari     Rashmi       15 08-JAN-21     105
    20CSU1016CSU1 Khandelwal Reema        16 11-JAN-21     106
    20CSU1017CSU1 Jain       Riya         17 08-JAN-21     107
    20CSU1018CSU1 Anasane    Samiksha     18 08-JAN-21     108
    20CSU1019CSU1 Asati      Samiksha     19 08-JAN-21     109
    20CSU1020CSU1 Tatiwar    Samruddhi    20 09-JAN-21     110
    20CSU1021CSU1 Balpande   Sanskruti    21 08-JAN-21     101
    20CSU1022CSU1 Mahajan    Shradha      22 08-JAN-21     102
    20CSU1023CSU1 Gupta      Shristi      23 08-JAN-21     103
    20CSU1024CSU1 Jain       Shruti       24 09-JAN-21     104
    20CSU1025CSU1 Dhakate    Srushti      25 08-JAN-21     105
```

```
20CSU1026CSU1 Valecha     Varsha      26 09-JAN-21    106
21CSU1126CSU1 Gupta       Diksha      27 11-NOV-21    107
21CSU1127CSU1 Sayyed      Juhie       28 11-NOV-21    108
20CSU1027CSU1 Rocque      Aaron       31 08-JAN-21    109
20CSU1028CSU1 Warkad      Adwait      32 08-JAN-21    110
20CSU1029CSU1 Kumar       Ajay        33 08-JAN-21    101
20CSU1030CSU1 Surana      Akshat      34 11-JAN-21    102
20CSU1031CSU1 Singh       Amish       35 08-JAN-21    103
20CSU1032CSU1 Thakur      Arpit       36 08-JAN-21    104
20CSU1033CSU1 Wanjari     Bhushan     37 11-JAN-21    105
20CSU1034CSU1 Chandan     Darshan     38 08-JAN-21    106
20CSU1035CSU1 Dongare     Divesh      39 08-JAN-21    107
20CSU1036CSU1 Pathak      Gaurav      40 09-JAN-21    108
20CSU1037CSU1 Nimbalkar   Gunjan      41 08-JAN-21    109
20CSU1038CSU1 Sherekar    Harsh       42 09-JAN-21    110
20CSU1039CSU1 Mandavgade  Janak       43 15-JAN-21    101
20CSU1040CSU1 Jibhakate   Jayesh      44 15-JAN-21    102
20CSU1041CSU1 Chaudhari   Jaiwin      45 15-JAN-21    103
20CSU1042CSU1 Jora        Kunwar      46 08-JAN-21    104
20CSU1043CSU1 Munot       Kush        47 08-JAN-21    105
20CSU1044CSU1 Chowdhury   Mihir       48 09-JAN-21    106
20CSU1045CSU1 Dudhbade    Mrugal      49 08-JAN-21    107
20CSU1046CSU1 Morayya     Nipun       50 08-JAN-21    108
20CSU1047CSU1 Nandha      Piyush      51 09-JAN-21    109
20CSU1048CSU1 Gujar       Prathamesh  52 08-JAN-21    110
20CSU1049CSU1 Rajbhoj     Prathamesh  53 09-JAN-21    101
20CSU1050CSU1 Thakare     Rajesh      54 08-JAN-21    102
20CSU1051CSU1 Khatod      Raman       55 15-JAN-21    103
20CSU1052CSU1 Dubey       Rishabh     56 15-JAN-21    104
20CSU1053CSU1 Bhojwani    Rohit       57 15-JAN-21    105
20CSU1054CSU1 Malu        Rushikesh   58 08-JAN-21    106
20CSU1055CSU1 Hablani     Sachal      59 08-JAN-21    107
20CSU1056CSU1 Mandal      Sagar       60 08-JAN-21    108
20CSU1057CSU1 Chharra     Sahil       61 08-JAN-21    109
20CSU1058CSU1 Suchak      Saurabh     62 15-JAN-21    110
20CSU1059CSU1 Baghele     Shivam      63 15-JAN-21    101
20CSU1060CSU1 Shah        Siddharth   64 15-JAN-21    102
20CSU1061CSU1 Thakre      Sopan       65 11-JAN-21    103
```

```
20CSU1062CSU1 Pandey      Sudhanshu    66 09-JAN-21       104
20CSU1063CSU1 Laira       Swyam        67 11-JAN-21       105
20CSU1064CSU1 Sathawane   Utkarsh      68 11-JAN-21       106
20CSU1065CSU1 Singh       Varunpreet   69 15-JAN-21       107
20CSU1066CSU1 Khergade    Vedant       70 15-JAN-21       108
20CSU1067CSU1 Kashyap     Vikram       71 15-JAN-21       109
20CSU1068CSU1 Tiwari      Vinit        72 11-JAN-21       110
20CSU1069CSU1 Agrawal     Yash         73 11-JAN-21       101
20CSU1070CSU1 Tekade      Yash         74 09-JAN-21       104
21CSU1128CSU1 Baser       Rahul        75 11-NOV-21       109
21CSU1129CSU1 Wankhedkar  Yash         77 10-NOV-21       108
21CSU1130CSU1 Joshi       Varun        78 10-NOV-21       110
21CSU1231CSU1 Namjoshi    Navin        81 13-NOV-21       109
21CSU1232CSU1 Tipnis      Tushar       82 13-NOV-21       110

77 rows selected.
```

*********************************** **QUERY-08** ***********************************
  Write SQL code to create a view STUDENT_VW_CK on STUDENT table with CHECK OPTION
  and CONSTRAINT with same attribute set as in STUDENT VW but will include those
  tuples having advisors among 101, 103, 105, 108 and 109. Name the constraint as
  STUDENT_ADV_CK. List the contents of STUDENT_VW_CK.
  Now, insert a record - 84,Sebastian Ford, 104, 18-Nov-2021 - into
  STUDENT_VW_CK. Observe the effect.
****

```
    CREATE OR REPLACE VIEW STUDENT_VW_CK
      AS SELECT * FROM STUDENT_VW
        WHERE ADVISOR IN(101, 103, 105, 108, 109)
          WITH CHECK OPTION CONSTRAINT STUDENT_ADV_CK;


    View created.
```

```
SELECT *

  FROM STUDENT_VW_CK;

ENROLL          LNAME       FNAME       ROLL REG_DT      ADVISOR

-------------   ----------  ----------  ---- ---------   ----------

20CSU1001CSU1 Mujumdar    Aarya         1 08-JAN-21         101

20CSU1003CSU1 Shukla      Anushka       3 08-JAN-21         103

20CSU1005CSU1 Soni        Ayushi        5 08-JAN-21         105

20CSU1008CSU1 Sah         Neha          8 11-JAN-21         108

20CSU1009CSU1 Roy         Oshika        9 11-JAN-21         109

20CSU1011CSU1 Akre        Prachiti     11 11-JAN-21         101

20CSU1013CSU1 Joshi       Pranjali     13 08-JAN-21         103

20CSU1015CSU1 Tiwari      Rashmi       15 08-JAN-21         105

20CSU1018CSU1 Anasane     Samiksha     18 08-JAN-21         108

20CSU1019CSU1 Asati       Samiksha     19 08-JAN-21         109

20CSU1021CSU1 Balpande    Sanskruti    21 08-JAN-21         101

20CSU1023CSU1 Gupta       Shristi      23 08-JAN-21         103

20CSU1025CSU1 Dhakate     Srushti      25 08-JAN-21         105

21CSU1127CSU1 Sayyed      Juhie        28 11-NOV-21         108

20CSU1027CSU1 Rocque      Aaron        31 08-JAN-21         109

20CSU1029CSU1 Kumar       Ajay         33 08-JAN-21         101

20CSU1031CSU1 Singh       Amish        35 08-JAN-21         103

20CSU1033CSU1 Wanjari     Bhushan      37 11-JAN-21         105

20CSU1036CSU1 Pathak      Gaurav       40 09-JAN-21         108

20CSU1037CSU1 Nimbalkar   Gunjan       41 08-JAN-21         109

20CSU1039CSU1 Mandavgade Janak         43 15-JAN-21         101

20CSU1041CSU1 Chaudhari   Jaiwin       45 15-JAN-21         103

20CSU1043CSU1 Munot       Kush         47 08-JAN-21         105

20CSU1046CSU1 Morayya     Nipun        50 08-JAN-21         108
```

```
20CSU1047CSU1 Nandha      Piyush       51 09-JAN-21        109

20CSU1049CSU1 Rajbhoj     Prathamesh   53 09-JAN-21        101

20CSU1051CSU1 Khatod      Raman        55 15-JAN-21        103

20CSU1053CSU1 Bhojwani    Rohit        57 15-JAN-21        105

20CSU1056CSU1 Mandal      Sagar        60 08-JAN-21        108

20CSU1057CSU1 Chharra     Sahil        61 08-JAN-21        109

20CSU1059CSU1 Baghele     Shivam       63 15-JAN-21        101

20CSU1061CSU1 Thakre      Sopan        65 11-JAN-21        103

20CSU1063CSU1 Laira       Swyam        67 11-JAN-21        105

20CSU1066CSU1 Khergade    Vedant       70 15-JAN-21        108

20CSU1067CSU1 Kashyap     Vikram       71 15-JAN-21        109

20CSU1069CSU1 Agrawal     Yash         73 11-JAN-21        101

21CSU1128CSU1 Baser       Rahul        75 11-NOV-21        109

21CSU1129CSU1 Wankhedkar  Yash         77 10-NOV-21        108

21CSU1231CSU1 Namjoshi    Navin        81 13-NOV-21        109


39 rows selected.
```

SELECT VIEW_NAME, READ_ONLY FROM USER_VIEWS

    WHERE VIEW_NAME='STUDENT_VW_CK';

```
VIEW_NAME        R
--------------- -
STUDENT_VW_CK    N

1 row selected.
```

```
SELECT OBJECT_NAME, OBJECT_ID, OBJECT_TYPE
   FROM USER_OBJECTS
    WHERE OBJECT_NAME = 'STUDENT_VW_CK';


     OBJECT_NAME      OBJECT_ID OBJECT_TYPE

     --------------- ---------- ----------------------

     STUDENT_VW_CK       79716 VIEW



1 row selected.


SELECT *
  FROM TAB
    WHERE TNAME='STUDENT_VW_CK';


     TNAME           TABTYPE         CLUSTERID
     --------------- ------------- ----------
     STUDENT_VW_CK   VIEW



1 row selected.


SELECT *
 FROM CAT
   WHERE TABLE_NAME='STUDENT_VW_CK';


     TABLE_NAME          TABLE_TYPE
     -------------------- -----------
     STUDENT_VW_CK       VIEW



1 row selected.
```

```
INSERT INTO STUDENT_VW_CK VALUES
    ('21CSU1234CSU1', 'Sebastian', 'Ford', 84, '18-NOV-2021',104);


INSERT INTO STUDENT_VW_CK VALUES
            *
ERROR at line 1:
ORA-01402: view WITH CHECK OPTION where-clause violation
```

*********************************** **QUERY-09**************************************
List all the views for the current schema tables (use USER_VIEWS table]. List
the constraints (include constraint type) on the views in Academic Schema.
****

```
SELECT VIEW_NAME, VIEW_TYPE, READ_ONLY
  FROM USER_VIEWS
    WHERE VIEW_NAME LIKE 'STUDENT_VW%'
      OR VIEW_NAME LIKE 'STAFF_VW%'
        OR VIEW_NAME LIKE 'DEPT_VW%';


VIEW_NAME        VIEW_TYPE        R
--------------- --------------- -
STUDENT_VW                       N
STUDENT_VW_CK                    N
STUDENT_VW_RO                    Y


SELECT CONSTRAINT_NAME, TABLE_NAME
  FROM USER_CONSTRAINTS
    WHERE TABLE_NAME IN (
      SELECT VIEW_NAME
        FROM USER_VIEWS
          WHERE VIEW_NAME LIKE 'STUDENT_VW%'
           OR VIEW_NAME LIKE 'STAFF_VW%'
             OR VIEW_NAME LIKE 'DEPT_VW%');
```

```
CONSTRAINT_NAME              TABLE_NAME

------------------------     -------------------
SYS_C008524                  STUDENT_VW_RO
STUDENT_ADV_CK               STUDENT_VW_CK
```

*********************************** **QUERY-10** ***********************************

Write a SQL code to create a private synonym FACULTY_SN for STAFF. Use this
synonym to show contents of STAFF. A faculty named Dhawal Giri has been
appointed as Assistant in AIML. Insert this record using FACULTY_SN .Observe
contents of STAFF table.

****

CREATE OR REPLACE SYNONYM FACULTY_SN
    FOR STAFF;

```
 Synonym created.
```

SELECT SYNONYM_NAME, TABLE_NAME FROM USER_SYNONYMS
    WHERE SYNONYM_NAME='FACULTY_SN';

```
SYNONYM_NAME     TABLE_NAME
---------------  -------------------
FACULTY_SN       STAFF
```

SELECT OBJECT_NAME, OBJECT_ID, OBJECT_TYPE
    FROM USER_OBJECTS
     WHERE OBJECT_NAME = 'FACULTY_SN';

```
    OBJECT_NAME      OBJECT_ID OBJECT_TYPE
    ---------------  ---------- ----------------------
    FACULTY_SN           79717 SYNONYM

    1 row selected.
```

```
SELECT * FROM TAB
   WHERE TNAME='FACULTY_SN';


       TNAME            TABTYPE        CLUSTERID
       --------------- ------------- ----------
       FACULTY_SN       SYNONYM


       1 row selected.
SELECT * FROM CAT
   WHERE TABLE_NAME='FACULTY_SN';


       TABLE_NAME           TABLE_TYPE
       -------------------- -----------
       FACULTY_SN           SYNONYM


       1 row selected.



SELECT *
   FROM STAFF;


SID NAME                        BRAN DESG      JOIN_DT
---------- ------------------------ ---- --------- ---------
       101 Kamalkant Marathe       CSE  Professor 12-JUN-05
       102 Adishesh Vidyarthi      AIML Associate 22-JUL-06
       103 Manishi Singh           DAT  Professor 10-NOV-07
       104 Aasawari Deodhar        CSE  Associate 13-OCT-08
       105 Geetika Goenka          CSEC Professor 15-NOV-09
       106 Deo Narayan Mishra      DAT  Assistant 13-OCT-13
       107 Sanjeev Banireddy       CSEC Associate 12-MAY-18
       108 Jasmine Arora           CSE  Associate 11-AUG-17
       109 Vallabh Pai             CSE  Assistant 17-SEP-18
       110 Harneet Khullar         AIML Assistant 17-MAR-19

10 rows selected.

 INSERT INTO FACULTY_SN VALUES

   (111,'Dhawal Giri', 'AIML','Assistant', '25-SEP-2022');

1 row created.
```

```
SELECT *
    FROM FACULTY_SN;


       SID NAME                     BRAN DESG      JOIN_DT

---------- ------------------------ ---- --------- ---------
       101 Kamalkant Marathe        CSE  Professor 12-JUN-05
       102 Adishesh Vidyarthi       AIML Associate 22-JUL-06
       103 Manishi Singh            DAT  Professor 10-NOV-07
       104 Aasawari Deodhar         CSE  Associate 13-OCT-08
       105 Geetika Goenka           CSEC Professor 15-NOV-09
       106 Deo Narayan Mishra       DAT  Assistant 13-OCT-13
       107 Sanjeev Bamireddy        CSEC Associate 12-MAY-18
       108 Jasmine Arora            CSE  Assistant 11-AUG-17
       109 Vallabh Pai              CSE  Assistant 17-SEP-18
       110 Harmeet Khullar          AIML Assistant 17-MAR-19
       111 Dhawal Giri              AIML Assistant 25-SEP-22
```

11 rows selected.

```
SELECT *
    FROM STAFF;


       SID NAME                     BRAN DESG      JOIN_DT

---------- ------------------------ ---- --------- ---------
       101 Kamalkant Marathe        CSE  Professor 12-JUN-05
       102 Adishesh Vidyarthi       AIML Associate 22-JUL-06
       103 Manishi Singh            DAT  Professor 10-NOV-07
       104 Aasawari Deodhar         CSE  Associate 13-OCT-08
       105 Geetika Goenka           CSEC Professor 15-NOV-09
       107 Sanjeev Bamireddy        CSEC Associate 12-MAY-18
       108 Jasmine Arora            CSE  Assistant 11-AUG-17
       109 Vallabh Pai              CSE  Assistant 17-SEP-18
       110 Harmeet Khullar          AIML Assistant 17-MAR-19
       106 Deo Narayan Mishra       DAT  Assistant 13-OCT-13
       111 Dhawal Giri              AIML Assistant 25-SEP-22
```

11 rows selected.

******************************* **QUERY-11** *******************************
    Write SQL code to create a unique B-Tree index on FNAME attribute of
    STUDENT table. Observe the output and report the problem(s). If it fails, create
    B-Tree index and test it to locate a certain student by first name. Now, create
    a concatenated B-tree index on (LNAME, FNAME) attributes of STUDENT table and
    test the index. Also list all indexes for CS5AXX for the current database schema
    (use USER_INDEXES tablel.
****

```
CREATE UNIQUE INDEX STUDENT_NDX_FNAME_UQ
    ON STUDENT(FNAME);
ON STUDENT(FNAME)
    *
ERROR at line 2:
ORA-01452: cannot CREATE UNIQUE INDEX; duplicate keys found
```

```
CREATE INDEX STUDENT_NDX_FNAME
  ON STUDENT(FNAME);

  Index created.
```

```
SET AUTOTRACE ON EXPLAIN

SHOW AUTOTRACE

SELECT * FROM STUDENT
    WHERE FNAME='Diksha';
```

ROLL	LNAME	FNAME	EMAIL	ENROLL	ADVISOR	PHONE	REG_DT
27	Gupta	Diksha	guptadr4@rknec.edu	21CSU1126CSU1	107	9911111111	11-NOV-21

```
Execution Plan
----------------------------------------------------------
Plan hash value: 413225208

--------------------------------------------------------------------------------------------
| Id  | Operation                            | Name              | Rows  | Bytes | Cost (%CPU)| Time     |
--------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT                     |                   |     1 |    72 |     2   (0)| 00:00:01 |
|   1 |  TABLE ACCESS BY INDEX ROWID BATCHED| STUDENT           |     1 |    72 |     2   (0)| 00:00:01 |
|*  2 |   INDEX RANGE SCAN                   | STUDENT_NDX_FNAME |     1 |       |     1   (0)| 00:00:01 |
--------------------------------------------------------------------------------------------

Predicate Information (identified by operation id):
---------------------------------------------------

2 - access("FNAME"='Diksha
```

CREATE UNIQUE INDEX STUDENT_NDX_FNAME_LNAME_UQ

        ON STUDENT(FNAME, LNAME);

Index created.

SELECT INDEX_NAME, TABLE_NAME, UNIQUENESS, STATUS, TABLE_OWNER

  FROM USER_INDEXES

    WHERE TABLE_NAME IN ('STUDENT', 'STAFF', 'DEPT')

      AND TABLE_OWNER ='CS5A27';

INDEX_NAME	TABLE_NAME	UNIQUENES	STATUS	TABLE_OWNE
DEPT_PK_BRANCH	DEPT	UNIQUE	VALID	CS5A27
STAFF_PK_SID	STAFF	UNIQUE	VALID	CS5A27
STUDENT_PK_ROLL	STUDENT	UNIQUE	VALID	CS5A27
SYS_C008551	STUDENT	UNIQUE	VALID	CS5A27
SYS_C008552	STUDENT	UNIQUE	VALID	CS5A27
STUDENT_NDX_FNAME	STUDENT	NONUNIQUE	VALID	CS5A27
STUDENT_NDX_FNAME_LN AME_UQ	STUDENT	UNIQUE	VALID	CS5A27

7 rows selected.

Execution Plan

Plan hash value: 3319253833

| Id | Operation | Name | Rows | Bytes | Cost (%CPU)| Time |

0	SELECT STATEMENT		1	174	17 (0)	00:00:01
* 1	FILTER					
* 2	HASH JOIN OUTER		2	348	17 (0)	00:00:01
3	NESTED LOOPS OUTER		2	340	16 (0)	00:00:01
4	NESTED LOOPS		2	324	14 (0)	00:00:01
5	NESTED LOOPS OUTER		2	226	10 (0)	00:00:01
6	NESTED LOOPS OUTER		2	204	8 (0)	00:00:01
7	NESTED LOOPS		2	198	6 (0)	00:00:01
8	NESTED LOOPS		1	65	5 (0)	00:00:01
9	TABLE ACCESS BY INDEX ROWID	USER$	1	18	1 (0)	00:00:01
* 10	INDEX UNIQUE SCAN	I_USER1	1		0 (0)	00:00:01
11	INLIST ITERATOR					
* 12	INDEX RANGE SCAN	I_OBJ2	1	47	4 (0)	00:00:01
* 13	TABLE ACCESS CLUSTER	IND$	2	68	1 (0)	00:00:01
* 14	INDEX UNIQUE SCAN	I_OBJ#	1		0 (0)	00:00:01
15	TABLE ACCESS CLUSTER	TS$	1	3	1 (0)	00:00:01
* 16	INDEX UNIQUE SCAN	I_TS#	1		0 (0)	00:00:01
17	TABLE ACCESS CLUSTER	SEG$	1	11	1 (0)	00:00:01
* 18	INDEX UNIQUE SCAN	I_FILE#_BLOCK#	1		0 (0)	00:00:01
* 19	TABLE ACCESS BY INDEX ROWID BATCHED	OBJ$	1	49	2 (0)	00:00:01
* 20	INDEX RANGE SCAN	I_OBJ1	1		1 (0)	00:00:01
* 21	INDEX RANGE SCAN	I_OBJ1	1	8	1 (0)	00:00:01
22	INDEX FULL SCAN	I_USER2	130	520	1 (0)	00:00:01
* 23	TABLE ACCESS CLUSTER	TAB$	1	13	2 (0)	00:00:01
* 24	INDEX UNIQUE SCAN	I_OBJ#	1		1 (0)	00:00:01

   Predicate Information (identified by operation id):

```
    1 - filter("IO"."TYPE#"<>2 OR  (SELECT 1 FROM "SYS"."TAB$" "T" WHERE "T"."OBJ#"=:B1 AND
              BITAND("T"."PROPERTY",36893488147419103232)=0)=1)

    2 - access("ITO"."OWNER#"="ITU"."USER#"(+))

   10 - access("IU"."NAME"='CS5A27')

   12 - access("IO"."OWNER#"="IU"."USER#" AND ("IO"."NAME"='DEPT' OR "IO"."NAME"='STAFF' OR
              "IO"."NAME"='STUDENT'))

   13 - filter(BITAND("I"."FLAGS",4096)=0 AND ("I"."TYPE#"=1 OR "I"."TYPE#"=2 OR "I"."TYPE#"=3 OR
              "I"."TYPE#"=4 OR "I"."TYPE#"=6 OR "I"."TYPE#"=7 OR "I"."TYPE#"=8 OR "I"."TYPE#"=9))

   14 - access("I"."BO#"="IO"."OBJ#")

   16 - access("I"."TS#"="TS"."TS#"(+))

   18 - access("I"."TS#"="S"."TS#"(+) AND "I"."FILE#"="S"."FILE#"(+) AND
              "I"."BLOCK#"="S"."BLOCK#"(+))

   19 - filter(BITAND("O"."FLAGS",128)=0)

   20 - access("O"."OBJ#"="I"."OBJ#" AND "O"."OWNER#"=USERENV('SCHEMAID'))

   21 - access("I"."INDMETHOD#"="ITO"."OBJ#"(+))

   23 - filter(BITAND("T"."PROPERTY",36893488147419103232)=0)

   24 - access("T"."OBJ#"=:B1)
```

SELECT *
FROM STUDENT
WHERE FNAME='Diksha' AND LNAME='Gupta';

```
ROLL LNAME       FNAME      EMAIL               ENROLL        ADVISOR   PHONE REG_DT
---- ---------- ---------- ------------------ ------------- ------- ---------- ------
27 Gupta      Diksha     guptadr4@rknec.edu 21CSU1126CSU1     107 9911111111 11-NOV-21
```

```
Execution Plan
----------------------------------------------------------
Plan hash value: 645620913

-------------------------------------------------------------------------------------------
| Id  | Operation                   | Name                      | Rows  | Bytes | Cost (%CPU)| Time     |
-------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT            |                           |     1 |    72 |     1   (0)| 00:00:01 |
|   1 |  TABLE ACCESS BY INDEX ROWID| STUDENT                   |     1 |    72 |     1   (0)| 00:00:01 |
|*  2 |   INDEX UNIQUE SCAN         | STUDENT_NDX_FNAME_LNAME_UQ |     1 |       |     0   (0)| 00:00:01 |
-------------------------------------------------------------------------------------------


Predicate Information (identified by operation id):
---------------------------------------------------

   2 - access("FNAME"='Diksha' AND "LNAME"='Gupta')
```

******************************* **QUERY-12** *********************************
    Write SQL code to create a function-based index on LNAME attribute of
    students such that case-sensitivity is superseded by converting to
    uppercase/lowercase and test the index. Now create a concatenated function-based
    index on (LNAME, FNAME) attributes of STUDENT and test the index.
    Before testing the function-based index, the DBA must set the initialization
    parameter QUERY_REWRITE_ENABLED to true. CONNECT system/system
    ALTER SYSTEM SET QUERY_REWRITE_ENABLED-TRUE;
****

        CREATE INDEX STUDENT_NDX_LNAME_FN
            ON STUDENT(UPPER(LNAME));

        Index created.

        SELECT * FROM STUDENT
            WHERE UPPER(LNAME) ='GUPTA';

ROLL LNAME   FNAME   EMAIL   ENROLL   ADVISOR   PHONE REG_DT
---- ------ ---------- ------------------ ------------- ------- ---------- ---------
23 Gupta   Shristi   guptass_7@rknec.ed 20CSU1023CSU1   103 9371860624 08-JAN-21

27 Gupta   Diksha   guptadr4@rknec.edu 21CSU1126CSU1   107 9911111111 11-NOV-21

2 rows selected.

Execution Plan

Plan hash value: 723552809

```
-------------------------------------------------------------------------------------------
| Id  | Operation                           | Name                 | Rows  | Bytes | Cost (%CPU)| Time     |
-------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT                    |                      |     2 |   160 |     2  (0)| 00:00:01 |
|   1 |  TABLE ACCESS BY INDEX ROWID BATCHED| STUDENT              |     2 |   160 |     2  (0)| 00:00:01 |
|*  2 |   INDEX RANGE SCAN                  | STUDENT_NDX_LNAME_FN |     2 |       |     1  (0)| 00:00:01 |
-------------------------------------------------------------------------------------------
```

Predicate Information (identified by operation id):
----

   2 - access(UPPER("LNAME")='GUPTA')

```
      CREATE INDEX STUDENT_NDX_LNAME_FNAME_FN
            ON STUDENT(UPPER(LNAME),UPPER(FNAME));
      Index created.


      SELECT * FROM STUDENT
            WHERE UPPER(LNAME) ='GUPTA' AND UPPER(FNAME)='DIKSHA';


ROLL LNAME   FNAME       EMAIL              ENROLL         ADVISOR    PHONE REG_DT
---- ------ ---------- ------------------ ------------- ------- ---------- ---------
27 Gupta  Diksha      guptadr4@rknec.edu 21CSU1126CSU1     107 9911111111 11-NOV-21



Execution Plan
----------------------------------------------------------
Plan hash value: 2901993617


---------------------------------------------------------------------------------------------
| Id  | Operation                           | Name                    | Rows  | Bytes | Cost (%CPU)| Time     |
---------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT                    |                         |     1 |    83 |     2   (0)| 00:00:01 |
|   1 |  TABLE ACCESS BY INDEX ROWID BATCHED| STUDENT                 |     1 |    83 |     2   (0)| 00:00:01 |
|*  2 |   INDEX RANGE SCAN                  | STUDENT_NDX_LNAME_FNAME_FN |  1 |       |     1   (0)| 00:00:01 |
---------------------------------------------------------------------------------------------


Predicate Information (identified by operation id):
---------------------------------------------------


   2 - access(UPPER("LNAME")='GUPTA' AND UPPER("FNAME")='DIKSHA')
```

*********************************** **QUERY-13** ***********************************
   Write SQL script that will
   a) Add a student records
      83, Cinderella Goldsmith, 181, 17-Nov-2021
      84, Sebastian Ford, 104, 18-Nov-2021
   b) Naveen Namjoshi has a new advisor, 108.
   c) Tushar Tipnis has a new advisor, 111. Before executing 13(a) create a
      savepoint SP NONE. On adding records for roll numbers 91 and 92, create a
      savepoint SP_FORD. Create savepointsSP NAV and SP_TUS after updating
      in 13(b) and 13(c) respectively.
****

      SAVEPOINT SP_NONE;
      Savepoint created.

```
INSERT INTO STUDENT VALUES
    (83, 'Goldsmith', 'Cindrella', 'Cindrella@rknec.edu', '21CSU1233CSU1',
        101,8878762652, '17-NOV-2021');
```

1 row created.

```
INSERT INTO STUDENT VALUES
    (84, 'Ford', 'Sebastian', 'Sebastian@rknec.edu', '21CSU1234CSU1', 104,
        8877256521, '18-NOV-2021');
```

1 row created.

```
SELECT * FROM STUDENT
    WHERE ROLL IN(83,84);
```

ROLL	LNAME	FNAME	EMAIL	ENROLL	ADVISOR	PHONE	REG_DT
83	Goldsmith	Cindrella	Cindrella@rknec.edu	21CSU1233CSU1	101	8878762652	17-NOV-21
84	Ford	Sebastian	Sebastian@rknec.edu	21CSU1234CSU1	104	8877256521	18-NOV-21

```
SAVEPOINT SP_FORD;
```

Savepoint created.

```
UPDATE STUDENT
    SET ADVISOR = 108
    WHERE FNAME='Navin' AND LNAME='Namjoshi';
```

1 row updated.

```
SELECT * FROM STUDENT
 WHERE FNAME='Navin' AND LNAME='Namjoshi';


ROLL LNAME      FNAME      EMAIL      ENROLL        ADVISOR    PHONE REG_DT

---- ---------- ---------- ---------- ------------- ---------- ---------- ---------

  81 Namjoshi   Navin                 21CSU1231CSU1    108            13-NOV-21



SAVEPOINT SP_NAV;

Savepoint created.



UPDATE STUDENT
 SET ADVISOR = 111
   WHERE FNAME='Tushar' AND LNAME='Tipnis';

1 row updated.



SELECT *
   FROM STUDENT
     WHERE FNAME='Tushar' AND LNAME='Tipnis';


ROLL LNAME      FNAME      EMAIL      ENROLL        ADVISOR    PHONE REG_DT

---- ---------- ---------- ---------- ------------- ---------- ---------- ---------

  82 Tipnis     Tushar                21CSU1232CSU1    111            13-NOV-21



SAVEPOINT SP_TUS;

Savepoint created.
```

```
******************************** QUERY-14 ********************************
  Write SQL code to recover the database state as it was after executing 13(a).
  Now, regain the database state to the one before executing Query-13.
*************************************************************************
```

        ROLLBACK TO SP_FORD;

        Rollback complete.

        SELECT * FROM STUDENT
            WHERE ROLL IN(83,84);

```
ROLL LNAME      FNAME      EMAIL             ENROLL             ADVISOR     PHONE REG_DT
---- ---------- ---------- --------------- ------------------ ---------- ---------
83 Goldsmith Cindrella  Cindrellrknec.edu 21CSU1233CSU1    101 8878762652 17-NOV-21

84 Ford       Sebastian  Sebastian@rknec.edu 21CSU1234CSU1 104 8877256521 18-NOV-21
```


        SELECT *
          FROM STUDENT
            WHERE FNAME='Navin'
              AND LNAME='Namjoshi';


```
ROLL LNAME      FNAME      EMAIL      ENROLL        ADVISOR     PHONE REG_DT
---- ---------- ---------- ---------- ------------- ---------- ---------- ---------
81 Namjoshi   Navin                 21CSU1231CSU1     109              13-NOV-21
```


        SELECT *
          FROM STUDENT
            WHERE FNAME='Tushar'
              AND LNAME='Tipnis';

```
ROLL LNAME      FNAME      EMAIL      ENROLL        ADVISOR     PHONE REG_DT
---- ---------- ---------- ---------- ------------- ---------- ---------- ---------
82 Tipnis     Tushar                21CSU1232CSU1     110              13-NOV-21
```

```
    ROLLBACK TO SP_NONE;

Rollback complete.

SELECT *
  FROM STUDENT
    WHERE ROLL IN(83,84);

no rows selected

SELECT *
  FROM STUDENT
    WHERE FNAME='Navin'
      AND LNAME='Namjoshi';
```

ROLL	LNAME	FNAME	EMAIL	ENROLL	ADVISOR	PHONE	REG_DT
81	Namjoshi	Navin		21CSU1231CSU1	109		13-NOV-21

```
SELECT * FROM STUDENT
  WHERE FNAME='Tushar'
    AND LNAME='Tipnis';
```

ROLL	LNAME	FNAME	EMAIL	ENROLL	ADVISOR	PHONE	REG_DT
82	Tipnis	Tushar		21CSU1232CSU1	110		13-NOV-21

==
                        INFERENCES OF THE EXPERIMENT
==

Hence , we have successfully facilitate creation of views, synonyms, sequences,
indexes and savepoints on underlying database and to demonstrate their usage
through queries on the database. [group by]