Assignment 2 – DML Commands

Validation:

Schema diagram:

nobel_id	name	gender	category	field	year_award	aff_role	dob	country

Script file:

```
SQL> set echo on
SQL> @z:\a2dml.sql
SQL> REM ***DATABASE MANAGEMENT SYSTEMS LAB***
SQL> REM ***Assignment 2: DML Fundamentals***
SQL>
SQL> REM ***Drop nobel table***
SQL> drop table nobel;

Table dropped.

SQL>
SQL>
SQL> REM ***Creating nobel relation***
SQL> create table nobel(
 2  laureate_id number(3) constraint laur_pk PRIMARY KEY,
 3  name varchar2(30) constraint name_nn NOT NULL,
 4  gender char(1) constraint gen_ch check (gender in('m','f')),
 5  category char(3) constraint cat_ch check (category in('Phy','Che','Med','Lit','Pea','Eco','Lit')),
 6  field varchar2(25),
 7  year_award number(4),
 8  aff_role varchar2(30),
 9  dob date,
```

```
10  country varchar2(10)
11  );
```

Table created.

```
SQL>
SQL>
SQL> REM ***Populate nobel relation***
SQL> insert into nobel values(100,'Robert B. Laughlin','m','Phy','Condensed matter',1998,'Stanford University','01-nov-1950','USA');
```

1 row created.

```
SQL> insert into nobel values(101,'Horst L Stormer','m','Phy','Condensed matter',1998,'Columbia University','06-apr-1949','Germany');
```

1 row created.

```
SQL> insert into nobel values(102,'Daniel C. Tsui','m','Phy','Condensed matter',1998,'Princeton University','28-feb-1939','China');
```

1 row created.

```
SQL> insert into nobel values(103,'Walter Kohn','m','Che','Theoretical Chemistry',1998,'University of California','09-mar-1923','Austria');
```

1 row created.

```
SQL> insert into nobel values(104,'John Pople','m','Che','Theoretical Chemistry',1998,'North Western University','31-oct-1925','UK');
```

1 row created.

```
SQL> insert into nobel values(106,'John Hume','m','Pea','Negotiation',1998,'Labour party Leader','18-jan-1937','Ireland');
```

1 row created.

```
SQL> insert into nobel values(107,'David Trimble','m','Pea','Negotiation',1998,'Ulster Unionist party Leader','15-oct-1944','Ireland');
```

1 row created.

```
SQL> insert into nobel values(108,'Louis J Ignaroo','m','Med','Cardiovascular system',1998,'University of California','31-may-1941','USA');
```

1 row created.

```
SQL> insert into nobel values(109,'Amartya Sen','m','Eco','Welfare Economics',1998,'Trinity College','03-nov-1933','India');
```

1 row created.

SQL> insert into nobel values(110,'Jose Saramago','m','Lit','Portuguese',1998,null,'16-nov-1922','Portugal');

1 row created.

SQL> insert into nobel values(111,'Eric A Cornell','m','Phy','Atomic physics',2001,'University of Colorado','19-dec-1961','USA');

1 row created.

SQL> insert into nobel values(112,'Carl E Wieman','m','Phy','Atomic physics',2001,'University of Colorado','26-mar-1951','USA');

1 row created.

SQL> insert into nobel values(113,'Ryoji Noyori','m','Che','Organic Chemistry',2001,'Nagoya University','03-sep-1938','Japan');

1 row created.

SQL> insert into nobel values(114,'K Barry Sharpless','m','Che','Organic Chemistry',2001,'Scripps Research Institute','28-apr-1941','USA');

1 row created.

SQL> insert into nobel values(115,'Kofi Annan','m','Pea','World organizing',2001,'UN General','08-apr-1938','Ghana');

1 row created.

SQL> insert into nobel values(116,'Joerge A Akeriof','m','Eco','Economic of Information',2001,'University of California','17-jun-1940','USA');

1 row created.

SQL> insert into nobel values(117,'V S Naipaul','m','Lit','English',2001,null,'17-aug-1932','UK');

1 row created.

SQL> insert into nobel values(118,'Charles A Kao','m','Phy','Fiber technology',2009,'University of Hongkong','04-nov-1933','China');

1 row created.

SQL> insert into nobel values(119,'Willard S Boyle','m','Phy','Semiconductor technology',2009,'Bell Laboratories','19-aug-1924','Canada');

1 row created.

SQL> insert into nobel values(120,'George E Smith','m','Phy','Semiconductor technology',2009,'Bell Laboratories','10-may-1930','USA');

1 row created.

SQL> insert into nobel values(121,'Venkatraman Ramakrishnan','m','Che','Biochemistry',2009,'MRC Laboratory','19-aug-1952','India');

1 row created.

SQL> insert into nobel values(122,'Ada E Yonath','f','Che','Biochemistry',2009,'Weizmann Institute of Science','22-jun-1939','Israel');

1 row created.

SQL> insert into nobel values(123,'Elizabeth H Blackburn','f','Med','Enzymes',2009,'University of California','26-nov-1948','Australia');

1 row created.

SQL> insert into nobel values(124,'Carol W Greider','f','Med','Enzymes',2009,'Johns Hopkins University','15-apr-1961','USA');

1 row created.

SQL> insert into nobel values(125,'Barack H Obama','m','Pea','World organizing',2009,'President of USA','04-aug-1961','USA');

1 row created.

SQL> insert into nobel values(126,'Oliver E Williamson','m','Eco','Economic governance',2009,'University of California','27-sep-1932','USA');

1 row created.

SQL> insert into nobel values(127,'Elinor Ostrom','m','Eco','Economic governance',2009,'Indiana University','07-aug-1933','USA');

1 row created.

SQL> insert into nobel values(128,'Herta Muller','f','Lit','German',2009,null,'17-aug-1953','Romania');

1 row created.

SQL>
SQL> REM *************************END OF INSERT***********************************

```
SQL>
SQL>
SQL> REM Displaying the table
SQL> select * from nobel;
```

LAUREATE_ID	NAME	G	CAT	FIELD
YEAR_AWARD	AFF_ROLE		DOB	COUNTRY
100	Robert B. Laughlin	m	Phy	Condensed matter
1998	Stanford University		01-NOV-50	USA
101	Horst L Stormer	m	Phy	Condensed matter
1998	Columbia University		06-APR-49	Germany
102	Daniel C. Tsui	m	Phy	Condensed matter
1998	Princeton University		28-FEB-39	China

LAUREATE_ID	NAME	G	CAT	FIELD
YEAR_AWARD	AFF_ROLE		DOB	COUNTRY
103	Walter Kohn	m	Che	Theoretical Chemistry
1998	University of California		09-MAR-23	Austria
104	John Pople	m	Che	Theoretical Chemistry
1998	North Western University		31-OCT-25	UK
106	John Hume	m	Pea	Negotiation
1998	Labour party Leader		18-JAN-37	Ireland

LAUREATE_ID	NAME	G	CAT	FIELD
YEAR_AWARD	AFF_ROLE		DOB	COUNTRY
107	David Trimble	m	Pea	Negotiation
1998	Ulster Unionist party Leader		15-OCT-44	Ireland
108	Louis J Ignaroo	m	Med	Cardiovascular system
1998	University of California		31-MAY-41	USA
109	Amartya Sen	m	Eco	Welfare Economics
1998	Trinity College		03-NOV-33	India

LAUREATE_ID	NAME	G	CAT	FIELD
YEAR_AWARD	AFF_ROLE		DOB	COUNTRY

```
---------- ----------------------------- --------- ----------
      110 Jose Saramago            m Lit Portuguese
    1998                      16-NOV-22 Portugal


      111 Eric A Cornell          m Phy Atomic physics
    2001 University of Colorado      19-DEC-61 USA


      112 Carl E Wieman            m Phy Atomic physics
    2001 University of Colorado      26-MAR-51 USA
```

```
LAUREATE_ID NAME                 G CAT FIELD
---------- ----------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE                DOB      COUNTRY
---------- ----------------------------- --------- ----------
      113 Ryoji Noyori            m Che Organic Chemistry
    2001 Nagoya University          03-SEP-38 Japan


      114 K Barry Sharpless        m Che Organic Chemistry
    2001 Scripps Research Institute    28-APR-41 USA


      115 Kofi Annan              m Pea World organizing
    2001 UN General                08-APR-38 Ghana
```

```
LAUREATE_ID NAME                 G CAT FIELD
---------- ----------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE                DOB      COUNTRY
---------- ----------------------------- --------- ----------
      116 Joerge A Akeriof        m Eco Economic of Information
    2001 University of California    17-JUN-40 USA


      117 V S Naipaul              m Lit English
    2001                      17-AUG-32 UK


      118 Charles A Kao            m Phy Fiber technology
    2009 University of Hongkong      04-NOV-33 China
```

```
LAUREATE_ID NAME                 G CAT FIELD
---------- ----------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE                DOB      COUNTRY
---------- ----------------------------- --------- ----------
      119 Willard S Boyle          m Phy Semiconductor technology
    2009 Bell Laboratories          19-AUG-24 Canada


      120 George E Smith           m Phy Semiconductor technology
    2009 Bell Laboratories          10-MAY-30 USA


      121 Venkatraman Ramakrishnan      m Che Biochemistry
```

```
      2009 MRC Laboratory              19-AUG-52 India


LAUREATE_ID NAME                   G CAT FIELD
---------- ---------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE                   DOB       COUNTRY
---------- ---------------------------- --------- ----------
       122 Ada E Yonath              f Che Biochemistry
      2009 Weizmann Institute of Science  22-JUN-39 Israel


       123 Elizabeth H Blackburn     f Med Enzymes
      2009 University of California     26-NOV-48 Australia


       124 Carol W Greider           f Med Enzymes
      2009 Johns Hopkins University     15-APR-61 USA


LAUREATE_ID NAME                   G CAT FIELD
---------- ---------------------------- - --- -----------------------
YEAR_AWARD AFF_ROLE                   DOB       COUNTRY
---------- ---------------------------- --------- ----------
       125 Barack H Obama            m Pea World organizing
      2009 President of USA            04-AUG-61 USA


       126 Oliver E Williamson       m Eco Economic governance
      2009 University of California     27-SEP-32 USA


       127 Elinor Ostrom             m Eco Economic governance
      2009 Indiana University          07-AUG-33 USA


LAUREATE_ID NAME                   G CAT FIELD
---------- ---------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE                   DOB       COUNTRY
---------- ---------------------------- --------- ----------
       128 Herta Muller              f Lit German
      2009                           17-AUG-53 Romania


28 rows selected.

SQL>
SQL>
SQL> REM ***QUESTIONS & ANSWERS***
SQL>
SQL>
SQL> REM ***DML***
SQL>
SQL> REM 1. Display the nobel laureate(s) who born after 1Jul1960.
SQL>
```

SQL> select * from nobel where dob>'01-jul-1960';

```
LAUREATE_ID NAME                    G CAT FIELD
----------- ----------------------------- - --- -------------------------
YEAR_AWARD AFF_ROLE                 DOB     COUNTRY
---------- ----------------------------- --------- ----------
       111 Eric A Cornell            m Phy Atomic physics
      2001 University of Colorado      19-DEC-61 USA

       124 Carol W Greider           f Med Enzymes
      2009 Johns Hopkins University    15-APR-61 USA

       125 Barack H Obama             m Pea World organizing
      2009 President of USA           04-AUG-61 USA
```

SQL>
SQL>
SQL> REM 2. Display the Indian laureate (name, category, field, country, year awarded) who was awarded in the Chemistry category.
SQL>
SQL> select name, category, field, country, year_award from nobel where category='Che' and country='India';

```
NAME                    CAT FIELD               COUNTRY
----------------------------- --- ------------------------- ----------
YEAR_AWARD
----------
Venkatraman Ramakrishnan      Che Biochemistry          India
      2009
```

SQL>
SQL>
SQL> REM 3. Display the laureates (name, category,field and year of award) who was awarded between 2000 and 2005 for the Physics or Chemistry category.
SQL>
SQL> select name, category, field, year_award from nobel where (year_award between 2000 and 2005) and (category='Phy' or category='Che');

```
NAME                    CAT FIELD               YEAR_AWARD
----------------------------- --- ------------------------- ----------
Eric A Cornell            Phy Atomic physics          2001
Carl E Wieman             Phy Atomic physics          2001
Ryoji Noyori              Che Organic Chemistry        2001
K Barry Sharpless          Che Organic Chemistry         2001
```

SQL>
SQL>

SQL> REM 4. Display the laureates name with their age at the time of award for the Peace category.
SQL>
SQL> select name, year_award - extract(year from dob) as age from nobel where category='Pea';

```
NAME                          AGE
----------------------------- ----------
John Hume                     61
David Trimble                 54
Kofi Annan                    63
Barack H Obama                48
```

SQL>
SQL>
SQL> REM 5. Display the laureates (name,category,aff_role,country) whose name starts with A or ends with a, but not from Israel.
SQL>
SQL> select name, category, aff_role, country from nobel where (name like 'A%' or name like '%a') and (country!='Israel');

```
NAME                          CAT AFF_ROLE                       COUNTRY
----------------------------- --- ----------------------------- ----------
Amartya Sen                   Eco Trinity College               India
Barack H Obama                Pea President of USA              USA
```

SQL>
SQL>
SQL> REM 6. Display the name, gender, affiliation, dob and country of laureates who was born in 1950s. Label the dob column as Born 1950.
SQL>
SQL> select name, gender, aff_role, country, dob as Born_1950 from nobel where extract(year from dob) like '%195_';

```
NAME                          G AFF_ROLE                       COUNTRY
----------------------------- - ----------------------------- ----------
BORN_1950
---------
Robert B. Laughlin            m Stanford University            USA
01-NOV-50

Carl E Wieman                 m University of Colorado         USA
26-MAR-51

Venkatraman Ramakrishnan      m MRC Laboratory                 India
19-AUG-52


NAME                          G AFF_ROLE                       COUNTRY
----------------------------- - ----------------------------- ----------
BORN_1950
```

Herta Muller   f   Romania
17-AUG-53

SQL>
SQL>
SQL> REM 7. Display the laureates (name,gender,category,aff_role,country) whose name starts with A, D or H. Remove the laureate if he/she does not have any affiliation. Sort the results in ascending order of name.
SQL>
SQL> REM select name, gender, category aff_role, country from nobel where ((name like 'A%') or (name like 'D%') or (name like 'H%')) and aff_role is not null order by name;
SQL> select name, gender, category aff_role, country from nobel where substr(name,1,1) in ('A','D','H') and aff_role is not null order by name;

```
NAME                     G AFF COUNTRY
------------------------------ - --- ----------
Ada E Yonath              f Che Israel
Amartya Sen               m Eco India
Daniel C. Tsui            m Phy China
David Trimble             m Pea Ireland
Horst L Stormer           m Phy Germany
```

SQL>
SQL>
SQL> REM 8. Display the university name(s) that has to its credit by having at least 2 nobel laureates with them.
SQL>
SQL> select distinct(aff_role) from nobel group by aff_role having count(aff_role)>=2 and substr(aff_role,1,10)='University';

```
AFF_ROLE
------------------------------
University of California
University of Colorado
```

SQL>
SQL>
SQL> REM 9. List the date of birth of youngest and eldest laureates by country wise. Label the column as Younger, Elder respectively. Include only the country having more than one laureate. Sort the output in alphabetical order of country.
SQL>
SQL> select country, min(dob) Younger, max(dob) Elder from nobel group by country having count(country)>1 order by country;

```
COUNTRY   YOUNGER  ELDER
---------- --------- ---------
China     04-NOV-33 28-FEB-39
India     03-NOV-33 19-AUG-52
```

```
Ireland   18-JAN-37 15-OCT-44
UK        31-OCT-25 17-AUG-32
USA       10-MAY-30 19-DEC-61

SQL>
SQL>
SQL> REM 10. Show the details (year award,category,field) where the award is shared among the
laureates in the same category and field. Exclude the laureates from the USA.
SQL>
SQL> select year_award, category, field from nobel where country!='USA' group by category, field,
year_award having count(laureate_id)>1;

YEAR_AWARD CAT FIELD
---------- --- ------------------------
      1998 Phy Condensed matter
      1998 Pea Negotiation
      1998 Che Theoretical Chemistry
      2009 Che Biochemistry

SQL>
SQL>
SQL>
SQL> REM ***TCL***
SQL>
SQL> REM 11. Mark an intermediate point in the transaction (savepoint).
SQL>
SQL> select count(*) no_of_entries from nobel;

NO_OF_ENTRIES
-------------
           28

SQL> savepoint inter;

Savepoint created.

SQL>
SQL>
SQL> REM 12. Insert a new tuple into the nobel relation.
SQL>
SQL> insert into nobel values(129,'Akira Suzuki','m','Che','Organic Synthesis',2010,'Hokkaido
University','12-sep-1930','Japan');

1 row created.

SQL> select * from nobel where laureate_id=129;

LAUREATE_ID NAME                           G CAT FIELD
----------- ------------------------------ - --- ------------------------
YEAR_AWARD AFF_ROLE                        DOB     COUNTRY
```

```
---------- ----------------------------- --------- ----------
     129 Akira Suzuki              m Che Organic Synthesis
    2010 Hokkaido University          12-SEP-30 Japan


SQL>
SQL>
SQL> REM 13. Update the aff_role of literature laureates as 'Linguists'.
SQL>
SQL> update nobel set aff_role='Linguists' where category='Lit';

3 rows updated.

SQL> select * from nobel where category='Lit';

LAUREATE_ID NAME                     G CAT FIELD
---------- ----------------------------- - --- ------------------------
YEAR_AWARD AFF_ROLE              DOB      COUNTRY
---------- ----------------------------- --------- ----------
     110 Jose Saramago               m Lit Portuguese
    1998 Linguists             16-NOV-22 Portugal

     117 V S Naipaul                m Lit English
    2001 Linguists             17-AUG-32 UK

     128 Herta Muller               f Lit German
    2009 Linguists             17-AUG-53 Romania


SQL>
SQL>
SQL> REM 14. Delete the laureate(s) who was awarded in Enzymes field.
SQL>
SQL> delete from nobel where field='Enzymes';

2 rows deleted.

SQL> select * from nobel where field='Enzymes';

no rows selected

SQL>
SQL>
SQL> REM 15. Discard the most recent update operations (rollback).
SQL>
SQL> select count(*) no_of_entries from nobel;

NO_OF_ENTRIES
-------------
          27
```

SQL>
SQL> rollback to inter;

Rollback complete.

SQL>
SQL> select count(*) no_of_entries from nobel;

NO_OF_ENTRIES

         28

SQL>
SQL>
SQL> REM 16. Commit the changes.
SQL>
SQL> commit;

Commit complete.

SQL> spool off;