# Assignment 3- 2 marks – Deadline March 19

Assignment3- For this assignment you only need one instance of Oracle (use installed Oracle 11g+ on your laptop or school oracle.scs.ryerson.ca).
Use the following examples and create and populate two new Professors Table with the following attributes:

1- Create Professor1 Table to have an address included as an object. See example below which adds address as an object (user defined type) to a table called addresses.
2- Create Professor2 Table to contain a circular object type in a way that is similar to MARRIEDPERSON TABLE shown below.
3- Based on your observations explain what is REF
4- Add an attribute to show the number courses a professor is teaching in the professor object and then use PL/SQL and write a procedure to increase the number of courses a professor is teaching. You can look at the following link to learn fundamentual of PL/SQL: https://w3resource.com/plsql-exercises/

**Submit the source code of you assignment during lab 8- March 19**

----------USE Following Template----------

```
SQL>  CREATE TYPE address_typ AS OBJECT
  2  (StreetNo      NUMBER(10),
  3  StreetName    VARCHAR2(100),
  4  AptNo         NUMBER(5),
  5  City          VARCHAR2(100),
  6  State         VARCHAR2(100),
  7  ZipCode       NUMBER(9),
  8  Country       VARCHAR2(100));
  9  /
 CREATE TYPE address_typ AS OBJECT



SQL> CREATE TABLE addresses of address_typ;

Table created.

SQL> SELECT REF(e) FROM addresses e;

no rows selected

SQL> insert into addresses
   values(114, 'third', 2, 'San Mateo','California',43000, 'USA');

1 row created.
```

```
SQL> SELECT REF(e) FROM addresses e;

REF(E)
--------------------------------------------------------------------------------
0000280209B27053838222FAF6E040758D0DE70423B27053838221FAF6E040758D0
DE70423018000
AF0000

SQL> CREATE TYPE person_t AS OBJECT
   (name VARCHAR2(20),
   address address_typ);

Type created.

SQL> CREATE TABLE PERSON of person_t;

Table created.




SQL> INSERT INTO PERSON
  VALUES('John', address_typ(112, 'Park Place', 2, 'San Mateo','California',43000,
'USA'));

1 row created.

SQL> SELECT VALUE(e) from PERSON e;

VALUE(E)(NAME, ADDRESS(STREETNO, STREETNAME, APTNO, CITY,
STATE, ZIPCODE, COUNTR
--------------------------------------------------------------------------------
PERSON_T('John', ADDRESS_TYP(112, 'Park Place', 2, 'San Mateo', 'California', 43
000, 'USA'))


SQL> SELECT REF(e) FROM PERSON e;

REF(E)
--------------------------------------------------------------------------------
0000280209B27053838229FAF6E040758D0DE70423B27053838228FAF6E040758D0
DE70423018000
BF0000
```

**Creating Circular Object Type**

```
SQL> create type married_person_t as object
   (Name VARCHAR2(10),
   Spouse REF married_person_t);

Type created.

SQL> create table  MARRIEDPERSON of married_person_t;

Table created.

SQL> insert into MARRIEDPERSON(Name)
 values('John');

1 row created.



SQL> select * from MARRIEDPERSON
  2  ;

NAME
----------
SPOUSE
--------------------------------------------------------------------------------
John


SQL> insert into MARRIEDPERSON
  2  select 'Sara', REF(M)
  3   from MARRIEDPERSON M
  4   where Name='John';

1 row created.

SQL> select * from MARRIEDPERSON;

NAME
----------
```

SPOUSE
--------------------------------------------------------------------------------
John

Sara
0000220208B27E849E8B2C7493E040758D0DE7186AB27E849E8B277493E040758D0
DE7186A

```
SQL> update MARRIEDPERSON
  2   Set Spouse =
  3  (select REF(M)
  4   from MARRIEDPERSON M
  5   where M.Name='Sara')
  6  where Name='John';

1 row updated.

SQL> select * from MARRIEDPERSON;

NAME
----------
SPOUSE
--------------------------------------------------------------------------------
John
0000220208B27E849E8B2D7493E040758D0DE7186AB27E849E8B277493E040758D
0DE7186A

Sara
0000220208B27E849E8B2C7493E040758D0DE7186AB27E849E8B277493E040758D0
DE7186A
```