

Big Data Technologies

Lab Sheet

OBJECT TYPES & Collection Types

OBJECTS

1. Create an Object type called O_ADD that has attributes address_line1, address_line2, address_line3, address_line4, city, country.
2. Create an Object type called O_SUBJECT that has attributes subject_code and subject_name and credits.

Creating Collections VArrays and Nested Tables

3. Create 2 varying arrays
 - One to hold up to 6 phone numbers (Varchars)
 - One to hold up to 16 College Class objects (represents 16 classes during the week)
 - A Class Object is made up of College
 - ClassName a Varchar (e.g. of values it will hold BDT, OS, Networking),
 - ClassType a Varchaer (e.g. of values it will hold. Lab, Lecture, Tutorial),
 - Day – a Varchar
 - Time – a Varchar[for our purposes treat day and time as strings]
4. Create a nested table type called SUBJECT_NTABLE that holds a collection of subjects (O_SUBJECT)
5. Create a relational table TUD_STUDENT that contains the following columns
 - student_id INTEGER
 - full_name VARCHAR2
 - phone_nos Varying Array you created above
 - classes Varying Array you created above
 - subjects_registered Nested Table you created earlier
 - home_address O_ADD
 - next_of_kin VARCHAR2(30)
 - nok_address O_ADD

6. Populate the STUDENT with some data (3 rows).

7. Query the phone number varray in the student table as follows:

```
SELECT phone_no FROM student
WHERE student_id =1001;
```

What do you notice?

8. Try using the same query except using TABLE keyword and note the output

```
SELECT p.* FROM student s, TABLE(s.phone_no) p
WHERE student_id =1001;
```

```
SELECT p.COLUMN_VALUE FROM student s, TABLE(s.phone_no)
p
WHERE student_id =1001;
```

--Note TABLE(s.phone_no) p flattens the collection and treats it as a Pseudo column

9. Now display the student id and fullname from students that attend **bd** class on **Friday** (change the values to suit your data)

10. What students are registered for subjects sdev or adb (change the values to suit your data and use the nested table column). Only one row should be displayed for each student registered.

11. List out the class timetable for a particular student. Order it by the type of class e.g.tutorial, lab.

12. Show all the class details only for a class type e.g. lecture for a particular student.