

**COMP9120 Relational Database Systems****Tutorial Week 8 Solution: DB Application Programming****Exercise 1. Establishing Database Connections**

Download the solution file from Canvas

**Exercise 2. Read-Only Database Access**

- a) Extend the existing `listUnits()` function so that it also lists for each unit the name of the faculty member who was teaching it.

See `listUnitsWithFacultyMember` method of Java solution file

- b) Extend the existing `listUnits()` function so that it takes a parameter 'name' and only lists the courses taught by a given faculty member.

See `listUnitsOfGivenFacultyMember` method of Java solution file

**Exercise 3. Adding a new query**

Now try adding a new method from scratch. We wish to be able to obtain a student's transcript in the Student Registration System.

- a) In pgAdmin, write and check a query to get the details of all units completed by a student. This should include details for `uosCode`, `uosName`, `credits`, `semester`, `year`, `grade`.

See answer to 3 (b)

- b) Based upon the `listUnits()` method, write a method `listTranscript(int studentID)` that performs the same query as you just wrote and uses cursor (`ResultSet`) to print out a student's transcript.

See `listTranscript3b` method of Java solution file.

- c) Create the stored procedure by executing the script below in pgAdmin, (it includes the query required in 3 (b)):

```
CREATE OR REPLACE FUNCTION listTranscript (studentID INTEGER) RETURNS REFCURSOR  
AS $$
```

```
DECLARE
```

```
    vCursor REFCURSOR;
```

```
BEGIN
```

```
    OPEN vCursor FOR
```

```
    SELECT uosCode, uosName, credits, semester, year, grade
```

```
    FROM Transcript JOIN UnitOfStudy USING(uosCode)
```

```
    WHERE studId=studentID
```

```
ORDER BY uosCode,year,semester;  
RETURN vCursor;  
END; $$ LANGUAGE plpgsql;
```

- d) (Trickier) Update your listTranscript method to execute your stored procedure instead of using the query directly. Note you will need to use a CallableStatement instead of a PreparedStatement.

See [listTranscript3d](#) method of Java solution file