COMP9120 Database Management Systems

Tutorial Week 7 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 method so that it also lists for each unit the name of the faculty member who was teaching it.

See listUnitsWithFacultyMember method of python solution file

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

See listUnitsOfGivenFacultyMember method of python 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.

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 def listTranscript(self, studentID) that performs the same query as you just wrote and uses cursor to print out a student's transcript.

See listTranscript3b method of python 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
TABLE(puosCode CHAR(8), puosName VARCHAR(40), pcredits INTEGER, psemester
CHAR(2), pyear INTEGER, pgrade VARCHAR(2)) AS $$
BEGIN
RETURN QUERY
        SELECT uosCode, uosName, credits, semester, year, grade
        FROM Transcript JOIN UnitOfStudy USING(uosCode)
        WHERE studId=studentID
        ORDER BY uosCode,year,semester;
END; $$ 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 the callproc method of cursor.

See listTranscript3d method of python solution file