

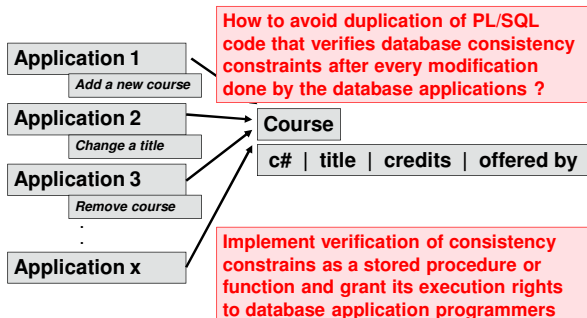
Stored PL/SQL

Stored PL/SQL ? What is it ?

Stored PL/SQL means PL/SQL procedures and PL/SQL functions stored in a data dictionary

Stored procedures and functions can be used to extend the functionality of data retrieval and data manipulation statements of SQL (extensibility) and to eliminate duplication of code in database applications (reuseability)

Applications



Application

Find the names of all departments together with a list of courses offered by each department, display the results in the following form:

Department name	List of courses offered
Math	Calculus Topology Logic Algebra
Comp Sci	C++ Java Databases
Biol	
Phys	Relativity Mechanics
Astro	Astrology

Implement a function **LCOURSES (dept_name)** that returns a list of courses offered by **dept_name**

```
SELECT name, LCOURSES (name) FROM Department;
```

CREATE OR REPLACE PROCEDURE/FUNCTION

CREATE OR REPLACE PROCEDURE statement compiles and stores PL/SQL **procedure** in a data dictionary

CREATE OR REPLACE FUNCTION statement compiles and stores PL/SQL **function** in a data dictionary

CREATE OR REPLACE PROCEDURE

```
CREATE OR REPLACE PROCEDURE Insert_Course (
    cnumber IN NUMBER,
    ctitle VARCHAR,
    ccredits NUMBER,
    coffer VARCHAR) IS
BEGIN
    INSERT INTO Course VALUES ( cnumber, UPPER(ctitle), ccredits,
                                UPPER(coffer) );
    COMMIT;
END Insert_Course;
```

```
SQL> EXECUTE Insert_Course(666, 'Java for kids', 6, 'Comp Sci');
```

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CREATE OR REPLACE FUNCTION

```
CREATE OR REPLACE FUNCTION LCourses(dept_name VARCHAR) RETURN VARCHAR
IS
    course_list VARCHAR(300);
BEGIN
    course_list := '';
    FOR course_cur_rec IN
        (SELECT title FROM Course WHERE offered_by = dept_name)
    LOOP
        course_list := course_list || course_cur_rec.title || ' ';
    END LOOP;
    RETURN course_list;
END LCourses;
```

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EXECUTE statement

EXECUTE statement executes stored PL/SQL procedure or function

```
SQL> EXECUTE Insert_Course(666, 'Java for kids', 6, 'Comp Sci');
```

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GRANT statement revisited

User **scott** grants execution rights on **Insert_Course** to **janusz**

```
GRANT EXECUTE ON Insert_Course TO janusz
```

User **janusz** executes **Insert_Course** procedure

```
EXECUTE scott.Insert_Course(958,
    'Multimedia Databases', 6, 'Comp Sci');
```

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References

[https://sai.uow.edu.au/oradocs/PL/SQL User's Guide and Reference](https://sai.uow.edu.au/oradocs/PL/SQL%20User's%20Guide%20and%20Reference)

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