**CS3431-A23: Project Description**

**Phase 2: Views, Triggers, and Procedures**

**Teams:** The project is to be done in the same teams of two as before unless I have changed your team.

**Submission:** Make sure to include both of your names on the project submission. Only one student is to submit the assignment so be certain to determine who that will be in advance. The SQL code should be in a file named p2.sql and NOT include the SQL commands from p2start.sql.

**Description:**

For this assignment, both the second and third floors of Fuller Labs have been provided for you. The elevator and two staircases now have edges linking between the floors. Note that the relational schema is slightly different than in Project 1 – also see the attached ERD for Project 2. Run the p2start.sql file to create and populate the tables for this project phase.

1. Create a query named “NoLabMgr” using views instead of sub-queries for the following:   
   for each location that is an office, list the number of CS staff who are not lab managers but only if there is more than one person in the office.
2. Create a procedure named “NumberOfStaff” that takes an office id (for example, 233) as an input parameter and displays the total number of computer science staff members at that location. Hint: Use the function dbms\_output.put\_line(). Make sure to run the following command so you can see the output:   
   set serveroutput on;

Create the following triggers:

1. Edges that are added cannot have two of the same locations. Only check new edges being added. Name the trigger NoSameLocations.
2. The only edges that can be added with locations on different floors are those edges that have either both elevator locations or both staircase locations. Only check new edges being added. Name the trigger CrossFloorEdge.
3. For Project 2, the enforcement of Locations inheritance to be disjoint will be done using a trigger instead of using Roles (locationType). An office cannot be located in non-office locations, i.e. the locationType must be ‘Office’. An error message will result when a new office is added to Offices when the matching locationID in Locations is not of locationType 'Office'. Check the existing Offices records as well as any new office records being entered. Create this trigger named “MustBeOffice” using a cursor.
4. Professors cannot have more than 3 titles otherwise an error message will result. Create a statement-level trigger named TitleLimit that will check for violations when inserts or updates are made.
5. Insert records to test the triggers above.