**CSC-111 / CSC-290 Final Project – Spring 2022**

**This is a group project. Groups should be 2-3 people.**

You team has been hired to build a commercial multi-family property management tool. Your client is a prolific real estate company. They own multiple buildings and are constantly buying and selling.

A Building has a name and is comprised of a set of units.

A Unit has a Unit Id and has the following properties (at a minimum):

Occupied: Boolean, True if the unit is occupied by a Tenant

Tenant Name: String, the name of the tenant renting the unit (if occupied), blank otherwise

Rent: Float, the monthly rental cost of the unit (if occupied), zero otherwise

They would like to be able to generate the following reports about the buildings in their portfolio.

* Rent Roll

A rent roll is run for a specific building and shows a list of units with the occupancy, tenant name and rent. The report should also show the total # of units, occupancy percentage and total rent for the building.

* Occupancy Report

An Occupancy Report is run for the entire portfolio of buildings and shows each building along with its occupancy percentage rounded to the nearest 1 percent. The report should also show a total occupancy percentage across the entire portfolio.

Project Deliverables:

1. A library that provides a managed data structure for building and unit information. This library should implement the following interfaces:
   1. createBuilding
   2. deleteBuilding
   3. addUnit
   4. deleteUnit
   5. leaseUnit
   6. unLeaseUnit
   7. Any other functions as needed to meet deliverables 2&3
2. A library that implements the requested reports. This library should function at arms-length from deliverable 1 – meaning it only interacts with the underlying data via the interface calls. In other words, the report library should not be written with direct access to the underlying data structure.
3. A test program that demonstrates the full power of both libraries by loading up and manipulating the building/unit inventory and running reports to show the output. Your test program should have a simple menu driven user interface.