

COMP5338: Advanced Data Models
Neo4j Assignment- The Study Graph

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This graph represents the degree and units offered by the university. It contains degree, student, units, and their relationships. The complete graph is shown in Figure 1.

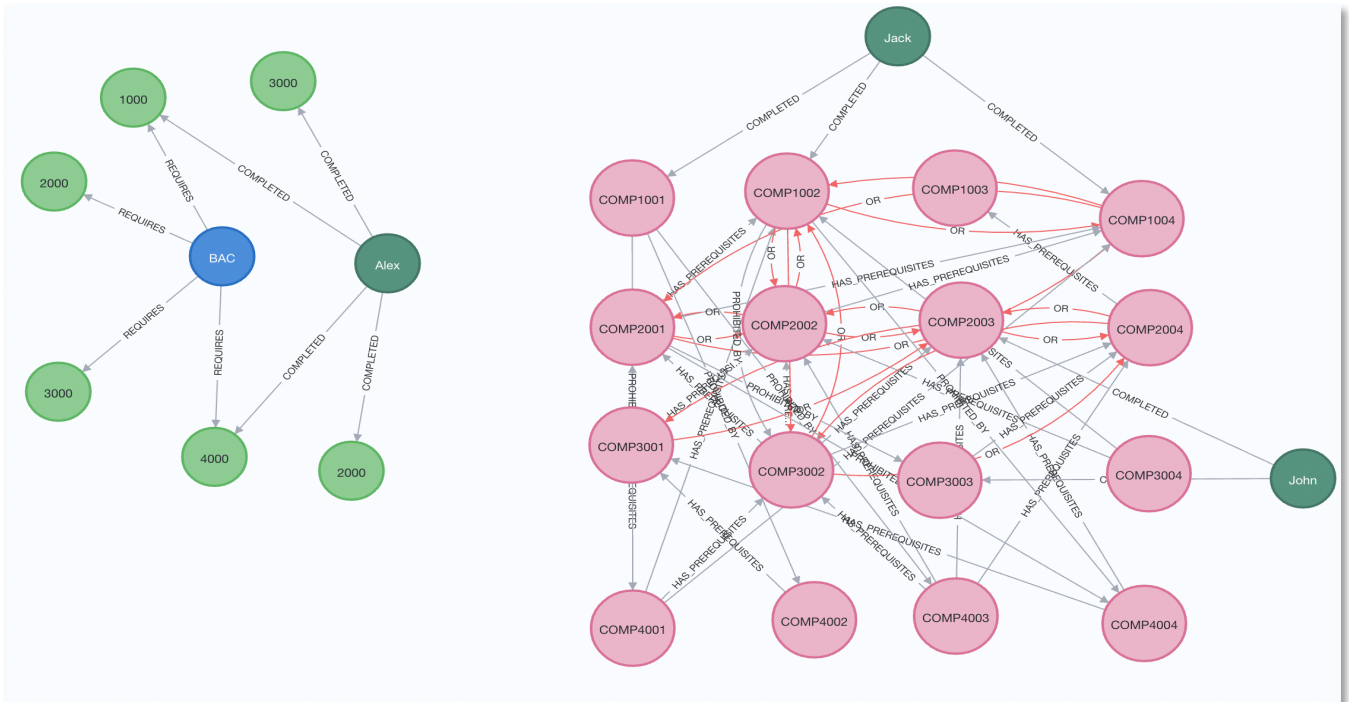


Figure 1: Full representation of -The Study Graph

There are 4 node labels as shown in Figure 2:

1. **Degree:** It has three properties including code, name, and total credit points to complete the degree.
2. **Year_level:** This node represents credit points at each year level (e.g., 1000, 2000, 3000, 4000). It has two properties including level and credit points required to be completed in first, second, third and fourth year.
3. **Unit:** It has four properties including unique code, name (a descriptive title), level and credit points.
4. **Student:** It has one property which is the 'name' of the student.

| Degree | Year_level | Unit | Student |
|-------------------|--------------------|-----------------------|-----------|
| <id> 119 | <id> 122 | <id> 132 | <id> 140 |
| code BPADVCMP1000 | credit_points 36cp | code COMP3001 | name John |
| name BAC | level 3000 | cp 6 | |
| | | level 3000 | |
| | | name Machine Learning | |

Figure 2: Node labels

This graph has 5 relationship types as shown in Figure 3:

1. **REQUIRES:** It connects Degree-[:REQUIRES]->Year_level representing the different level units required at each level year.
2. **HAS_PREREQUISITES:** It connects Unit1-[:HAS_PREREQUISITES]->Unit2 implying that Unit2 is a prerequisite of Unit1.
3. **PROHIBITED_BY:** It connects Unit4-[:PROHIBITED_BY]->Unit3 implying that if a student completes Unit3, then the student cannot enroll in Unit4.
4. **OR:** The units linked by this relationship belong to the same list of prerequisite such that if Unit_X has 2 prerequisites Unit5-[:OR]->Unit6B then the student should either complete Unit5 or Unit6 in order to enroll for Unit_X. It has one property 'code' which is equal to the unit's code for which this unit is a prerequisite. It supports prerequisites linkages in two forms:
 - u1 OR u2 OR u3...
 - (u1 OR u2 OR u3 ...) AND (u4 OR u5) AND ...
5. **COMPLETED:** It connects the units completed by the student. It also connects the year level credit completed by the student.

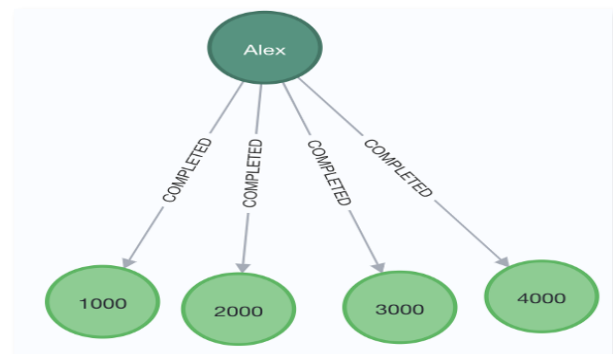
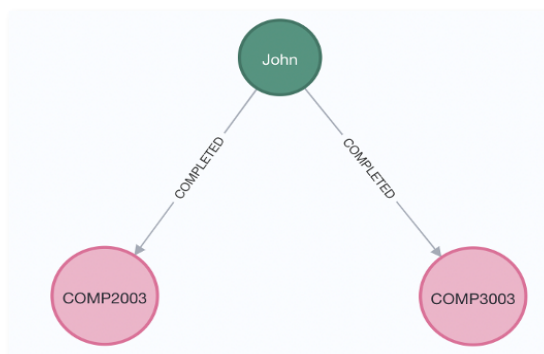
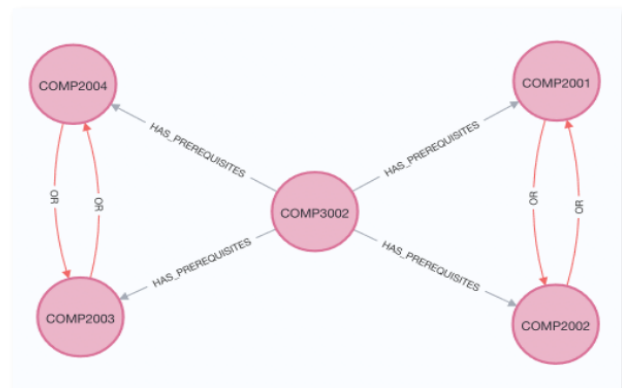
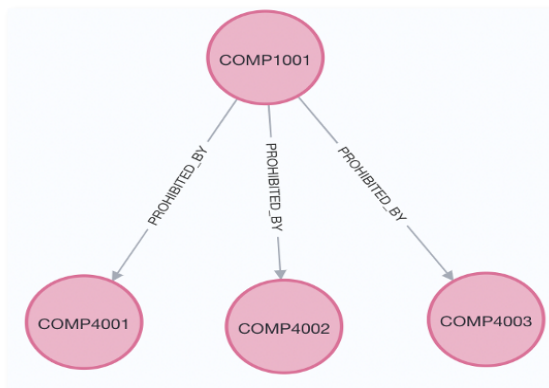
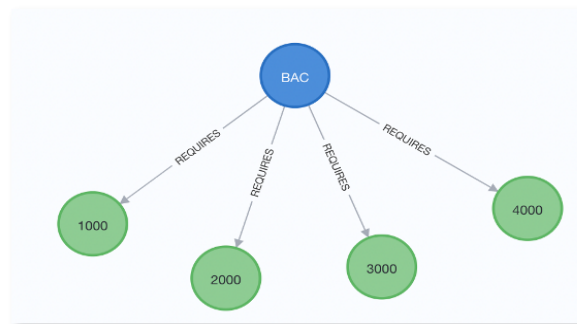


Figure 3: Relationship Types