User Story

Title: Displaying Subject Prerequisite Trees

As a student advisor, I want to have a visual representation of the prerequisite tree for each subject, So that I can easily guide students through their course planning by showing them the required courses they need to take before enrolling in advanced classes.

Acceptance Criteria:

Visualization of Trees:
- Given that I am on the course mapper,
- When I select a subject,
- Then I should see a tree diagram that visually represents all the prerequisites for courses within that subject.

Correctness of Subtrees:
- Given that I am viewing the prerequisite tree for a subject,
- When I look at the subtrees for each course,
- Then I should see that all prerequisites are correctly placed before the course they precede in the sequence.

Integration into Main Tree:
- Given that I am viewing the prerequisite tree for a subject,
- When I trace the path from a course to the root,
- Then I should see that each course's subtree is correctly integrated into the main tree of the subject.

Completeness of Prerequisites:
- Given that I have a list of prerequisites for a course,
- When I compare the list to the tree displayed,
- Then I should find that all listed prerequisites are included in the tree.

Testing Subtrees:
- Given that automated tests are run against the course trees,
- When the tests check for the presence of specific subtrees within the main tree,
- Then the tests should confirm that the subtrees exist as expected for the relevant subjects.

Notes:

- This user story focuses on the accuracy and completeness of the visual representation of the prerequisites.
- The testing cases provided should ensure that the prerequisites for each subject are properly displayed as part of the main tree and that the prerequisite relationships are accurate.
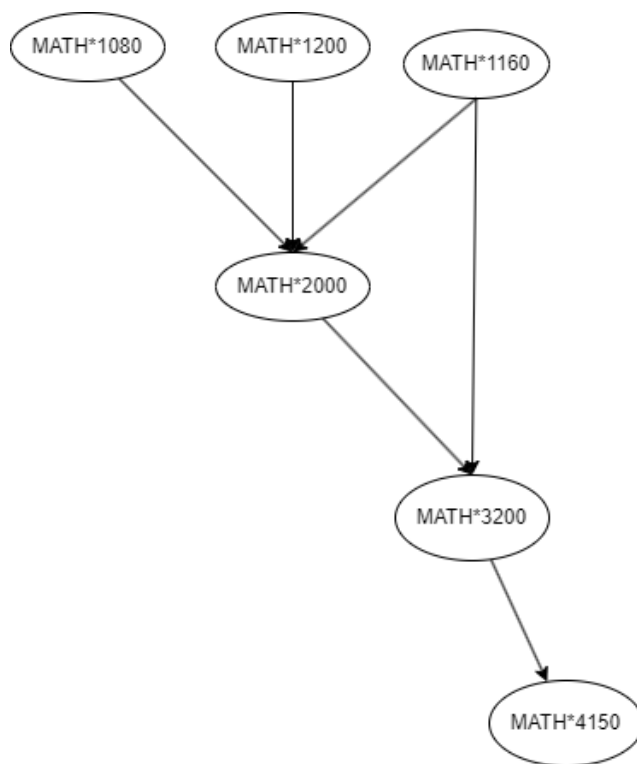
- The Course Mapper should also allow for easy updates as courses and prerequisites change over time.

Test cases:

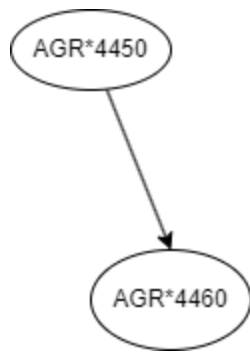### Test case 1:

Selects MATH as the subject

The following tree should exist as a subtree within the main tree:

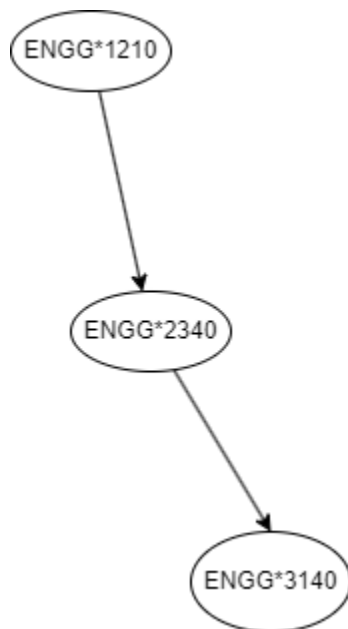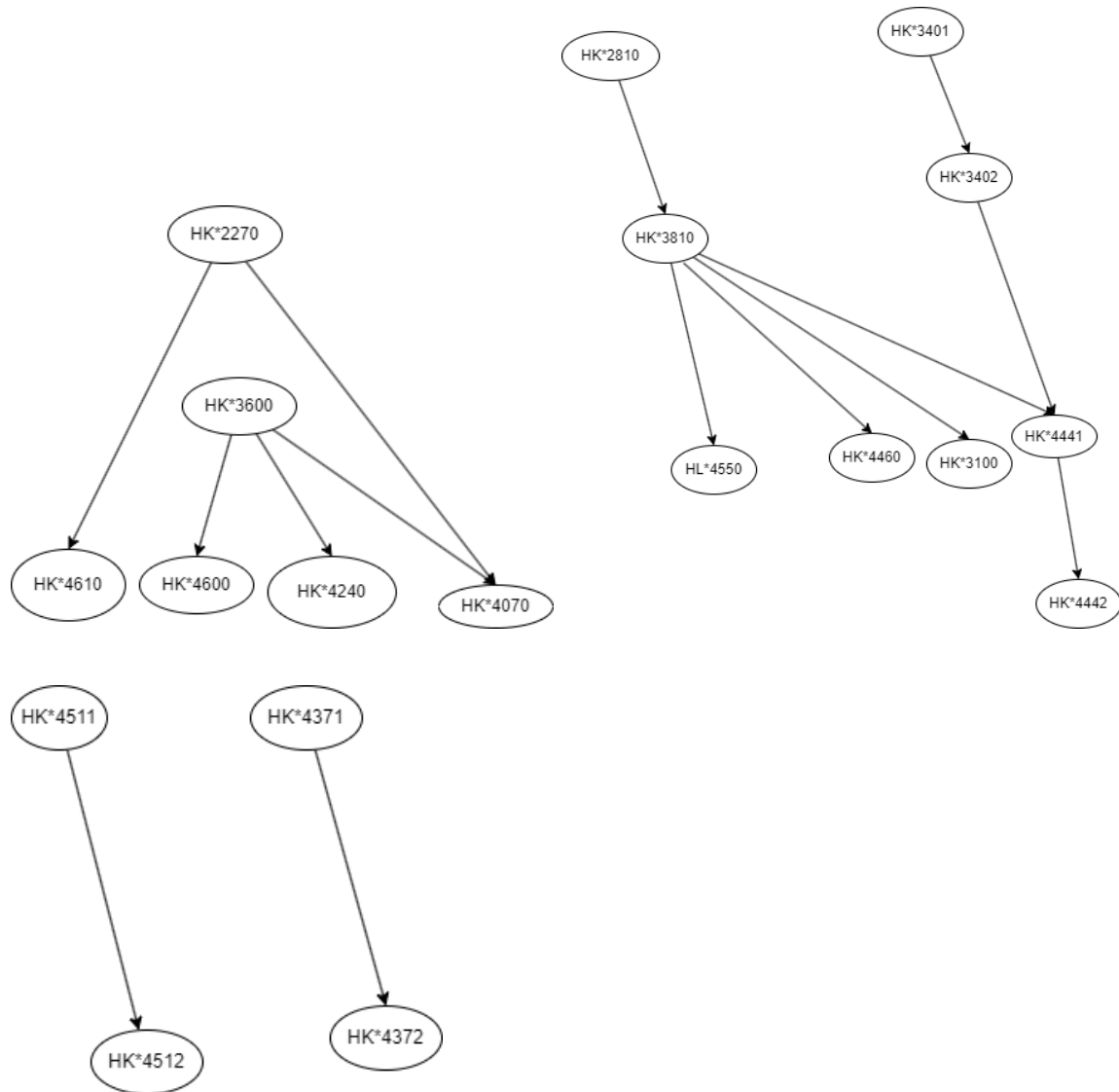### Test case 2:

Selects AGR as the subject

The following tree should exist as a subtree within the main tree:

AGR*4450 → AGR*4460

Test case 3:

Selects ENGG as the subject

The following tree should exist as a subtree within the main tree:

ENGG*1210 → ENGG*2340 → ENGG*3140
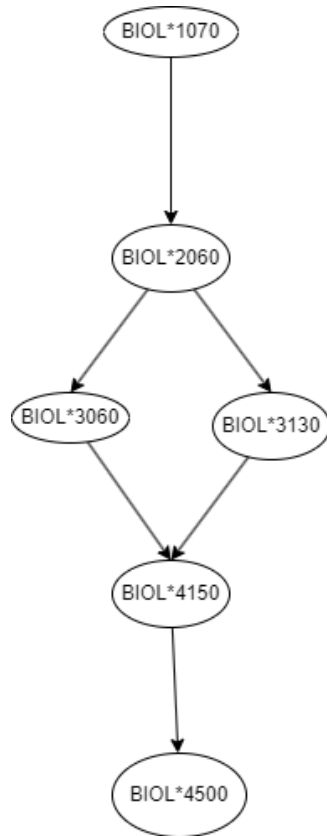
Test case 4:

Selects HK as the subject

The following tree's should exist as a subtree's within the main tree:
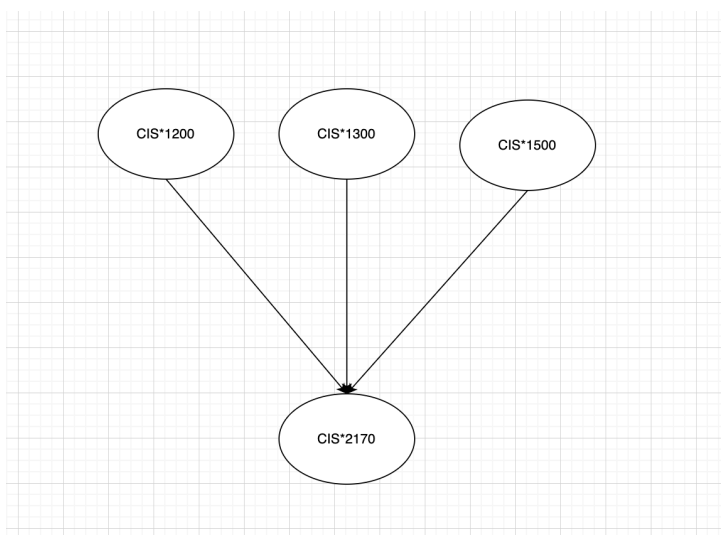

Test case 5:

Selects BIOL as the subject

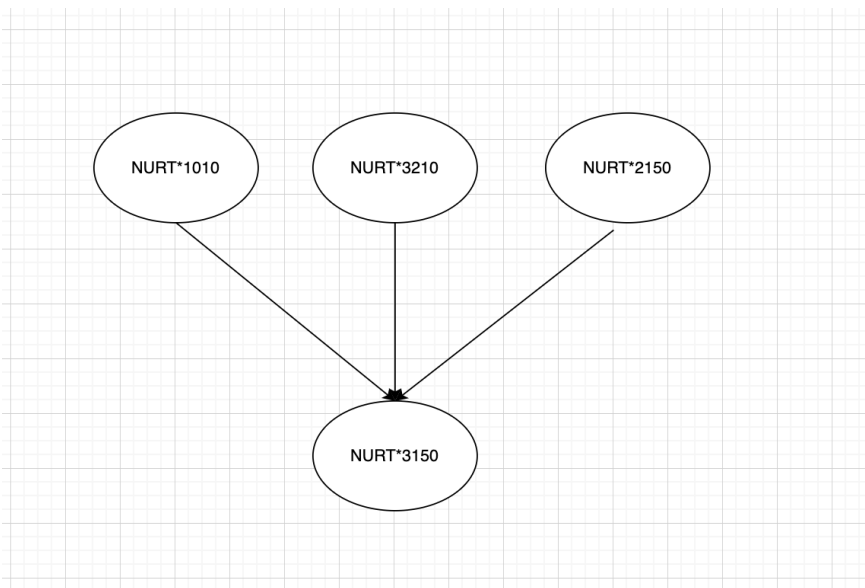The following tree should exist as a subtree within the main tree:

Test Case 6: Given a user entering CIS as subject and selecting CIS*2170 List the courses needed the following tree should be given where CIS*1200, CIS*1300 and CIS*1500 should be all pointed towards CIS*2170
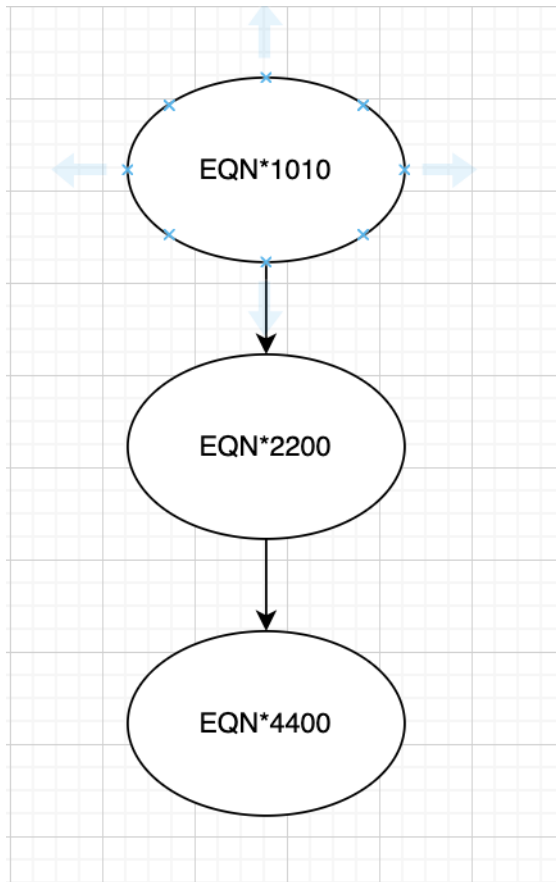
Test 7 Given user Selects HIST as subject theHistory Courses assuming that the student credit is not a factor in this case then the following tree should appear where the student can take the following history courses knowing their number of credits.

Test 8: User Selects NURT as Subject and clicks on NURT*3150 The following Subtree should appear a NURT*3150 Required 1 of NURT*1010,NURT*3210,NURT*2150 Where the 3 course are pointing towards NURT*3150

Test 9: User selects Subject as EQN Select EQN*2200 this should be the prerequisites needed and also the possible future course that it can take the subtree should look something like this.

Test 10: User Selects Any Subject that has a project or thesis such as CIS and ANTH Both CIS*4900 and ANTH*4900 should point to its predecessor CIS*4910 and ANTH*4910