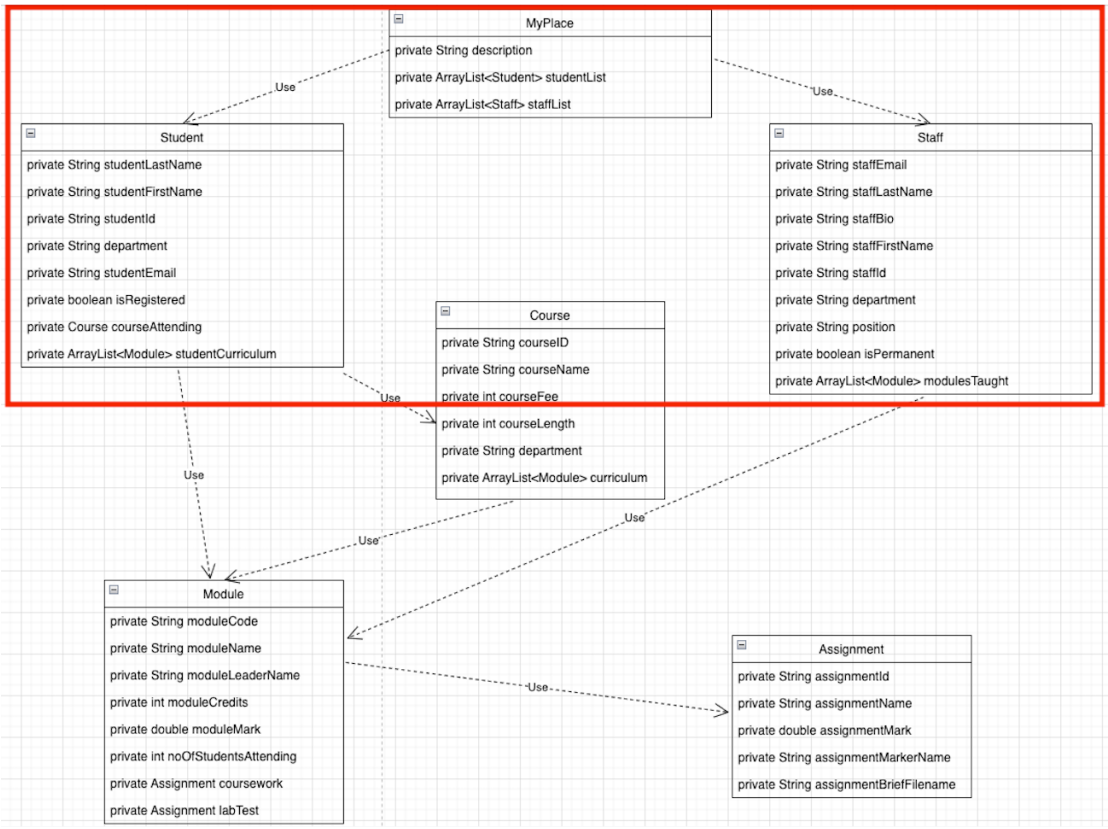
5.21. Lab practical: Inheritance – System (re-)design and implementation

This is a pair-programming task. The aim of this practical is to become familiar with inheritance. The tasks are based on a variation (and a partial version) of the class diagram from previous labs. The focus is on the `Student`, `Staff`, and `MyPlace` classes, i.e. the classes in the red frame in the Figure below.

This week's task is more open-ended to motivate you to be creative and make decisions. This is important for your individual coursework.

Tasks



1. Design: Re-design the system from the Figure above to use inheritance. This will involve introducing one superclass and modify the `MyPlace` class to use **one single** `ArrayList` to store student and staff member objects.

Note: You can complete this task on paper. Alternatively, you can download the class diagram (Resource 5.21.1. via MyPlace), import it to https://app.diagrams.net/, and edit it.

General advice: *Make sure you compile your code regularly to make sure you catch syntax errors early.*

2. Implementation: Once you have completed your re-design, you can proceed with implementing your system on BlueJ (i.e. create the classes, set up inheritance, add the data fields, and implement the constructors). No need to implement everything from scratch: you may reuse your code from previous labs and/or previous week's sample solution.
Note: If in doubt about your re-design, check with your lecturer and/or a lab assistant.

3. Functionality: You have the freedom to make decisions on functionality. You may start with something simple, e.g. print-details methods in all classes. You may then make further decisions within your pairs.

Make sure you share your code with your partner before leaving the lab!

Good luck!