MPP - Week 5 - OOP Exercises

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College Simulation

- Modify the Person class, from the lecture notes, such that a person can have multiple addresses. You can use a list for this purpose. Add a method to the Person class to add a new address.

- Modify the Student class to extend the Person class which has been modified above. This means the student should send an address to the parent class.

- Modify the program such that the Student has methods to access their home address and college address. This should use the list from the parent class. If there is only 1 address then the college address will be the same as the home address.

- Create a class called "CollegeProgramme" which represents a programme of study which a student can be enrolled. This class should have a "has many" relationship with another new class called "CollegeModule". Add other appropriate information and functionality to both classes, for example module name, number of credits, add a module to a programme etc.

- "CollegeProgramme" should have methods to return all the modules which are part of the programme. You also create another method which checks if a module is in a programme by name e.g.

  is_module_on_programme(name)

- Create a relationship such that a Student **has-a** College Programme and a College Programme **has-many** students. When a student is added to a college programme the state of that student class should be modified to include a reference to the programme e.g.

  new_student.set_college_programme = self

- Modify the logic of enrolling a student in a programme by performing some checks. For example a student could be rejected from the program if they are under 18. You could modify the CollegeProgramme class such that each program has a limit on how many students it can facilitate, this can be used then to reject students.