

Design for Implementation of displayAllStudents method

Description:

The aim of the method is to print all the students in the university (assuming that each student is enrolled in at least one unit at the university), ensuring that duplicate students are not printed.

We define the method `displayAllStudents()` in the `University` class as this will ensure we have access to all units that have been created for the `University`

Inside of a newly defined method named `displayAllStudents()` we will create a local `ArrayList` named `allStudents` in which we will accumulate each student in the university.

First we loop through each unit and extract its students `ArrayList` by calling the accessor `getStudents()`.

Next, we loop through each student inside of that unit. For each student, we must check whether the student already exists in the `allStudents ArrayList`. If they do exist in that list, then we do not add them to `allStudents`, if they do not exist in `allStudents`, then we add them.

Finally, once we have a list of all the students in the university, we simply loop through them and print the descriptions for each student out using the

Pseudocode below expresses the structure of the method more clearly.

Pseudocode:

```
define method displayAllStudents(no params):
```

```
    declare list allStudents
```

```
    for each unit in university:
```

```
        for each student in unit:
```

```
            If student is not in allStudents:
```

```
                add student to allStudents
```

```
    for each student in allStudents:
```

```
        print student description
```

UML Diagram:

Below is attached a UML diagram showing the structure of the system. Attributes and methods that are highlighted green are things that will be called by/used in the `displayAllStudents()` method.

