

## MAP EXERCISE

Implement a class named Database that defines the following instance variable:

```
Map<String,ArrayList<String>> courses;
```

The variable **courses** maps a student's name to a list of courses he/she takes.

1. Using the HashMap class define an appropriate map object for courses.
2. Define a method that adds a course to the list of courses associated with a student. If there is no list of courses associated with the student, one should be created and inserted in the map.
3. Define a method that prints, for each student in the map, the set of courses the student is taking.
4. Define a method that determines whether a particular course is being taken by a particular student.
5. Define a method that determines whether a particular course is being taken by any student.
6. Ask students to run their code through the debugger (at home) so they can see how the HashMap object looks like.
7. The most popular course is defined as the one with the largest number of students. Define a method that determines the most popular course (for simplicity you can assume there is only one).