MAP EXERCISE

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

\[
\text{Map<String,ArrayList<String>> courses;}
\]

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).