Required deliverables

• Working example
• Access to the code
• Summary of design considerations
• Proposed next steps/improvements

Consider these aspects
• Scalability
• Performance
• Unit tests / Coverage

Constraints

Java / Postgres

Task

A university maintains data on professors, departments, courses, and schedules in four tables: **department, professor, course,** and **schedule.**

Build REST end points for the four resources (**department, professor, course,** and **schedule**). Create the example data provided below with these REST endpoints.

Create, Read, Delete Endpoints to be implemented.

Additionally, write a GET REST method(**/search**) that would query for the names of all professors and the respective courses they teach. The result should contain the name of the professor and the names of all the courses he taught or is teaching right now.

The response must contain professor name and the list of the courses he teaches teaches now or in the past. The professor names may be returned in any order, but the response must not contain duplicate entries.

Please write the filtering and aggregation logic of the search request as a SQL query. The search request in the java layer should simply return the response which is returned by the database call (the structure of the search response is shown in the final page).

Table decription

Table: PROFESSOR

Name	Type
ID	Integer
NAME	String
DEPARTMENT_ID	Integer

Table: DEPARTMENT

Name	Type
ID	Integer
NAME	String

Table: COURSE

Name	Type
ID	Integer
NAME	String
DEPARTMENT_ID	Integer
CREDITS	Integer

Table: SCHEDULE

Name	Type
PROFESSOR_ID	Integer
COURSE_ID	Integer
SEMESTER	Integer
YEAR	Integer

Example

PROFESSOR

ID	NAME	DEPARTMENT_ID
1	John Doe	5
8	Camden Lin	1
9	Daniel Hicks	5
2	Frida Mcintosh	2
10	Timothy Hickman	4
3	Grace Avery	1
4	Ada Osborne	3
7	Sarahi Barry	2
5	Rowan Graves	1
6	Selena Owen	5

DEPARTMENT

ID	NAME
3	Biological Sciences
5	Technology
6	Humanities & Social Sciences
2	Clinical Medicine
4	Arts and Humanities
1	Physical Sciences

COURSE

ID	NAME	DEPARTMENT_ID	CREDITS
9	Clinical Biochemistry	2	3
4	Astronomy	1	6
10	Clinical Neuroscience	2	5
1	Pure Mathematics and Mathematical Statistics	1	3
6	Geography	1	7
8	Chemistry	1	1
5	Physics	1	8
3	Earth Science	1	7
7	Materials Science and Metallurgy	1	5
2	Applied Mathematics and Theoretical Physics	1	5

SCHEDULE

PROFESSOR_ID	COURSE_ID	SEMESTER	YEAR
5	3	6	2012
7	3	1	2013
5	7	6	2010
2	10	2	2004
5	1	1	2011
2	9	4	2005
7	10	6	2009
5	6	4	2007
7	9	1	2014
9	9	5	2011

JSON Response of /search endpoint

```json
[
    {
        "name": "Frida Mcintosh",
        "courses": [
            "Clinical Biochemistry",
            "Clinical Biochemistry"
        ]
    },
    {
        "name": "Daniel Hicks",
        "courses": [
            "Clinical Biochemistry"
        ]
    },
    {
        "name": "Sarahi Barry",
        "courses": [
            "Clinical Biochemistry",
            "Clinical Biochemistry",
            "Earth Science"
        ]
    },
    {
        "name": "Rowan Graves",
        "courses": [
            "Earth Science",
            "Geography",
            "Materials Science and Metallurgy",
            "Mathematics and Mathematical Statistics"
        ]
    }
]
```