

Cairo University
Faculty of Computers and Artificial Intelligence
Department of Computer Sciences

Semantic Web Project

University Ontology

Implemented by

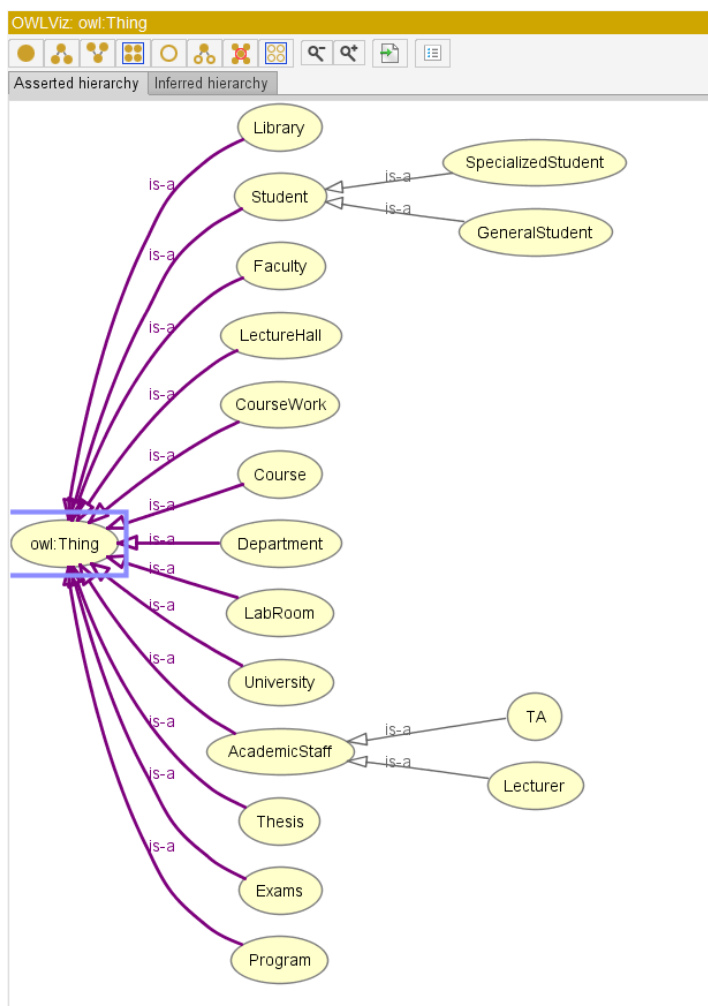
ID	Name
20190625	Yomna Mahmoud Abd El-Wahab Ali
20190581	Nada Omar Fathi Abd El-Salam
20190376	Fayza Ahmed Sayed Ahmed
20190101	Asmaa Refaat Abd El-Mabood

Definition of the problem

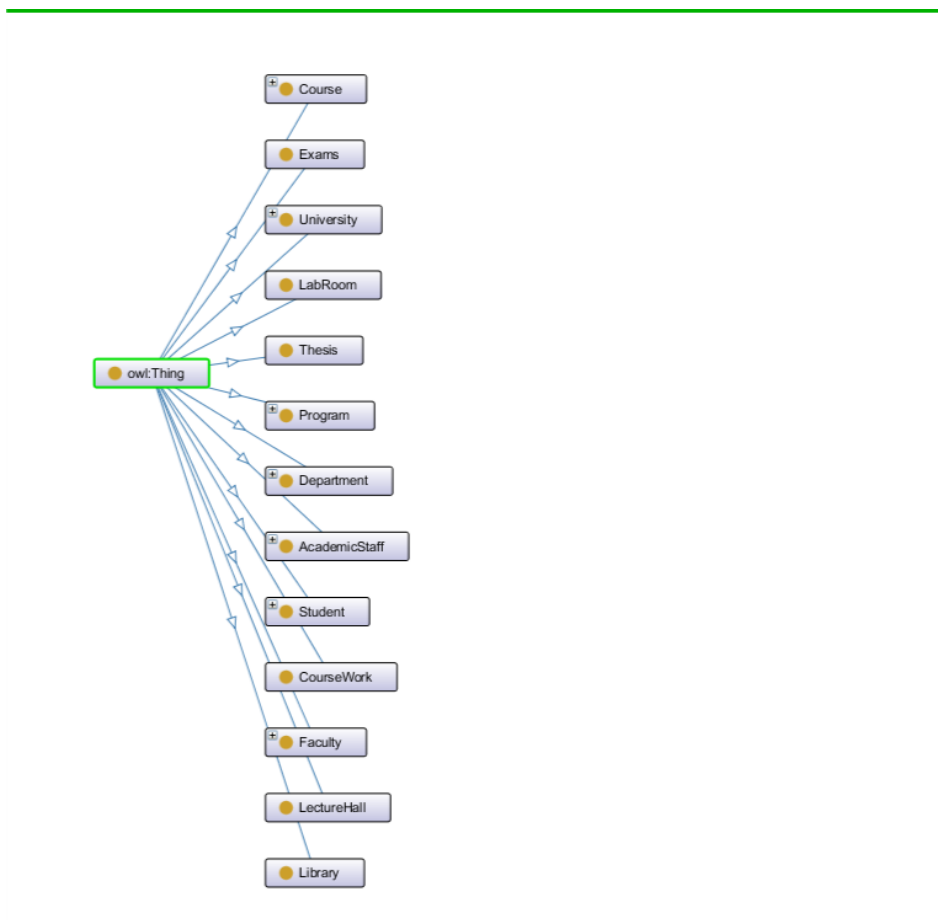
Building a university ontology system (including the definition of the classes, attributes, and the relations between these classes) with the ability to query on this ontology. For example: Getting all TAs belonging to a department, all the courses a student is currently studying, all the courses offered by a certain faculty, all the Lecturers of a faculty, and all faculties of a university.

Design of the proposed solution

Class Hierarchy : this graph shows the relations of classes and its subclasses (is-a relationship)



All the Classes: that are a subclass of the THING class



Academic Staff Class relations

Object properties:

AcademicStaff (teach) Course

Data properties:

_name



Course Class relations

Object properties:

Course (consistsOf) CourseWork, Exam, Thesis

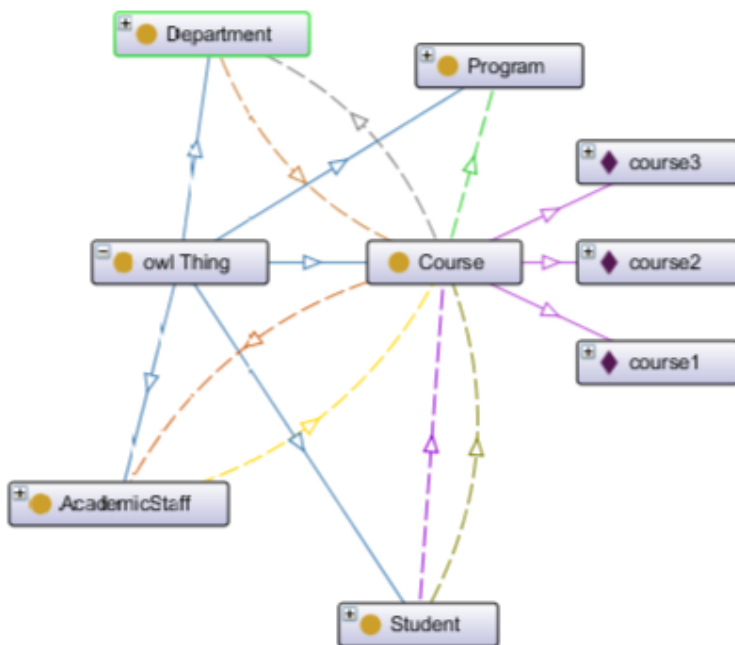
Course (isOfferedBy) Department

Course (hasProgram) Program

Course (isTaughtby) AcademicStaff

Data properties:

_name



Department Class relations

Object properties:

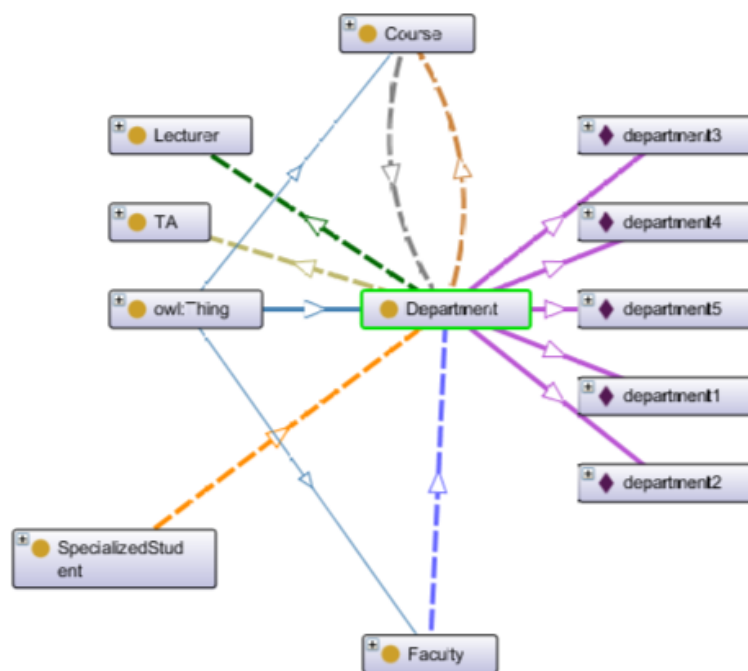
Department (hasLecturer) Lecture

Department (hasTA) TA

Department (offer) Course

Data properties:

departmentName



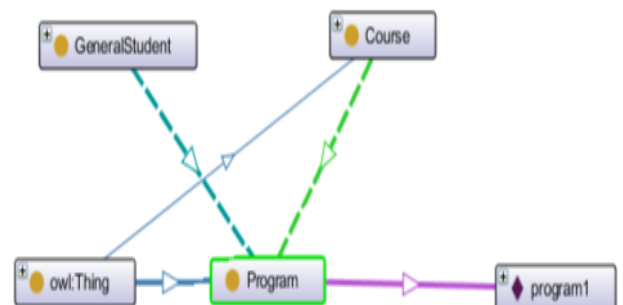
Program class relations

Object properties:

Course (hasProgram) Program

Data properties:

programName



Student Class relations

Object properties:

Student (isStudying) Course

Student (finishedCourses) Course

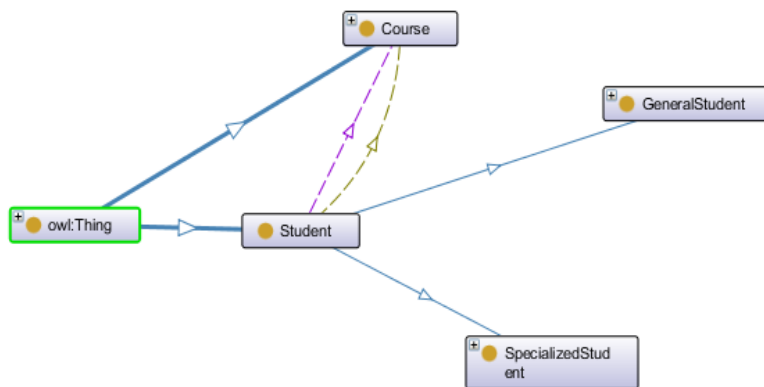
GeneralStudent (belongToProgram) Program

SpecializedStudent (belongToDepartment) Department

Data properties:

name

studentID



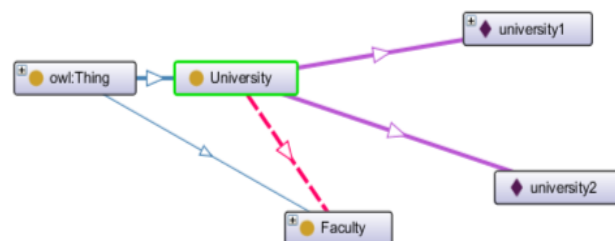
University Class relations

Object properties:

University (contains) Faculty

Data properties:

name



Faculty Class relations

Object properties:

Faculty (hasDepartment) Department

LabRoom (locateIn) Faculty

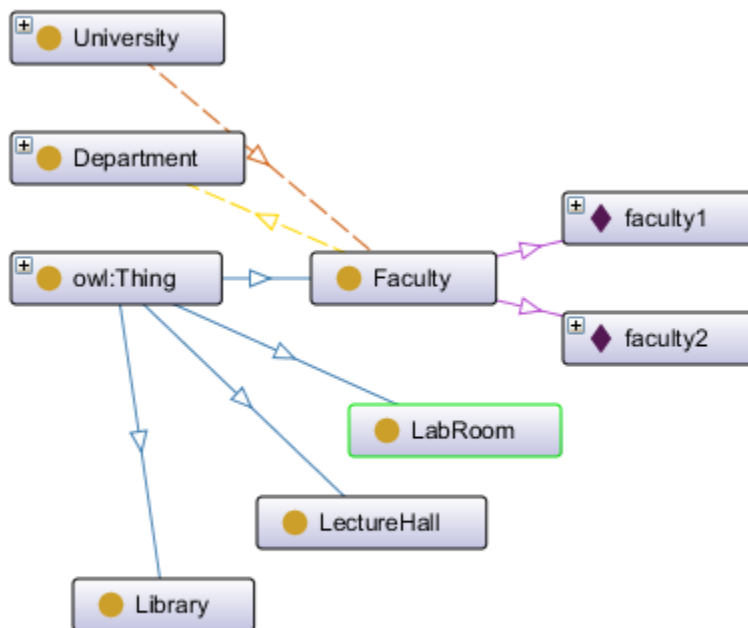
LectureHall (locateIn) Faculty

Library (locateIn) Faculty

University (contains) Faculty

Data properties:

name



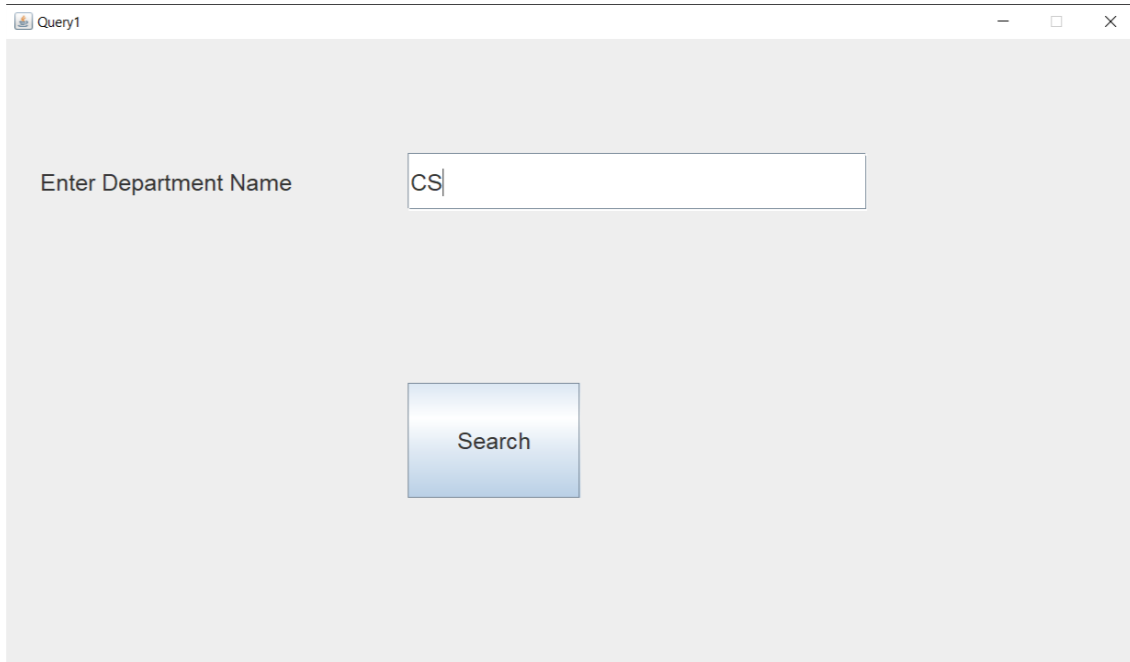
The data properties for each class:

Graphical user Interface (GUI)

1- Home page

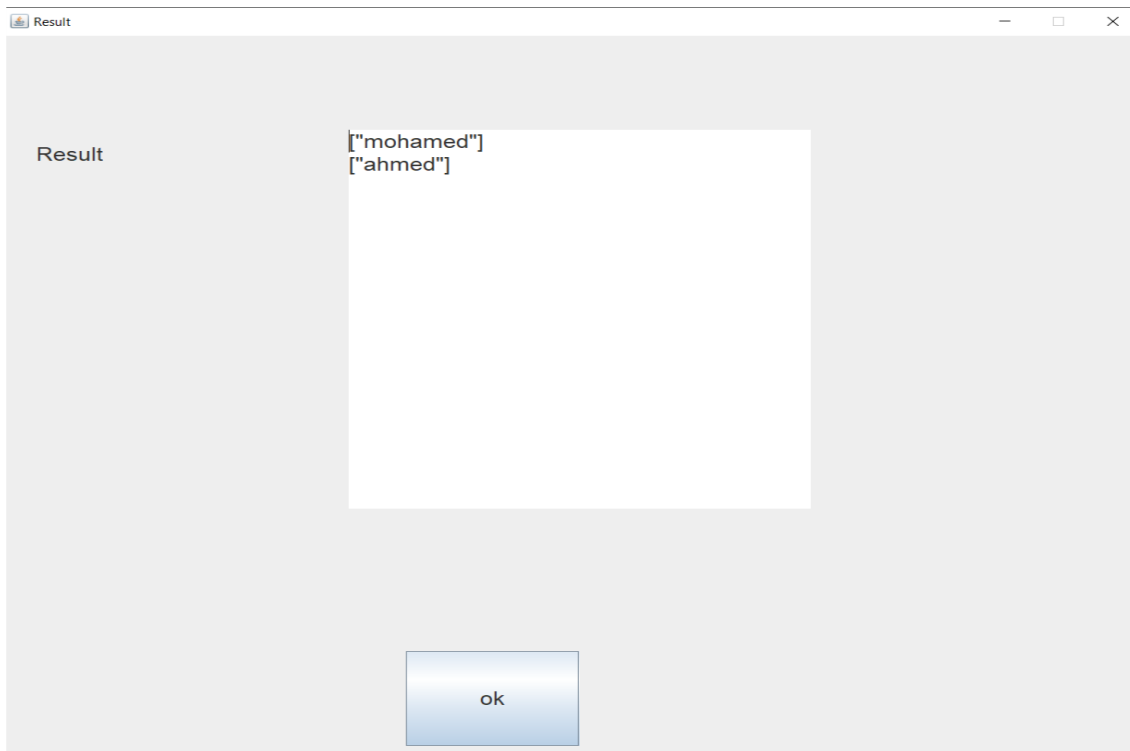


2- Query 1 page



A screenshot of a window titled "Query1". The window has a light gray background. On the left, the text "Enter Department Name" is displayed. To its right is a text input field containing the text "CS". Below the input field is a blue button with the text "Search".

3- Query 1 result

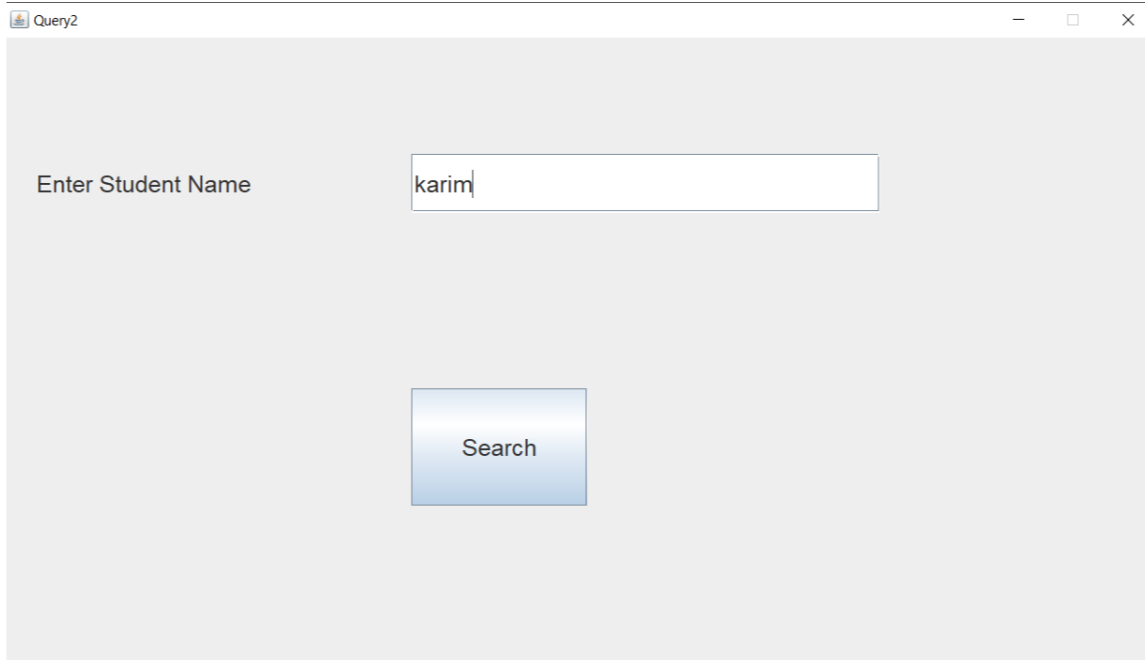


A screenshot of a window titled "Result". The window has a light gray background. On the left, the text "Result" is displayed. To its right is a white rectangular area containing the following text:

```
["mohamed"]  
["ahmed"]
```

Below this area is a blue button with the text "ok".

4- Query 2 page



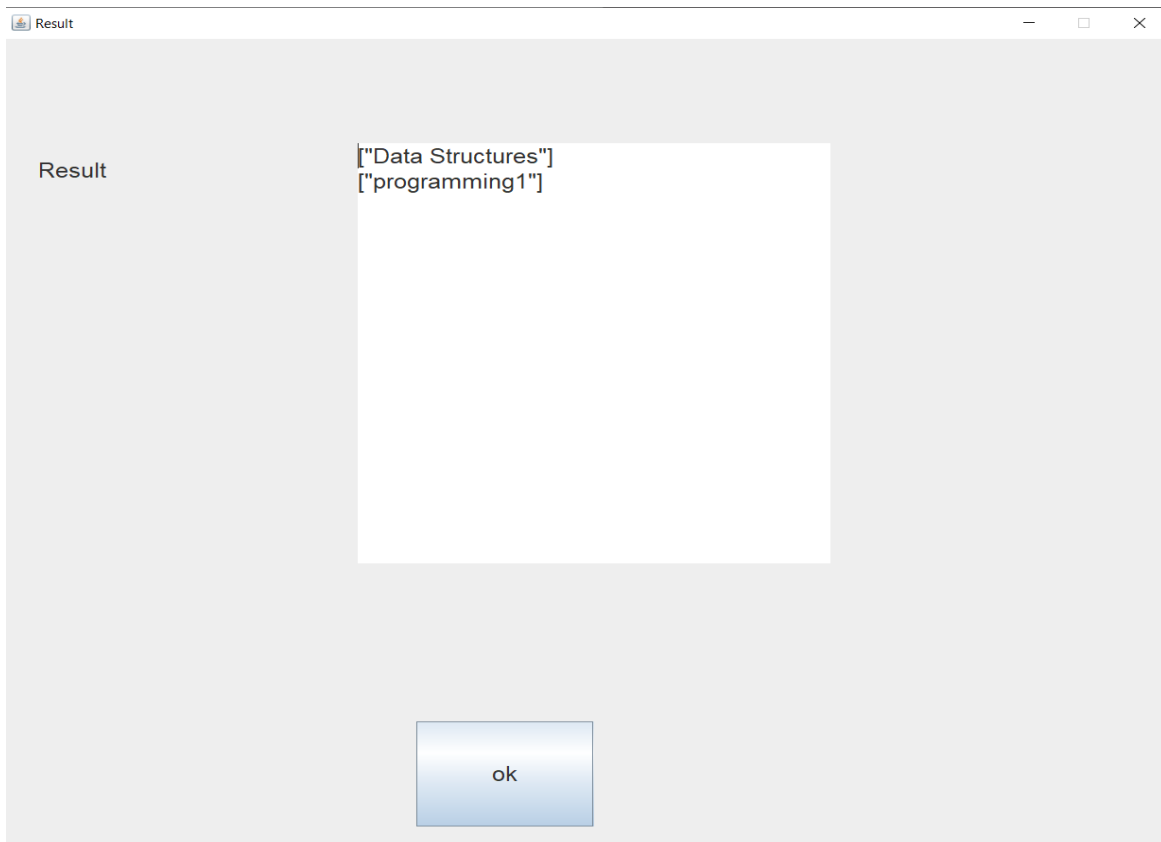
A window titled "Query2" with a light gray background. It contains a text input field with the label "Enter Student Name" to its left. The input field contains the text "karim". Below the input field is a blue button with the text "Search".

Enter Student Name

karim

Search

5- Query 2 result



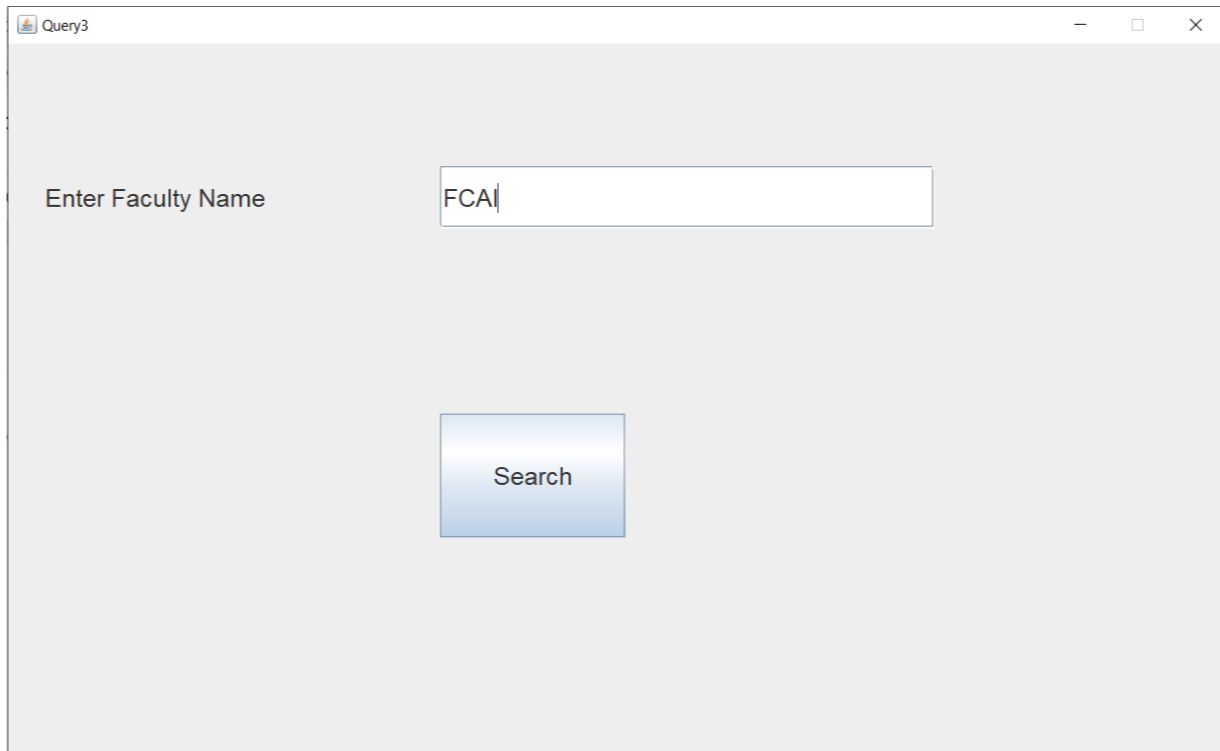
A window titled "Result" with a light gray background. It contains a text area with the label "Result" to its left. The text area contains the text: ["Data Structures"]
["programming1"]. Below the text area is a blue button with the text "ok".

Result

["Data Structures"]
["programming1"]

ok

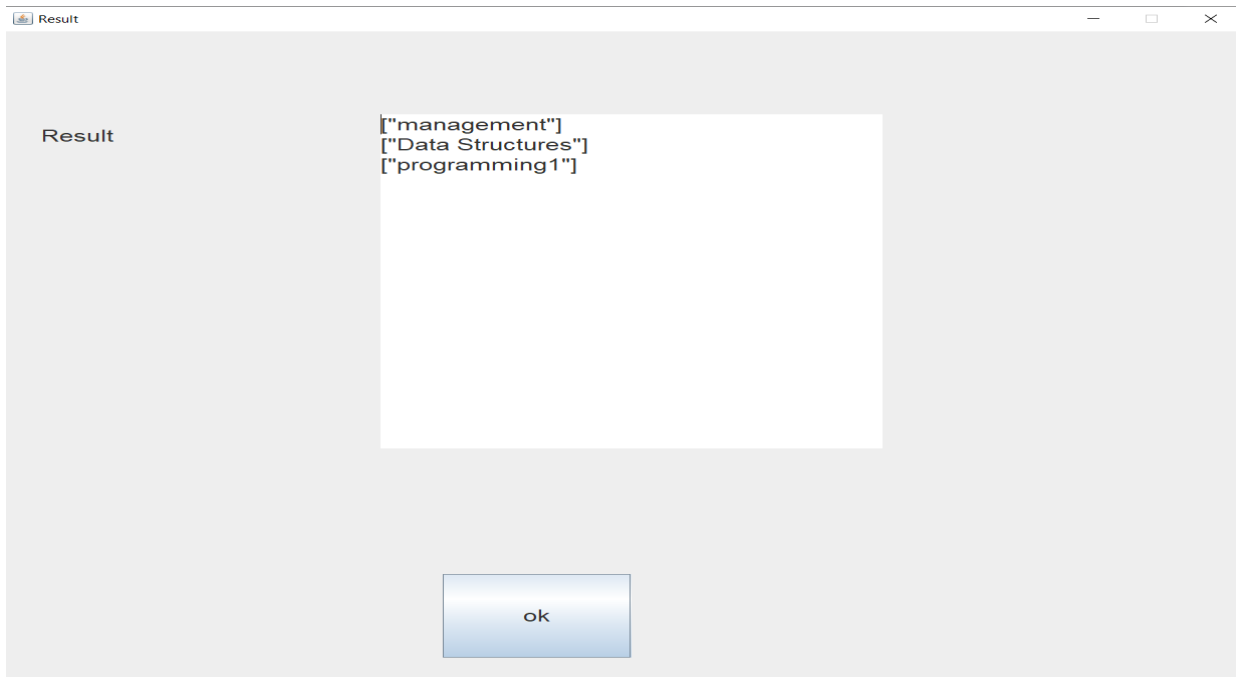
6- Query 3 page

A screenshot of a window titled "Query3". It contains a text input field with the text "FCAI" and a "Search" button below it.

Enter Faculty Name

Search

7- Query 3 result

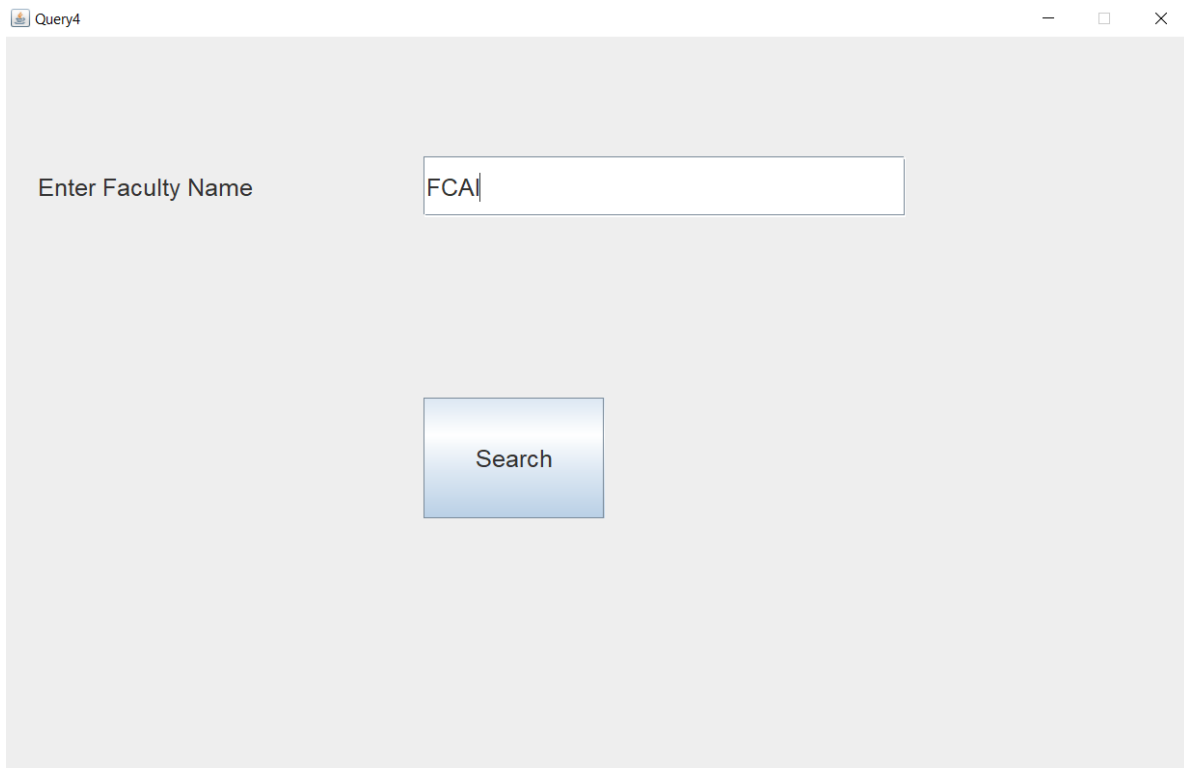
A screenshot of a window titled "Result". It displays a list of three items: ["management"], ["Data Structures"], and ["programming1"]. An "ok" button is located at the bottom.

Result

```
[ "management" ]  
[ "Data Structures" ]  
[ "programming1" ]
```

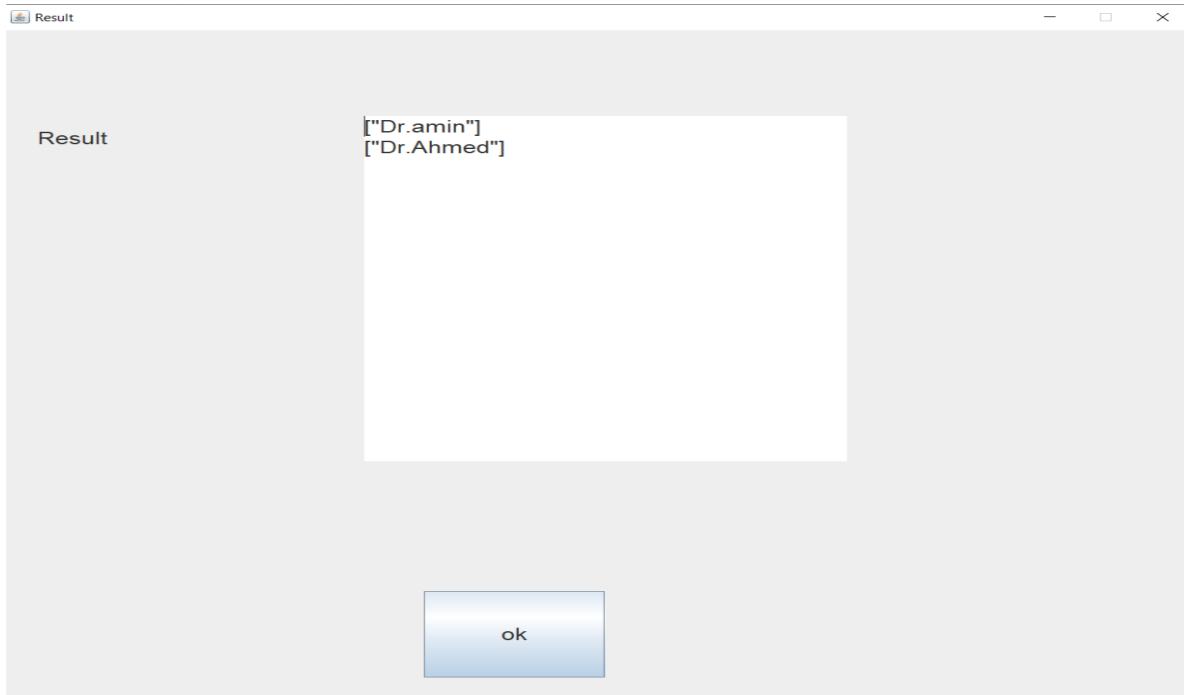
ok

8- Query 4 page



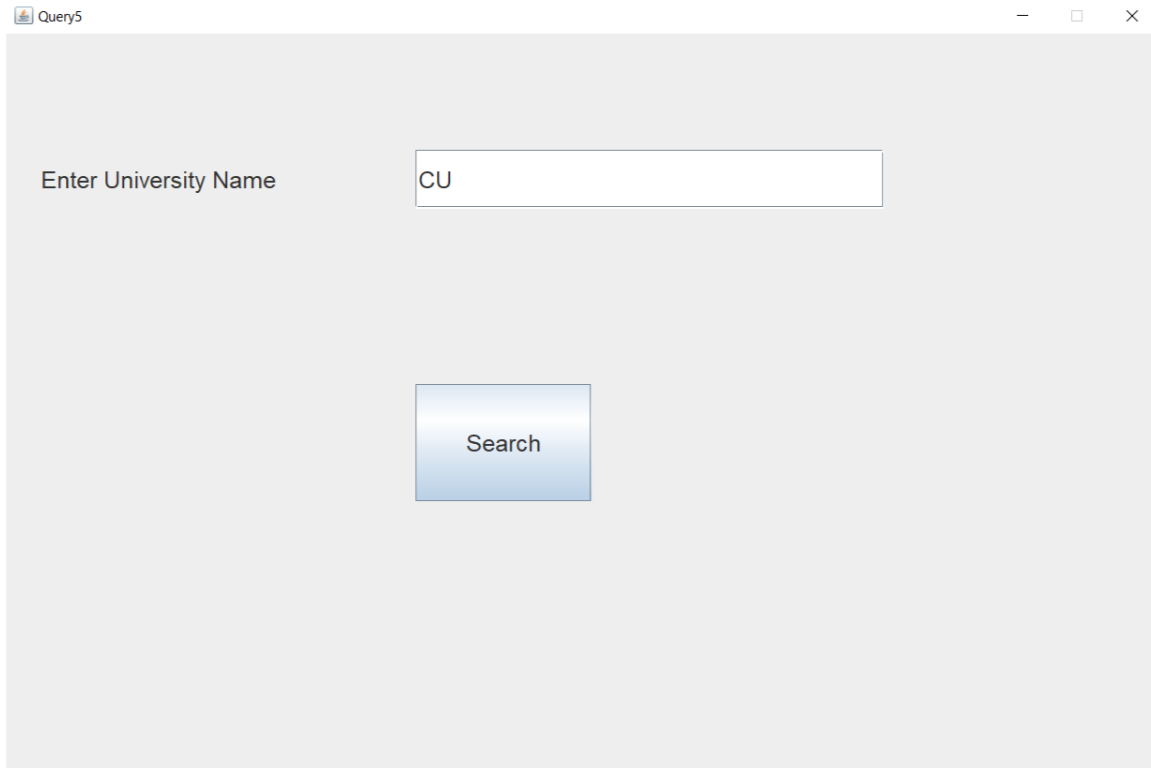
A screenshot of a window titled "Query4". The window has a light gray background. On the left, the text "Enter Faculty Name" is displayed. To its right is a text input field containing the text "FCAI". Below the input field is a blue button with the text "Search".

9- Query 4 result



A screenshot of a window titled "Result". The window has a light gray background. On the left, the text "Result" is displayed. To its right is a white rectangular area containing the text: ["Dr.amin"]
["Dr.Ahmed"]. Below this area is a blue button with the text "ok".

10- Query 5 page



A window titled "Query5" with standard window controls (minimize, maximize, close) in the top right corner. The window has a light gray background. On the left side, the text "Enter University Name" is displayed. To the right of this text is a white text input field containing the text "CU". Below the input field, centered horizontally, is a blue button with the text "Search".

11- Query 5 result



A window titled "Result" with standard window controls (minimize, maximize, close) in the top right corner. The window has a light gray background. On the left side, the text "Result" is displayed. To the right of this text is a large white rectangular area containing the text ["FCAI"]. Below this area, centered horizontally, is a blue button with the text "ok".