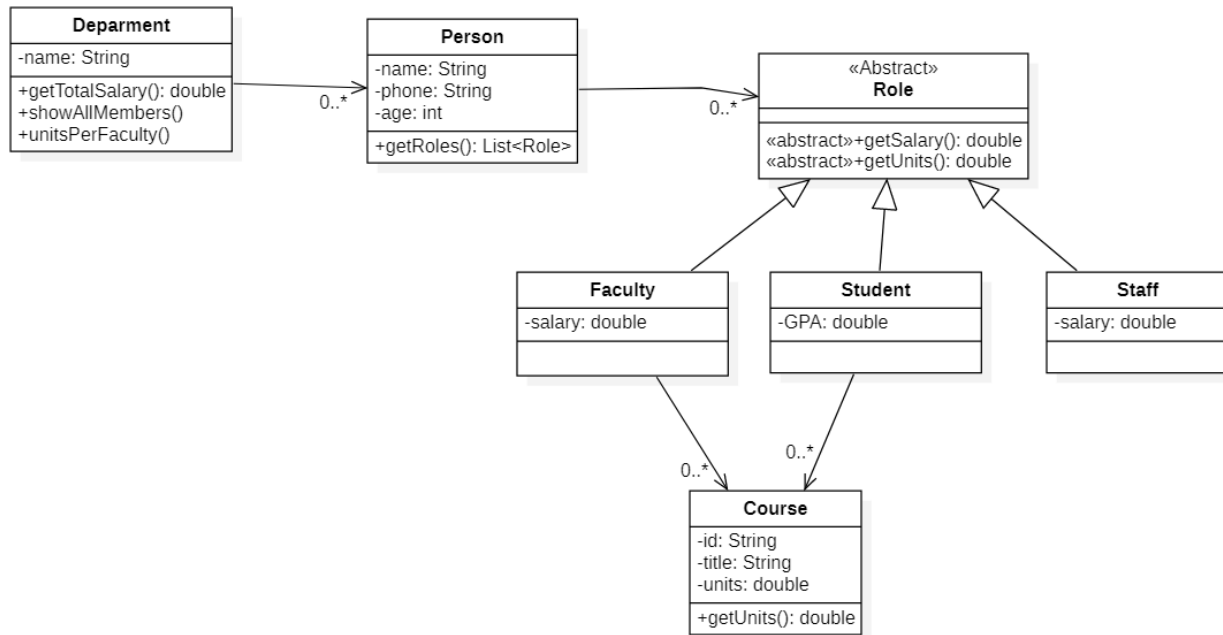


School Lab

Write a program that is used by the computer science department to keep track of Persons within the department, Persons can have many different roles as a student, faculty, or staff. Students take courses, and faculty teach courses. The class diagram for this program is as follows:



The Department object has 3 methods:

double getTotalSalary() // computes the sum of all the salaries (per month) paid to faculty and staff.

Use the better approach of polymorphism

void showAllMembers() // shows the name, phone number, age and role (student, faculty or staff) of all members in the department.

void unitsPerFaculty() // shows a list of all faculty names and the total number of units they teach.

Make sure your program reflects the structure of the class diagram shown above.

The class diagram does not show accessor functions for the attributes. Use the java 'ArrayList' class to implement a list of objects.

Level 1 – Implement the **getTotalSalary** functionality.

Level 1 – Implement the **showAllMembers** functionality.

Level 1 – Implement the **unitsPerFaculty** functionality.

Use the data below. Data should be hard coded into your application.

Level 2

Add the following feature to the lab:

Suppose staff members also want to take courses. They still get a salary, and they also have a GPA. All existing functionality should still work, for example **getTotalSalary()** should also add salaries paid to staffstudents.

A department has Persons. Person has multiple roles as a faculty, student or staff. Faculty teaches courses, and students take courses.

Add the following data into your program to test it. (data is hard coded into your application)

Department: Computer Science

Faculty in the computer science department:

Name	Phone	Age	Salary
Frank Moore	472-5921	43	10000
Sam Howard	472-7222	55	9500
John Doodle	472-6190	39	8600

Students in the computer science department:

Name	Phone	Age	GPA
John Doe	472-1121	22	4.0
Mary Jones	472-7322	32	3.80
Lee Johnson	472-6009	19	3.65

Staff in the computer science department:

Name	Phone	Age	Salary
Frank Gore	472-3321	33	4050
Adam Davis	472-7552	50	5500
David heck	472-8890	29	3600

For level 1 (unitsPerFaculty) up above:

Courses:

Number	Title	Units	Faculty name
CS201	Programming 1	4	John Doodle
CS360	Databases	3	Sam Howard
CS404	Compilers	4	John Doodle
CS240	Data structures	2	John Doodle
CS301	Software Engineering	3	Sam Howard

CS450	Advanced Architecture	5	Frank Moore
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Courses per student:

Student name	Courses
John Doe	CS201, CS360, CS404, CS301
Mary Jones	CS201, CS404, CS450
Lee Johnson	CS201, CS360, CS240, CS450

For level 2:

John Doe is Staff and Student. He took CS301 and CS360 courses. His GPA is 3.98. His salary is 5700.