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OOP Lab-06 Tasks

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Course: OOP Lab

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Designing and implementing Java programs that deal with:

1. **Association and**
2. **Aggregation**

Exercises

Exercise 1(a)

Create a jav program based on the guivrn UML diagram and implement the relation between the classes as shown in the diagram

Timeline

Description automatically generated with medium confidence

Exercise 1(b)

Create Driver class named as **Association\_aggregation\_1**. Create proper Objects of all classes as follows

* 2 Objects of Course class
* 3 Objects of Faculty class
* 3 Objects of Departement Class

And properly display all the information

package com.mycompany.mavenproject2;

import java.util.ArrayList;

class Course{

private String courseCode,courseName,courseCreditHours;

//constructor

Course(String courseCode,String courseName, String courseCreditHours){

this.courseCode = courseCode;

this.courseName = courseName;

this.courseCreditHours = courseCreditHours;

}

//methods

public String getCourseCode(){

return courseCode;

}

public String getCourseName(){

return courseName;

}

public String getCourseCreditHours(){

return courseCreditHours;

}

}

class Faculty{

private String facultyName,facultyDesignation,facultyEmail,facultyContact;

private int facultySalary, facultyId;

private ArrayList<Course> courseList = new ArrayList<Course>();

//constructor

Faculty(String facultyName, String facultyDesignation, String facultyEmail, String facultyContact, int facultySalary, int facultyId){

this.facultyName = facultyName;

this.facultyDesignation = facultyDesignation;

this.facultyEmail = facultyEmail;

this.facultyContact = facultyContact;

this.facultySalary = facultySalary;

this.facultyId = facultyId;

}

//methods

public void assignCourse(Course course){

courseList.add(course);

}

public String getFacultyName(){

return facultyName;

}

public String getFacultyDesgination(){

return facultyDesignation;

}

public String getFacultyEmail(){

return facultyEmail;

}

public String getFacultyContact(){

return facultyContact;

}

public int getFacultySalary(){

return facultySalary;

}

public int getFacultyId(){

return facultyId;

}

public void printAll(){

System.out.println("Faculty Name : "+facultyName+"\n"+

"Faculty Designation : "+facultyDesignation + "\n"+

"Faculty Email : "+ facultyEmail+ "\n"+

"Faculty Contact : "+facultyContact+"\n"+

"Faculty Salary : "+facultySalary+"\n"+

"Faculty Id : "+facultyId+"\n=============== Faculty Courses =============== \n");

for(int i = 0;i<courseList.size();i++){

System.out.println( "\* Course "+(i+1)+" : ");

System.out.println("Course code : "+courseList.get(i).getCourseCode());

System.out.println("CourseName : "+courseList.get(i).getCourseName());

System.out.println("CourseCreditHours : "+courseList.get(i).getCourseCreditHours());

}

}

}

class Department{

private String departmentName;

private ArrayList<Faculty> departmentFaculty = new ArrayList<Faculty>();

private ArrayList<Course> offeredCourses = new ArrayList<Course>();

//methods

Department(String departmentName){

this.departmentName = departmentName;

}

public void facultyList(Faculty faculty){ //assigning faculty

departmentFaculty.add(faculty);

}

public void courseList(Course course){

offeredCourses.add(course);

}

public void printAll(){

System.out.println("Department Name : "+departmentName);

System.out.println("============= Faculty List =============");

for (int i = 0; i <departmentFaculty.size() ; i++) {

System.out.println("\* Faculty "+(i+1));

System.out.println("Faculty Name : "+departmentFaculty.get(i).getFacultyName()+"\n"+

"Faculty Designation : "+departmentFaculty.get(i).getFacultyDesgination()+ "\n"+

"Faculty Email : "+ departmentFaculty.get(i).getFacultyEmail()+ "\n"+

"Faculty Contact : "+departmentFaculty.get(i).getFacultyContact()+"\n"+

"Faculty Salary : "+departmentFaculty.get(i).getFacultySalary()+"\n"+

"Faculty Id : "+departmentFaculty.get(i).getFacultyId());

}

System.out.println("============= Course List =============");

for (int i = 0; i <offeredCourses.size() ; i++) {

System.out.println("\* Course "+(i+1));

System.out.println("Course code : "+offeredCourses.get(i).getCourseCode());

System.out.println("CourseName : "+offeredCourses.get(i).getCourseName());

System.out.println("CourseCreditHours : "+offeredCourses.get(i).getCourseCreditHours());

}

}

}

public class Mavenproject2 {

public static void main(String[] args) {

//Two objects of course

Course c1 = new Course("0000","oop","12");

Course c2 = new Course("001","CP","18");

//Three objs of Faculty

Faculty f1 = new Faculty("Syed Raza","Lecturer","asyedraza85632@gmail.com","121212121",24000,1234);

Faculty f2 = new Faculty("Aimen","TA","aimen@gmail.com","232323232",10000,1248);

Faculty f3 = new Faculty("Muskan","Lecturer","muskan123@gmail.com","98989898",15000,1233);

//Three objs of Department

Department d1 = new Department("Computer Science");

Department d2 = new Department("IPP");

Department d3 = new Department("Maritime");

//Assigning faculty to depart

d1.facultyList(f1);

d1.facultyList(f2);

d1.facultyList(f3);

//Assigning Courses to depart

d1.courseList(c1);

d1.courseList(c2);

//assigning courses to faculty

f1.assignCourse(c1);

f1.assignCourse(c2);

f1.printAll();

//printing faculty and courses in a depart

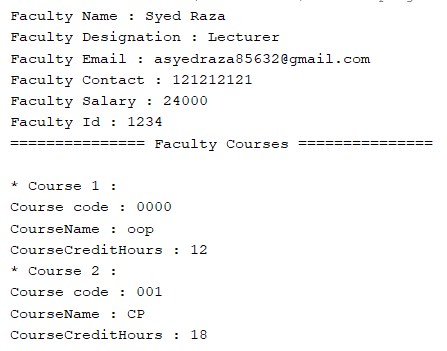
d1.printAll();

}

}

Output:

Creating two course objects and assigning them to a faculty obj



Creating Two objects of courses and three objects of faculty and assigning them to an obj of department, then printing all the details