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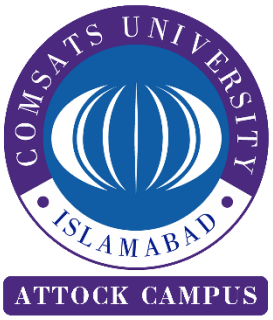

Department Of Computer Science

Course	Programming Fundamental
Instructor	Mam Anam Moin
Assignment No.	Semester Project
Project Title	School Management

Group Members Details

Registration No.	Name
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Project:

School Management System

Description:

Java was used to construct the console-based School Management System application. To manage and analyze school data, including student records, staff profiles, academic performance, and more, the system acts as a central hub. In this project, we will develop a system called the "School Management System" that will automate various tasks. The code will also include methods, control structures, loops, strings, arrays, and many more functions.

System Overview

The system provides a menu to the user with options to perform various operations, such as student enrollment, Faculty Salary calculation, about the School, Student Enrollment in the Hostel, and Exit. The user's choice is processed in a switch statement. The modules that are used in this Project are as follows:

Modules

1. Enrollment Module:

The Enrollment class handles the enrollment of students. It asks the user to enter marks for three subjects, calculates the average, and checks the eligibility for admission based on the average marks. It also asks the user to enter marks for an entry test, assigns a grade based on the marks, and checks the pass/fail status.

2. Faculty Salary Module

The FacultySalary class handles the calculation of faculty salary. It asks the user to enter the faculty salary, calculates the tax rate based on the salary, and calculates the tax deduction and net salary. It also displays the faculty's salary and net salary after tax deduction.

3. Student Information Module

The AboutSchool class has a method that continuously asks the user to enter student information until 'exit' is entered. For each student, it asks for the name, FAC percentage, and gender. It determines the hostel concession based on the percentage and gender. After all students have been entered, it prints the information of all students.

4. Hostel Enrollment Module

The HostelEnrollment class handles the enrollment of students in the hostel. It initializes lists for existing and new students, asks the user to enter names of selected students, and asks the user to enter a student ID and displays the room that the student belongs to based on the entered ID. It also asks the user if they want the

service of the hostel and displays the per-month fee if ‘yes’ is entered. It asks the user to enter their age and displays whether they are allowed in the hostel based on their age.

Conclusion

The School Management System is a comprehensive application that manages various aspects of a school, including student enrollment, faculty salary calculation, student information display, and hostel enrollment. It makes use of various Java concepts such as classes, objects, loops, conditionals, arrays, and ArrayLists. The code is well-structured and modular, with each class and method handling a specific part of the system’s functionality.

Code for Implementation

```
import java.util.Scanner;
import java.util.ArrayList;

public class SchoolManagementSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        while (true) {
            System.out.println("Select an option:");
            System.out.println("1. Enrollment of Students");
            System.out.println("2. Faculty Salary");
            System.out.println("3. About School");
            System.out.println("4. Student Enroll in Hostel");
            System.out.println("5. Exit");
            int option = scanner.nextInt();
            switch (option) {
                case 1:
                    Enrollment.enrollStudents();
                    break;
                case 2:
                    FacultySalary.calculateSalary();
                    break;
                case 3:
                    AboutSchool.displayStudentInfo();
                    break;
                case 4:
                    HostelEnrollment.enrollInHostel();
                    break;
                case 5:
                    System.exit(0);
                default:
                    System.out.println("Invalid option. Please try again.");
            }
        }
    }
```

```
}

class Student {
    private String name;
    private double percentage;
    private String gender;
    private String hostelConcession;

    // Constructor for Student class
    public Student(String name, double percentage, String gender, String
hostelConcession) {
        this.name = name;
        this.percentage = percentage;
        this.gender = gender;
        this.hostelConcession = hostelConcession;
    }

    // Getter methods for Student class
    public String getName() {
        return name;
    }

    public double getPercentage() {
        return percentage;
    }

    public String getGender() {
        return gender;
    }

    public String getHostelConcession() {
        return hostelConcession;
    }
}

class Enrollment {
    public static void enrollStudents() {
        Scanner scanner = new Scanner(System.in);
        System.out.println("To Check Your Eligibility for School Admission");

        // Using an array to store marks for different subjects
        int[] subjectMarks = new int[3];
        for (int i = 0; i < 3; i++) {
            System.out.println("Enter Marks for Subject " + (i + 1) + ": ");
            subjectMarks[i] = scanner.nextInt();
        }

        // Calculate average marks
        int sum = 0;
        for (int mark : subjectMarks) {
            sum += mark;
        }
        double averageMarks = (double) sum / subjectMarks.length;

        // Check eligibility based on average marks
        if (averageMarks > 40) {
            System.out.println("Status: Eligible");
```

```
        } else {
            System.out.println("Status: Not-Eligible");
        }

        // Print function
        System.out.println("Average Marks: " + averageMarks);
        System.out.println("-----------------------------------------------
");

        // Check grades
        System.out.println("To Check Your Grades in Entry Test");
        System.out.println("Enter Student's Marks: ");
        int entryTestMarks = scanner.nextInt();
        if (entryTestMarks >= 90) {
            System.out.println("Grade: A+");
        } else if (entryTestMarks >= 80) {
            System.out.println("Grade: A");
        } else if (entryTestMarks >= 70) {
            System.out.println("Grade: B");
        } else if (entryTestMarks >= 60) {
            System.out.println("Grade: C");
        } else if (entryTestMarks >= 50) {
            System.out.println("Grade: D");
        } else if (entryTestMarks >= 40) {
            System.out.println("Grade: E");
        } else {
            System.out.println("Grade: F");
        }

        System.out.println("Marks: " + entryTestMarks);

        // Check pass/fail
        if (entryTestMarks >= 40 && entryTestMarks < 100) {
            System.out.println("Status: Pass");
            System.out.println("Congrats you have got the admission!");
        } else {
            System.out.println("Status: Fail");
            System.out.println("Good Luck Next time");
        }
    }
}

class FacultySalary {
    public static void calculateSalary() {
        Scanner scanner = new Scanner(System.in);

        // Get faculty salary
        System.out.println("Enter the faculty salary:");
        int facultySalary = scanner.nextInt();

        // Calculate tax rate based on salary
        double taxRate;
        if (facultySalary <= 50000) {
            taxRate = 0.15;
        } else if (facultySalary <= 100000) {
            taxRate = 0.20;
        } else if (facultySalary <= 150000 && facultySalary % 2 == 0) {
```

```
            taxRate = 0.25;
        } else if (facultySalary <= 150000) {
            taxRate = 0.30;
        } else {
            taxRate = 0.35;
        }

        // Calculate tax deduction and net salary
        double taxDeduction = facultySalary * taxRate;
        double netSalary = facultySalary - taxDeduction;

        // Display salary information
        System.out.println("Faculty Salary: " + facultySalary);
        System.out.println("Net Salary after Tax Deduction: " + netSalary);

        // Faculty members information using a loop
        String[] facultyMembers = {"Hamza ali", "Kafeel", "Naeem"};

        for (String teacher : facultyMembers) {
            System.out.println("Faculty Member: " + teacher);
        }
    }
}

class AboutSchool {
    public static void displayStudentInfo() {
        Scanner scanner = new Scanner(System.in);
        ArrayList<Student> students = new ArrayList<>();

        // Loop to get student information until 'exit' is entered
        while (true) {
            System.out.println("Enter your Name (or type 'exit' to quit): ");
            String name = scanner.nextLine();

            // Break the loop if 'exit' is entered
            if (name.toLowerCase().equals("exit")) {
                break;
            }

            System.out.println("Enter your FAC percentage: ");
            double percentage = scanner.nextDouble();
            System.out.println("Enter 1 if you are Male and 2 If you Are
female: ");
            int gender = scanner.nextInt();
            scanner.nextLine();  // consume newline left-over

            // Determine hostel concession based on percentage and gender
            String hostelConcession;
            if (percentage >= 90 && gender == 2) {
                hostelConcession = "No hostel fees";
            } else if (percentage >= 80 && gender == 2) {
                hostelConcession = "70% concession on hostel fees";
            } else if (percentage >= 70 && gender == 2) {
                hostelConcession = "50% concession on hostel fees";
            } else if (percentage >= 60 && gender == 2) {
                hostelConcession = "30% concession on hostel fees";
            } else {
```

```
                hostelConcession = "You have to pay your hostel fees";
            }

            // Add the new student to the list
            students.add(new Student(name, percentage, gender == 1 ? "Male" :
"Female", hostelConcession));
        }

        // Print the information of all students
        for (Student student : students) {
            System.out.println("\nStudent Information:");
            System.out.println("Name: " + student.getName());
            System.out.println("FAC Percentage: " + student.getPercentage());
            System.out.println("Gender: " + student.getGender());
            System.out.println("Hostel Concession: " +
student.getHostelConcession());
        }
    }
}

class HostelEnrollment {
    static void enrollInHostel() {
        Scanner scanner = new Scanner(System.in);
        ArrayList<String> studentsNames = new ArrayList<>();
        ArrayList<String> newStudents = new ArrayList<>();

        System.out.println("STUDENT ENROLL IN HOSTEL");
        System.out.println("ALAMA IQBAL HOSTEL");
        studentsNames.add("saad");
        studentsNames.add("sameer");
        studentsNames.add("ali");
        studentsNames.add("faraz");
        System.out.println(studentsNames);

        newStudents.add("Usama");
        newStudents.add("mahad");
        newStudents.add("Azeem");
        studentsNames.addAll(newStudents);
        System.out.println(studentsNames);

        ArrayList<String> selectedStudents = new ArrayList<>();
        while (true) {
            System.out.println("Enter name you want to select or quit for q
...");
            String studentName = scanner.nextLine();
            if (studentName.equals("q")) {
                break;
            }
            selectedStudents.add(studentName);
        }
        System.out.println(selectedStudents);

        System.out.println("Enter the student ID: ");
        String student = scanner.nextLine();

        if (student.equals("saad")) {
            System.out.println("Student ID 1 belongs to room A");
```

```
        } else if (student.equals("sameer")) {
            System.out.println("Student ID 2 belongs to room B");
        } else if (student.equals("ali")) {
            System.out.println("Student ID 3 belongs to room C");
        } else if (student.equals("faraz")) {
            System.out.println("Student ID 4 belongs to room D");
        } else if (student.equals("usama")) {
            System.out.println("Student ID 5 belongs to room E");
        } else if (student.equals("mahad")) {
            System.out.println("Student ID 6 belongs to room F");
        } else if (student.equals("azeem")) {
            System.out.println("Student ID 7 belongs to room G");
        } else {
            System.out.println("Student ID not found.");
        }

        System.out.println("Do you want the service of hostel");
        String service = scanner.nextLine();
        if (service.equals("yes")) {
            System.out.println("Per month fee is 1000");
        }

        System.out.println("Enter your Age: ");
        int age = scanner.nextInt();
        if (age >= 18 && age < 25) {
            System.out.println("Allowed in the hostel.");
        } else {
            System.out.println("Not allowed in the hostel.");
        }
    }
}
```

Output

Select an option:
1. Enrollment of Students
2. Faculty Salary
3. About School
4. Student Enroll in Hostel
5. Exit
1
To Check Your Eligibility for School Admission
Enter Marks for Subject 1:
56
Enter Marks for Subject 2:
65
Enter Marks for Subject 3:

88
Status: Eligible
Average Marks: 69.66666666666667

To Check Your Grades in Entry Test
Enter Student's Marks:
69
Grade: C
Marks: 69
Status: Pass
Congrats you have got the admission!
Select an option:
1. Enrollment of Students
2. Faculty Salary
3. About School
4. Student Enroll in Hostel
5. Exit
2
Enter the faculty salary:
45000
Faculty Salary: 45000
Net Salary after Tax Deduction: 38250.0
Faculty Member: Hamza ali
Faculty Member: Kafeel
Faculty Member: Naeem
Select an option:
1. Enrollment of Students
2. Faculty Salary
3. About School
4. Student Enroll in Hostel
5. Exit
3
Enter your Name (or type 'exit' to quit):
Ali
Enter your FAC percentage:
45
Enter 1 if you are Male and 2 If you Are female:
1
Enter your Name (or type 'exit' to quit):
Ahmad

Enter your FAC percentage:
67
Enter 1 if you are Male and 2 If you Are female:
1
Enter your Name (or type 'exit' to quit):
Fatima
Enter your FAC percentage:
88
Enter 1 if you are Male and 2 If you Are female:
2
Enter your Name (or type 'exit' to quit):
exit

Student Information:
Name: Ali
FAC Percentage: 45.0
Gender: Male
Hostel Concession: You have to pay your hostel fees

Student Information:
Name: Ahmad
FAC Percentage: 67.0
Gender: Male
Hostel Concession: You have to pay your hostel fees

Student Information:
Name: Fatima
FAC Percentage: 88.0
Gender: Female
Hostel Concession: 70% concession on hostel fees
Select an option:
1. Enrollment of Students
2. Faculty Salary
3. About School
4. Student Enroll in Hostel
5. Exit
4
STUDENT ENROLL IN HOSTEL
ALAMA IQBAL HOSTEL
[saad, sameer, ali, faraz]

[saad, sameer, ali, faraz, Usama, mahad, Azeem]
Enter name you want to select or quit for q ...
Ali
Enter name you want to select or quit for q ...
Ahmad
Enter name you want to select or quit for q ...
Fatima
Enter name you want to select or quit for q ...
q
[Ali, Ahmad, Fatima]
Enter the student ID:
024
Student ID not found.
Do you want the service of hostel
yes
Per month fee is 1000
Enter your Age:
18
Allowed in the hostel.
Select an option:
1. Enrollment of Students
2. Faculty Salary
3. About School
4. Student Enroll in Hostel
5. Exit
5

Process finished with exit code 0.