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INDIAN INSTITUTE OF INFORMATION TECHNOLOGY GUWAHATI

IT Workshop I, B.Tech 3rd Semester

Instructions

1. Deadline to submit is 4th September 2023.

Assignment 5

Total Marks: 25

Your task is to create a Java program to develop a Student Information System. In this project, you'll be creating a class named Student to manage student records. Follow the guidelines provided below:

Class Student:

Attributes:

studentID (int)
studentName (String)
studentAge (int)
studentMajor (String)
studentGPA (float)
totalStudentsEnrolled (int, static)

Constructor:

Implement a constructor to initialize the attributes of the student.

Methods:

setDetails(): A method to set the details of the student.

getDetails(studentID: int): A method that takes a student ID as a parameter and returns the student details as a formatted string.

updateDetails(studentID: int): A method to update the details of a student identified by the student ID.

getGPA(studentID: int): A method that takes a student ID as a parameter and returns the student's GPA.

updateGPA(studentID: int, newGPA: float): A method to update a student's GPA.

totalStudents(): A static method that returns the total number of students enrolled.

compare(student1: Student, student2: Student): A static method that compares the GPAs of two student objects and displays the details of the student with the higher GPA.

Your program should also include the following features:

1. Create an array of objects for the Student class (3)
2. Design an interactive menu-driven interface where users can select from the following options: (5+3+4+3=15)

Update Student Details

Get Student Details

Update Student GPA

Exit

The chosen option should trigger the relevant methods of the class.

3. Include a menu option to display the total number of students enrolled. (3)
4. You can introduce additional instance variables, methods, static fields, etc., to enhance the realism of the application. (2)
5. Implement a compare method to compare and display the details of the student with the higher GPA. (2)

Note

You have the freedom to include any necessary assumptions and functionalities to create a user-friendly and comprehensive Student Information System.