Assignment5-zhuang

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import java.util.Scanner;
public class Client {
	public static void main(String[] args) {
		// Create a new Scanner object to read user input
		Scanner myScan = new Scanner(System.in);
		// Declare an array of 3 Student objects
		Student[] students = new Student[3];

		// Loop 3 times to get details for each student
		for (int i = 0; i < 3; i++) {
			// Prompt the user to specify if the student is PostGraduate or
UnderGraduate
			System.out.print("Is the student a PostGraduate or UnderGraduate?
press p/u :");
			char isTrue = myScan.next().charAt(0);
			// Validate the input until a valid choice (p/u) is made
			while (isTrue != 'p' && isTrue != 'u') {
				System.out.print("Please Enter the valid value");
				isTrue = myScan.next().charAt(0);
			}
			// If user chooses 'p', initialize the student as a PostGraduate,
otherwise as an UnderGraduate
			if (isTrue == 'p') {
				students[i] = new PostGraduate();
			} else if (isTrue == 'u') {
				students[i] = new UnderGraduate();
			}
			// Prompt the user to enter the student's name
			System.out.print("Please Enter the student " + (i + 1) + " Name: ");
			String name = myScan.next();
			students[i].setName(name);
			// Prompt the user to enter the student's ID
			System.out.print("Please enter the student " + (i + 1) + " ID: ");
			long id = myScan.nextLong();
			students[i].setID(id);
			// Get the number of tests for the student
			int num = students[i].getNumTests();
			for (int index = 0; index < num; index++) {
				// Prompt the user to enter each test score
				System.out.print("Please enter the exam " + (index + 1) + "
score: ");
				int score = myScan.nextInt();
				// Validate the score to ensure it is between 0 and 100
				while (score < 0 || score > 100) {
					System.out.print("Invalid input, Please ensure the score
is between 0-100");
					score = myScan.nextInt();
				}
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                        // Set the test score for the student
                        students[i].setTestScore(index, score);
                  }
                  // Calculate the result for the student
                  students[i].calculateResult();
            }
            // Display details of all students
            for (Student p : students) {
                  System.out.println(p.toString());
            }
      }
}
class Student {
// Declare variables
      private String name;
      private long id;
      private String grade;
      private int[] test;
// Declare the instants variables
      private final int NUM_TESTS = 3;
// Constructor
      public Student() {
            this("Unknown",0000);
      }
      public Student(String name, long id) {
            this.name = name;
            this.id = id;
            this.test = new int[NUM_TESTS];
      }
      // Setter
      public void setName(String name) {
            this.name = name;
      }
      public void setID(long id) {
            this.id = id;
      }
      public void setGrade(String grade) {
            this.grade = grade;
      }
      public void setTestScore(int index, int score) {
            test[index] = score;
      }

      // Getter
      // Set an integer as index
      public int getScore(int index) {
            return test[index];
      }
      public int getNumTests() {
            return NUM_TESTS;
      }
      public String getName() {
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            return name;
      }
      public long getID() {
            return id;
      }
      public String getGrade() {
            return grade;
      }

//override toString method to populate content
      public String toString(){
            return "id " + id + ", name " + name + " is " + getGrade() + " Exam ";
      }
      public void calculateResult() {
      }
}

class PostGraduate extends Student{

      //Constructor
      public PostGraduate(){
      }
      //Constructor inherited from main class
      public PostGraduate(String name,long id){
            super(name,id);
      }

      //Override the main calculate class method
      public void calculateResult() {
            int sumScore = 0;
            int NUMS = getNumTests();

            for(int i = 0;i < NUMS;i++) {
                  sumScore += getScore(i);
            }

            if((sumScore / 3) >= 50) {
                  setGrade("PASS");
            }else {
                  setGrade("FAIL");
            }
      }
}
class UnderGraduate extends Student{

      //Constructor
      public UnderGraduate() {
      }
      //Constructor inherited from main class
      public UnderGraduate(String name,long id) {
            super(name,id);
      }
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```
	//Override the main calculate class method
	public void calculateResult() {
		int sumScore = 0;
		int NUMS = getNumTests();

		for(int i = 0;i < NUMS;i++) {
			sumScore += getScore(i);
		}

		if((sumScore / 3) >= 40) {
			setGrade("PASS");
		}else {
			setGrade("FAIL");
		}
	}
}
```

Consequence