

JAVA Laboratory exercises

Classes

Lab no:3

Date :18.8.23

1. Define a class called Course with datamembers: courseName(String),credits(int), noContactHrs(int), typeOfCourse(String)- takes anyone of the following list of String {Theory, Lab, LabIntegratedTheory},gradeScored(String) – takes anyone of the following list of String{O,A,B,C,D} and member functions are:
default constructor,
Constructor with 4 arguments,
getName() – returns the courseName,
getCredits - returns the credits,
getContactHr() - returns the number of contact hours,
getGrade() - returns the grade scored,
getTypeCourse() - returns the type of Course,
toString() - returns the string representation of the Course object (3)
2. Define a class called Student with datamembers: Name(String),rollNo(int), noCourses(int), gpa(double), CourseEnrolled[] (Course) and member functions are: (3)
default constructor,
Constructor with 2 arguments – initialize name and rollno,
getNumCourse() - returns the number of courses enrolled,
getGPA() – returns the gpa
addCourse() – adds the course to the array of CourseEnrolled and increments the noCourses by 1,
dropCourse() – deletes the course from the array of CourseEnrolled and decrements the noCourses by 1,
toString() - returns the string representation of the Student object
calculateGPA() – calculates the GPA by finding the product of credits and gradeScored and sum of credits

Grade	Credits
O	10
A	9
B	8
C	7
D	6
E	0

3. Implement the CourseEnrolled as an arraylist in class Student and perform all the operations(2)
4. Modify addCourse() such that Course is added only if it does not exist in courseEnrolled. (1)
5. Validate addCourse() such that number of courses enrolled does not exceed the total number of credits of 30 and number of theory course is not greater than 3 and number of lab course is not greater than 2 and number of LabIntegratedTheory course is not greater than 2. (2)
6. Include displayCourseDetails() in Student class that displays the courses enrolled by the Student. (1)
7. Include displayRedoCourse() in Student class that displays the course which has credits less than 6 enrolled by the Student. (1)
8. Create StudentDriver class and create objects of Course and Student and invoke all the respective class methods. (3)