

REFLECTION LOGS (COURSE GRADES)

```
import java.util.Scanner;

public class GradeBook {

    Scanner input = new Scanner(System.in); //import scanner for user input
    private int[][] grades; // 2d array storing grades for 12 students and 5 tests

    public GradeBook() {
        grades = new int[12][5]; //initialize the amount of values the array will hold
    }

    public void GetGrades() { //method when called is used to ask user for grades

        for (int student = 0; student < grades.length; student++){ //method goes through each student
            System.out.println("Enter student " + (student + 1) + "'s grades:");

            for (int test = 0; test < grades[student].length; test++) {
                System.out.println("Test " + (test + 1) + ": ");
                grades[student][test] = input.nextInt();
            }
        }
    }

    public void ShowGrades() { //method when called prints the test value for each student

        System.out.println("Gradebook:");
        for (int student = 0; student < grades.length; student++) { //until student reaches length of array
            System.out.println("Student" + (student + 1) + ": ");

            for (int test = 0; test < grades[student].length; test++) { //loops until test reaches length of array
                System.out.println(grades[student][test] + " ");
            }
            System.out.println(""); //space to make the code cleaner each time it loops
        }
    }
}
```

So far I made a CourseGrades class, and a GradeBook class. In the GradeBook class, I added the ability to have user input, along with declaring a 2-dimensional array holding the 12 different students, and their grades on the 5 different tests. I declared 2 methods, of GetGrade(), and ShowGrade(). The get grades method asks the user to input the grades each student received on each test. The show grades method displays the grades of each student.

```

package Mastery;

import java.util.Scanner;

public class CourseGrades {

    public static void main(String[] args) {

        int num; //declare num variable, used later
        int testchoice; //declare testchoice, used later
        Scanner input = new Scanner(System.in); //import scanner to allow for user input

        GradeBook studgrades = new GradeBook(); //object "studgrades" is used to call methods from the GradeBook

        studgrades.GetGrades(); //prompts user to enter grades for each student
        studgrades.ShowGrades(); //shows the user, the grades for each student

        System.out.println("Enter a number from the student you want to see the average of (students 1-12): ");
        num = input.nextInt(); // ask user for which students average they want to look at
    }
}

```

Now in the other class, the CourseGrades class, I added the ability for the user to input, and declare 2 variables, which will be used later to choose which student, and which test the user wants to look at. I created the “studgrades” object which is used to call methods from the other class. I used it to call the methods I made earlier, and now I prompted the user which Student they want to know the average of.

```

public double studAVG(int num) { //method calculates the average of a student's grades
    int studindex = num - 1; //gets the index of the student

    int sum = 0;

    for (int test = 0; test < grades[studindex].length; test++) {
        sum+= grades[studindex][test];
    }
    return (double) sum / grades[studindex].length; //returns the average
}

```

```

System.out.println("Student " + num + "'s average is " + studgrades.studAVG(num) + "%");
//display average of chosen student

System.out.println("Enter which tests average you would like to see. (1-5):");
testchoice = input.nextInt(); //ask user for which test's average they want to look at

```

Now I created the method in the GradeBook class which calculates the chosen students average using a for loop getting the sum of each test, and then dividing it by the amount of tests there were, so 5. I went to the CourseGrades class displayed the user average with a print statement, and then prompted the user for which test they wanted to see the average.

```
public double testAVG(int testchoice) { //This method when called
    int testindex = testchoice -1; //gets index of the test

    int sum = 0;

    for (int student = 0; student < grades.length; student++) {
        sum+= grades[student][testindex];
    }
    return (double) sum / grades.length; //returns the average of
}
```

```
System.out.println("Test " + testchoice + "'s average is " + studgrades.testAVG(testchoice) + "%." );
//display average of chosen test
```

Now I made a new method in the GradeBook class for calculating the average mark for the user's chosen test. It takes every test, adds them and divides it by 12, calculating the average grade for that test. This is then used in the CourseGrades class and displayed to the user.