Reflection Log

```java
package Mastery;

public class GradeBook {
    private int[][] grades; // Two-dimensional array to store grades
```

This snippet defines the GradeBook class, which serves as the blueprint for managing student grades. The class contains a private two-dimensional integer array named grades to store test scores for multiple students. By encapsulating the grades array, the class ensures controlled access and manipulation of the grade data.

```java
    // Constructor to initialize grades array
    public GradeBook(int students, int tests) {
        grades = new int[students][tests];
    }

    // Method to set a grade for a specific student and test
    public void setGrade(int student, int test, int grade) {
        grades[student][test] = grade;
    }
```

The constructor GradeBook(int students, int tests) initializes a 2D array grades to store grades for the specified number of students and tests. The method setGrade(int student, int test, int grade) assigns a specific grade to a particular student for a given test in the grades array.

```java
    // Method to display all grades
    public void showGrades() {
        System.out.println("Grades:");
        for (int student = 0; student < grades.length; student++) {
            System.out.print("Student " + (student + 1) + ": ");
            for (int test = 0; test < grades[student].length; test++) {
                System.out.print(grades[student][test] + " ");
            }
            System.out.println();
        }
    }
```

This method, showGrades, displays all the grades stored in a two-dimensional array called grades. It iterates through each student and their respective test scores, printing them in a structured format with labels for clarity.

```java
// Method to calculate the average grade for a specific student
public double studentAvg(int student) {
    int total = 0;
    for (int test : grades[student]) {
        total += test;
    }
    return total / (double) grades[student].length;
}

// Method to calculate the average grade for a specific test
public double testAvg(int test) {
    int total = 0;
    for (int[] studentGrades : grades) {
        total += studentGrades[test];
    }
    return total / (double) grades.length;
}
```

This part of the code initializes two integer variables, students and tests, to represent the number of students and tests, respectively, with values of 12 and 5. It then creates an instance of the GradeBook class, passing the students and tests variables as arguments to its constructor. This allows the GradeBook object to use these values to manage and process data related to 12 students and their scores across 5 tests.