

STUDENT INFORMATION SYSTEM PROJECT

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CIS 25 – Fall 2023

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WHAT DOES IT DO?

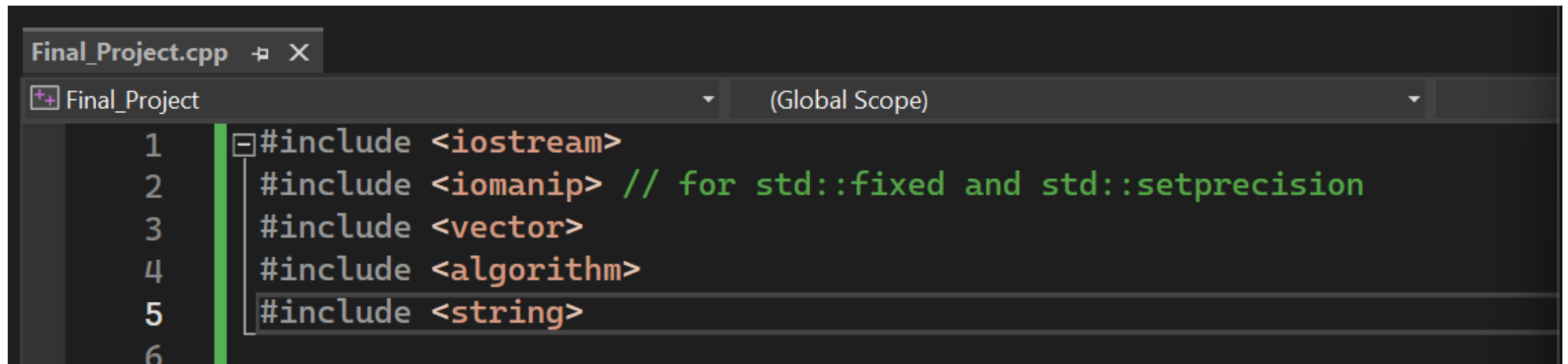
- Add new Students
- Calculate GPA
- Student Information



HOW DOES IT WORK?

- Text-based Interface
- User can Input Details
- The system stores
- GPA calculation
- View Student Information

INCLUDE STATEMENTS



The image shows a code editor window titled "Final_Project.cpp". Below the title bar, there is a tab labeled "Final_Project" with a small icon on the left and a dropdown menu showing "(Global Scope)". The code is written in C++ and consists of five lines of include statements, each preceded by a line number (1 to 5) in a light blue font. The code is as follows:

```
1 #include <iostream>
2 #include <iomanip> // for std::fixed and std::setprecision
3 #include <vector>
4 #include <algorithm>
5 #include <string>
```

COURSE CLASS OVERVIEW

```
class Course {  
public:  
    std::string name;  
    double grade;  
};
```

```
class Student {  
public:  
    std::string name;  
    int id;  
    std::vector<Course> courses;  
  
    double calculateGPA() const {  
        if (courses.empty()) {  
            return 0.0;  
        }  
  
        double totalGrade = 0.0;  
        for (const auto& course : courses) {  
            totalGrade += course.grade;  
        }  
  
        return totalGrade / courses.size();  
    }  
  
    double convertTo4Scale(double maxGrade = 100.0) const {  
        return (calculateGPA() / maxGrade) * 4.0;  
    }  
};
```



```

class StudentInformationSystem {
private:
    std::vector<Student> students;

public:
    void addStudent(const Student& student) {
        students.push_back(student);
    }

    void displayStudentDetails() const {
        std::cout << "Student Details:\n";
        for (const auto& student : students) {
            std::cout << "Name: " << student.name << "\n";
            std::cout << "ID: " << student.id << "\n";
            std::cout << "Courses:\n";
            for (const auto& course : student.courses) {
                std::cout << "  - " << course.name << ": " << course.grade << "\n";
            }
            std::cout << std::fixed << std::setprecision(2); // Set precision to 2 decimal places
            std::cout << "GPA: " << student.convertTo4Scale() << "\n\n";
        }
    }

    void displaySpecialFeatures() const {
        // Implementation for special features
    }
};

```

CLASS DETAILS

MAIN FUNCTION EXECUTION

```
int main() {
    StudentInformationSystem sis;

    // Adding initial students
    sis.addStudent({ "Emily Johnson", 123456789, {{ "Math", 90.0}, {"History", 85.0}, {"English", 92.5}} });
    sis.addStudent({ "Michael Davis", 987654321, {{ "Physics", 88.0}, {"Chemistry", 87.5}, {"Biology", 91.0}} });
    sis.addStudent({ "Sophia Martinez", 246813579, {{ "Computer Science", 95.0}, {"Math", 94.5}, {"Physics", 96.0}} });
    sis.addStudent({ "Daniel Thompson", 135792468, {{ "History", 80.0}, {"English", 85.5}, {"Biology", 82.0}} });

    int choice;

    do {
        // Display menu
        std::cout << "\nMenu:\n";
        std::cout << "1. Add Student\n";
        std::cout << "2. Display Student Details\n";
        std::cout << "3. Exit\n";
        std::cout << "Enter your choice: ";
        std::cin >> choice;

        switch (choice) {
            case 1: {
                // Add a new student
                Student newStudent;
                std::cout << "Enter student name: ";
                std::cin.ignore(); // Clear the buffer
                std::getline(std::cin, newStudent.name);
                std::cout << "Enter student ID: ";
                std::cin >> newStudent.id;

                // Input courses and grades
                char addMoreCourses;
                do {
                    Course course;
                    std::cout << "Enter course name: ";
                    std::cin.ignore(); // Clear the buffer
                    std::getline(std::cin, course.name);
                    std::cout << "Enter grade for the course: ";
                    std::cin >> course.grade;
                    newStudent.courses.push_back(course);

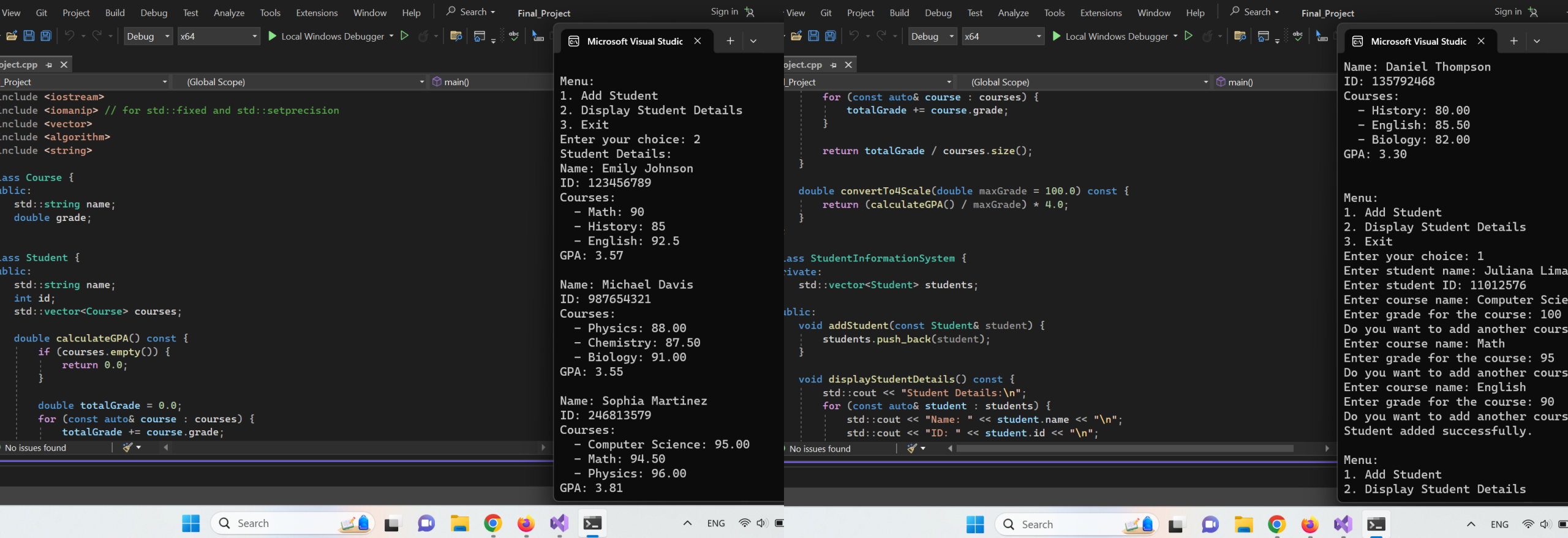
                    std::cout << "Do you want to add another course? (y/n): ";
                    std::cin >> addMoreCourses;
                } while (addMoreCourses == 'y' || addMoreCourses == 'Y');

                sis.addStudent(newStudent);
                std::cout << "Student added successfully.\n";
                break;
            }
            case 2: {
                // Display student details
                sis.displayStudentDetails();
                break;
            }
            case 3: {
                // Exit the program
                std::cout << "Exiting program.\n";
                break;
            }
            default: {
                std::cout << "Invalid choice. Please try again.\n";
            }
        }
    } while (choice != 3);

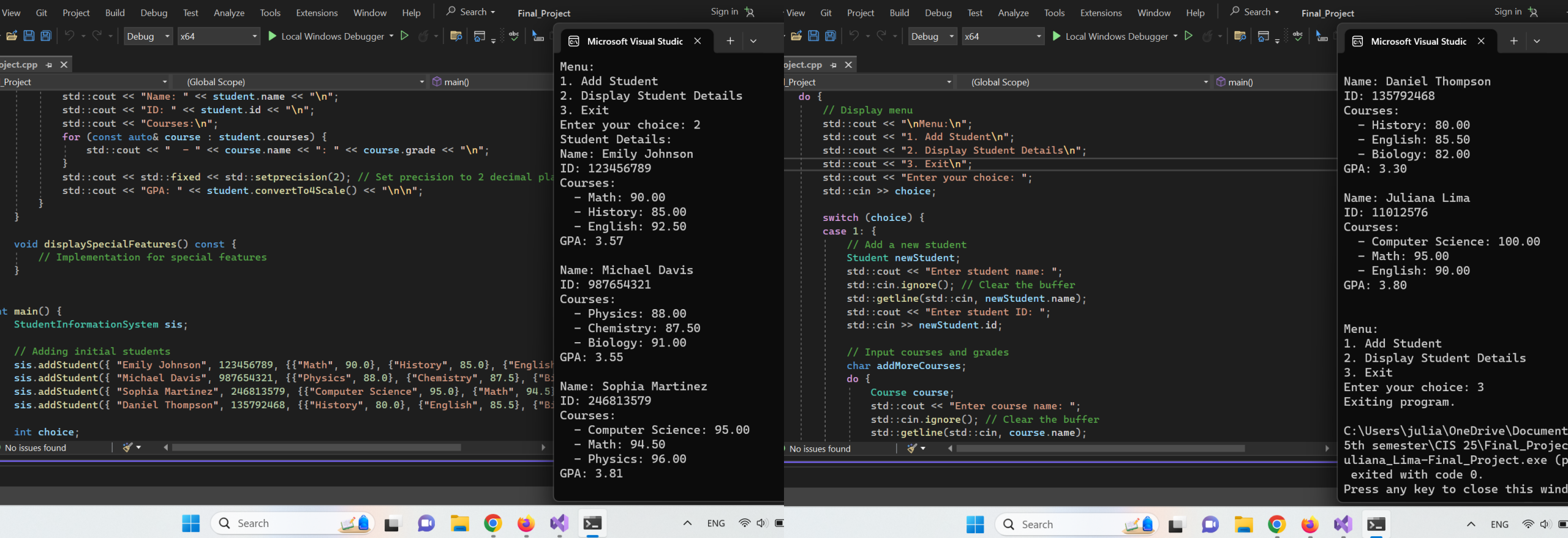
    return 0;
}
```



**LET'S RUN THE
CODE...**



OUTPUT



OUTPUT



CONCLUSION

A graphic on the left side of the slide featuring three concentric circles. The innermost circle is dark gray, the middle ring is a slightly lighter shade of gray, and the outermost ring is the lightest shade of gray. The text "The End" is written in a white, elegant cursive script across the center of these circles.

The End

THANK YOU

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