Object Oriented Lab – Student Grade Manager OO

**For this lab. You will need to work off your existing code. Branch off of your Grade Manager App and make an Object Oriented version of it with the following features.**

**Due Date: Sept. 19th 2021**  
  
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We need a console app that manages Classrooms, Students and Assignments.

Feature 0:  
As a user, I need to be able to add classrooms by name.

Feature 1:  
As a user, I need to be able to remove classrooms by name.

Feature 2:  
As a user, I need to be able edit classrooms details by name (Show menu).  
  
Feature 3:  
As a user, I need to be able to show classrooms.  
  
Feature 4:  
As a user, I need to be able to exit the app.

Feature 5:

As a user I need to be able to add students to a classroom by name.  
  
Feature 6:  
As a user, I need to be able to remove students from classrooms by name.  
  
Feature 7 :  
As a user, I need to be able to show students in the classroom. (with a detailed summary).

Feature 8 :  
As a user, I need to be able edit students in the classroom by name.

Feature 9 :  
As a user, I need to be able to see the class average in a classroom.

Feature 10:  
As a user, I need to be able to see the Top Student (highest average grade) in the classroom.

Feature 11:  
As a user, I need to be able to see the Worst Student (lowest average grade) in the classroom.

Feature 12:  
As a user, I need to be able to compare two students by name.

Feature 13:  
As a user, I need to be able to leave each menu and rejoin the parent menu. Classrooms → Classrooms Details → Student Details

Feature 14:  
As a user, I need to be able to see the current student I’m editing.

Feature 15:  
As a user, I need to be able to see the current classroom I’m editing.

Feature 16:  
As a user, I need to be able to show a summary of a students properties.

Feature 17:  
As a user, I need a student to have a name, a grade average, multiple assignments and whether or not they have completed those assignments.

Feature 18:  
As a user, I need to be able to assign something to a student.

Feature 19:  
As a user, I need to be able to remove an assignment.

Feature 20:  
As a user, I need to be able to grade an assignment.

Feature 21:  
As a user, I need to be able to show a student’s best grade.

Feature 22:  
As a user, I need to be able to show a student’s worst grade.

**Bonus:**   
Research how to use MSTest to add a testing project. Then use this testing project to unit test your individual classes functionality.

Hints:  
Watch the video over and over again for the details of what this looks like. This WILL require classes if you want to maintain your sanity, this will be exceptionally hard without using the principles of OO. Classrooms have students, students have assignments, assignments have properties on them. I highly suggest you consider a menu system that takes advantage of inheritance.   
  
**Note:**

Student details include:

- Name

- Average Grade

- Indication of whether all assignments are complete (graded)

- Number of assignments

- If you want to add more details (e.g., number of complete assignments, number of incomplete assignments, or anything else you can think of), go ahead.