COP 3855 – Web Systems Development

C# Individual Programming Project

Write a program that will help an elementary student learn basic math skills such as addition, subtraction, and multiplication. The program quizzes the student to perform math operations for two numbers. Two numbers used in the quiz question should be generated randomly. C# has a Random Class that can be used for generating a random number. You can find more information about Random Class at https://docs.microsoft.com/en-us/dotnet/api/system.random?view=netframework-4.8.

The program, first, should get some basic information about the student, such as name and grade level. The grade levels the program supports are K1 to 5. Create a Class object to maintain student information. You may want to consider maintaining other relevant information about the student performance with the quiz within the class object such as number of questions asked and the number of correct answers. See figures 1 and 2 in relevance to obtain basic student information.

After obtaining student information, the program should display math testing options to the user. See figures 3 and 4 in regards to the display of testing menu options.

Depending upon the menu option selected, appropriate math operation quiz questions should be displayed. The program should indicate to the user whether the answer provided is correct or incorrect. The program should keep track of number math operator specific questions asked and number answers correctly provided. See figures 5 to 12 in regards to displaying math operation quiz questions and user feedback displays.

The program should iteratively quiz the student on the selected testing menu option until the user provides a key c response. If the user enters a key m response, the testing menu option should be redisplayed to the user, without breaking the iteration. See figures 13 to 15.

In case the user chooses “Surprise me” option during testing menu display, then the program should randomly select math operator to quiz (addition, subtraction, or multiplication) the student for every iteration of the test.

When the student user chooses to end the test, the program should display basic student information along with the number of questions asked and answered correctly for each math operator. See figure 16 for display details.

In this project, you are expected to apply C# programming capability such as creating classes, methods, obtaining user inputs through the console, conditional statements, iterative loops, and working with a variety of data types among other programming constructs.

Submit the visual studio solution set to the Canvas.

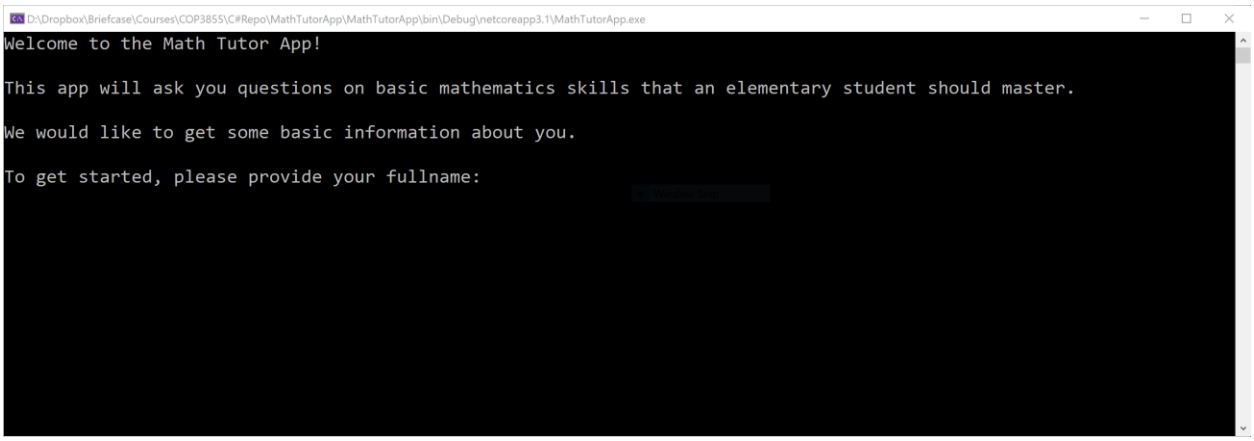

Figure 1. Welcome to the program.

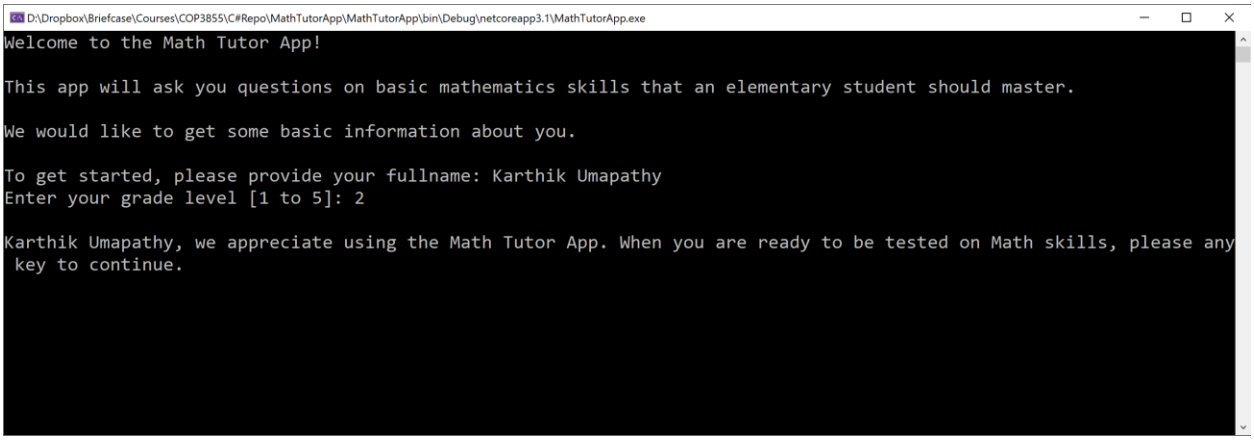

Figure 2: Obtaining basic student information.

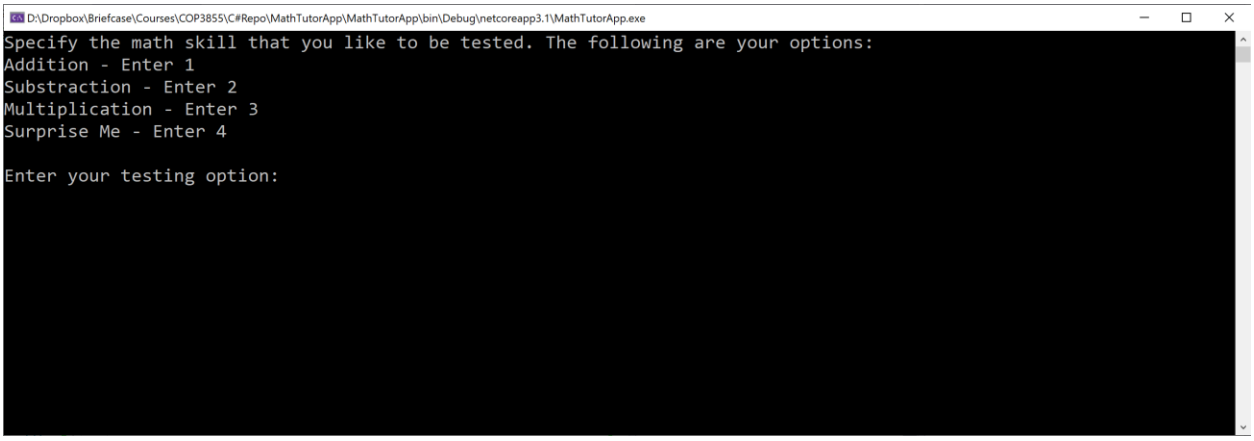

Figure 3: Display of math testing menu options.

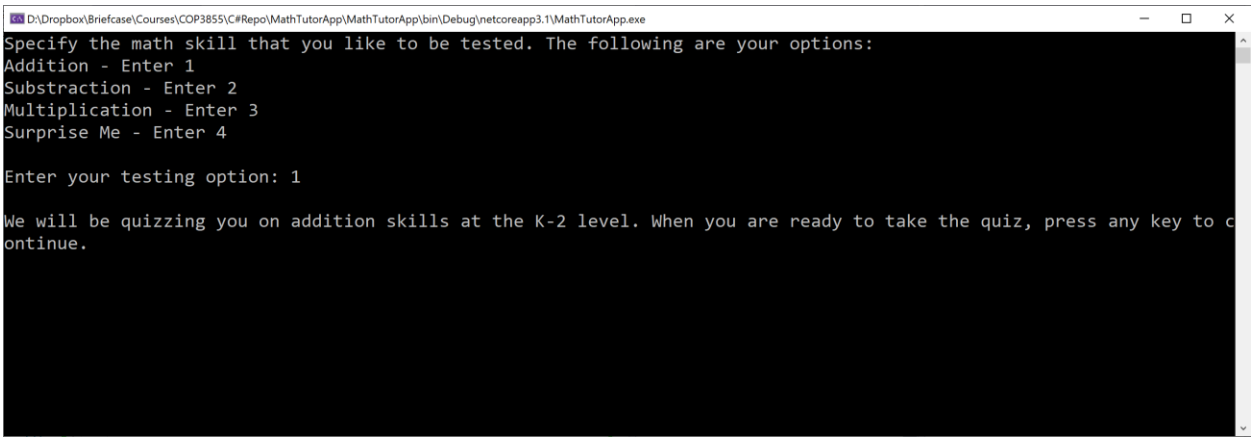

Figure 4: User makes a menu selection.

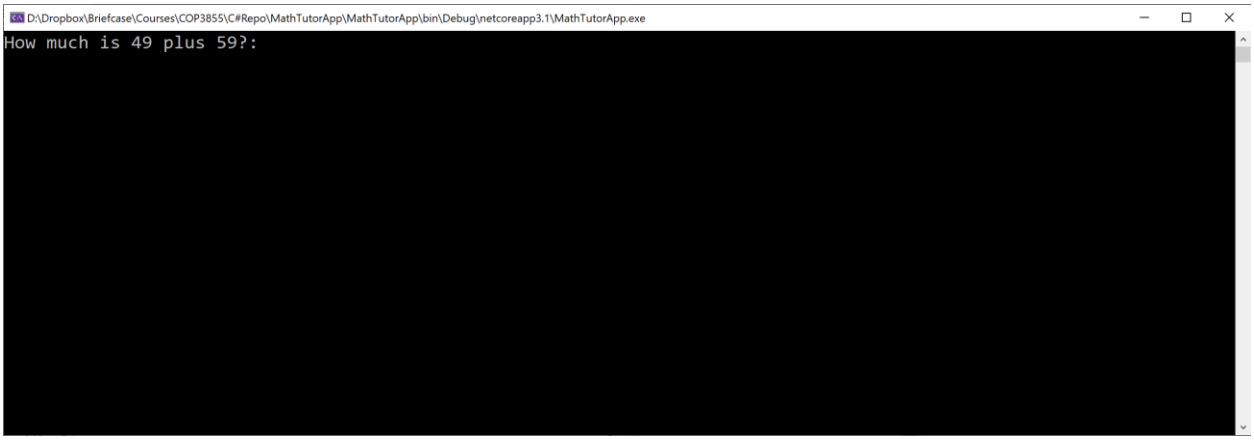

Figure 5: Display of addition quiz question.

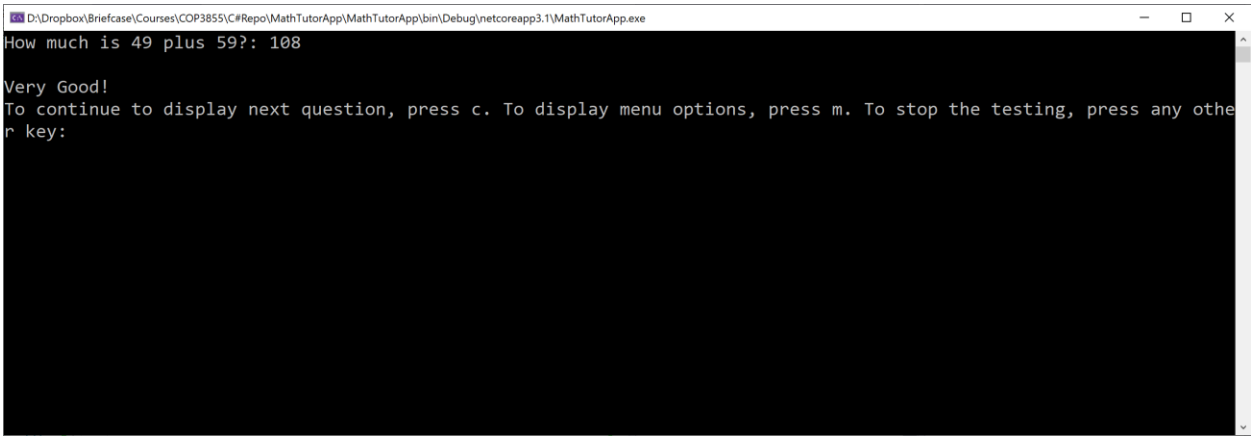

Figure 6: Display for answering addition question correctly.

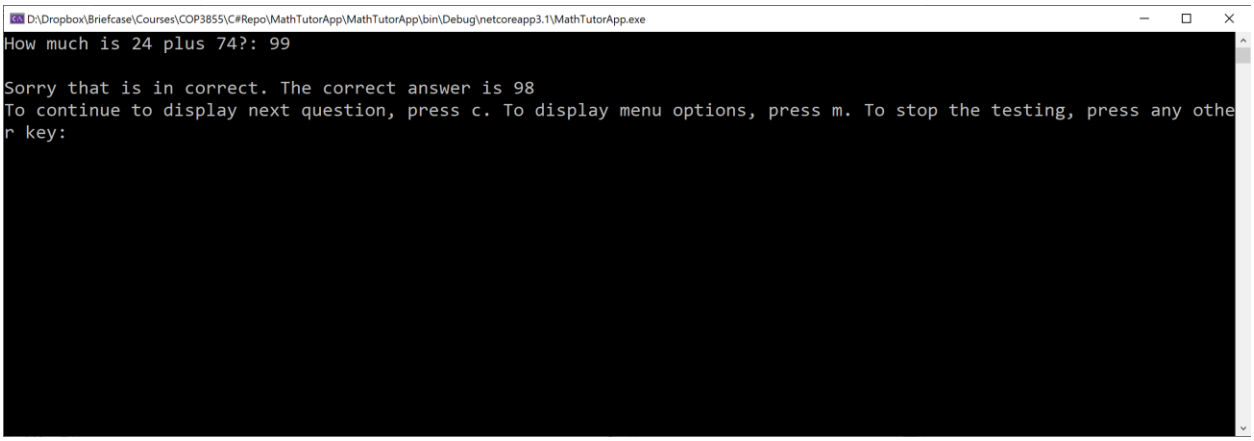

Figure 7: Display for answering addition question incorrectly.

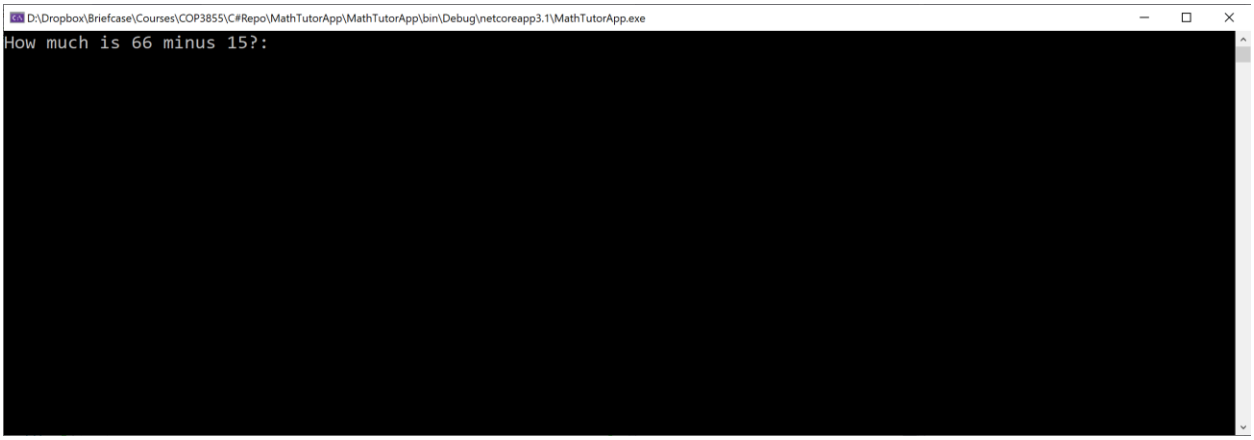

Figure 8: Display of subtraction quiz question.

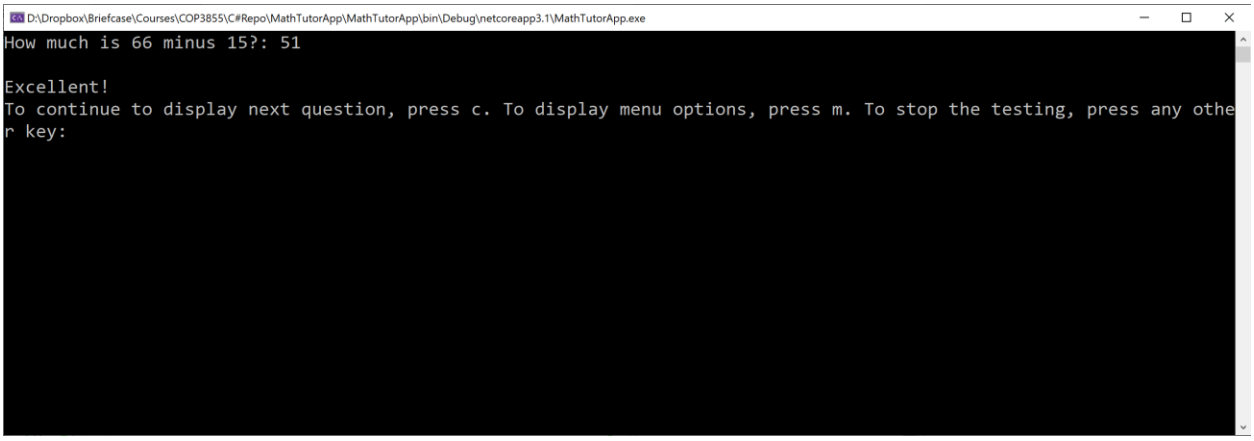

Figure 9: Display for answering subtraction question correctly.

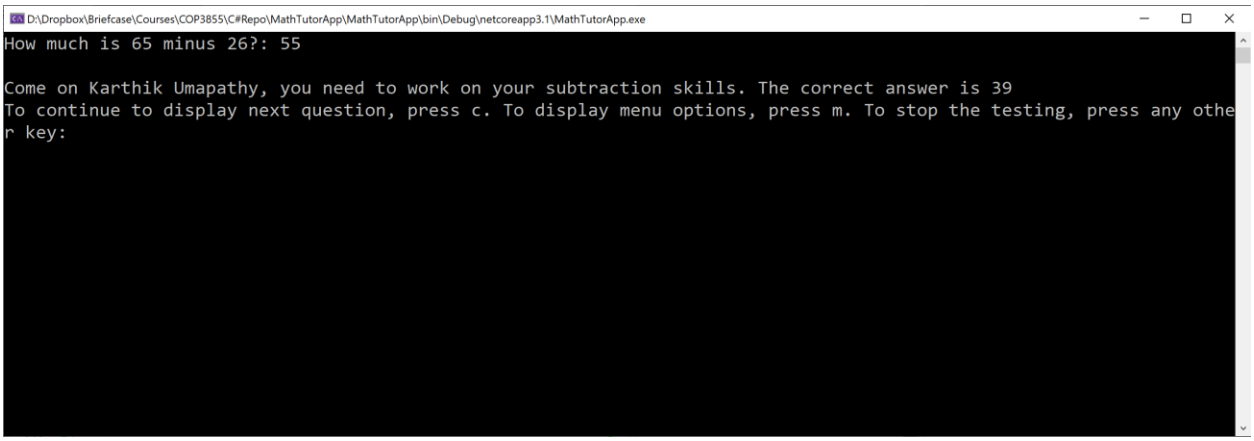

Figure 10: Display for answering subtraction question incorrectly.

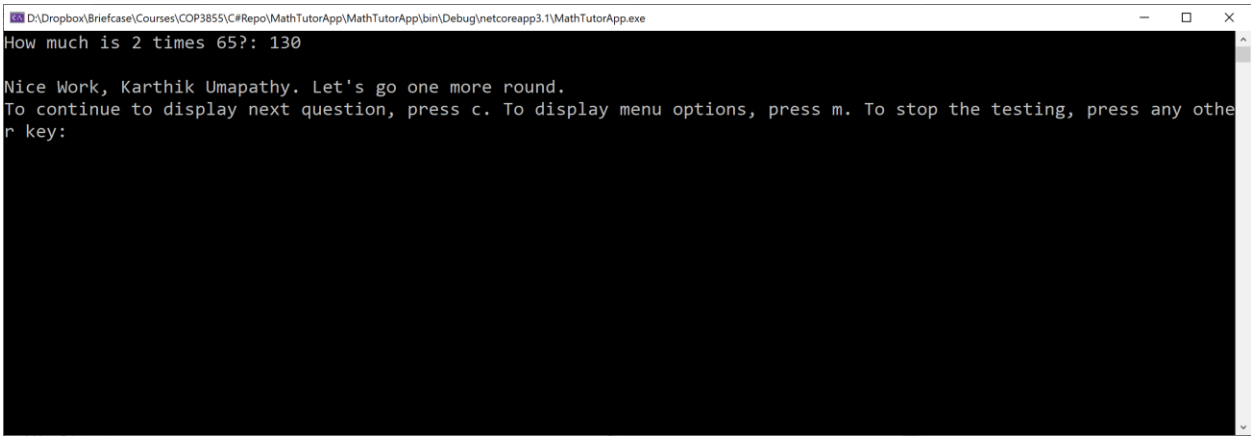

Figure 11: Display for answering multiplication question correctly.

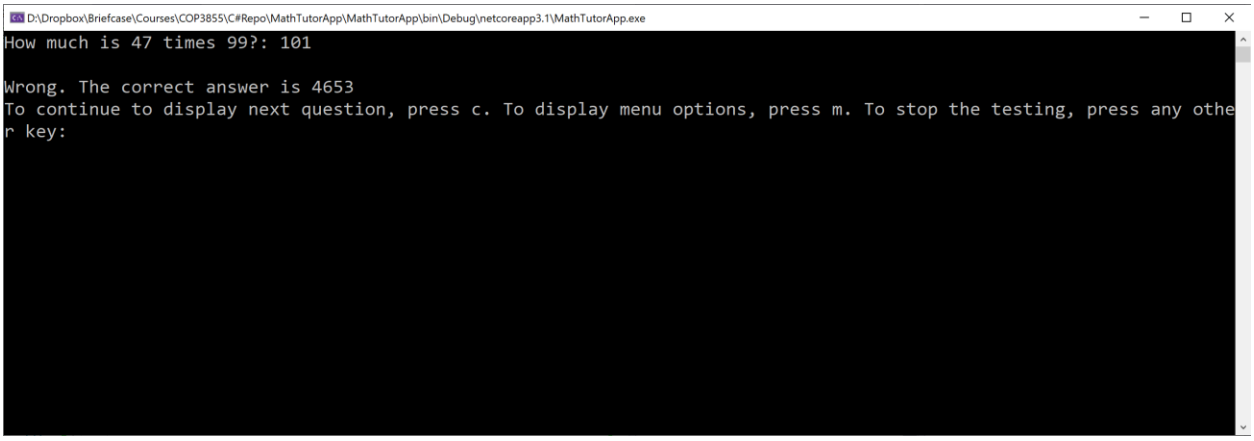

Figure 12: Display for answering multiplication question incorrectly.

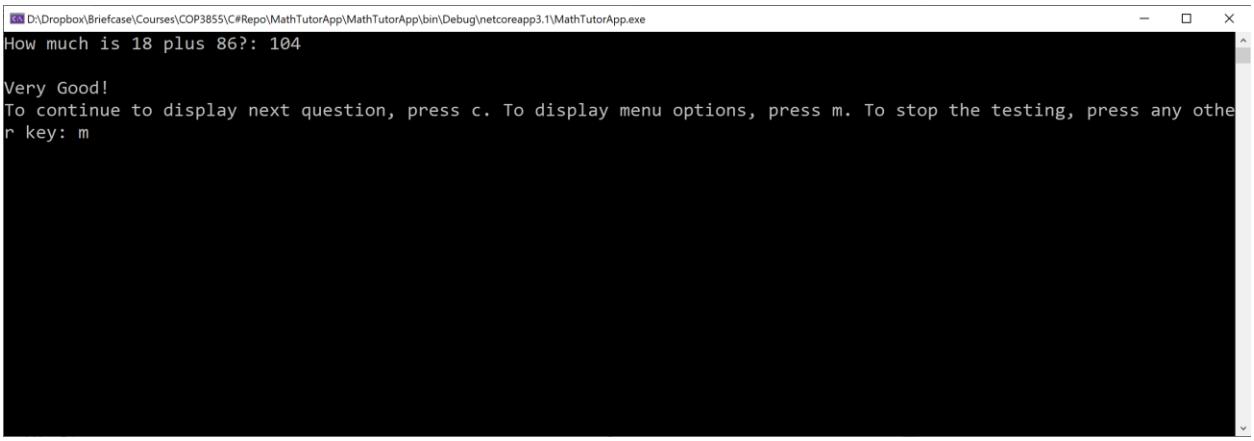

Figure 13: User selecting option to display testing menu again.

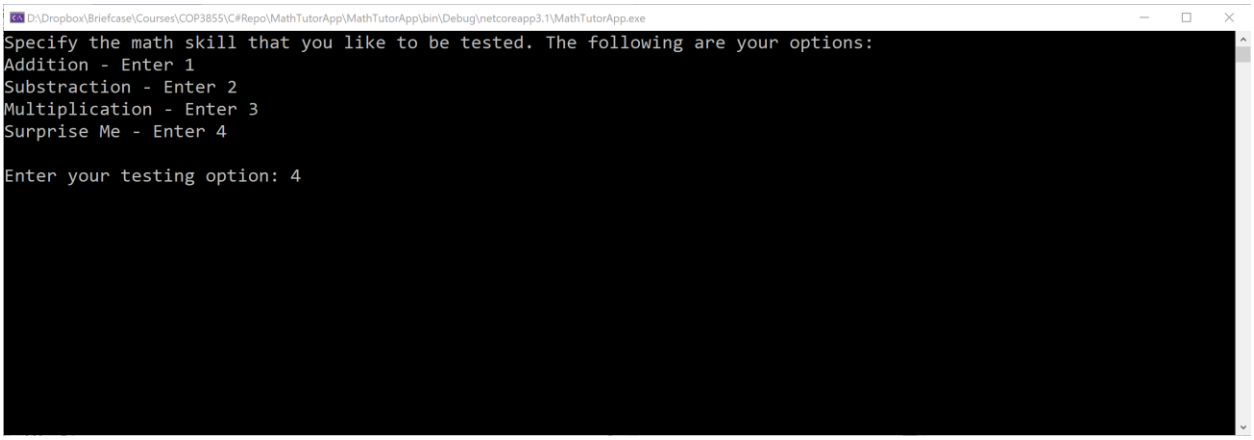

Figure 14: User selecting surprise me option

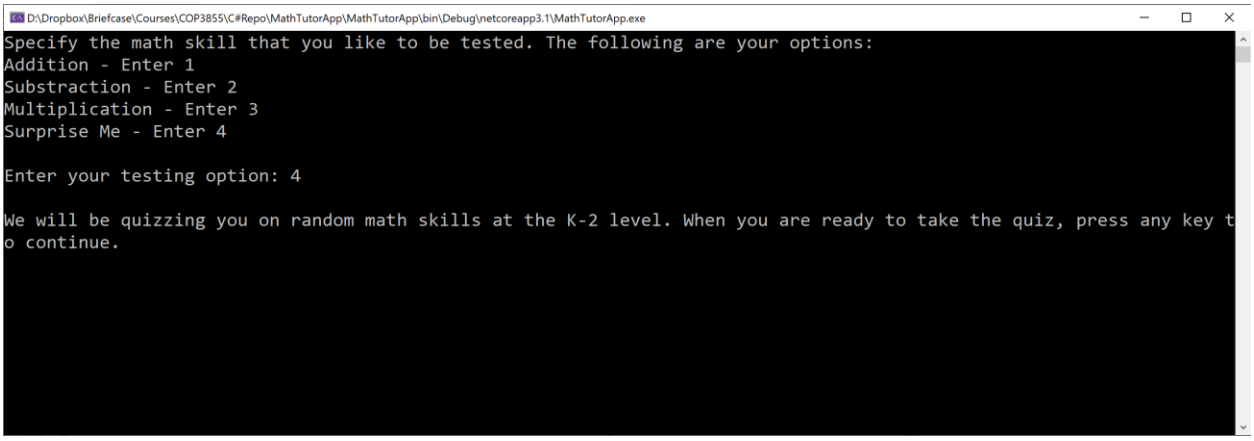

Figure 15: Program display for surprise me menu option selection by the user.

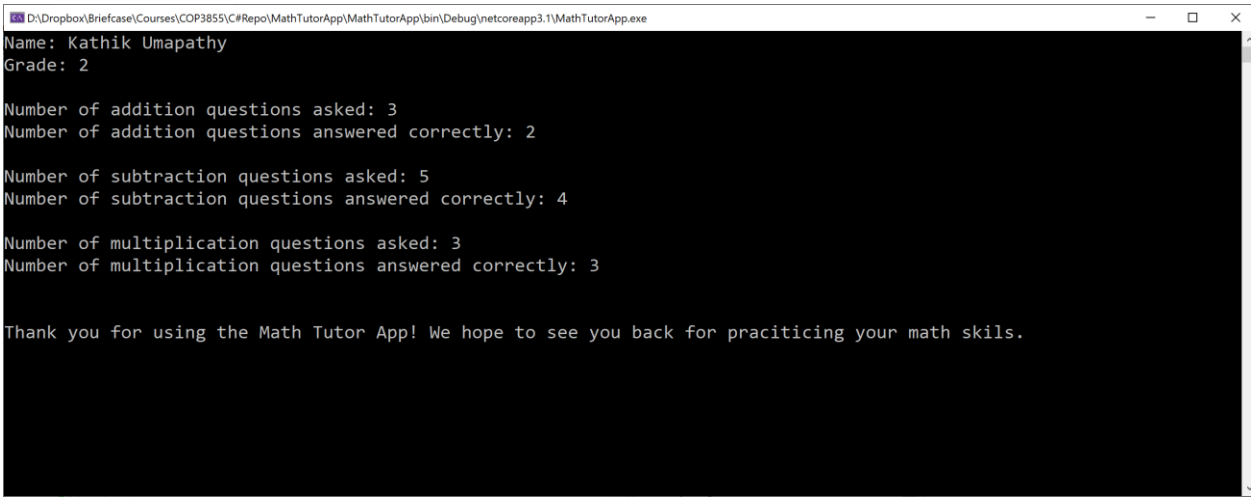

Figure 16: Display of student object information.