

The College of Staten Island
Department of Computer Science
Spring 2021 - CSC 126
Mrs. S. Nevins

Lab 1a - Whose Line Is It Anyway?

Write a complete C++ program that when given the x and y coordinates of two points on a line, the program calculates and displays the **slope** and the **midpoint** of that line.

Given two points (x₁, y₁) and (x₂, y₂) the formula for the **slope** of a line is:

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

The formula for the **midpoint** of a line is:

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Your output should display the original two points, the slope and the midpoint in a clear organized manner.

Test your program with the following sets of points and **two** sets of **your own** choosing. This means you must run your program **SIX** times!!

Point #1	Point #2
(4, 6)	(16, 18)
(4, 6)	(16, 19)
(-10, 8)	(14, 4.2)
(3.4, -6)	(20, 16)

Sample Output

```
Please enter the x coordinate of the first point on a line: 4
Please enter the y coordinate of the first point on a line: 6
Please enter the x coordinate of the second point on the line: 16
Please enter the y coordinate of the second point on the line: 18
```

```
The first point's coordinate is: (4,6)
The second point's coordinate is: (16,18)
The slope of the line is: 1
The midpoint is: (10,12)
```

IMPORTANT - Place the steps for the software development procedure in a comment at the top of your program. Comment your code judiciously.

HAND IN - Your program (aka source code) along with the 6 sets of output produced.