Representing a line in the Cartesian plane

Let l be a line in the $x - y$ plane. If l is a vertical line, its equation is $x = a$ for some real number a. Suppose l is not a vertical line, and its slope is m. The the equation of l is $y = mx + b$ where b is the y-intercept. If l passes through the point (x_0, y_0), the equation of l can be written as $y - y_0 = m(x - x_0)$. If (x_1, y_1) and (x_2, y_2) are two points in the $x - y$ plane, and $x_1 \neq x_2$, the slope of the line passing through these points is $m = (y_2 - y_1)/(x_2 - x_1)$. Write a program that prompts the user two points in the $x - y$ plane. The program outputs the equation of the line, and uses `if` statements to determine and output whether the line is vertical, horizontal, increasing, or decreasing. If l is a non-vertical line, output its equation in the form $y = mx + b$.

Use the command `script` to capture your interaction compiling and running the program as shown below:

```
drb@nest:~/cs1b/hw/02$ script hw02.scr
Script started, file is hw02.scr
drb@nest:~/cs1b/hw/02$ date
...
drb@nest:~/cs1b/hw/02$ ls -l
...
drb@nest:~/cs1b/hw/02$ g++ hw02.cpp -o hw02
drb@nest:~/cs1b/hw/02$ ls -l
...
drb@nest:~/cs1b/hw/02$ ./hw02
// interact with the program
drb@nest:~/cs1b/hw/02$ ls -l
...
drb@nest:~/cs1b/hw/02$ exit
Script done, file is hw02.scr
drb@nest:~/cs1b/hw/02$ tar cf hw02.tar hw02.h hw02.cpp hw02.scr
```

Submit the `tar` package file `hw02.tar` to canvas by the due date on top of this page.