

Purpose: iteration using a for loop

Learning outcomes: 1, 2 and 3

Time: submit before 5pm Friday of Week 5.

Resources: MyLO: lecture notes and tutorial materials

Description:

Different people can climb steps at different rates (number of climbing-steps per minute). A tourist company has asked you to create a program that tourists can use to determine how many steps they can climb in a certain amount of time to get to a scenic lookout which is 1000 steps from where they start.

Task:

Write a Python program that **asks the user** to enter their stair-climbing rate (in steps per minute), followed by a time duration (in minutes).

The program will then display a heading, followed by several rows of data (using a **for** loop), with each row (suitably aligned to the heading) displaying the elapsed minute (starting at 1), followed by the cumulative number of steps climbed. The last row *time* should match the duration entered by the user.

Your program should finally indicate which minute (if at all) they would reach the lookout situated 1000 steps above that starting point. If the lookout was not reached, a suitable message should be displayed.

Hint:

Use the *range()* function.

Example output:

```
Please enter your stair step rate in steps per minute: 250
Please enter the length of time in minutes to display: 6
```

```
Time Step total
-----
1    250
2    500
3    750
4   1000
5   1250
6   1500
```

```
You reached the lookout at 1000 steps in 4.0 minutes
```

A second example:

```
Please enter your stair step rate in steps per minute: 100
Please enter the length of time in minutes to display: 7
```

```
Time Step total
-----
1    100
2    200
3    300
4    400
5    500
6    600
```

7 700

You did not reach the lookout at 1000 steps!

Submission Details

Upload the following to the MyLO submission folder for this task:

1. The source file (i.e. the **.py** file containing your code)
2. A screenshot of the Python shell window that shows the **execution results** of the source code.

Assessment Criteria & Hints

A completed submission **must**:

1. Include comments about the program purpose and the author of the program (your name)
2. Declare variables and assign initial values at the start of the program
3. Use a constant (in UPPERCASE) for the height (in steps) of the lookout
4. Use meaningful names for variables, starting with a lower case
5. Ask the user to enter the stair step rate and time duration (consider what *sort of data* will be entered)
6. Calculate the cumulative number of steps climbed per unit time
7. Display the resulting information properly
8. Submit both the source file and the screenshot