Minimum path traversal

Problem

Below is a triangle of numbers connected as follows:

```
      62
      / \
    44  93
    / \ / \
  96  16  38
  / \ / \ / \
72  58  98  26
```

Given a triangle of numbers, find the valid path that generates the minimum sum possible starting at the top of the triangle and moving to adjacent numbers in the row below until you reach the bottom.

```
      62
    44  93
  96  16  38
72  58  98  26
```

For example, in the above triangle, the minimal path is **62 -> 44 -> 16 -> 58** which sums to 180. (Edges have been removed for clarity.)

Testing

Included in this directory are 2 files containing triangles of numbers that may be used for testing your solution. *small_triangle.txt* contains 10 rows of numbers. The minimum path sum for this triangle is 387. *large_triangle.txt* contains 150 rows with a minimum path sum of 3549.

NOTE: Your solution will be tested against triangles of varying sizes. You can assume no triangle will have more than 150 rows. Also, you may assume there is only one valid minimum path per triangle.

Collaboration

You are encouraged to work alone. Working with others is not advised as, should you be chosen to progress to the next phase, you will be required to explain your code and any design decisions you have made.

Submissions

All solutions must be implemented in python3. Your code will be executed as follows and should return the value of each node on the min path on a separate line.

```
$ python3 traversal.py small_triangle.txt
79
4
64
17
33
26
30
```

```
72
37
25
```

Be sure to print the numbers in order from the top of the triangle to the bottom. **Your main executable must be named *traversal.py* and your output must match that given above.** Your code will be run by an automated test runner so failure to use the proper format may lead to your solution being marked as incorrect.

It should be possible to achieve a solution using pure python without any additional libraries. If your solution does require additional libraries to be installed, please include a single *requirements.txt* with your submission.

When submitting your code, **be sure to only include .py and .txt files and not any .pyc files.** This is very important. Attempting to submit files with other extensions may cause your submission to be blocked by the antivirus software. Next, create an archive (either .tar.gz or .zip) and name it "firstname_lastname". For example,

```
john_smith.tar.gz
```

Or,

```
john_smith.zip
```

Finally, email your solution as an attachment to *textura-recruiting_us@oracle.com*. Be sure to include the job req ID (170011U7) in the subject line of your email.