

Python implementation of head

In this exercise, we'll write a Python program to emulate the Unix `head` command. If you read `man head`, you will see that this program (probably) defaults to showing the first 10 lines of a given file:

NAME

`head -- display first lines of a file`

SYNOPSIS

`head [-n count | -c bytes] [file ...]`

DESCRIPTION

This filter displays the first count lines or bytes of each of the specified files, or of the standard input if no files are specified. If count is omitted it defaults to 10.

If more than a single file is specified, each file is preceded by a header consisting of the string `'==> XXX <=='` where `'XXX'` is the name of the file.

EXIT STATUS

The head utility exits 0 on success, and >0 if an error occurs.

The program should handle a *single* file provided as a positional argument:

```
$ ./head.py inputs/the-bustle.txt
```

```
The bustle in a house  
The morning after death  
Is solemnest of industries  
Enacted upon earth,--
```

```
The sweeping up the heart,  
And putting love away  
We shall not want to use again  
Until eternity.
```

The program should accept a `-n` or `--num` option for the number of lines to show (default 10):

```
$ ./head.py -n 5 inputs/sonnet-29.txt
```

```
Sonnet 29  
William Shakespeare
```

```
When, in disgrace with fortune and men's eyes,  
I all alone beweep my outcast state,
```

The program should reject any argument that is not a readable file:

```
$ ./head.py blargh
usage: head.py [-h] [-n int] FILE
head.py: error: argument FILE: can't open 'blargh': \
[Errno 2] No such file or directory: 'blargh'
```

The program should reject a `--num` argument less than 1:

```
$ ./head.py -n 0 inputs/gettysburg.txt
usage: head.py [-h] [-n int] FILE
head.py: error: --num "0" must be greater than 0
```

Given no arguments, it should print a short usage:

```
$ ./head.py
usage: head.py [-h] [-n int] FILE
head.py: error: the following arguments are required: FILE
```

Or a longer usage for `-h` or `--help`:

```
$ ./head.py -h
usage: head.py [-h] [-n int] FILE

Rock the Casbah

positional arguments:
  FILE                  Input file

optional arguments:
  -h, --help            show this help message and exit
  -n int, --num int     Number of lines (default: 10)
```

The program should pass all tests:

```
$ make test
pytest -xv test.py
===== test session starts =====
...
collected 8 items

test.py::test_exists PASSED [ 12%]
test.py::test_usage PASSED [ 25%]
test.py::test_bad_file PASSED [ 37%]
test.py::test_bad_num PASSED [ 50%]
test.py::test_default PASSED [ 62%]
test.py::test_num_1 PASSED [ 75%]
test.py::test_n_2 PASSED [ 87%]
test.py::test_num_3 PASSED [100%]

===== 8 passed in 0.54s =====
```