Programming Assignment 2: Seam Carving | seamCarving.zip

Help Center

Submission	
Submission time	Sat-09-Apr 00:00:11
Raw Score	100.00 / 100.00
Feedback	See the Assessment Guide for information on how to interpret this report.

Assessment Summary

```
Compilation:  PASSED
Style:        PASSED
Findbugs:     No potential bugs found.
API:          PASSED

Correctness:  31/31 tests passed
Memory:       7/7 tests passed
Timing:       6/6 tests passed

Aggregate score: 100.00% [Correctness: 65%, Memory: 10%, Timing: 2
5%, Style: 0%]
```

Assessment Details

```
The following files were submitted:
----------------------------------
total 20K
-rw-r--r-- 1  16K Apr  8 21:00 SeamCarver.java
-rw-r--r-- 1 3.3K Apr  8 21:00 studentSubmission.zip


*********************************************************************
*************
*          COMPILING
*
*********************************************************************
*************


% javac SeamCarver.java
*---------------------------------------------------------
```

```
================================================================


% checkstyle *.java
*-----------------------------------------------------------

================================================================


% findbugs *.class
*-----------------------------------------------------------

================================================================


Testing the APIs of your programs.
*-----------------------------------------------------------
SeamCarver:

================================================================


******************************************************************
***********
*          CORRECTNESS
******************************************************************
***********

Testing methods in SeamCarver
*-----------------------------------------------------------
Running 31 total tests.

Test 1a: Test energy() with file inputs
  *  6x5.png
  *  4x6.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
  *  HJoceanSmall.png
  *  1x8.png
  *  8x1.png
  *  1x1.png
```

```
==> passed

Test 1b: Test energy() with random W-by-H pictures
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 1c: Test energy() with random W-by-H pictures with degenerate
energies
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 2a: Test width() with file inputs
  *  6x5.png
  *  4x6.png
==> passed

Test 2b: Test width() with random W-by-H pictures
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
==> passed

Test 3a: Test height() with file inputs
  *  6x5.png
  *  4x6.png
==> passed

Test 3b: Test height() with random W-by-H pictures
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
==> passed

Test 4a: Test findVerticalSeam() with file inputs
  *  6x5.png
  *  4x6.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
```

```
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
  *  HJoceanSmall.png
  *  1x8.png
  *  8x1.png
  *  1x1.png
==> passed

Test 4b: Test findVerticalSeam() with random W-by-H pictures
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 4c: Test findVerticalSeam() with random W-by-H pictures with d
egenerate energies
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 5a: Test findHorizontalSeam() with file inputs
  *  6x5.png
  *  4x6.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
  *  HJoceanSmall.png
  *  1x8.png
  *  8x1.png
  *  1x1.png
==> passed

Test 5b: Test findHorizontalSeam() with random W-by-H pictures
  *  4-by-6
  *  5-by-5
  *  6-by-4
```

```
  *  7-by-10
  *  100-by-100
==> passed

Test 5c: Test findHorizontalSeam() with random W-by-H pictures with
degenerate energies
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 6a: Test removeVerticalSeam() with file inputs and optimal sea
ms
  *  6x5.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
  *  HJoceanSmall.png
  *  8x1.png
==> passed

Test 6b: Test removeVerticalSeam() with random W-by-H pictures and
optimal seams
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 6c: Test removeVerticalSeam() with file inputs and random seam
s
  *  6x5.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
```

```
  *  HJoceanSmall.png
  *  8x1.png
==> passed

Test 6d: Test removeVerticalSeam() with random W-by-H pictures and
random seams
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 7a: Test removeHorizontalSeam() with file inputs and optimal s
eams
  *  6x5.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
  *  HJoceanSmall.png
  *  1x8.png
==> passed

Test 7b: Test removeHorizontalSeam() with random W-by-H pictures an
d optimal seams
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 7c: Test removeHorizontalSeam() with file inputs and random se
ams
  *  6x5.png
  *  10x12.png
  *  3x7.png
  *  5x6.png
  *  7x3.png
  *  7x10.png
  *  12x10.png
  *  stripes.png
  *  diagonals.png
  *  chameleon.png
```

```
  *  HJoceanSmall.png
  *  1x8.png
==> passed

Test 7d: Test removeHorizontalSeam() with random W-by-H pictures an
d random seams
  *  4-by-6
  *  5-by-5
  *  6-by-4
  *  7-by-10
  *  100-by-100
==> passed

Test 8: Check that energy(x, y) thows an exception when (x, y) are
out of bounds
  *  picture = 6x5.png, (x, y) = (-1, 4)
  *  picture = 6x5.png, (x, y) = (6, 4)
  *  picture = 6x5.png, (x, y) = (5, 5)
  *  picture = 6x5.png, (x, y) = (4, -1)
  *  picture = 6x5.png, (x, y) = (4, 5)
==> passed

Test 9a: Check removeVerticalSeam() with invalid seam
  *  picture = 10x10.png
  *  picture = 3x7.png
  *  picture = 7x3.png
  *  picture = 10x12.png
  *  picture = 12x10.png
  *  picture = 1x8.png
  *  picture = 8x1.png
  *  picture = 1x1.png
==> passed

Test 9b: Check removeHorizontalSeam() with invalid seam
  *  picture = 10x10.png
  *  picture = 3x7.png
  *  picture = 7x3.png
  *  picture = 10x12.png
  *  picture = 12x10.png
  *  picture = 1x8.png
  *  picture = 8x1.png
  *  picture = 1x1.png
==> passed

Test 9c: Check removeHorizontalSeam() and removeVerticalSeam() with
null arguments
  *  picture = 6x5.png
  *  picture = 3x7.png
==> passed
```

```
Test 10a: Check that client can mutate the Picture object that is p
assed to the constructor
==> passed

Test 10b: Check that client can mutate the Picture object that is r
eturned by picture()
==> passed

Test 11: Check constructor with null argument
==> passed

Test 12a: Check intermixed calls to findHorizontalSeam(), findVerti
calSeam(),
          removeHorizontalSeam(), and removeVerticalSeam(), widt
h(), height(),
          energy(), and picture() made with probabilities p1, p2, p
3, p4, p5,
          p6, p7, and p8, respectively with optimal seams
  *  random 5-by-6 image with p = (0.0, 0.0, 0.5, 0.0, 0.0, 0.0,
0.0, 0.5)
  *  random 6-by-5 image with p = (0.0, 0.0, 0.0, 0.5, 0.0, 0.0,
0.0, 0.5)
  *  random 8-by-8 image with p = (0.1, 0.1, 0.2, 0.2, 0.0, 0.0,
0.0, 0.4)
  *  random 8-by-8 image with p = (0.2, 0.2, 0.0, 0.0, 0.2, 0.2,
0.2, 0.0)
  *  random 8-by-8 image with p = (0.1, 0.1, 0.2, 0.2, 0.1, 0.1,
0.1, 0.1)
  *  random 100-by-110 image with p = (0.0, 0.0, 0.5, 0.0, 0.0,
0.0, 0.0, 0.5)
  *  random 110-by-100 image with p = (0.0, 0.0, 0.0, 0.5, 0.0,
0.0, 0.0, 0.5)
  *  random 110-by-110 image with p = (0.1, 0.1, 0.2, 0.2, 0.0,
0.0, 0.0, 0.4)
  *  random 100-by-100 image with p = (0.2, 0.2, 0.0, 0.0, 0.1,
0.1, 0.2, 0.2)
  *  random 110-by-110 image with p = (0.1, 0.1, 0.1, 0.1, 0.1,
0.1, 0.2, 0.2)
==> passed

Test 12b: Check intermixed calls to findHorizontalSeam(), findVerti
calSeam(),
          removeHorizontalSeam(), and removeVerticalSeam(), widt
h(), height(),
          energy(), and picture() made with probabilities p1, p2, p
3, p4, p5,
          p6, p7, and p8, respectively with random seams
  *  random 5-by-6 image with p = (0.0, 0.0, 0.5, 0.0, 0.0, 0.0,
0.0, 0.5)
  *  random 6-by-5 image with p = (0.0, 0.0, 0.0, 0.5, 0.0, 0.0,
```

```
0.0, 0.5)
  *  random 8-by-8 image with p = (0.1, 0.1, 0.2, 0.2, 0.0, 0.0,
0.0, 0.4)
  *  random 8-by-8 image with p = (0.2, 0.2, 0.0, 0.0, 0.2, 0.2,
0.2, 0.0)
  *  random 8-by-8 image with p = (0.1, 0.1, 0.2, 0.2, 0.1, 0.1,
0.1, 0.1)
  *  random 100-by-110 image with p = (0.0, 0.0, 0.5, 0.0, 0.0,
0.0, 0.0, 0.5)
  *  random 110-by-100 image with p = (0.0, 0.0, 0.0, 0.5, 0.0,
0.0, 0.0, 0.5)
  *  random 110-by-110 image with p = (0.1, 0.1, 0.2, 0.2, 0.0,
0.0, 0.0, 0.4)
  *  random 100-by-100 image with p = (0.2, 0.2, 0.0, 0.0, 0.1,
0.1, 0.2, 0.2)
  *  random 110-by-110 image with p = (0.1, 0.1, 0.1, 0.1, 0.1,
0.1, 0.2, 0.2)
==> passed

Test 12c: Check intermixed calls to findHorizontalSeam(), findVerti
calSeam(),
          removeHorizontalSeam(), and removeVerticalSeam(), widt
h(), height(),
          energy(), and picture() made with probabilities p1, p2, p
3, p4, p5,
          p6, p7, and p8, respectively with optimal seams
          (tests corner cases when width=1 or height=1)
  *  random 1-by-8 image with p = (0.1, 0.1, 0.2, 0.0, 0.1, 0.1,
0.2, 0.2)
  *  random 8-by-1 image with p = (0.1, 0.1, 0.0, 0.2, 0.1, 0.1,
0.2, 0.2)
  *  random 1-by-1 image with p = (0.2, 0.2, 0.0, 0.0, 0.1, 0.1,
0.2, 0.2)
==> passed


Total: 31/31 tests passed!


================================================================


*****************************************************************
***********
*          MEMORY
*****************************************************************
***********

Computing memory of SeamCarver
*-----------------------------------------------------------
Running 7 total tests.
```

```
Memory usage of a SeamCarver after removing 2 horizontal
and 2 vertical seams from a W-by-H image.
Maximum allowed memory is 4x the reference.

              W, H       student (bytes)    reference (bytes)
---------------------------------------------------------------
=> passed       10         1504               1840
=> passed       20         5344               2880
=> passed       25         8264               3704
=> passed       40        20224               7360
=> passed       80        78784              25920
=> passed      100       122464              40000
=> passed      200       484864             158408
==> 7/7 tests passed

Total: 7/7 tests passed!

Estimated student   memory (bytes) = 12.00 N^2 + 23.57 N + 96.46
(R^2 = 1.000)
Estimated reference memory (bytes) = 4.00 N^2 + -16.06 N + 1602.00
(R^2 = 1.000)
================================================================




*****************************************************************
***********
*          TIMING
*****************************************************************
***********

Timing SeamCarver
*-----------------------------------------------------------
Running 6 total tests.

Finding (but not removing) 50 seams for a 250-by-250 image
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     250      250       50        0     true    false     0.00
     250      250        0       50     true    false     0.00
     250      250       25       25     true    false     0.00
=> PASSED

Removing 50 randomly generated non-optimal seams for a 250-by-250 i
mage
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     250      250       50        0    false     true     0.19
     250      250        0       50    false     true     0.18
```

```
     250      250       25       25    false     true     0.16
=> PASSED

Finding and removing 50 seams for a 250-by-250 image
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     250      250       50        0     true     true     0.21
     250      250        0       50     true     true     0.13
     250      250       25       25     true     true     0.18
=> PASSED

Finding (but not removing) 50 seams for a 500-by-500 image
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     500      500       50        0     true    false     0.00
     500      500        0       50     true    false     0.00
     500      500       25       25     true    false     0.00
=> PASSED

Removing 50 randomly generated non-optimal seams for a 500-by-500 i
mage
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     500      500       50        0    false     true     0.64
     500      500        0       50    false     true     0.80
     500      500       25       25    false     true     0.64
=> PASSED

Finding and removing 50 seams for a 500-by-500 image
   width   height  h-seams  v-seams     find   remove     time
----------------------------------------------------------------
     500      500       50        0     true     true     0.64
     500      500        0       50     true     true     0.66
     500      500       25       25     true     true     0.64
=> PASSED


Total: 6/6 tests passed!

================================================================
```

Submission	
Submission time	Fri-08-Apr 23:56:13