**Run 1:**

norsini1@LAPTOP-SHQGQOEO:/mnt/c/Users/Nicholas Orsini/source/repos/DelaunayTriangulation/DelaunayTriangulation$ valgrind ./DT

==201== Memcheck, a memory error detector

==201== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.

==201== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info

==201== Command: ./DT

==201==

==201== error calling PR\_SET\_PTRACER, vgdb might block

Printing Linked List:

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

Node #1 of 31:

(-4, -2)

Node #2 of 31:

(0, -4)

Node #3 of 31:

(4, -6)

Node #4 of 31:

(4, -4)

Node #5 of 31:

(12, -4)

Node #6 of 31:

(10, -2)

Node #7 of 31:

(16, 0)

Node #8 of 31:

(10, 1)

Node #9 of 31:

(16, 5)

Node #10 of 31:

(12, 2)

Node #11 of 31:

(10, 3)

Node #12 of 31:

(12, 2)

Node #13 of 31:

(10, 1)

Node #14 of 31:

(12, 6)

Node #15 of 31:

(10, 1)

Node #16 of 31:

(12, 6)

Node #17 of 31:

(8, 0)

Node #18 of 31:

(8, 6)

Node #19 of 31:

(6, 1)

Node #20 of 31:

(8, 7)

Node #21 of 31:

(6, 4)

Node #22 of 31:

(4, 5)

Node #23 of 31:

(6, 9)

Node #24 of 31:

(10, 10)

Node #25 of 31:

(4, 16)

Node #26 of 31:

(2, -2)

Node #27 of 31:

(4, -5)

Node #28 of 31:

(6, 5)

Node #29 of 31:

(-4, -7)

Node #30 of 31:

(3, 0.1)

Node #31 of 31:

(4, 8)

End of list.

Reading in the first triangle:

27 remain in waiting room

(0, -4)

(4, -6)

(4, -4)

Point A: (0, -4)

Point B: (4, -6)

Point C: (4, -4)

Ceneter: (2, -5)

A: 8

B: -32

C: 80

D: 192

Radius: 2.23607

| COSC CCCXX Project 3 |

| Delnauney Triangulation |

| Programmers: Nicholas A.Orsini |

| Sherene Phillip |

|================================|

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 1

| Add Vertex |

|===============================|

| 1. Move Vertex from Stack |

| 2. Construct Random Vertex |

| 3. Construct Custom Vertex |

| 4. Return to Main Menu |

| Make Input: 1

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (12, -4)

0 illegal trianlges found

No Violations

(12, -4)

Pair1 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (10, -2)

Illegal tri found!

1 illegal trianlges found

Point A: (12, -4)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (8, -5)

A: 16

B: -256

C: 160

D: 1152

Radius: 4.12311

1 violation:

Point A: (10, -2)

Point B: (12, -4)

Point C: (4, -6)

Ceneter: (8.2, -5.8)

A: -20

B: 328

C: -232

D: -1664

Radius: 4.20476

Point A: (10, -2)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (7.66667, -5)

A: 12

B: -184

C: 120

D: 832

Radius: 3.80058

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (16, 0)

0 illegal trianlges found

No Violations

(16, 0)

Pair2 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (10, 1)

Illegal tri found!

1 illegal trianlges found

Point A: (16, 0)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (11, -5)

A: 24

B: -528

C: 240

D: 2304

Radius: 7.07107

1 violation:

Point A: (10, 1)

Point B: (16, 0)

Point C: (4, -6)

Ceneter: (11.8125, -6.625)

A: -48

B: 1134

C: -636

D: -5856

Radius: 7.83746

Point A: (10, 1)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (9.91667, -5)

A: 12

B: -238

C: 120

D: 1048

Radius: 6.00058

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (16, 5)

0 illegal trianlges found

No Violations

(16, 5)

Pair2 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 2

22 vertices remain in the stack.

| Add Vertex |

|===============================|

| 1. Move Vertex from Stack |

| 2. Construct Random Vertex |

| 3. Construct Custom Vertex |

| 4. Return to Main Menu |

| Make Input: 4

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 3

| Read From File |

|==============================|

| 1. Read from custom .txt |

| 2. Return to Main Menu |

| Make Input: 2

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 2

| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 1

Point A: (10, -2)

Point B: (4, -4)

Point C: (12, -4)

Ceneter: (8, -6)

A: 16

B: -256

C: 192

D: 1280

Radius: 4.47214

Point A: (0, -4)

Point B: (4, -6)

Point C: (4, -4)

Ceneter: (2, -5)

A: 8

B: -32

C: 80

D: 192

Radius: 2.23607

Point A: (10, 1)

Point B: (16, 0)

Point C: (4, -6)

Ceneter: (11.8125, -6.625)

A: -48

B: 1134

C: -636

D: -5856

Radius: 7.83746

Point A: (10, 1)

Point B: (4, -4)

Point C: (16, 0)

Ceneter: (11.7222, -7.16667)

A: 36

B: -844

C: 516

D: 4288

Radius: 8.34629

Point A: (10, -2)

Point B: (12, -4)

Point C: (4, -6)

Ceneter: (8.2, -5.8)

A: -20

B: 328

C: -232

D: -1664

Radius: 4.20476

Point A: (16, 0)

Point B: (10, -2)

Point C: (4, -6)

Ceneter: (21, -25)

A: 12

B: -504

C: 600

D: 4992

Radius: 25.4951

Point A: (16, 5)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (14.125, -5)

A: 24

B: -678

C: 240

D: 2904

Radius: 10.1743

Point A: (16, 5)

Point B: (10, 1)

Point C: (4, -6)

Ceneter: (29.5556, -21.8333)

A: 18

B: -1064

C: 786

D: 8036

Radius: 30.0629

| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 4

Vertices in the Triangulation:

(16, 5)

(10, 1)

(16, 0)

(10, -2)

(4, -4)

(12, -4)

(0, -4)

(4, -6)

Not drawn to scale

For the imaginative type, envision lines.

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| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 5

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 5

==201==

==201== HEAP SUMMARY:

==201== in use at exit: 0 bytes in 0 blocks

==201== total heap usage: 365 allocs, 365 frees, 101,934 bytes allocated

**Run 2:**

norsini1@LAPTOP-SHQGQOEO:/mnt/c/Users/Nicholas Orsini/source/repos/DelaunayTriangulation/DelaunayTriangulation$ valgrind ./DT

==236== Memcheck, a memory error detector

==236== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.

==236== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info

==236== Command: ./DT

==236==

==236== error calling PR\_SET\_PTRACER, vgdb might block

Printing Linked List:

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

Node #1 of 31:

(-4, -2)

Node #2 of 31:

(0, -4)

Node #3 of 31:

(4, -6)

Node #4 of 31:

(4, -4)

Node #5 of 31:

(12, -4)

Node #6 of 31:

(10, -2)

Node #7 of 31:

(16, 0)

Node #8 of 31:

(10, 1)

Node #9 of 31:

(16, 5)

Node #10 of 31:

(12, 2)

Node #11 of 31:

(10, 3)

Node #12 of 31:

(12, 2)

Node #13 of 31:

(10, 1)

Node #14 of 31:

(12, 6)

Node #15 of 31:

(10, 1)

Node #16 of 31:

(12, 6)

Node #17 of 31:

(8, 0)

Node #18 of 31:

(8, 6)

Node #19 of 31:

(6, 1)

Node #20 of 31:

(8, 7)

Node #21 of 31:

(6, 4)

Node #22 of 31:

(4, 5)

Node #23 of 31:

(6, 9)

Node #24 of 31:

(10, 10)

Node #25 of 31:

(4, 16)

Node #26 of 31:

(2, -2)

Node #27 of 31:

(4, -5)

Node #28 of 31:

(6, 5)

Node #29 of 31:

(-4, -7)

Node #30 of 31:

(3, 0.1)

Node #31 of 31:

(4, 8)

End of list.

Reading in the first triangle:

27 remain in waiting room

(0, -4)

(4, -6)

(4, -4)

Point A: (0, -4)

Point B: (4, -6)

Point C: (4, -4)

Ceneter: (2, -5)

A: 8

B: -32

C: 80

D: 192

Radius: 2.23607

| COSC CCCXX Project 3 |

| Delnauney Triangulation |

| Programmers: Nicholas A.Orsini |

| Sherene Phillip |

|================================|

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 1

| Add Vertex |

|===============================|

| 1. Move Vertex from Stack |

| 2. Construct Random Vertex |

| 3. Construct Custom Vertex |

| 4. Return to Main Menu |

| Make Input: 1

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (12, -4)

0 illegal trianlges found

No Violations

(12, -4)

Pair1 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (10, -2)

Illegal tri found!

1 illegal trianlges found

Point A: (12, -4)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (8, -5)

A: 16

B: -256

C: 160

D: 1152

Radius: 4.12311

1 violation:

Point A: (10, -2)

Point B: (12, -4)

Point C: (4, -6)

Ceneter: (8.2, -5.8)

A: -20

B: 328

C: -232

D: -1664

Radius: 4.20476

Point A: (10, -2)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (7.66667, -5)

A: 12

B: -184

C: 120

D: 832

Radius: 3.80058

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (16, 0)

0 illegal trianlges found

No Violations

(16, 0)

Pair2 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (10, 1)

Illegal tri found!

1 illegal trianlges found

Point A: (16, 0)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (11, -5)

A: 24

B: -528

C: 240

D: 2304

Radius: 7.07107

1 violation:

Point A: (10, 1)

Point B: (16, 0)

Point C: (4, -6)

Ceneter: (11.8125, -6.625)

A: -48

B: 1134

C: -636

D: -5856

Radius: 7.83746

Point A: (10, 1)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (9.91667, -5)

A: 12

B: -238

C: 120

D: 1048

Radius: 6.00058

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 1

NEW VERTICE: (16, 5)

0 illegal trianlges found

No Violations

(16, 5)

Pair2 wins

| Move Stack to Triangulation |

|===============================|

| 1. Add Vertex to DT |

| 2. Return to Add Vertex Menu |

| Make Input: 2

22 vertices remain in the stack.

| Add Vertex |

|===============================|

| 1. Move Vertex from Stack |

| 2. Construct Random Vertex |

| 3. Construct Custom Vertex |

| 4. Return to Main Menu |

| Make Input: 4

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 2

| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 1

Point A: (10, -2)

Point B: (4, -4)

Point C: (12, -4)

Ceneter: (8, -6)

A: 16

B: -256

C: 192

D: 1280

Radius: 4.47214

Point A: (0, -4)

Point B: (4, -6)

Point C: (4, -4)

Ceneter: (2, -5)

A: 8

B: -32

C: 80

D: 192

Radius: 2.23607

Point A: (10, 1)

Point B: (16, 0)

Point C: (4, -6)

Ceneter: (11.8125, -6.625)

A: -48

B: 1134

C: -636

D: -5856

Radius: 7.83746

Point A: (10, 1)

Point B: (4, -4)

Point C: (16, 0)

Ceneter: (11.7222, -7.16667)

A: 36

B: -844

C: 516

D: 4288

Radius: 8.34629

Point A: (10, -2)

Point B: (12, -4)

Point C: (4, -6)

Ceneter: (8.2, -5.8)

A: -20

B: 328

C: -232

D: -1664

Radius: 4.20476

Point A: (16, 0)

Point B: (10, -2)

Point C: (4, -6)

Ceneter: (21, -25)

A: 12

B: -504

C: 600

D: 4992

Radius: 25.4951

Point A: (16, 5)

Point B: (4, -4)

Point C: (4, -6)

Ceneter: (14.125, -5)

A: 24

B: -678

C: 240

D: 2904

Radius: 10.1743

Point A: (16, 5)

Point B: (10, 1)

Point C: (4, -6)

Ceneter: (29.5556, -21.8333)

A: 18

B: -1064

C: 786

D: 8036

Radius: 30.0629

| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 4

Vertices in the Triangulation:

(16, 5)

(10, 1)

(16, 0)

(10, -2)

(4, -4)

(12, -4)

(0, -4)

(4, -6)

Not drawn to scale

For the imaginative type, envision lines.

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■ ■■

| Print Options |

|================================|

| 1. Triangulation in PreOrder |

| 2. Triangulation in PostOrder |

| 3. Triangulation in Order |

| 4. Print Vertices in Grid |

| 5. Return to Main Menu |

| Make Input: 5

| Main Menu |

|================================|

| Select a corresponding option |

| 1. Add vertex |

| 2. Print Triangulation |

| 3. Import Data |

| 4. Options |

| 5. Quit |

| Make Input: 5

==236==

==236== HEAP SUMMARY:

==236== in use at exit: 0 bytes in 0 blocks

==236== total heap usage: 361 allocs, 361 frees, 101,521 bytes allocated