

**Πανεπιστήμιο Πειραιώς**  
**Τμήμα Πληροφορικής**

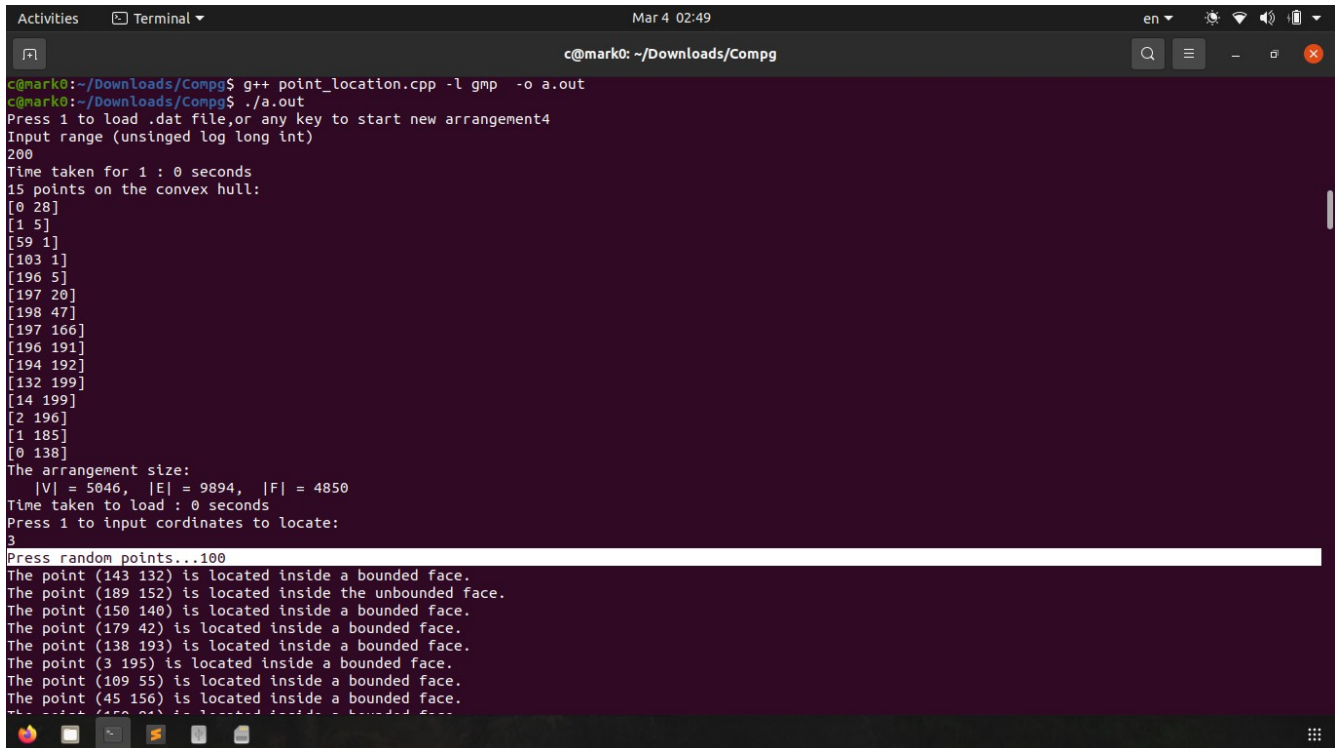
Υπολογιστική Γεωμετρία  
7ο εξάμηνο

Κατέβας Χρήστος – p18068

## Αποτελέσματα

Αλγορ.	Αριθμός σημείων 100	Αριθμός κορυφών 5046	Αριθμός σημείων 1	Αριθμός κορυφών 30448
Naive	3 sec		0 sec	
Landmark	0 sec		0sec	
Walk Along	0 sec		0 sec	
Trapezoid	4 sec		32 sec	

Οι Landmark και Walk along έχουν μηδενικό χρόνο εντοπισμού ανεξάρτητα το μέγεθος των σημείων προς εντοπισμό ή των κορυφών του arrangement. Ο naive γίνεται αργός όταν έχουμε πολλά σημεία προς εντοπισμό, ενώ ο trapezoid αργεί όταν αυξάνεται το μέγεθος των κορυφών του arrangement.



```
Activities Terminal Mar 4 02:49
c@mark0: ~/Downloads/CompG
c@mark0:~/Downloads/CompG$ g++ point_location.cpp -l gmp -o a.out
c@mark0:~/Downloads/CompG$ ./a.out
Press 1 to load .dat file, or any key to start new arrangement4
Input range (unsigned long long int)
200
Time taken for 1 : 0 seconds
15 points on the convex hull:
[0 28]
[1 5]
[59 1]
[103 1]
[196 5]
[197 20]
[198 47]
[197 166]
[196 191]
[194 192]
[132 199]
[14 199]
[2 196]
[1 185]
[0 138]
The arrangement size:
|V| = 5046, |E| = 9894, |F| = 4850
Time taken to load : 0 seconds
Press 1 to input coordinates to locate:
3
Press random points...100
The point (143 132) is located inside a bounded face.
The point (189 152) is located inside the unbounded face.
The point (150 140) is located inside a bounded face.
The point (179 42) is located inside a bounded face.
The point (138 193) is located inside a bounded face.
The point (3 195) is located inside a bounded face.
The point (109 55) is located inside a bounded face.
The point (45 156) is located inside a bounded face.
```

```
Activities Terminal Mar 4 02:49 en [Terminal] c@mark0: ~/Downloads/Compmp

The point (133 74) is located inside a bounded face.
The point (167 176) is located inside a bounded face.
The point (148 106) is located inside a bounded face.
The point (113 165) is located inside a bounded face.
The point (56 158) is located inside a bounded face.
The point (30 23) is located inside a bounded face.
The point (106 184) is located inside a bounded face.
The point (199 69) is located inside the unbounded face.
The point (19 86) is located inside a bounded face.
The point (97 103) is located inside a bounded face.
The point (159 147) is located inside a bounded face.
The point (24 171) is located inside a bounded face.
The point (32 104) is located inside a bounded face.
The point (75 35) is located inside a bounded face.
The point (108 159) is located inside a bounded face.
The point (189 146) is located inside the unbounded face.
The point (34 181) is located inside a bounded face.
The point (124 128) is located inside a bounded face.
The point (128 50) is located inside a bounded face.
The point (52 193) is located on a vertex: 52 193
The point (75 136) is located inside a bounded face.
The point (179 169) is located inside a bounded face.
The point (65 159) is located inside a bounded face.
The point (196 106) is located inside the unbounded face.
The point (51 31) is located inside a bounded face.
The point (15 46) is located inside a bounded face.
The point (76 158) is located inside a bounded face.
The point (112 161) is located inside a bounded face.
Time taken by Naive point location: 3 seconds

The point (62 87) is located inside a bounded face.
The point (6 68) is located inside a bounded face.
The point (36 187) is located inside the unbounded face.
The point (5 49) is located inside the unbounded face.
The point (53 12) is located inside the unbounded face.
The point (152 57) is located inside a bounded face.
```

```
Activities Terminal Mar 4 02:49 en [Terminal] c@mark0: ~/Downloads/Compmp

The point (101 169) is located inside a bounded face.
The point (180 51) is located inside a bounded face.
The point (35 81) is located inside a bounded face.
The point (185 167) is located inside a bounded face.
The point (23 66) is located inside a bounded face.
The point (199 15) is located inside the unbounded face.
The point (150 48) is located inside a bounded face.
The point (67 67) is located inside a bounded face.
The point (111 86) is located inside a bounded face.
The point (104 143) is located inside a bounded face.
The point (191 83) is located inside a bounded face.
The point (50 71) is located inside a bounded face.
The point (56 190) is located inside a bounded face.
The point (53 161) is located inside a bounded face.
The point (93 5) is located inside the unbounded face.
The point (29 169) is located inside a bounded face.
The point (106 45) is located inside a bounded face.
The point (160 128) is located inside a bounded face.
The point (117 84) is located inside a bounded face.
The point (157 71) is located inside a bounded face.
The point (66 133) is located inside a bounded face.
The point (37 194) is located inside the unbounded face.
Time taken by Landmarks point location: 0 seconds

The point (108 135) is located inside a bounded face.
The point (25 185) is located inside a bounded face.
The point (94 185) is located inside a bounded face.
The point (58 167) is located inside a bounded face.
The point (91 175) is located inside a bounded face.
The point (0 197) is located inside the unbounded face.
The point (67 190) is located inside the unbounded face.
The point (129 60) is located inside a bounded face.
The point (151 148) is located inside a bounded face.
The point (140 172) is located inside a bounded face.
The point (90 185) is located inside a bounded face.
The point (169 7) is located inside the unbounded face.
```

```
Activities Terminal Mar 4 02:49 en
c@marko: ~/Downloads/Compbg

The point (191 165) is located inside a bounded face.
The point (168 72) is located inside a bounded face.
The point (18 57) is located inside a bounded face.
The point (49 4) is located inside the unbounded face.
The point (11 44) is located inside a bounded face.
The point (30 12) is located inside the unbounded face.
The point (68 193) is located inside the unbounded face.
The point (155 8) is located inside a bounded face.
The point (134 173) is located inside a bounded face.
The point (44 74) is located inside a bounded face.
The point (184 107) is located inside a bounded face.
The point (73 57) is located inside a bounded face.
Time taken by Walk Along point location: 0 seconds

The point (114 190) is located inside the unbounded face.
The point (2 126) is located inside the unbounded face.
The point (172 165) is located inside a bounded face.
The point (58 183) is located inside a bounded face.
The point (139 28) is located inside a bounded face.
The point (147 112) is located inside a bounded face.
The point (179 118) is located inside a bounded face.
The point (155 4) is located on a vertex: 155 4
The point (145 8) is located inside a bounded face.
The point (4 161) is located inside the unbounded face.
The point (62 124) is located inside a bounded face.
The point (77 130) is located inside a bounded face.
The point (189 90) is located inside a bounded face.
The point (2 198) is located inside the unbounded face.
The point (103 20) is located inside a bounded face.
The point (47 129) is located inside a bounded face.
The point (115 78) is located inside a bounded face.
The point (134 193) is located inside a bounded face.
The point (63 98) is located inside a bounded face.
The point (197 155) is located inside the unbounded face.
The point (23 23) is located inside a bounded face.
The point (78 183) is located inside a bounded face.
```

```
Activities Terminal Mar 4 02:49 en
c@marko: ~/Downloads/Compbg

The point (118 48) is located inside a bounded face.
The point (41 36) is located inside a bounded face.
The point (128 3) is located inside the unbounded face.
The point (177 162) is located inside a bounded face.
The point (167 58) is located inside a bounded face.
The point (119 83) is located inside a bounded face.
The point (118 154) is located inside a bounded face.
The point (13 56) is located inside the unbounded face.
The point (113 173) is located inside a bounded face.
The point (153 80) is located inside a bounded face.
The point (177 132) is located inside a bounded face.
The point (88 82) is located inside a bounded face.
The point (22 139) is located inside a bounded face.
The point (154 181) is located inside a bounded face.
Time taken by Trapezoid point location: 4 seconds
Press 1 to input cordinates to locate:
3
Press random points...300
The point (190 184) is located inside a bounded face.
The point (148 100) is located inside a bounded face.
The point (187 11) is located inside the unbounded face.
The point (119 118) is located inside a bounded face.
The point (180 139) is located inside a bounded face.
The point (105 39) is located inside a bounded face.
The point (119 71) is located inside a bounded face.
The point (149 128) is located inside a bounded face.
The point (82 136) is located inside a bounded face.
The point (33 130) is located inside a bounded face.
The point (13 123) is located inside the unbounded face.
The point (37 36) is located inside a bounded face.
The point (132 67) is located inside a bounded face.
The point (124 160) is located inside a bounded face.
The point (150 184) is located inside a bounded face.
The point (30 122) is located inside a bounded face.
The point (6 147) is located inside the unbounded face.
The point (29 135) is located inside a bounded face.
```

```
Activities Terminal Mar 4 02:52 en
c@mark0: ~/Downloads/CompPg

File: /usr/include/CGAL/Multiset.h
Line: 2132
Aborted (core dumped)
c@mark0:~/Downloads/CompPg$ ./a.out
Press 1 to load .dat file, or any key to start new arrangement500
Input range (unsigned long long int)
500
Time taken for 1 : 3 seconds
15 points on the convex hull:
[0 171]
[4 52]
[9 28]
[21 20]
[61 1]
[449 0]
[484 38]
[487 54]
[493 95]
[498 142]
[498 381]
[492 474]
[426 493]
[28 498]
[3 496]
The arrangement size:
|V| = 30448, |E| = 60398, |F| = 29952
Time taken to load : 0 seconds
Press 1 to input coordinates to locate:
1
100
100
The point (100 100) is located inside a bounded face.
Time taken by Naive point location: 0 seconds

The point (100 100) is located inside a bounded face.
Time taken by Landmarks point location: 0 seconds
```

```
Activities Terminal Mar 4 02:52 en
c@mark0: ~/Downloads/CompPg

15 points on the convex hull:
[0 171]
[4 52]
[9 28]
[21 20]
[61 1]
[449 0]
[484 38]
[487 54]
[493 95]
[498 142]
[498 381]
[492 474]
[426 493]
[28 498]
[3 496]
The arrangement size:
|V| = 30448, |E| = 60398, |F| = 29952
Time taken to load : 0 seconds
Press 1 to input coordinates to locate:
1
100
100
The point (100 100) is located inside a bounded face.
Time taken by Naive point location: 0 seconds

The point (100 100) is located inside a bounded face.
Time taken by Landmarks point location: 0 seconds

The point (100 100) is located inside a bounded face.
Time taken by Walk Along point location: 0 seconds

The point (100 100) is located inside a bounded face.
Time taken by Trapezoid point location: 32 seconds
Press 1 to input coordinates to locate:
1
```