

Repaso Parcial 1

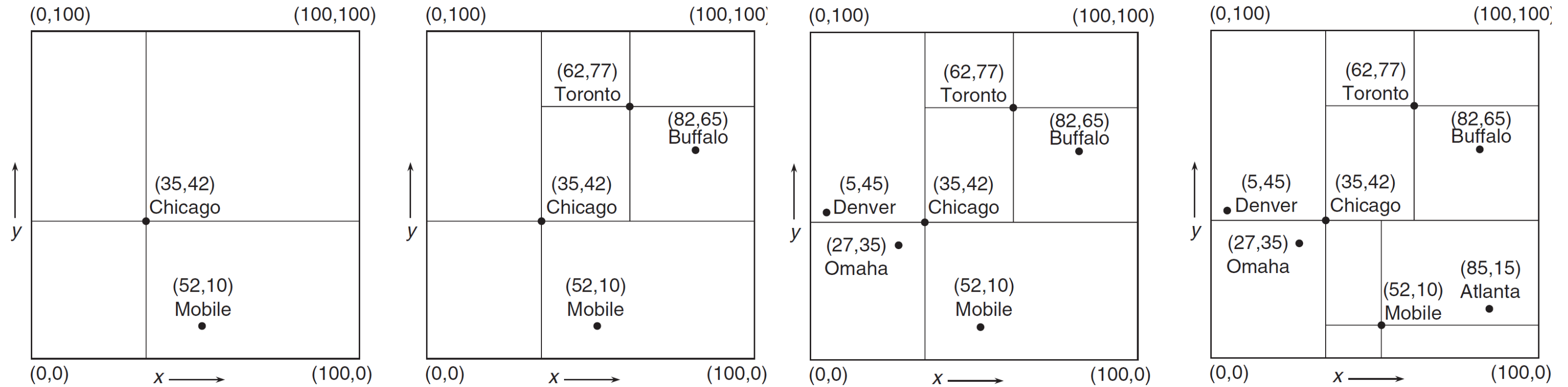
QuadTree, k-d-tree, BSP-tree, hB-tree

1.



Point *Quadtree*

Point QuadTree



Point *QuadTree*

1

2

3

4

Point QuadTree

A: (17, 7)
 B: (17, 8)
 C: (11, 0)
 D: (10, 18)
 E: (8, 7)
 F: (6, 10)
 G: (0, 19)
 H: (1, 13)
 I: (4, 11)
 J: (12, 5)

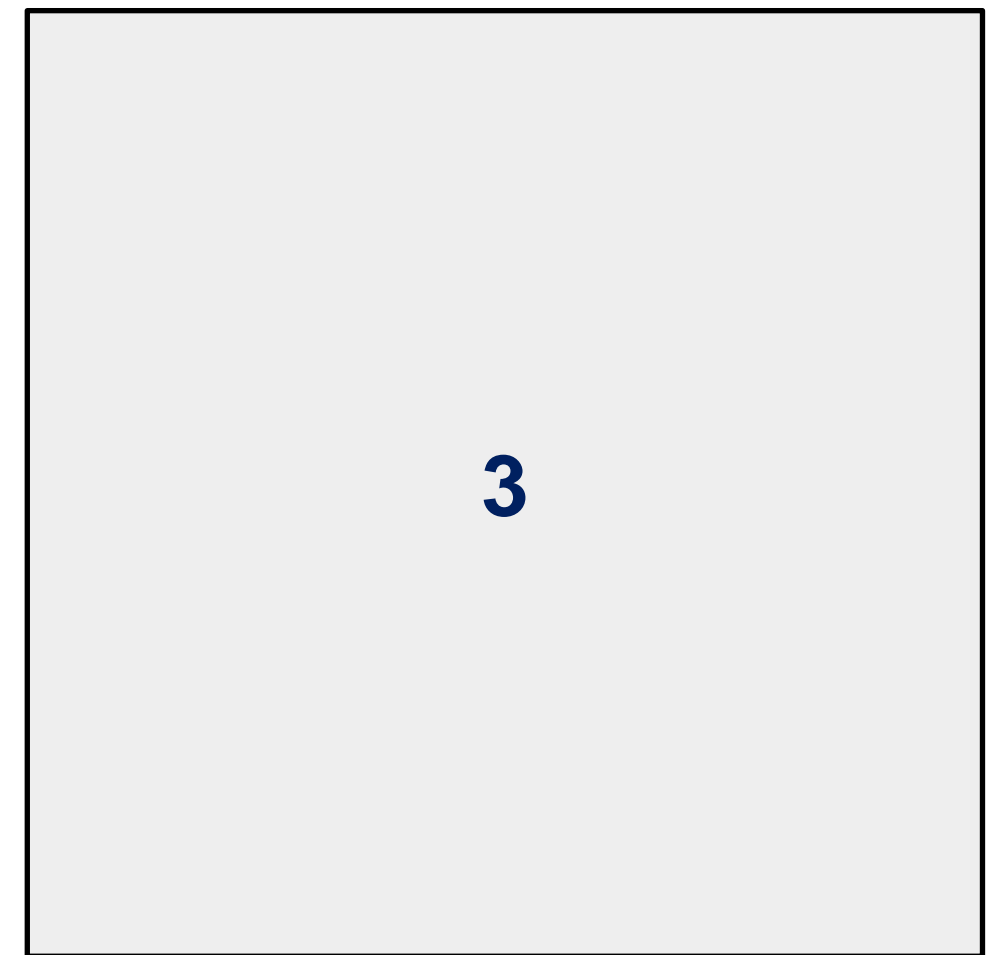
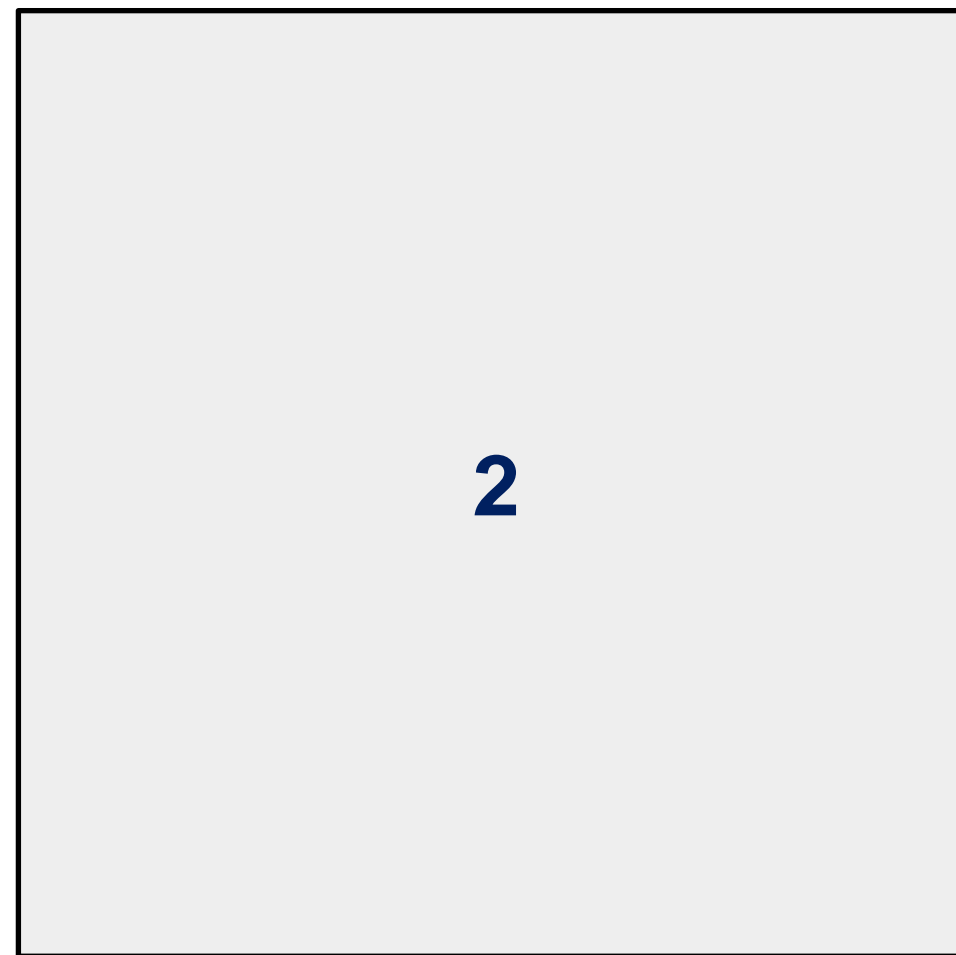
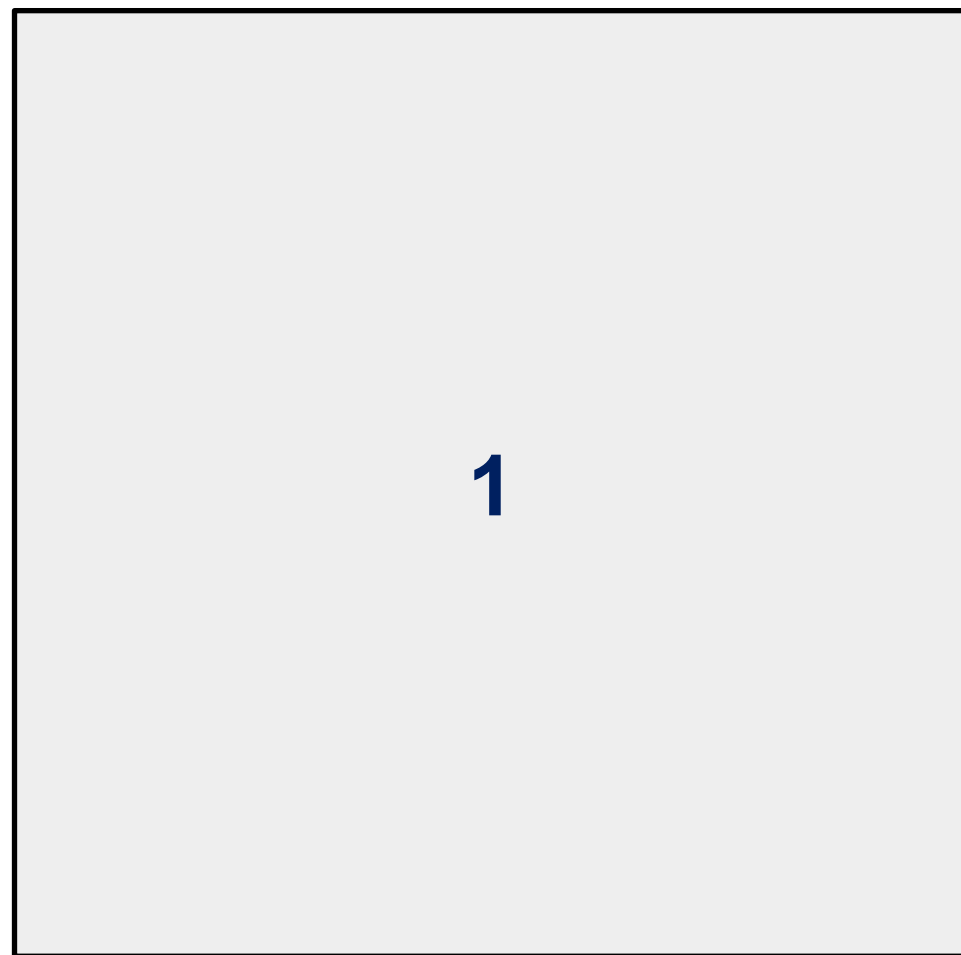
A: (1, 16)
 B: (2, 2)
 C: (10, 16)
 D: (18, 1)
 E: (8, 8)
 F: (14, 2)
 G: (2, 19)
 H: (0, 14)
 I: (3, 5)
 J: (19, 12)

A: (8, 19)
 B: (9, 10)
 C: (16, 13)
 D: (1, 6)
 E: (15, 2)
 F: (8, 16)
 G: (6, 3)
 H: (8, 11)
 I: (17, 13)
 J: (10, 16)

A: (18, 8)
 B: (17, 20)
 C: (16, 8)
 D: (18, 13)
 E: (14, 7)
 F: (11, 11)
 G: (12, 0)
 H: (19, 4)
 I: (3, 18)
 J: (2, 15)



Point *QuadTree*



Point *QuadTree*

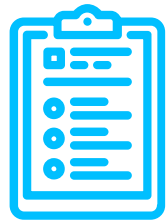
A: (16, 20)
B: (13, 16)
C: (1, 0)
D: (6, 2)
E: (19, 4)
F: (14, 20)
G: (8, 19)
H: (7, 0)
I: (17, 13)
J: (14, 4)

A: (5, 5)
B: (19, 17)
C: (18, 2)
D: (16, 18)
E: (1, 15)
F: (6, 9)
G: (9, 13)
H: (3, 17)
I: (18, 17)
J: (4, 3)

A: (18, 6)
B: (4, 7)
C: (14, 10)
D: (7, 13)
E: (17, 4)
F: (1, 12)
G: (18, 6)
H: (11, 15)
I: (9, 4)
J: (8, 8)

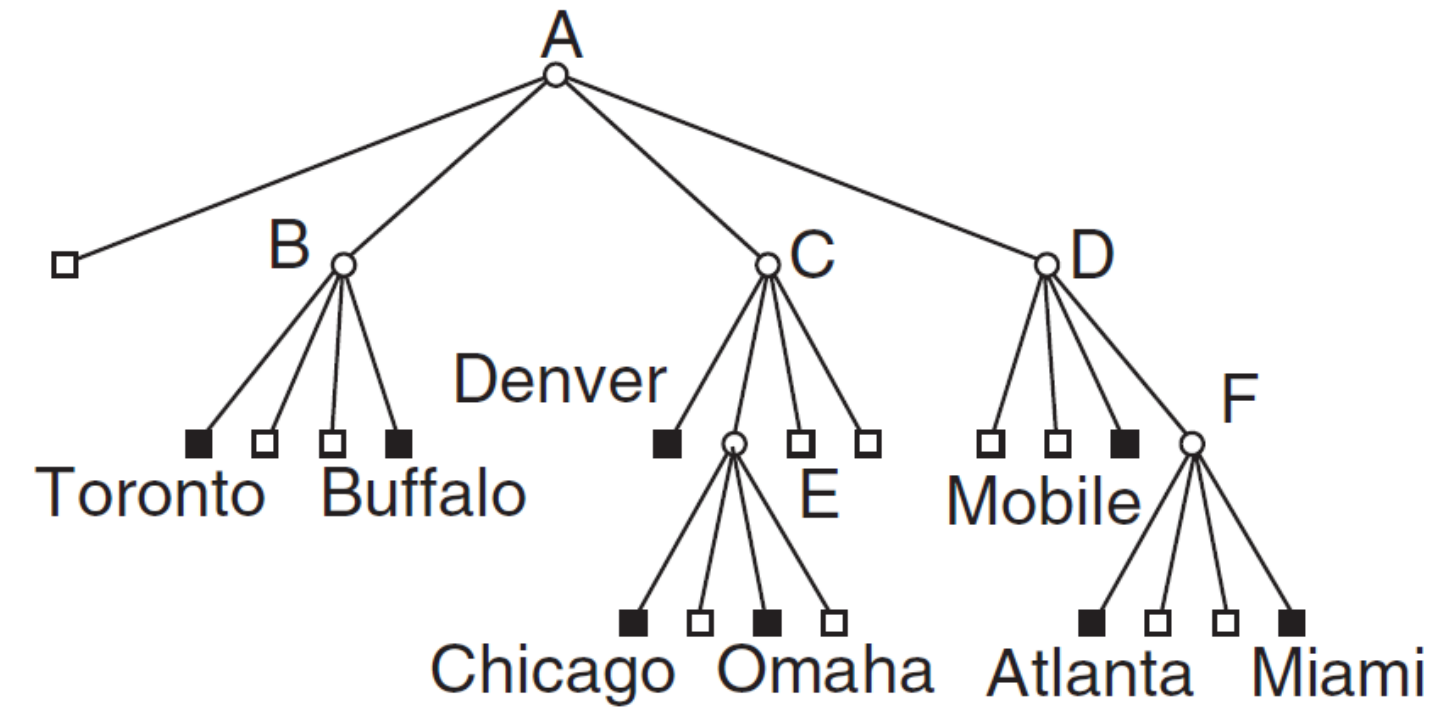
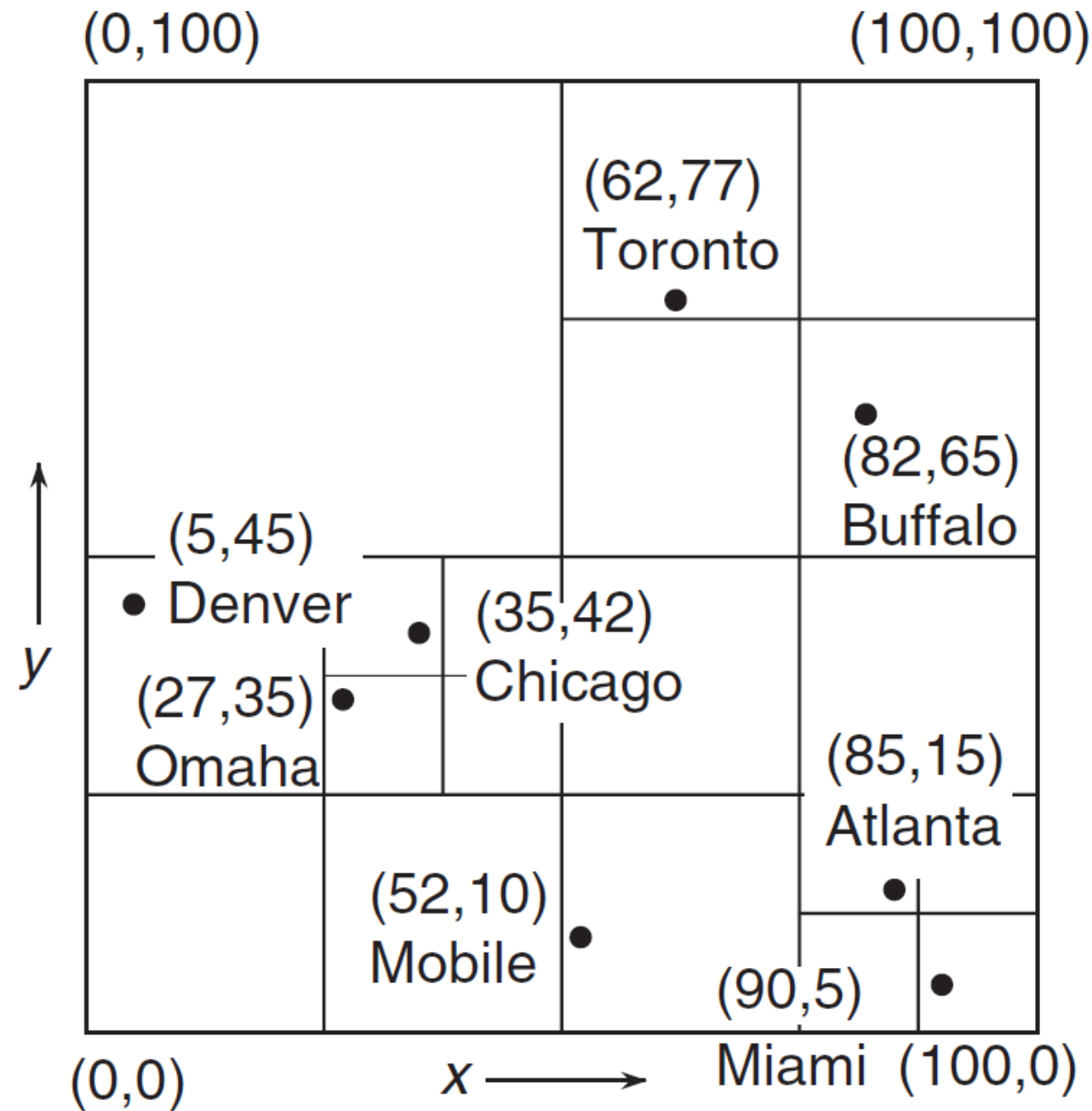


2.



PR *Quadtree*

PR QuadTree



PR *QuadTree*

1

2

3

4

PR QuadTree

A: (19, 13)
B: (7, 7)
C: (19, 18)
D: (18, 5)
E: (7, 1)
F: (0, 17)
G: (18, 16)
H: (13, 10)
I: (5, 7)
J: (5, 11)

A: (2, 20)
B: (17, 6)
C: (3, 10)
D: (9, 12)
E: (17, 18)
F: (16, 20)
G: (10, 19)
H: (13, 20)
I: (19, 13)
J: (7, 8)

A: (6, 14)
B: (8, 11)
C: (14, 16)
D: (16, 16)
E: (1, 15)
F: (15, 9)
G: (10, 9)
H: (0, 10)
I: (3, 0)
J: (20, 10)

A: (14, 18)
B: (19, 18)
C: (11, 3)
D: (16, 14)
E: (17, 10)
F: (11, 13)
G: (13, 5)
H: (16, 17)
I: (5, 18)
J: (19, 4)



PR *QuadTree*

1

2

3



PR QuadTree

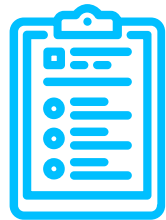
A: (9, 9)
B: (17, 1)
C: (17, 17)
D: (14, 1)
E: (1, 16)
F: (16, 18)
G: (10, 5)
H: (7, 20)
I: (0, 19)
J: (12, 2)

A: (8, 8)
B: (16, 2)
C: (5, 1)
D: (3, 13)
E: (16, 1)
F: (16, 8)
G: (18, 14)
H: (8, 6)
I: (17, 15)
J: (18, 5)

A: (1, 8)
B: (5, 15)
C: (6, 3)
D: (9, 19)
E: (15, 3)
F: (20, 10)
G: (7, 13)
H: (12, 18)
I: (17, 14)
J: (3, 1)

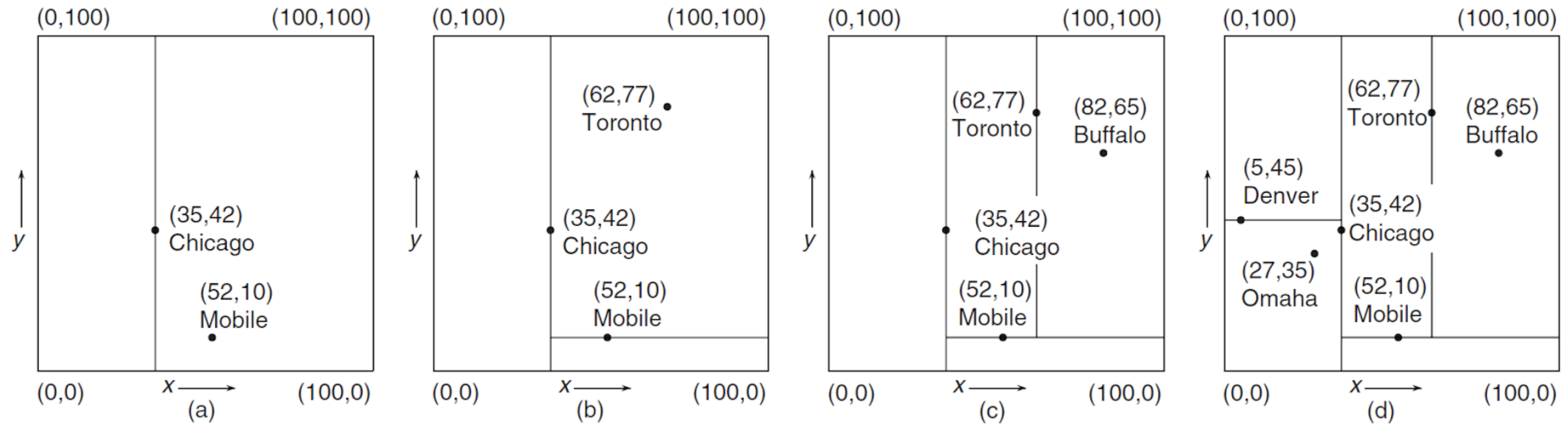


3.



Point *k-d-tree* Inserción

Point k-d-tree: *Inserción*



Point k-d-tree: *Inserción*

1

2

3

4

Point k-d-tree: *Inserción*

A: (17, 7)
 B: (17, 8)
 C: (11, 0)
 D: (10, 18)
 E: (8, 7)
 F: (6, 10)
 G: (0, 19)
 H: (1, 13)
 I: (4, 11)
 J: (12, 5)

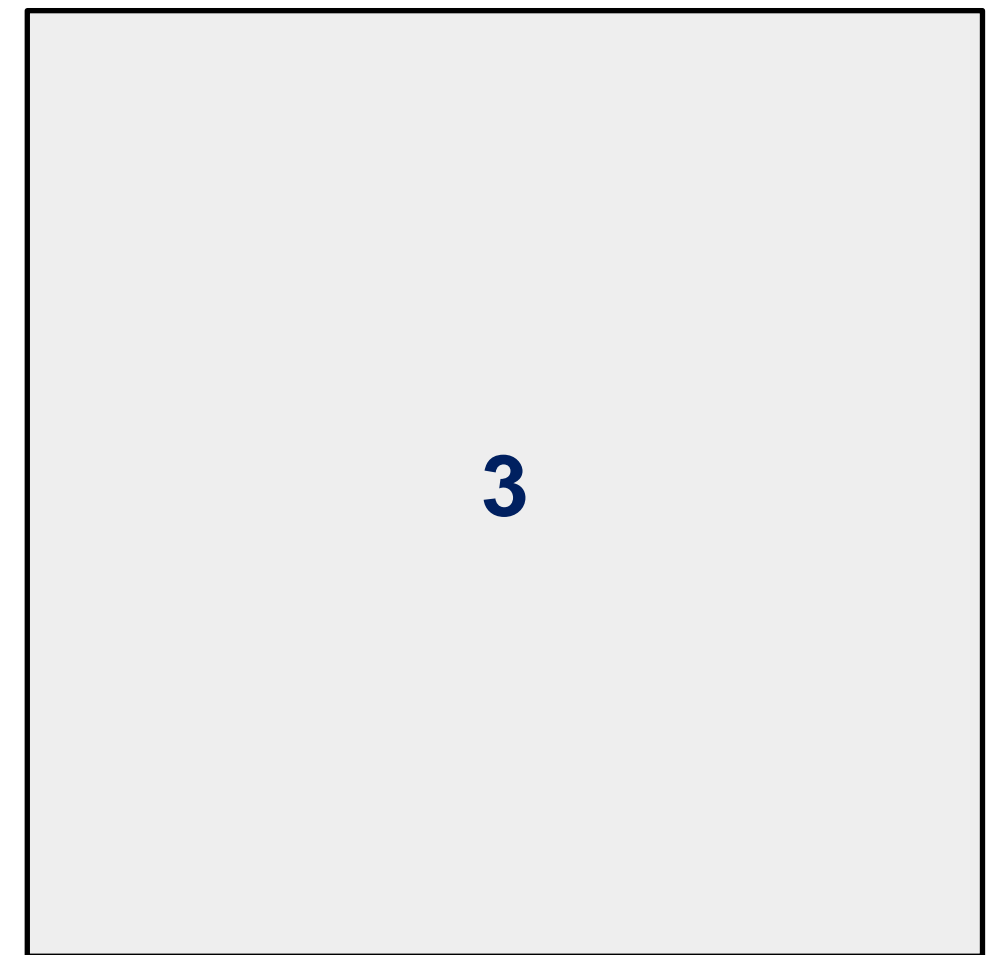
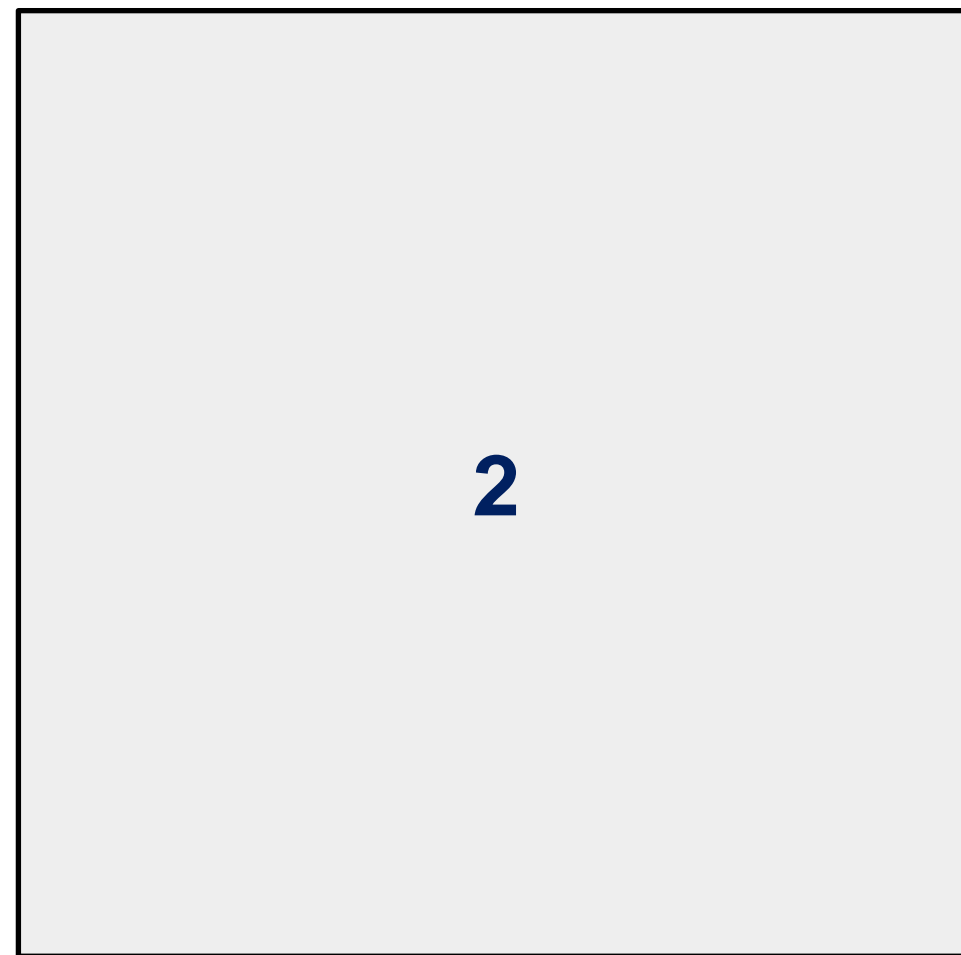
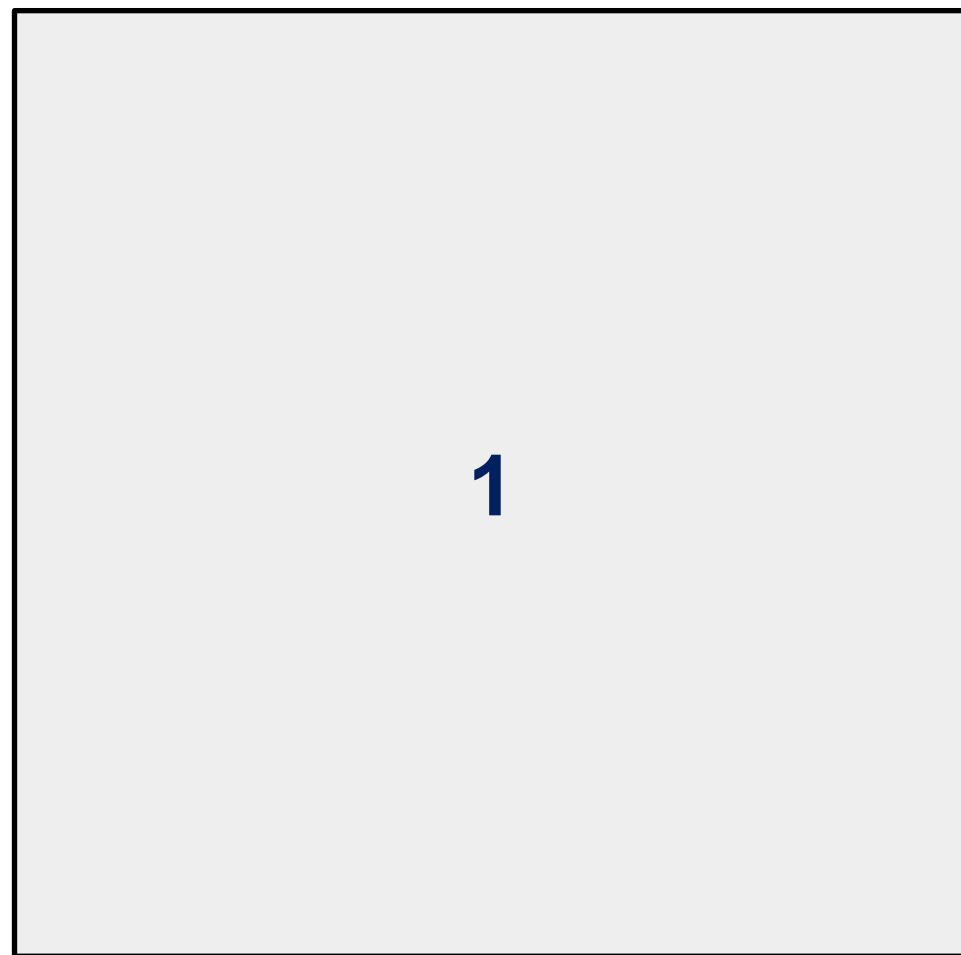
A: (1, 16)
 B: (2, 2)
 C: (10, 16)
 D: (18, 1)
 E: (8, 8)
 F: (14, 2)
 G: (2, 19)
 H: (0, 14)
 I: (3, 5)
 J: (19, 12)

A: (8, 19)
 B: (9, 10)
 C: (16, 13)
 D: (1, 6)
 E: (15, 2)
 F: (8, 16)
 G: (6, 3)
 H: (8, 11)
 I: (17, 13)
 J: (10, 16)

A: (18, 8)
 B: (17, 20)
 C: (16, 8)
 D: (18, 13)
 E: (14, 7)
 F: (11, 11)
 G: (12, 0)
 H: (19, 4)
 I: (3, 18)
 J: (2, 15)



Point k-d-tree: *Inserción*



Point k-d-tree: *Inserción*

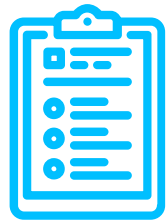
A: (16, 20)
 B: (13, 16)
 C: (1, 0)
 D: (6, 2)
 E: (19, 4)
 F: (14, 20)
 G: (8, 19)
 H: (7, 0)
 I: (17, 13)
 J: (14, 4)

A: (5, 5)
 B: (19, 17)
 C: (18, 2)
 D: (16, 18)
 E: (1, 15)
 F: (6, 9)
 G: (9, 13)
 H: (3, 17)
 I: (18, 17)
 J: (4, 3)

A: (18, 6)
 B: (4, 7)
 C: (14, 10)
 D: (7, 13)
 E: (17, 4)
 F: (1, 12)
 G: (18, 6)
 H: (11, 15)
 I: (9, 4)
 J: (8, 8)



4.

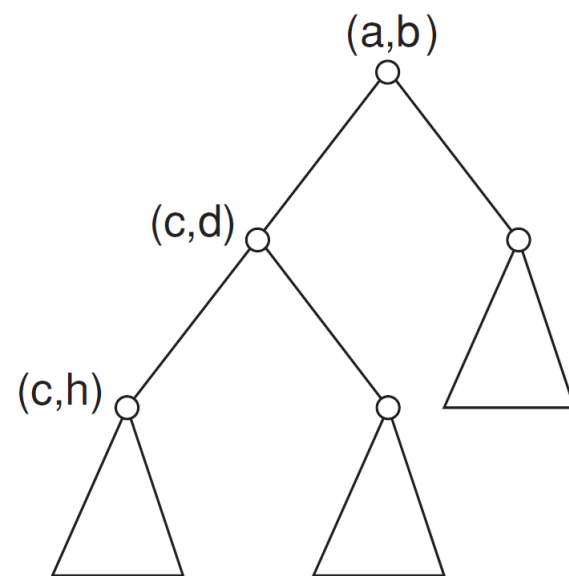


Point *k-d-tree*
Borrado

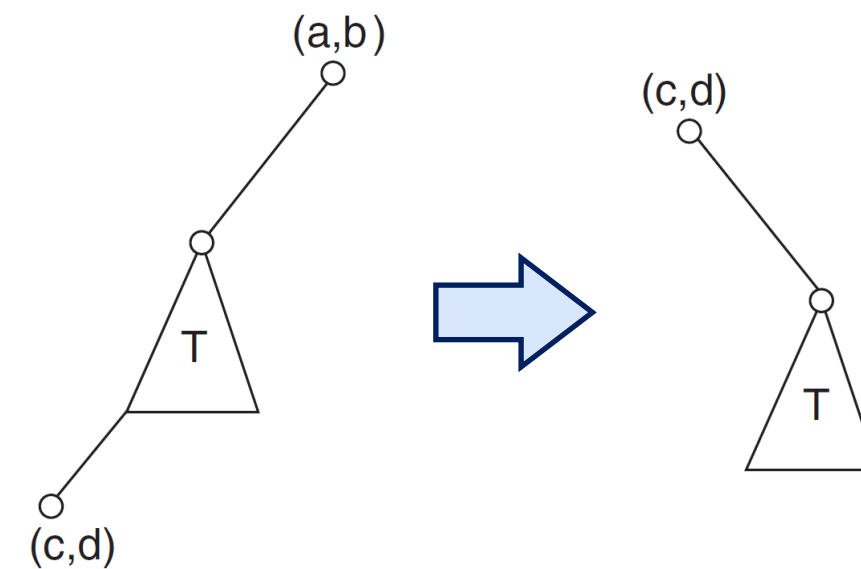
Point k-d-tree: *Borrado*

1. Si el nodo es una **hoja**: se borra
2. Si es nodo interno

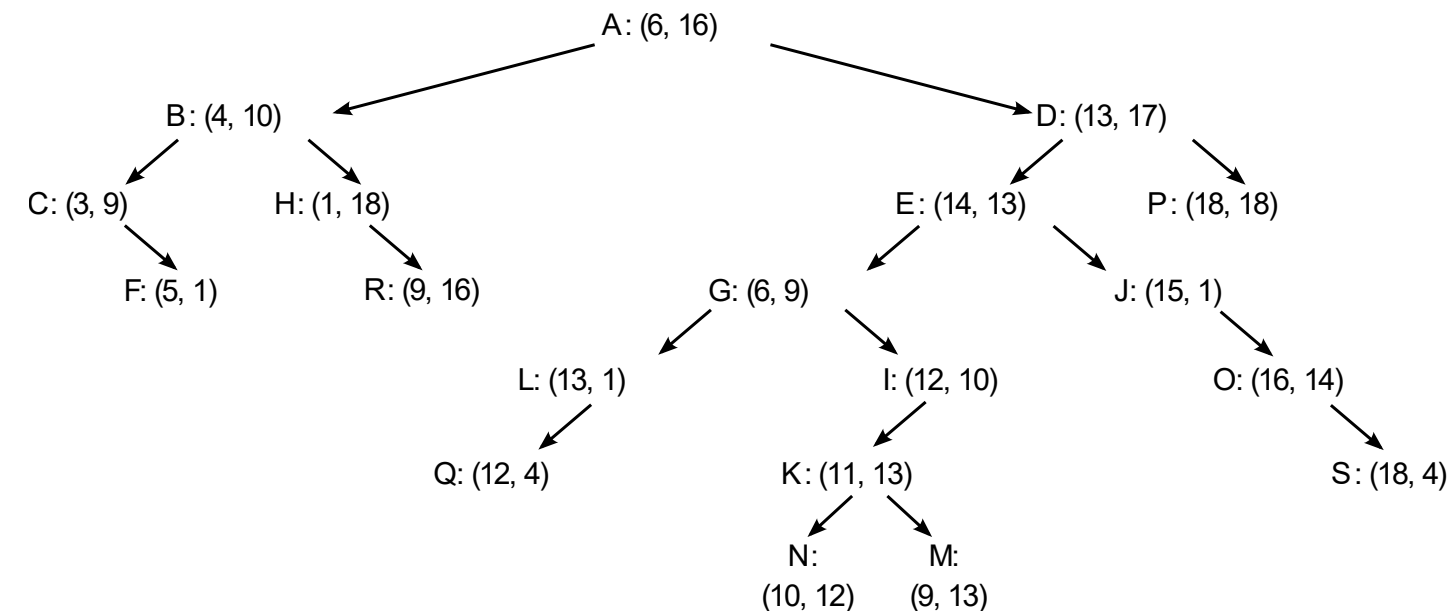
Si hay sub-árbol derecho



Si no hay sub-árbol derecho



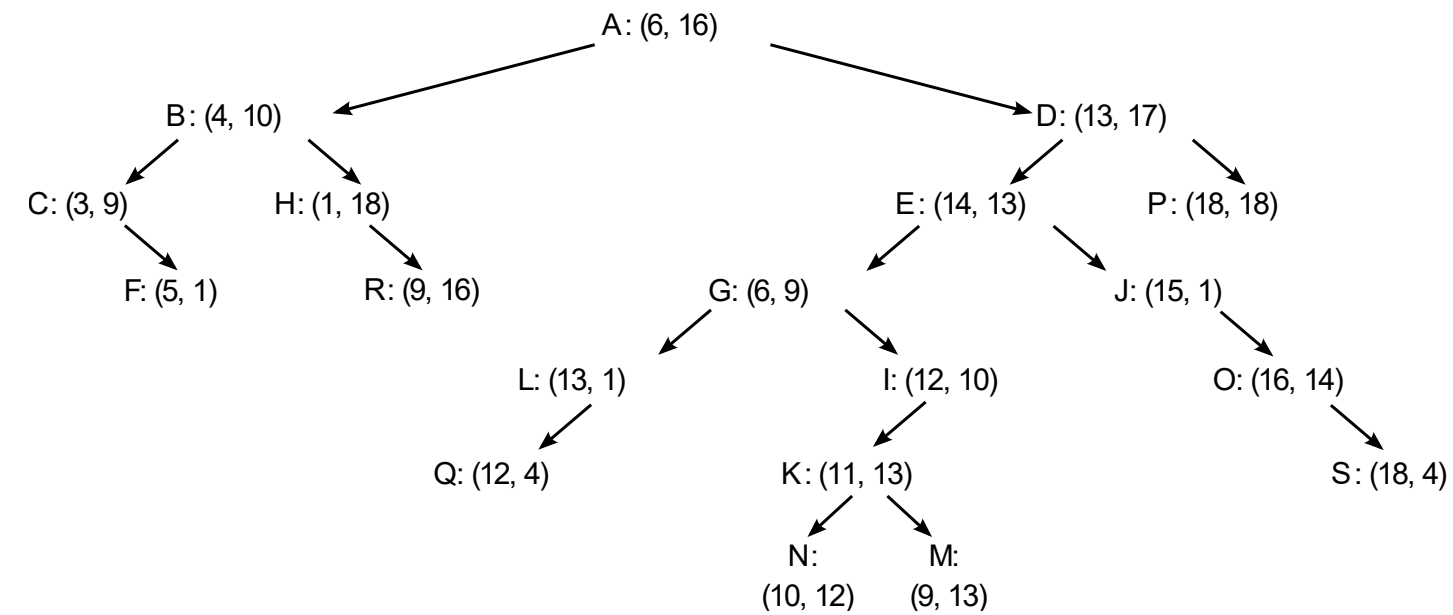
Point k-d-tree: Borrado



1

+3 pts

Point k-d-tree: Borrado

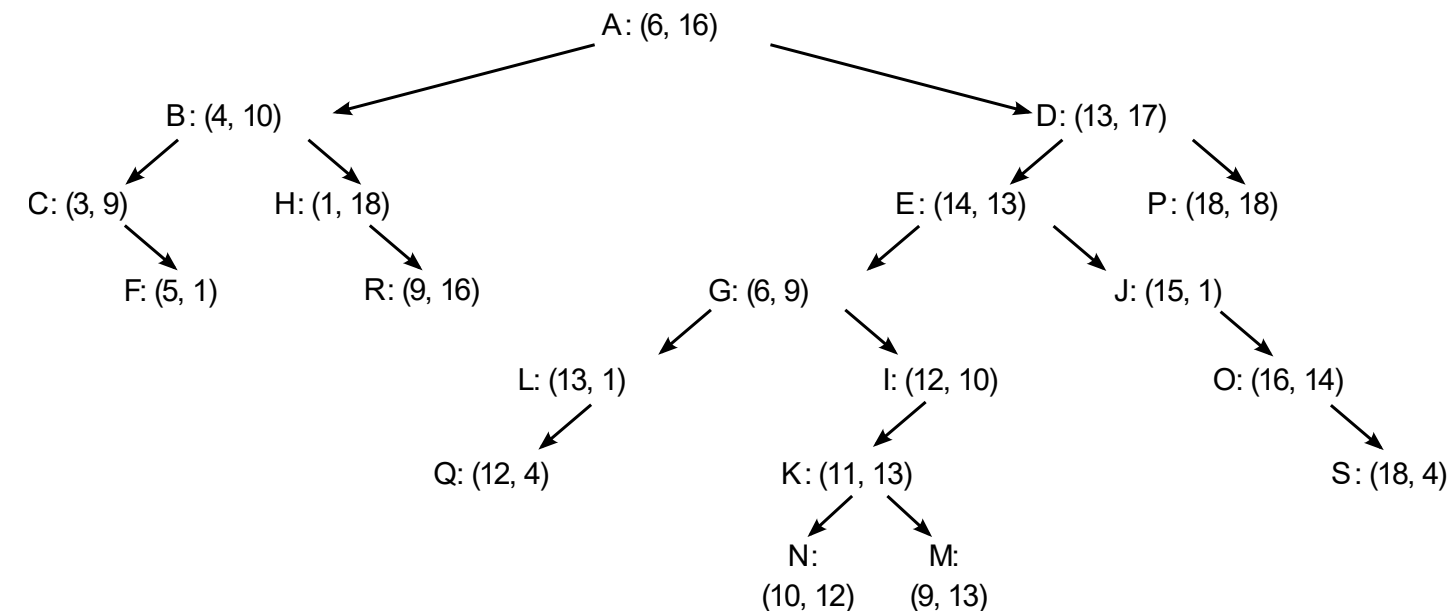


S, R, J, P, O

+3 pts



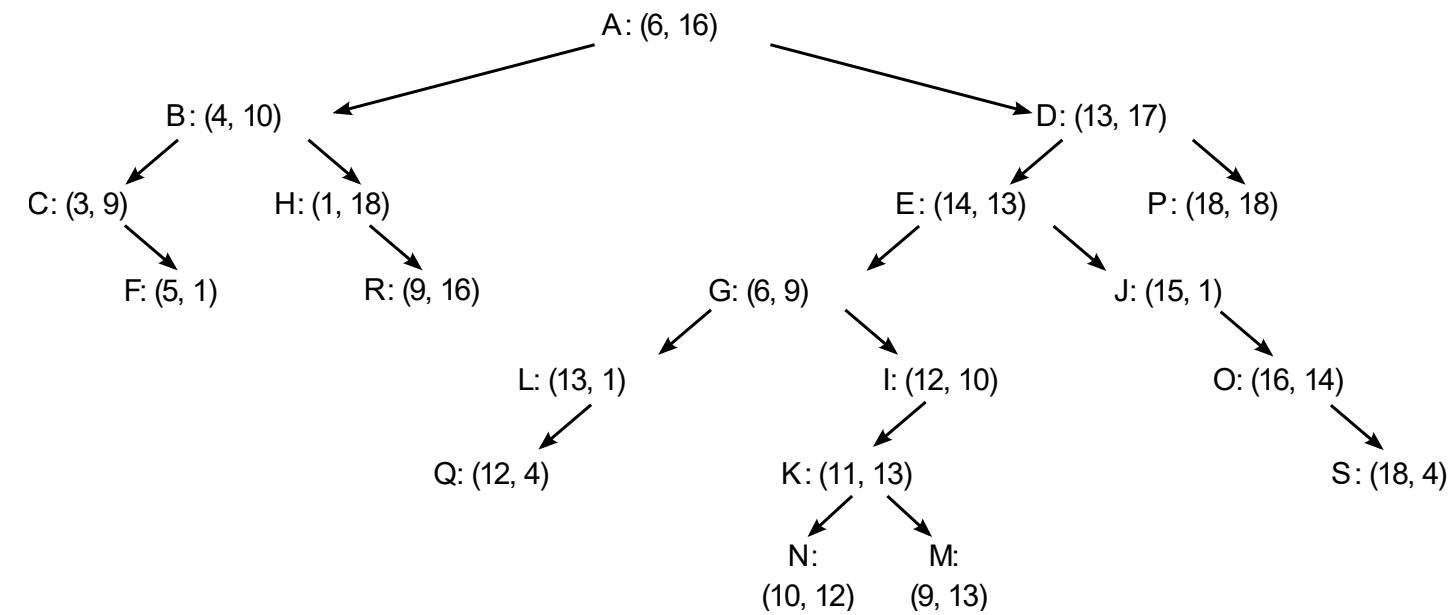
Point k-d-tree: Borrado



2

+2.5 pts

Point k-d-tree: Borrado

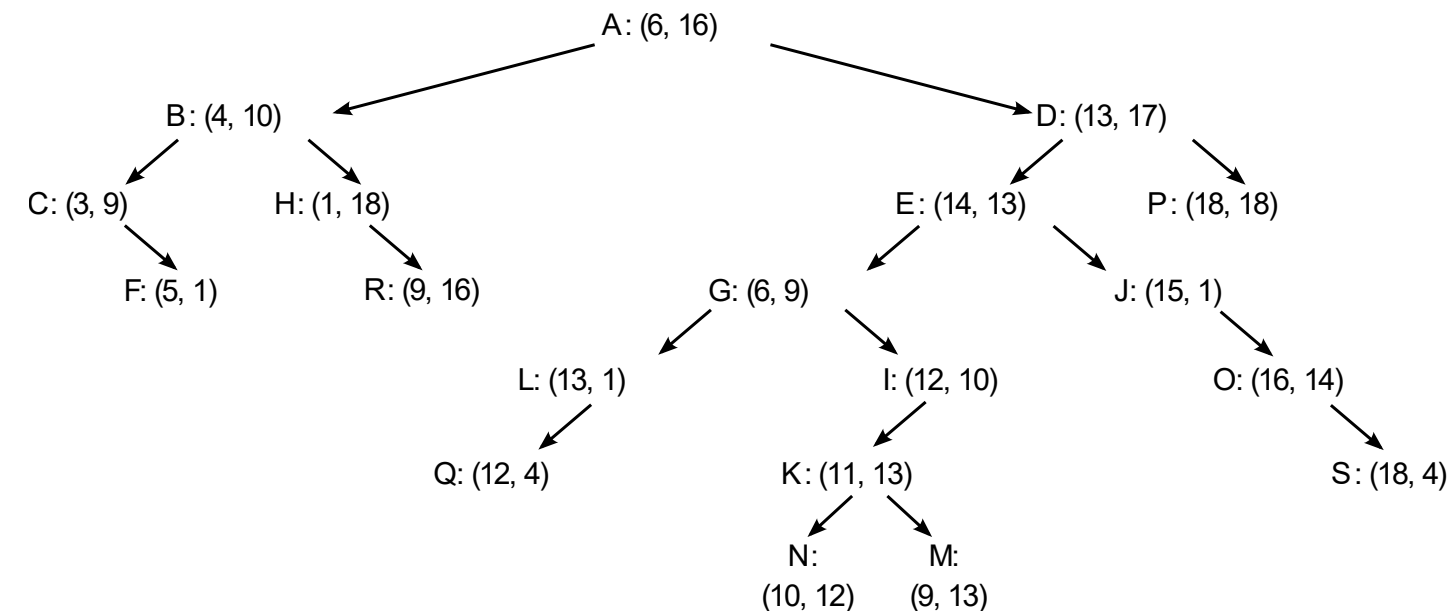


F, C, J, G, D

+2.5 pts



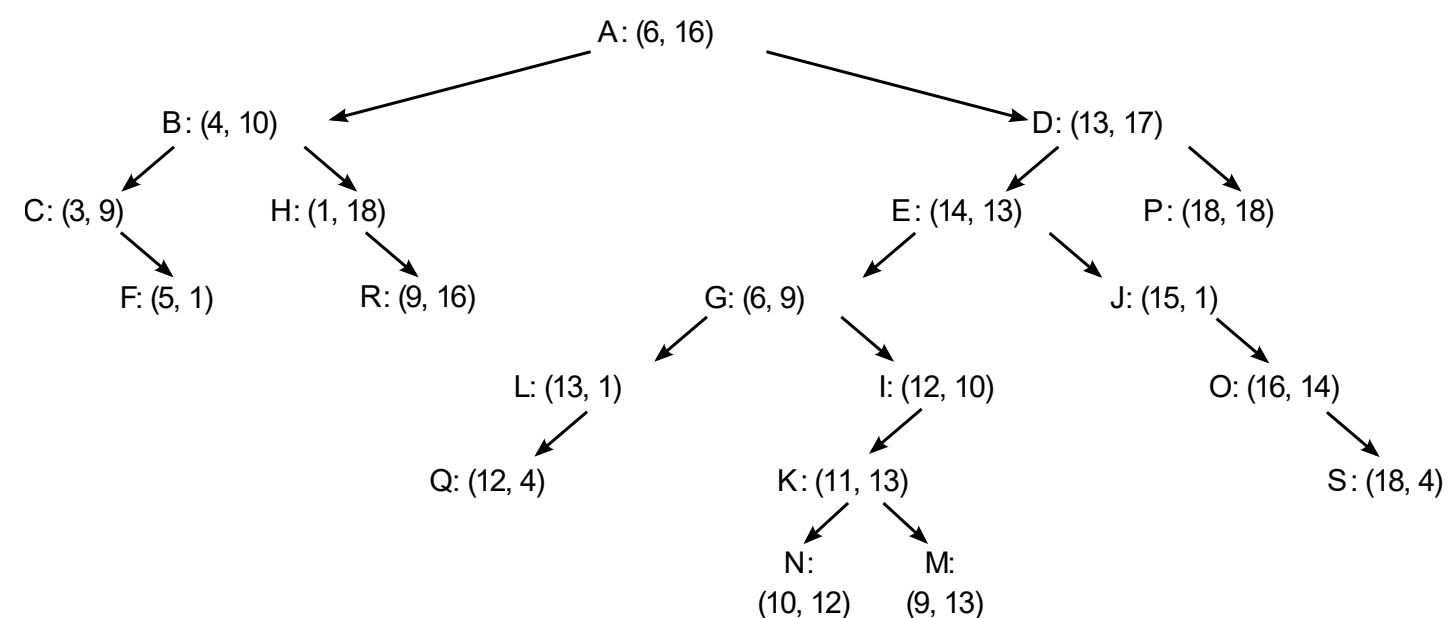
Point k-d-tree: Borrado



3

+2 pts

Point k-d-tree: Borrado

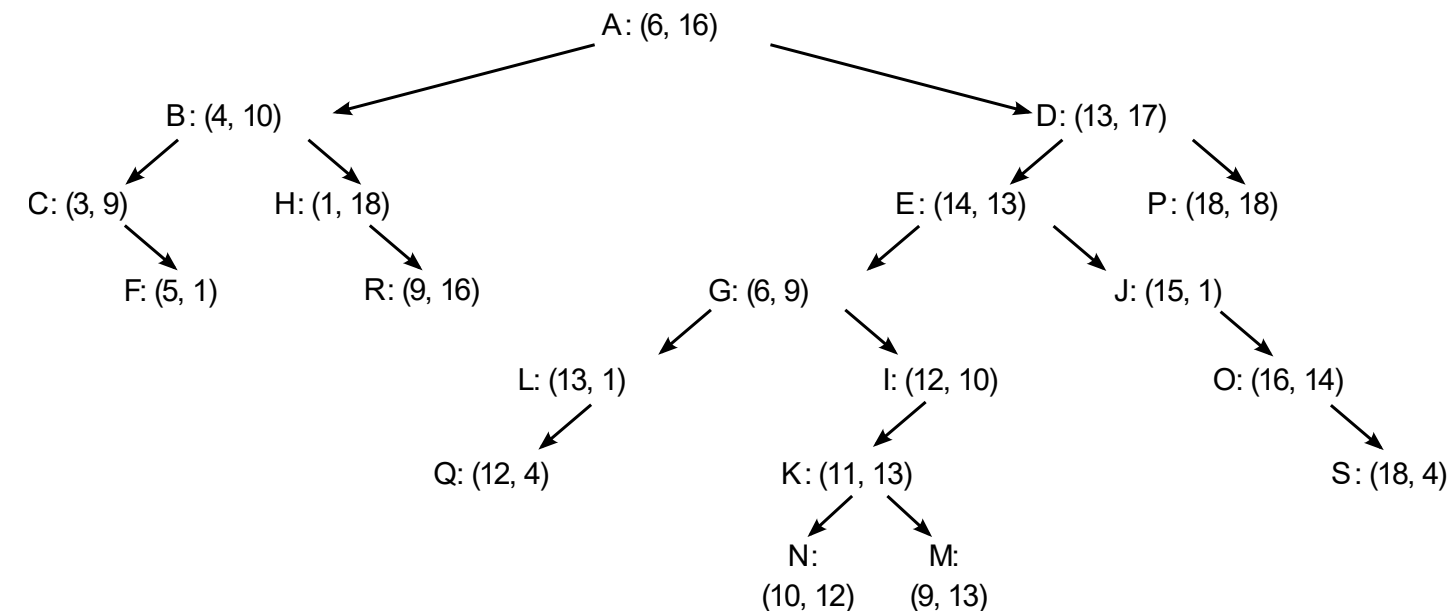


H, N, D, L, G

+2 pts



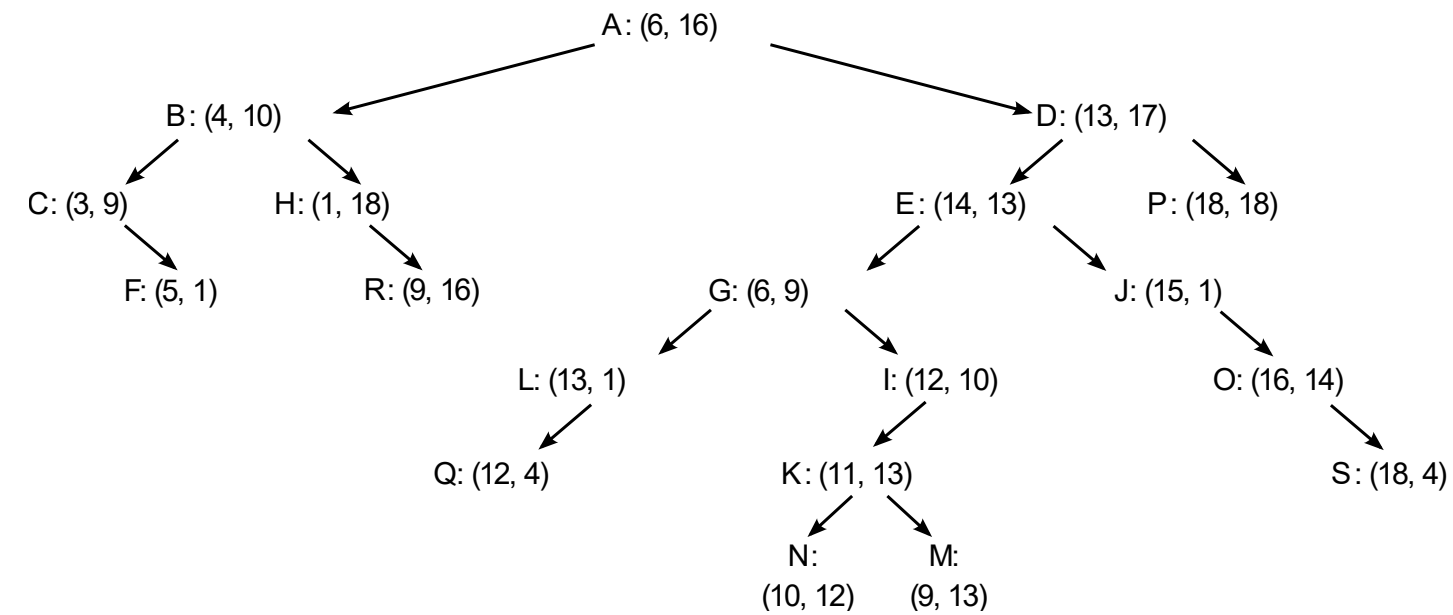
Point k-d-tree: Borrado



4

+1.5 pts

Point k-d-tree: Borrado

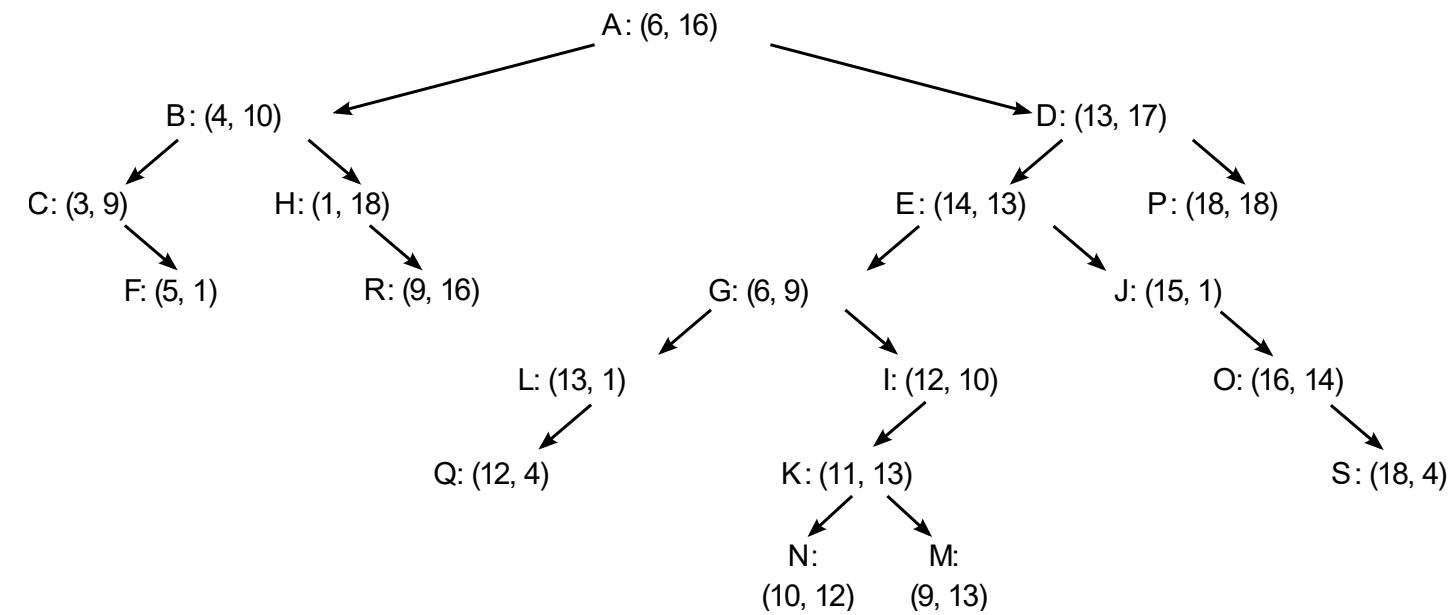


G, H, N, S, B

+1.5 pts



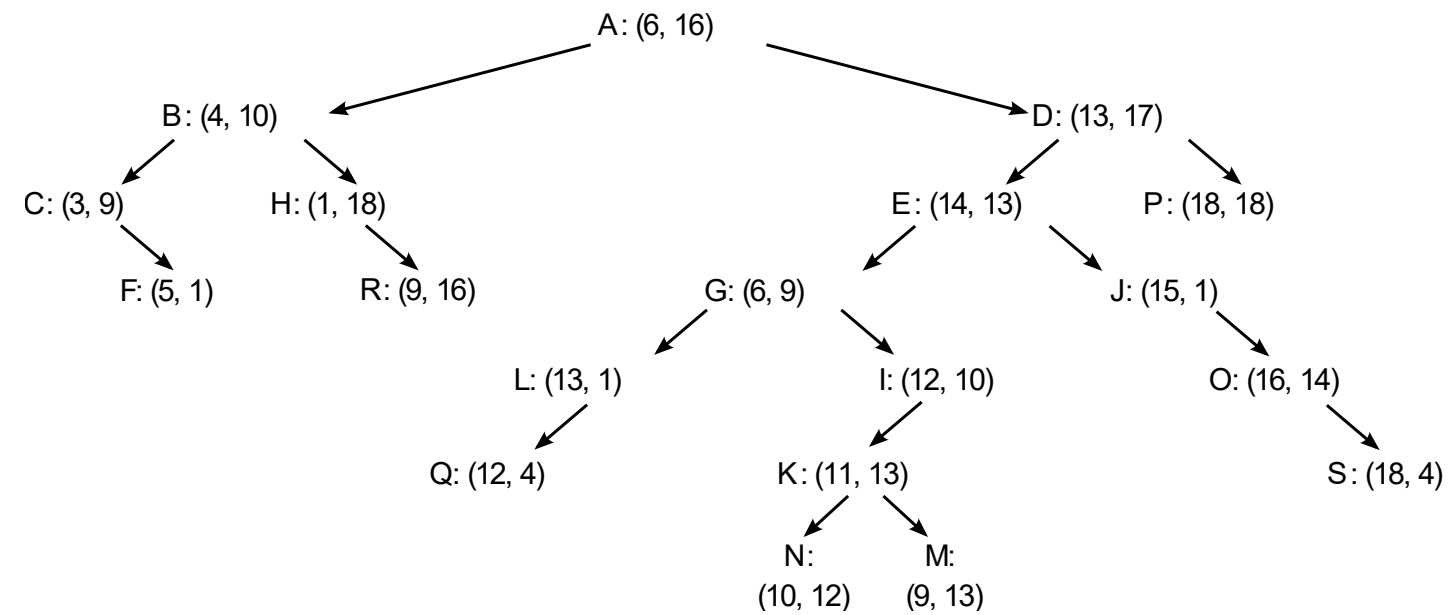
Point k-d-tree: Borrado



5

+1 pts

Point k-d-tree: Borrado

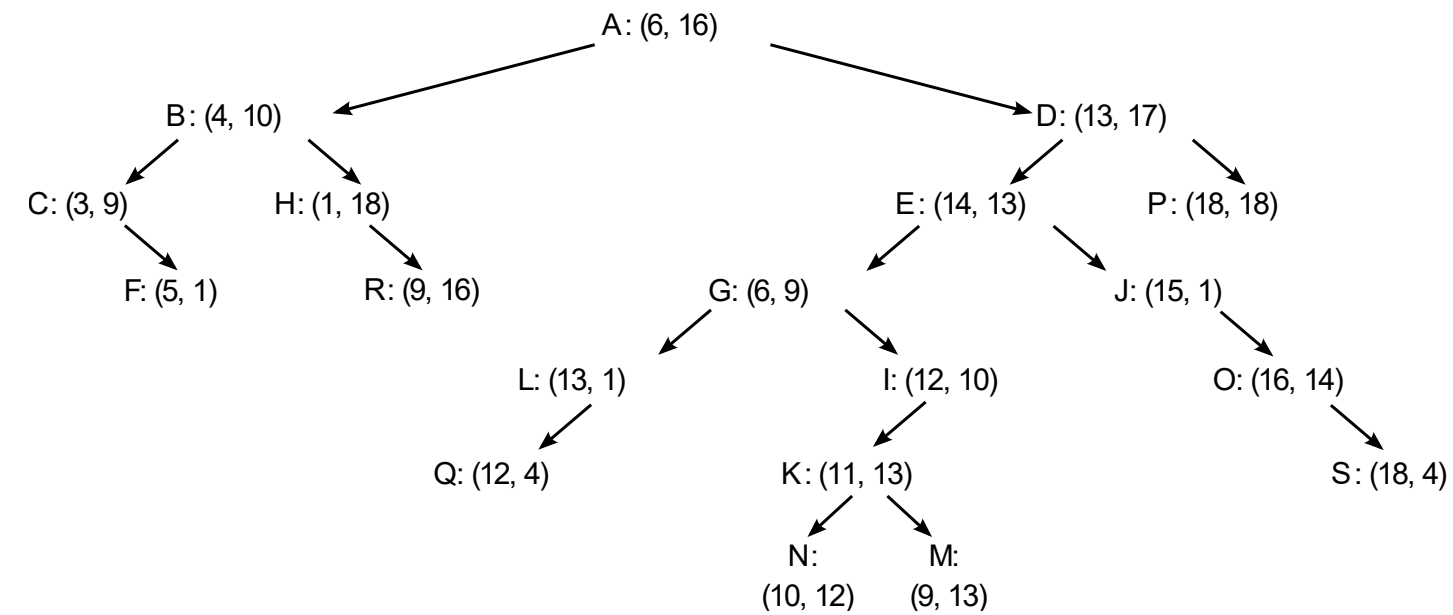


K, C, S, Q, P

+1 pts



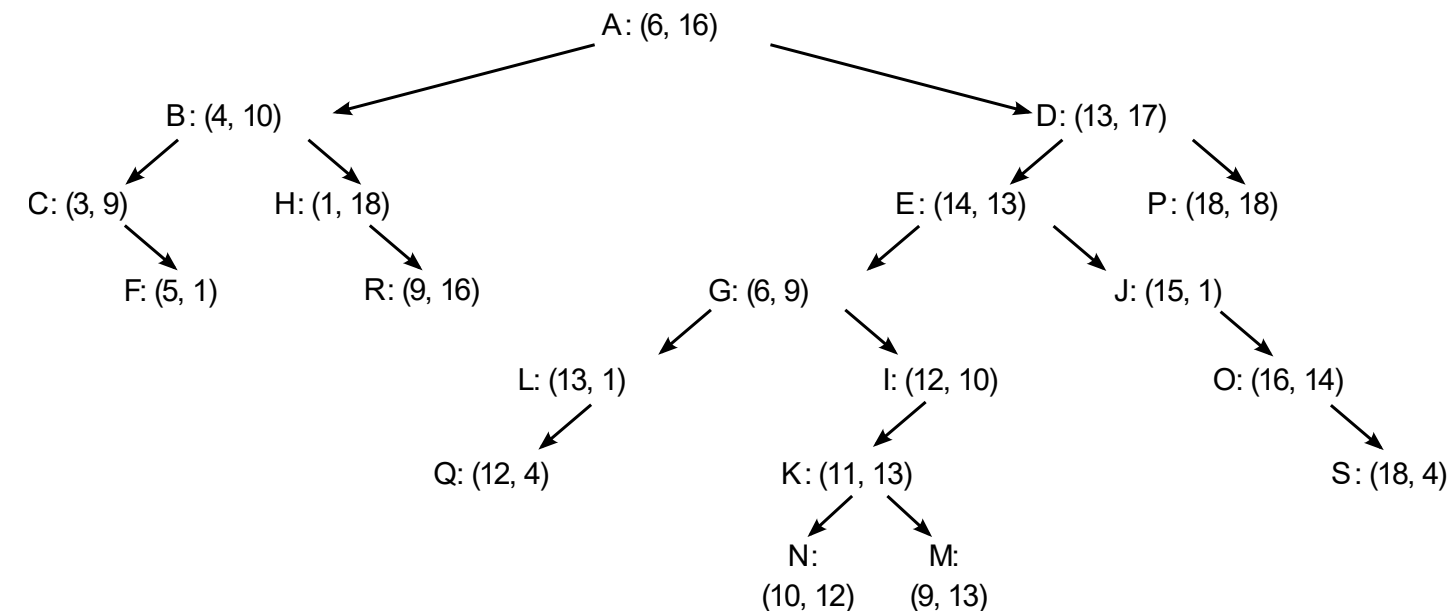
Point k-d-tree: Borrado



6

+0.5 pts

Point k-d-tree: Borrado



G, S, K, A, B

+0.5 pts

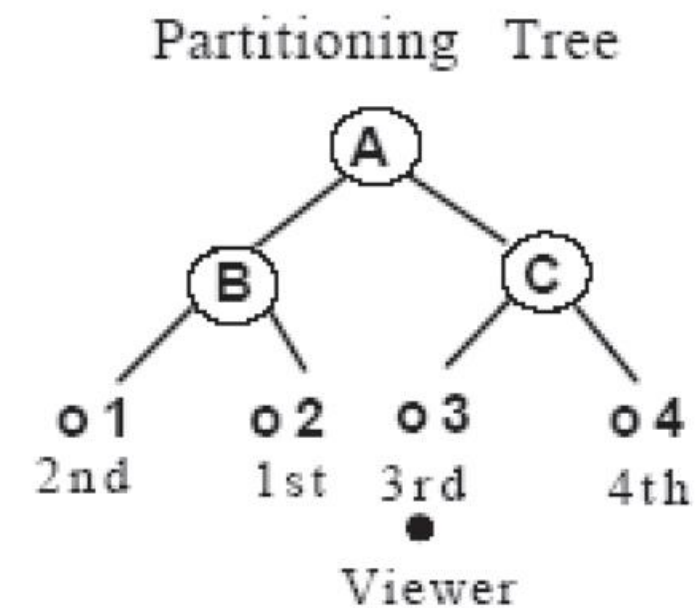
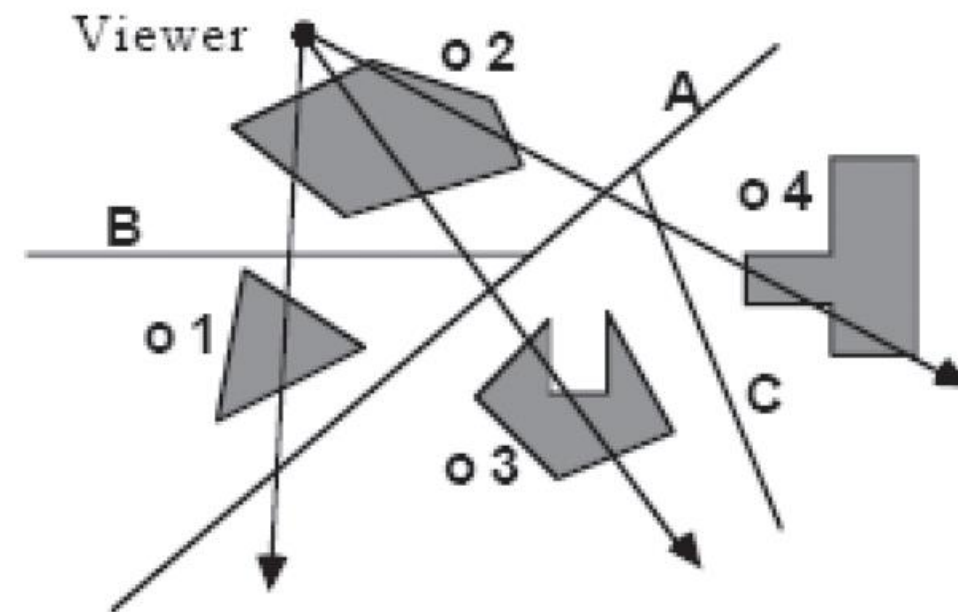
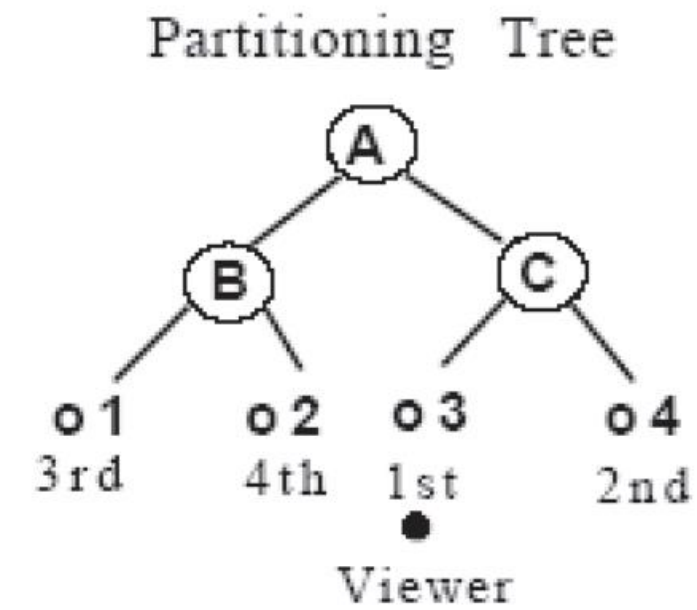
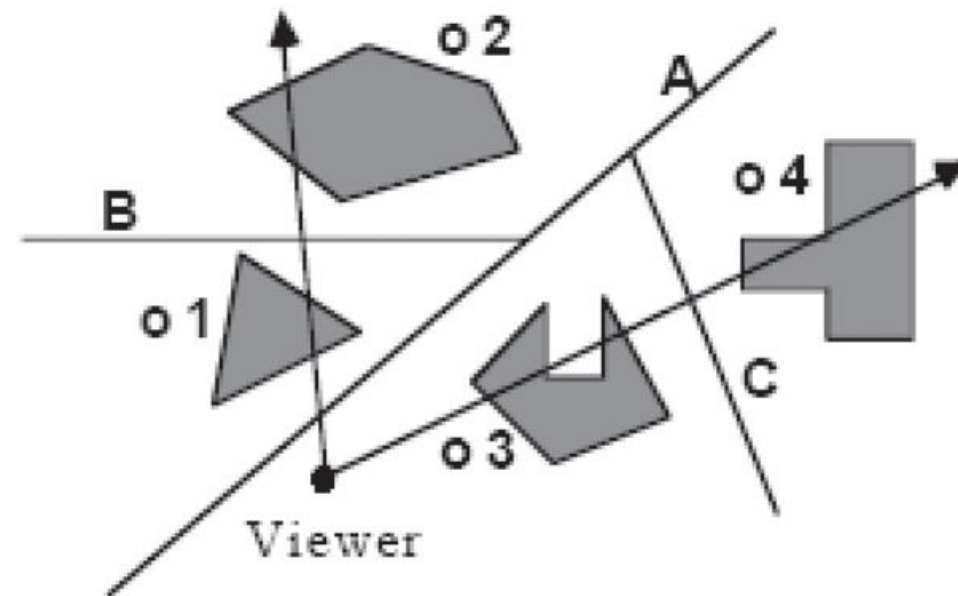


5.



BSP-*tree* Visualización

BSP-tree: *Visualización*



BSP-tree: *Visualización*

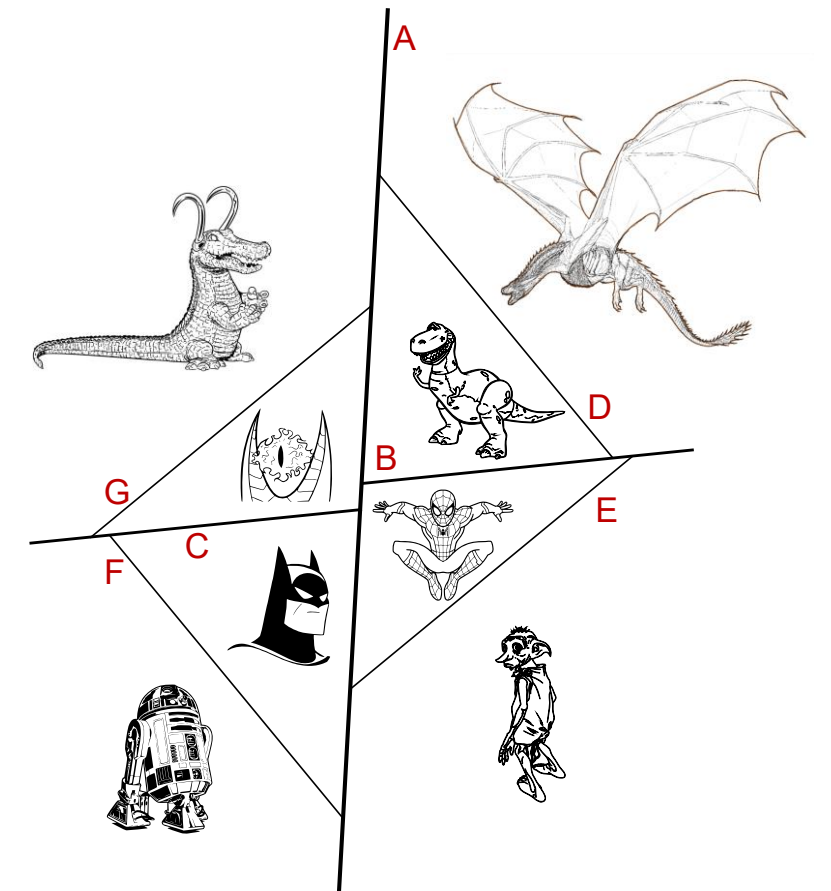
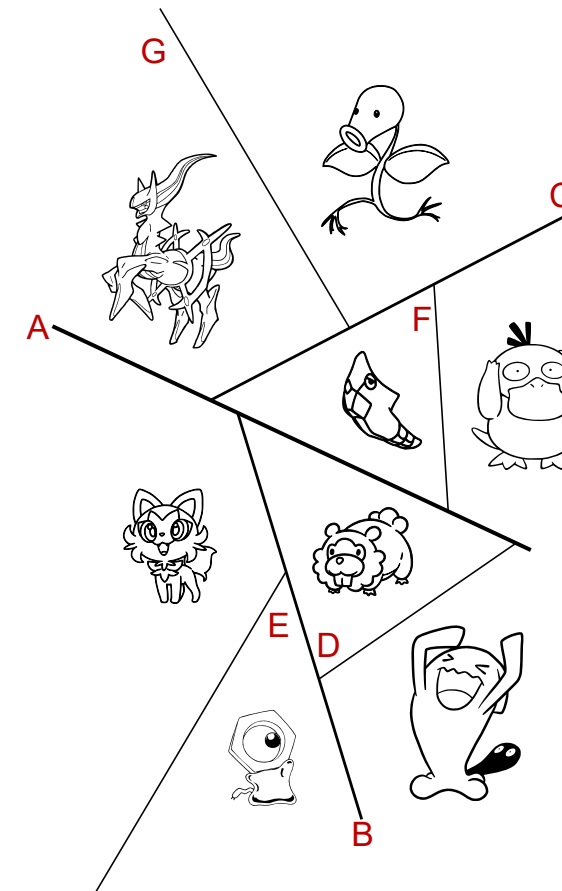
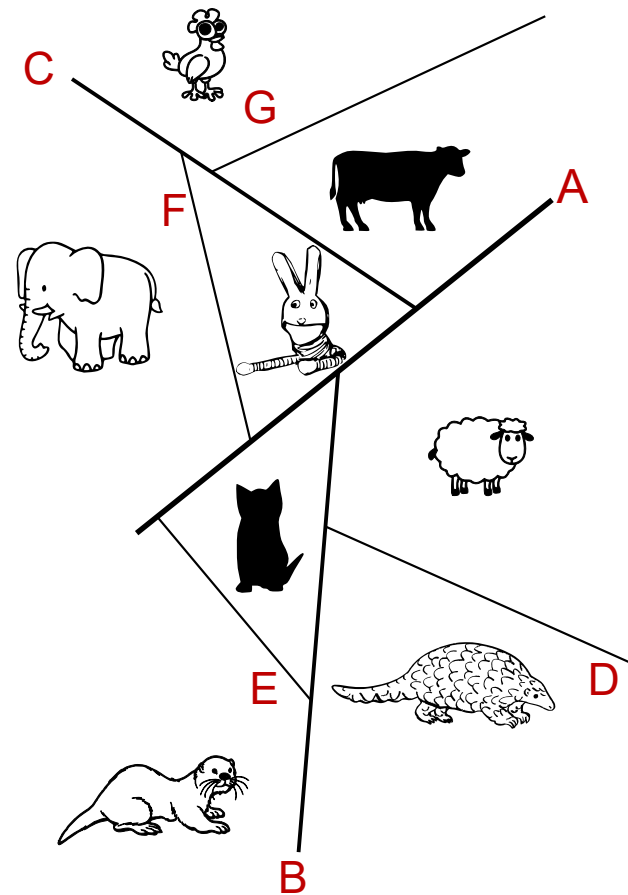
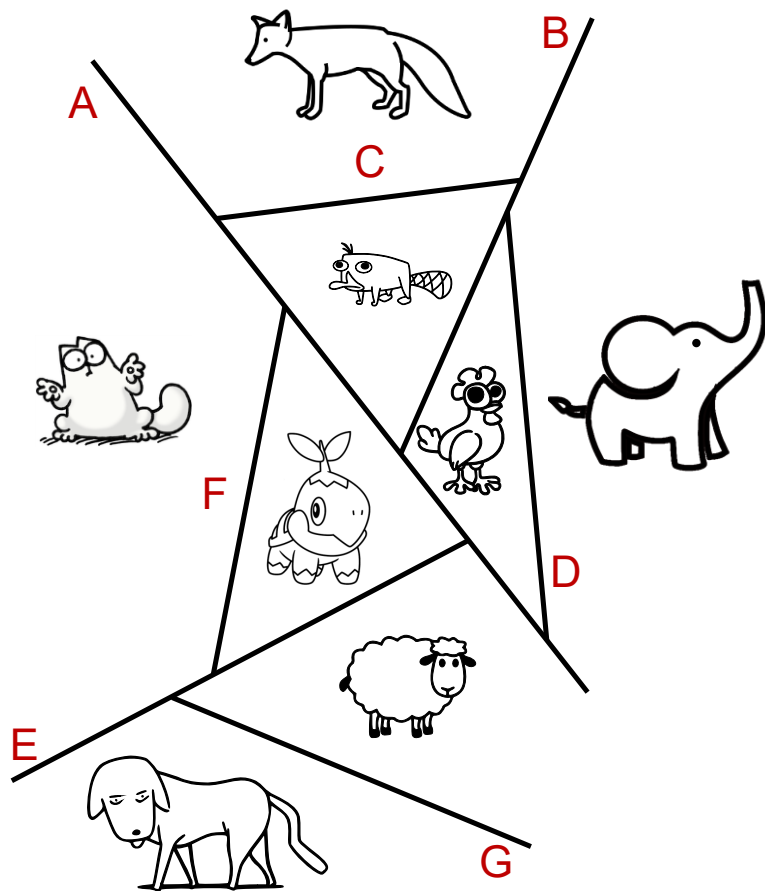
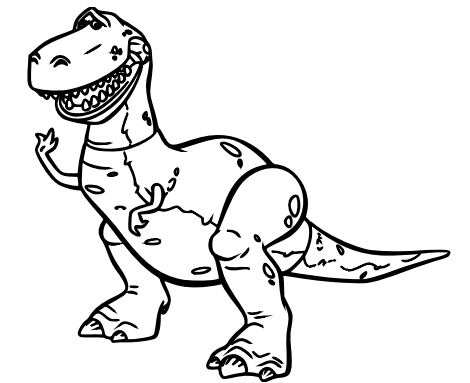
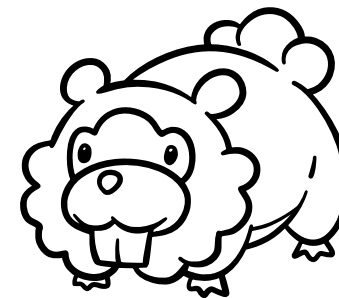
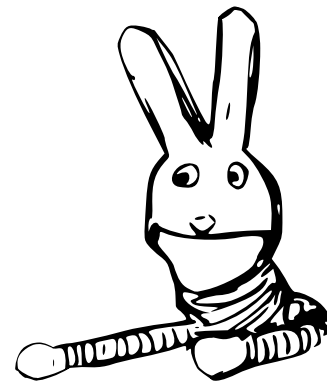
1

2

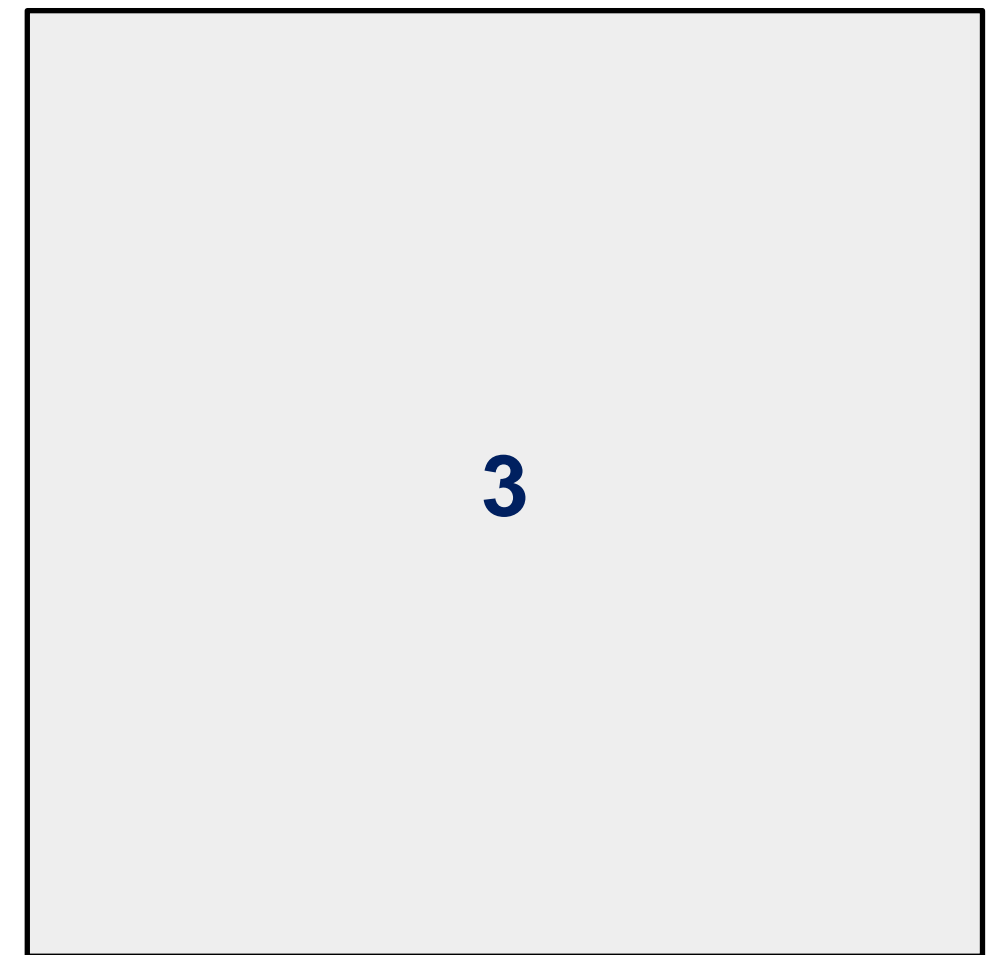
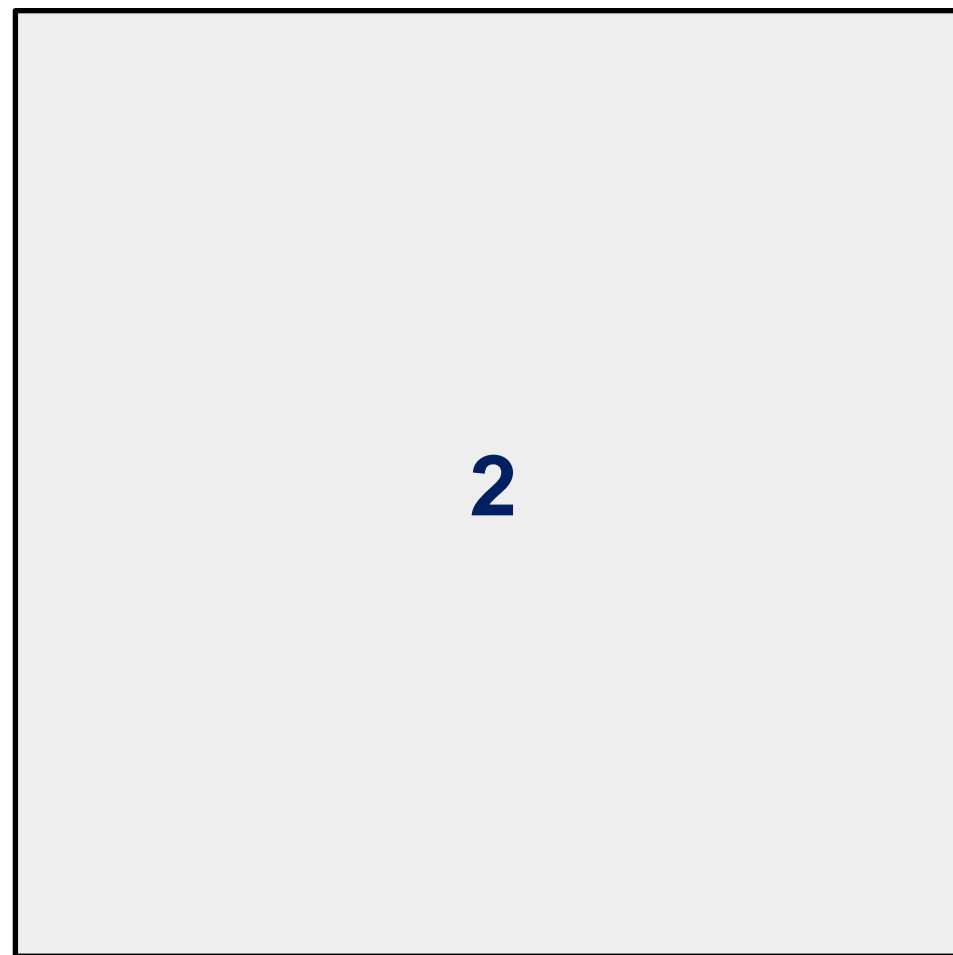
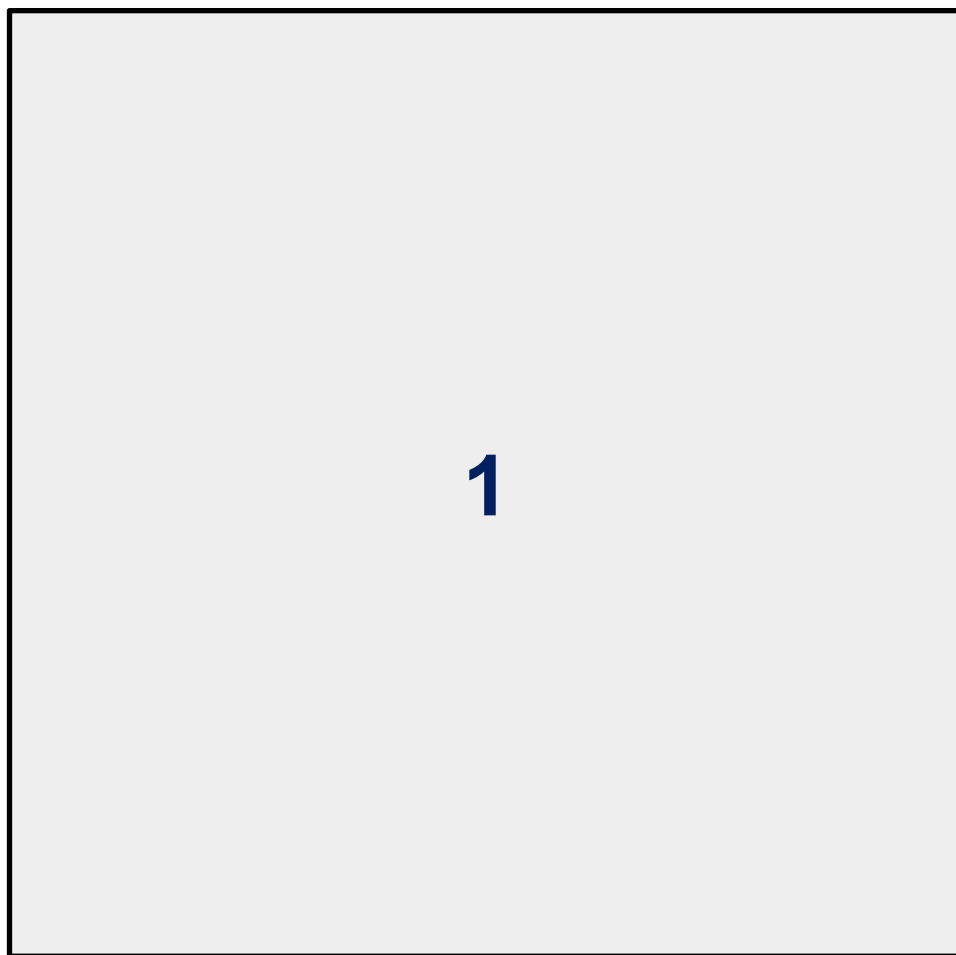
3

4

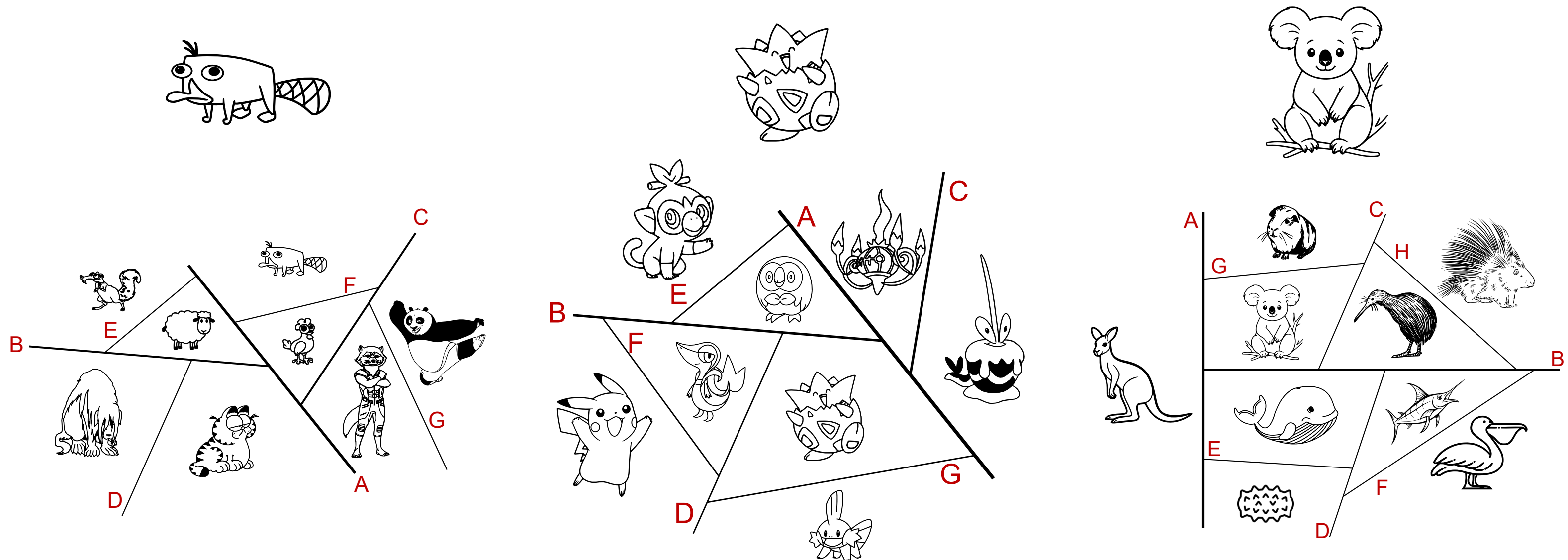
BSP-tree: *Visualización*



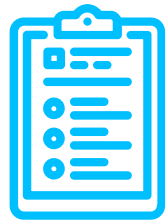
BSP-tree: *Visualización*



BSP-tree: *Visualización*



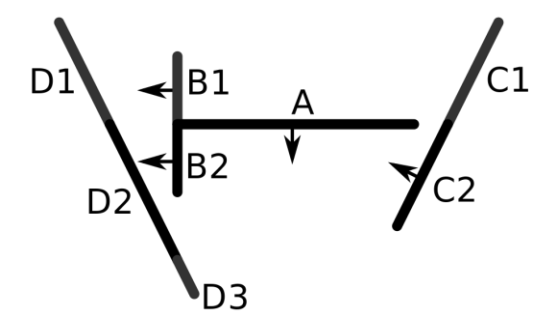
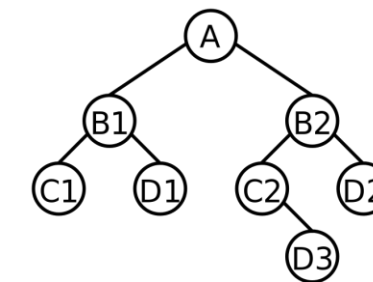
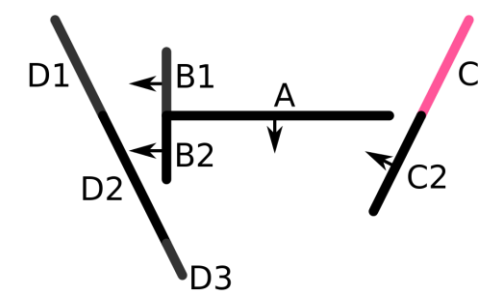
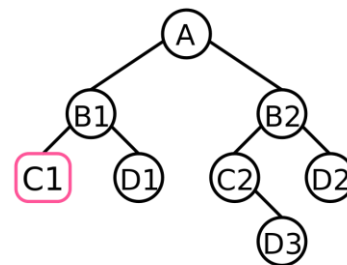
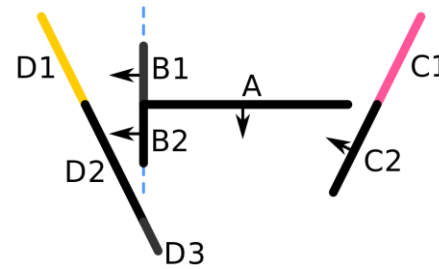
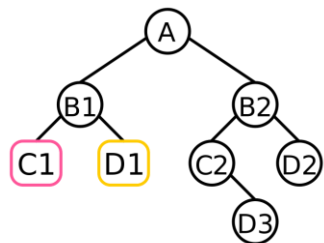
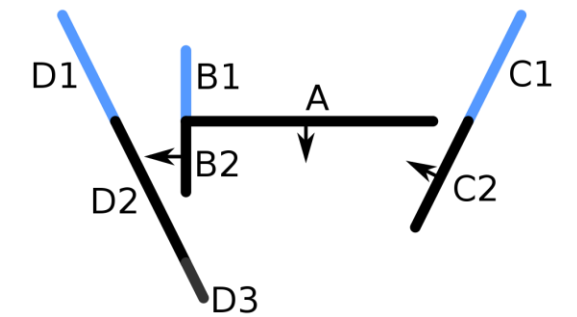
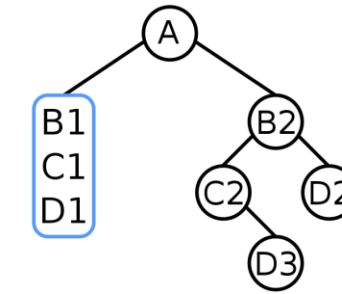
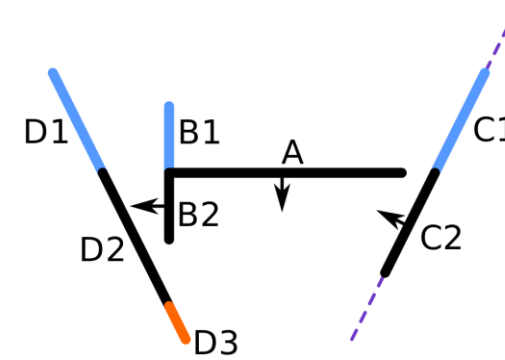
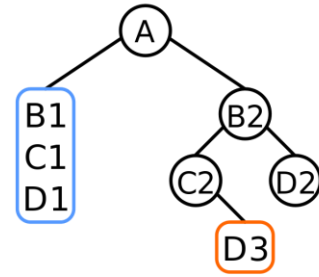
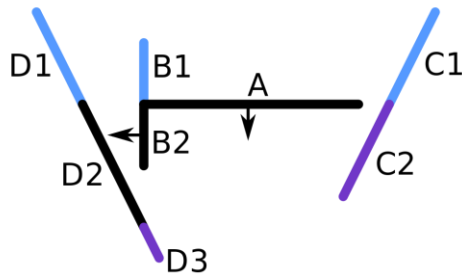
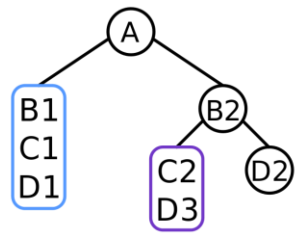
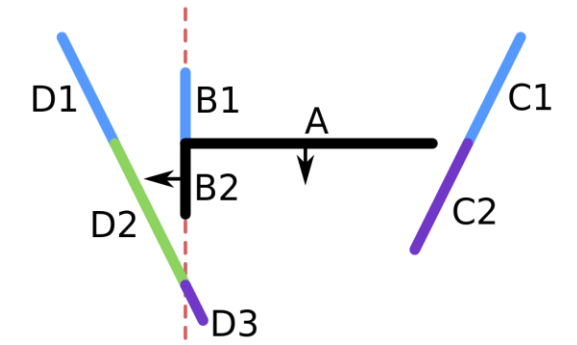
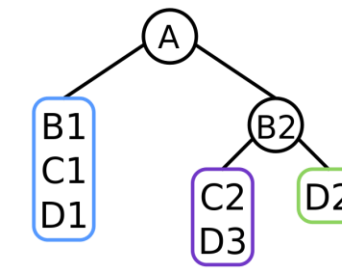
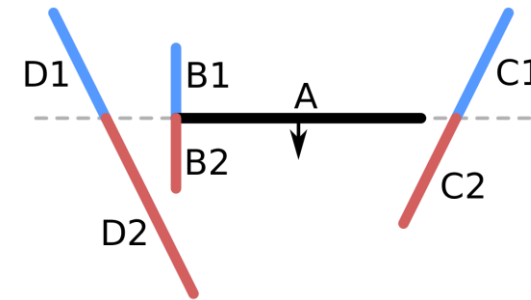
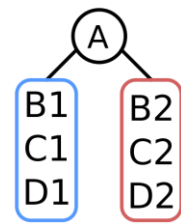
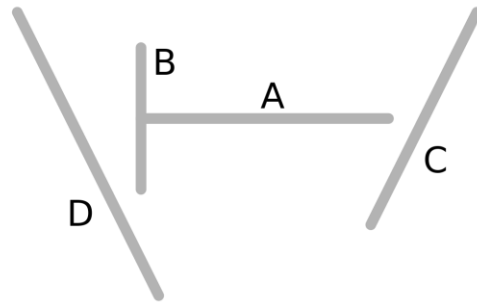
6.



BSP-*tree* Visualización

BSP-tree: *Inserción*

A
B
C
D



BSP-tree: *Inserción*

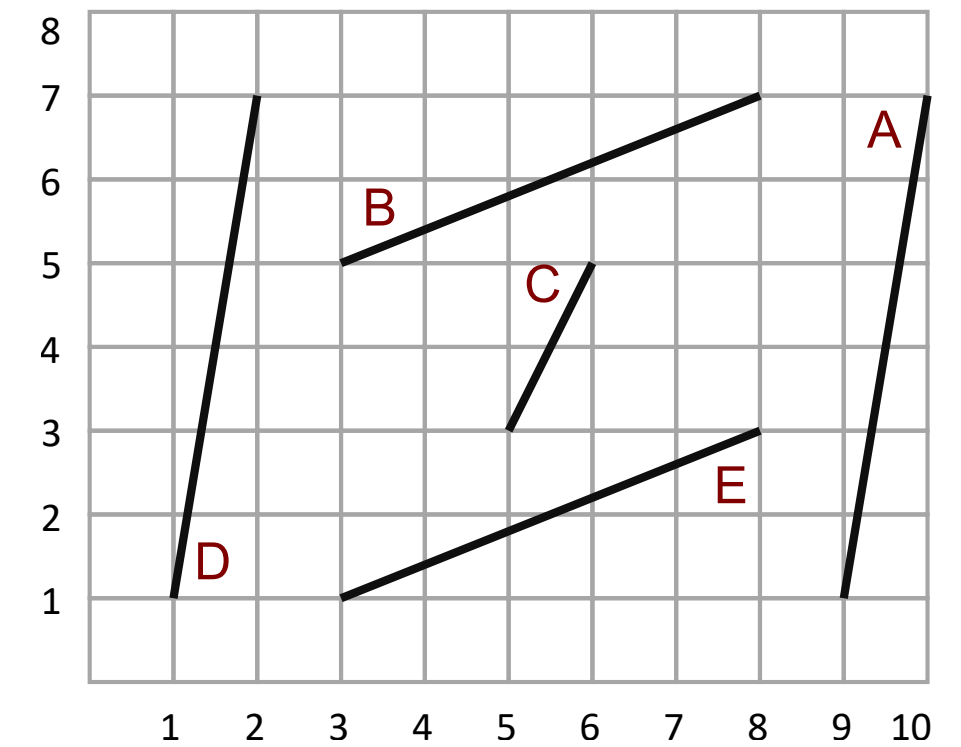
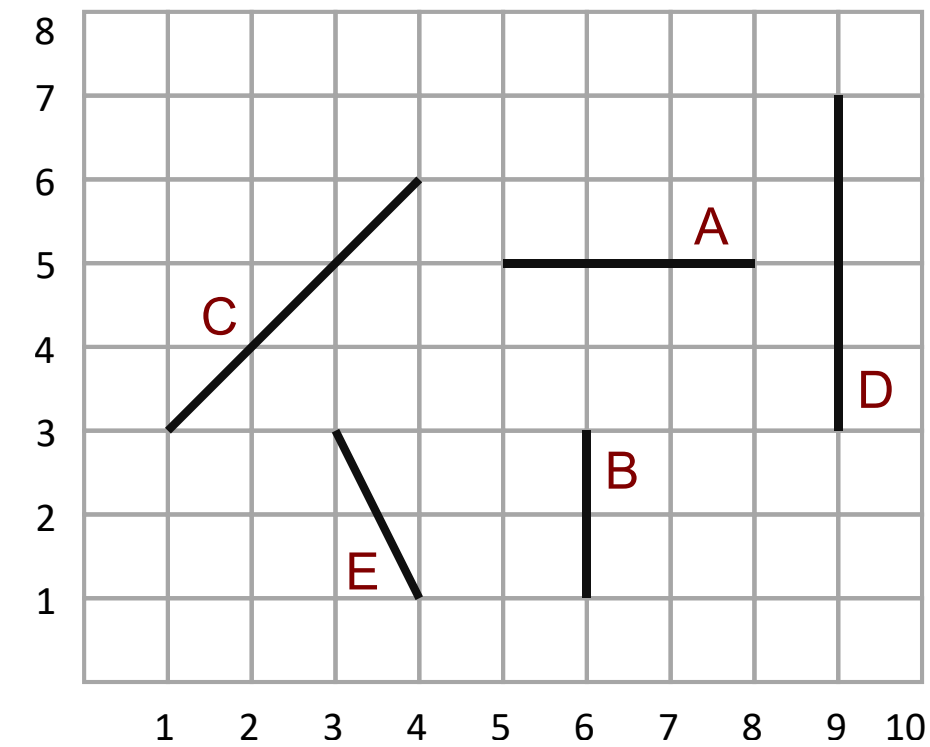
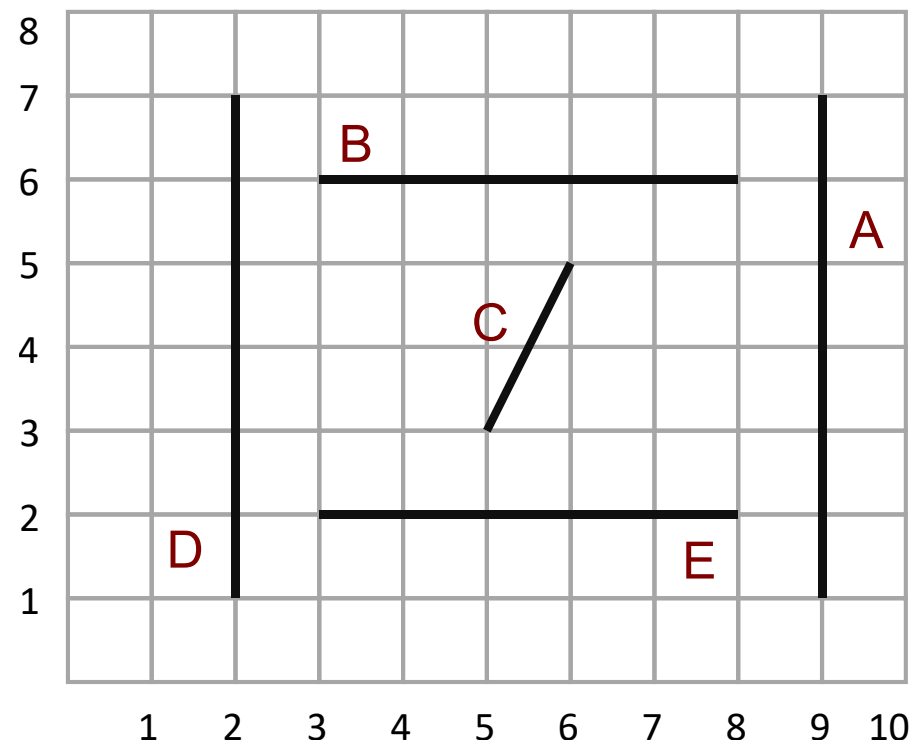
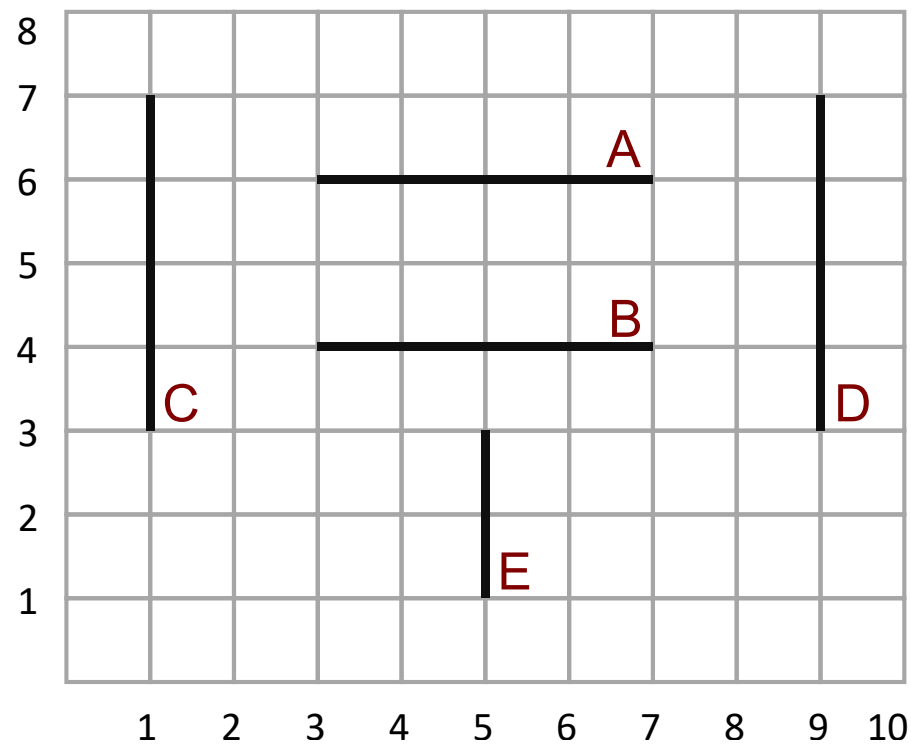
1

2

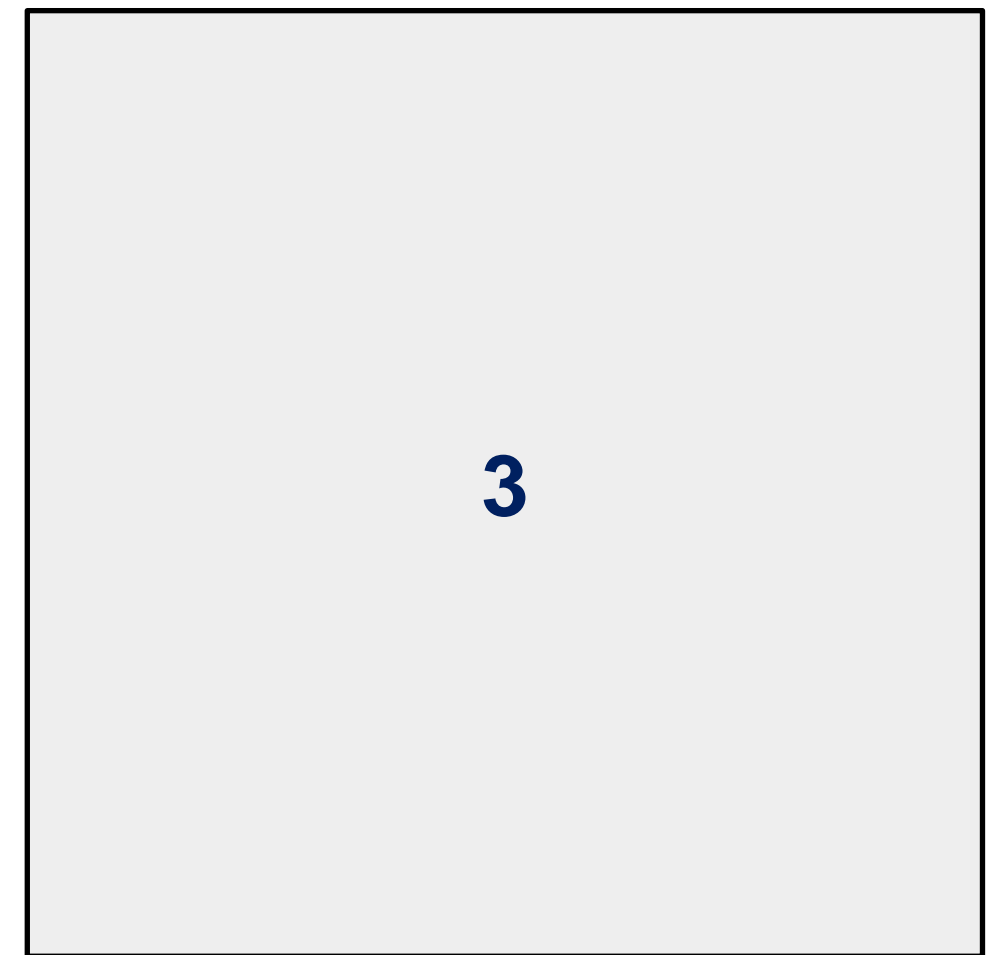
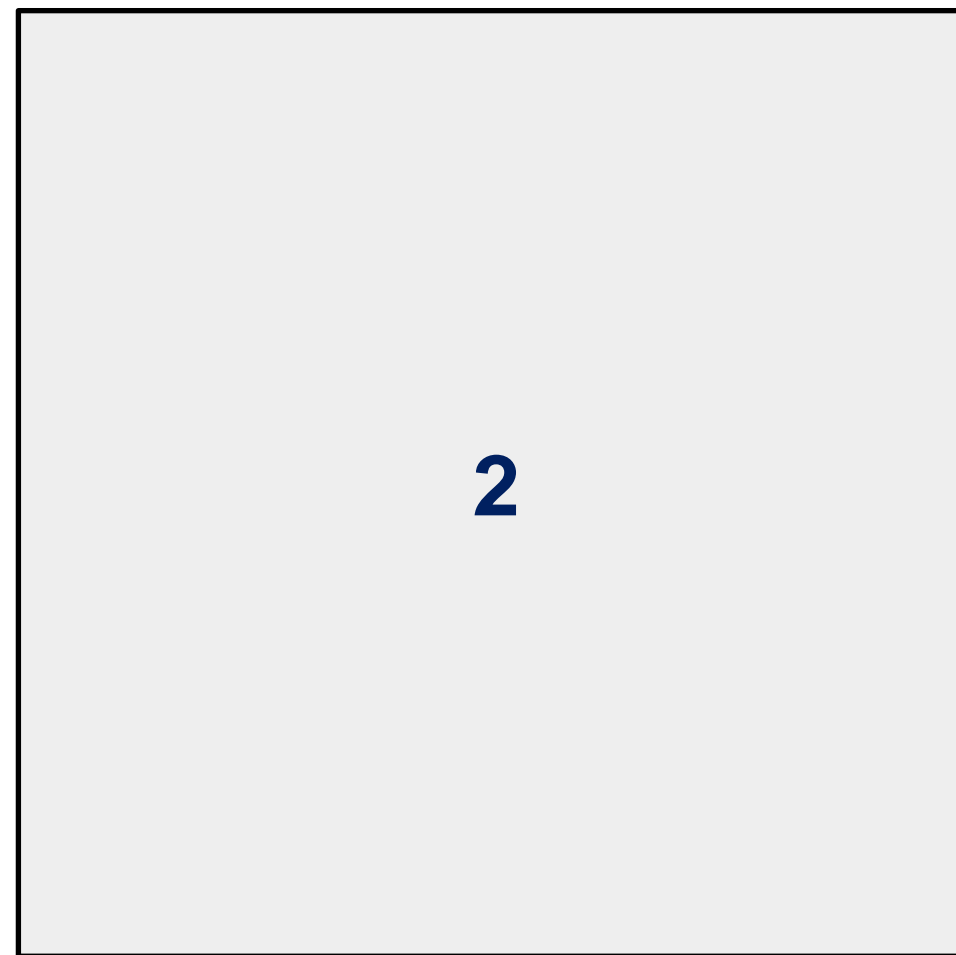
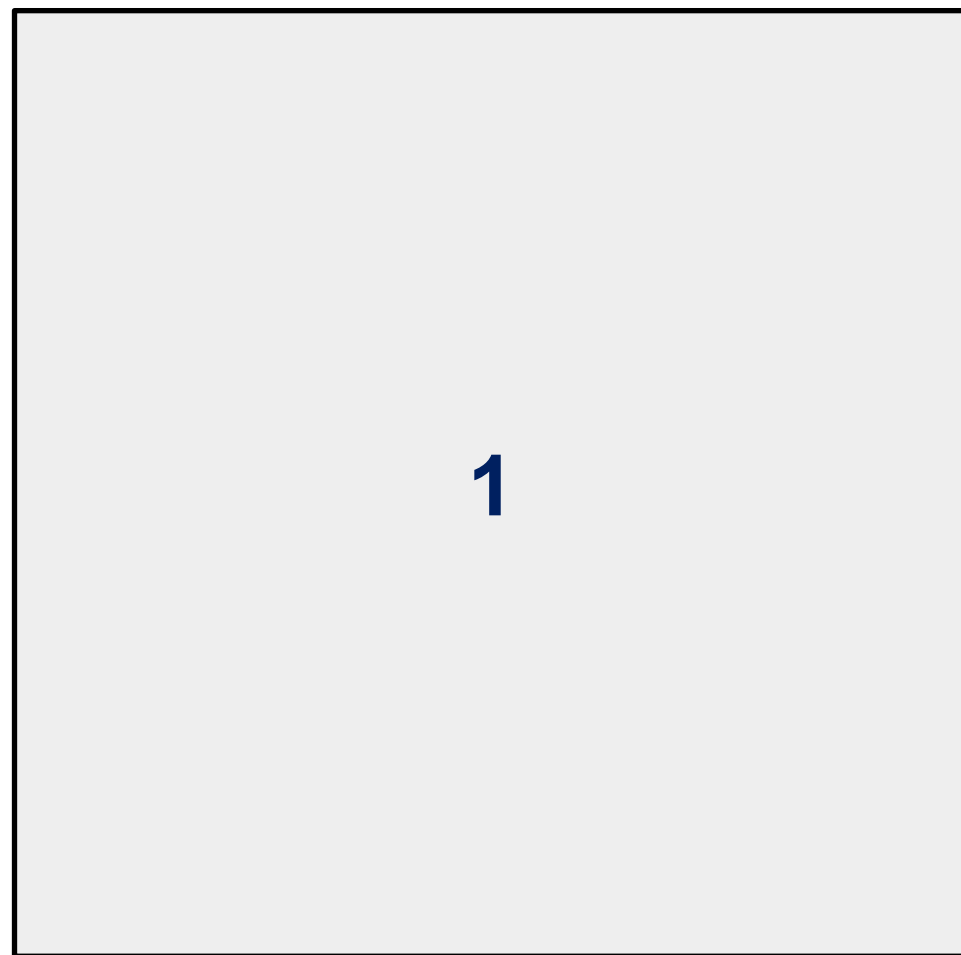
3

4

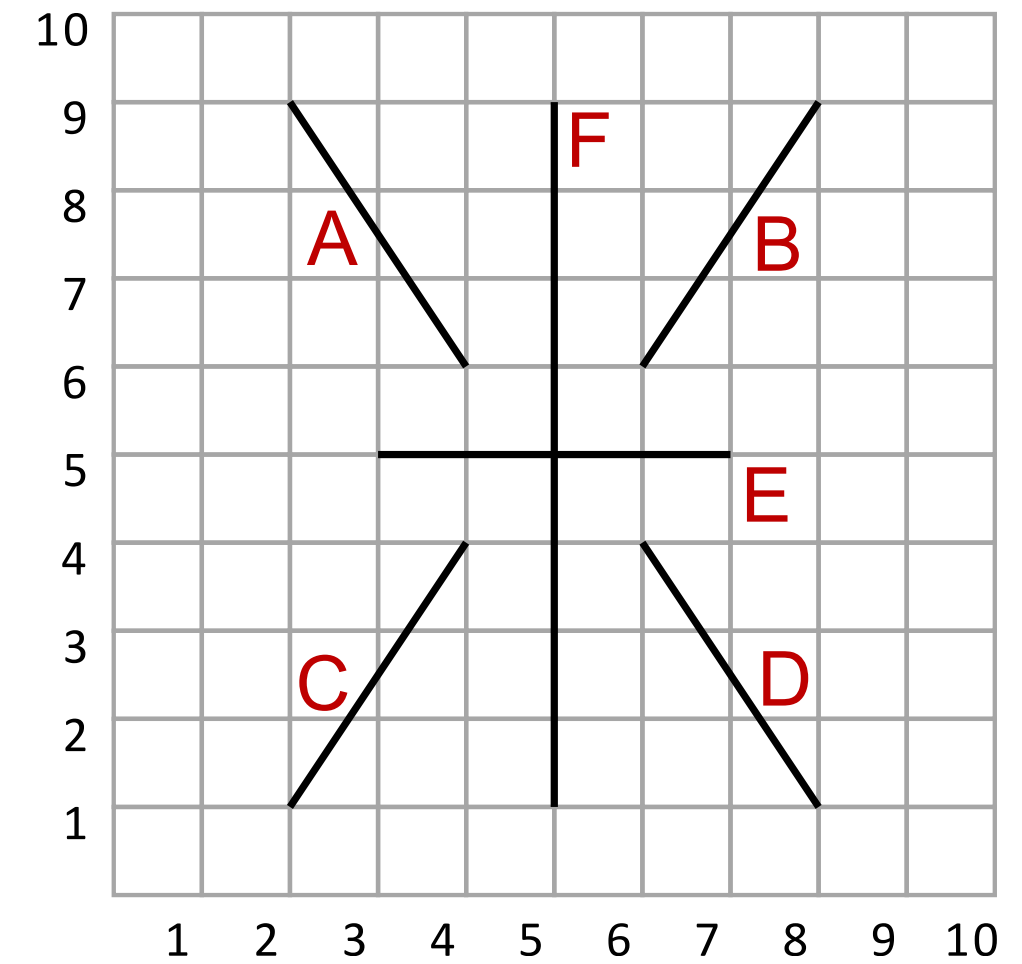
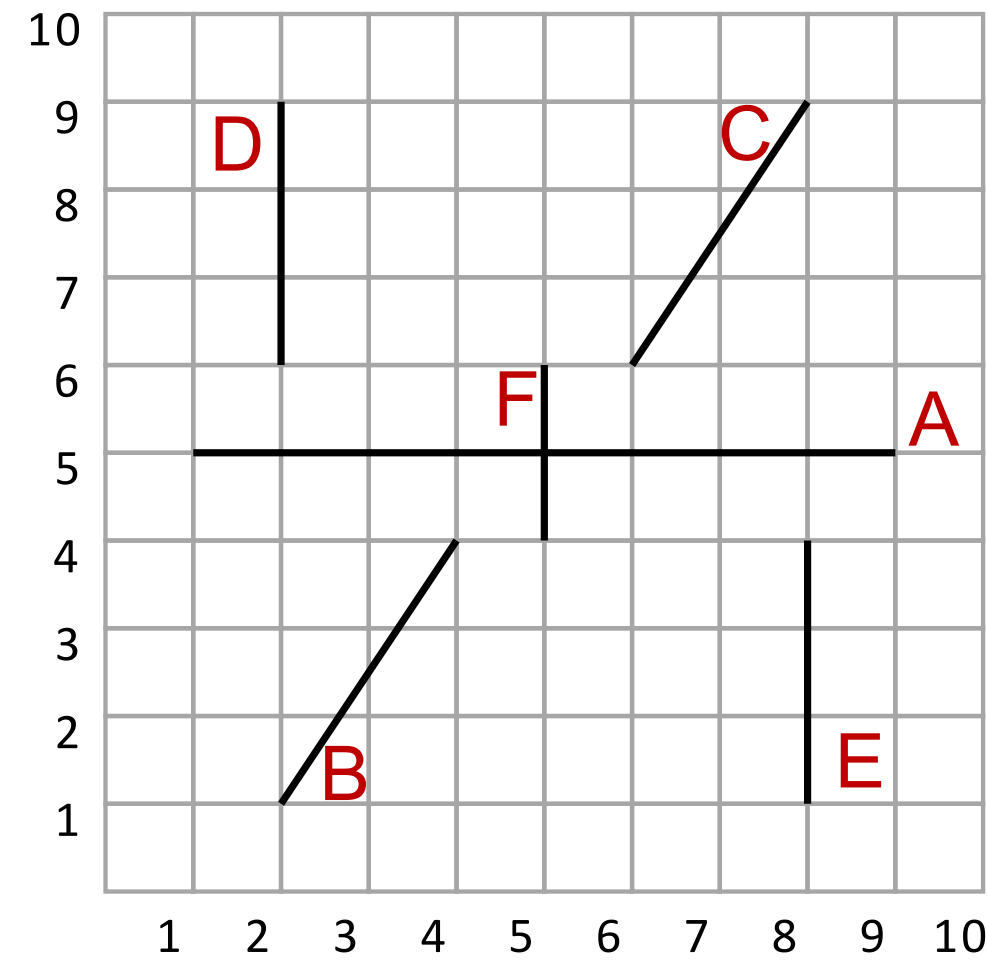
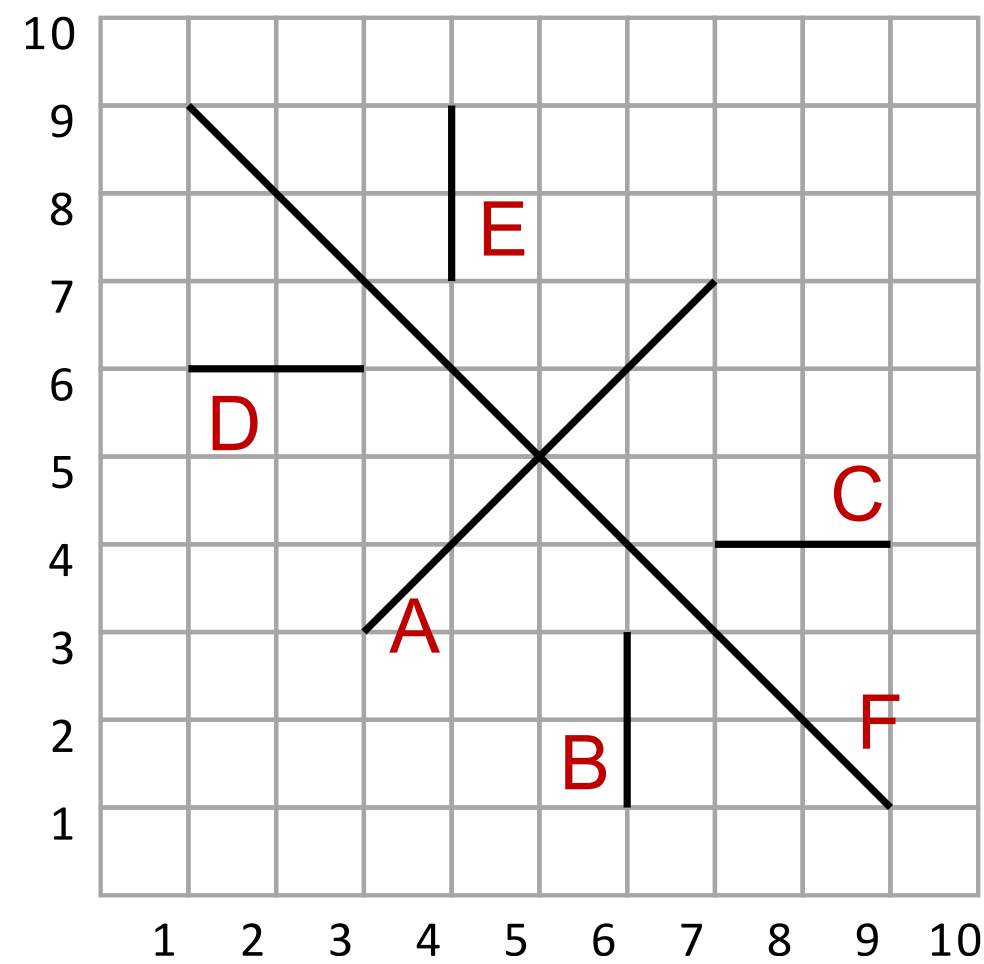
BSP-tree: *Inserción*



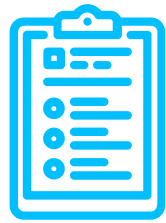
BSP-tree: *Inserción*



BSP-tree: *Inserción*

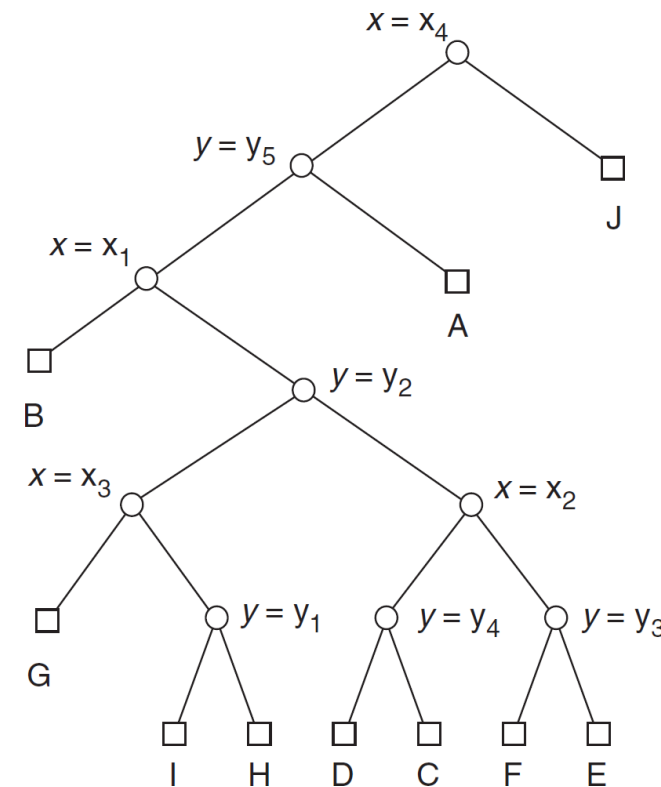
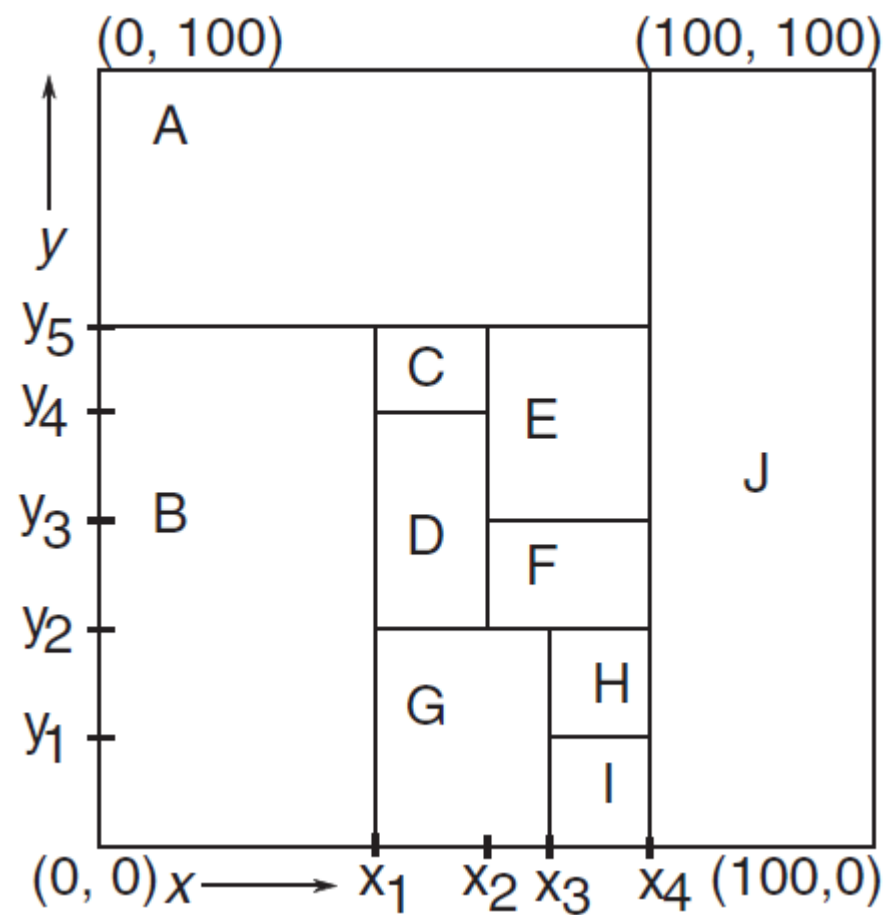


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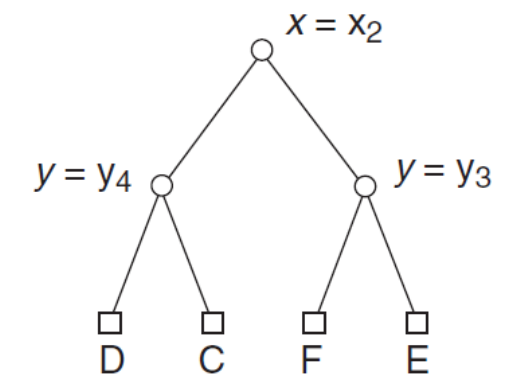
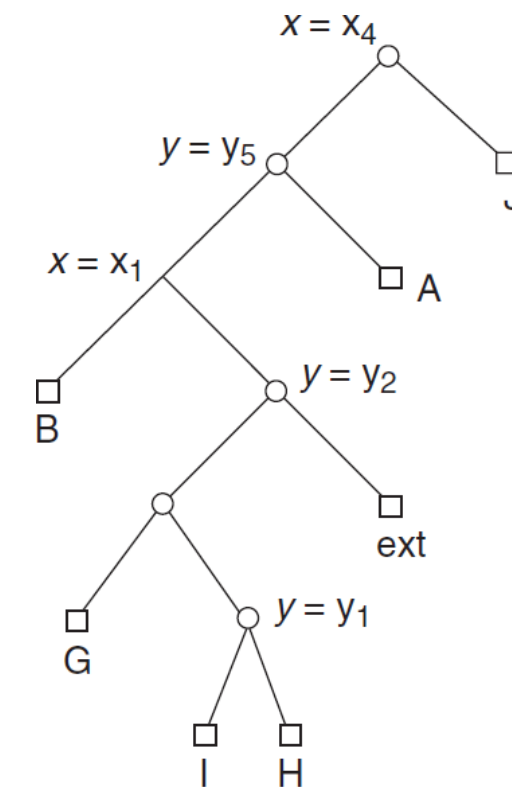


hB-tree

hB-Tree: *Split*



Recorremos el árbol descendiendo por el subárbol con el mayor número de nodos de hoja, hasta obtener un tercio y dos tercios del número total de regiones de la página de regiones desbordadas.



hB-Tree: *Split*

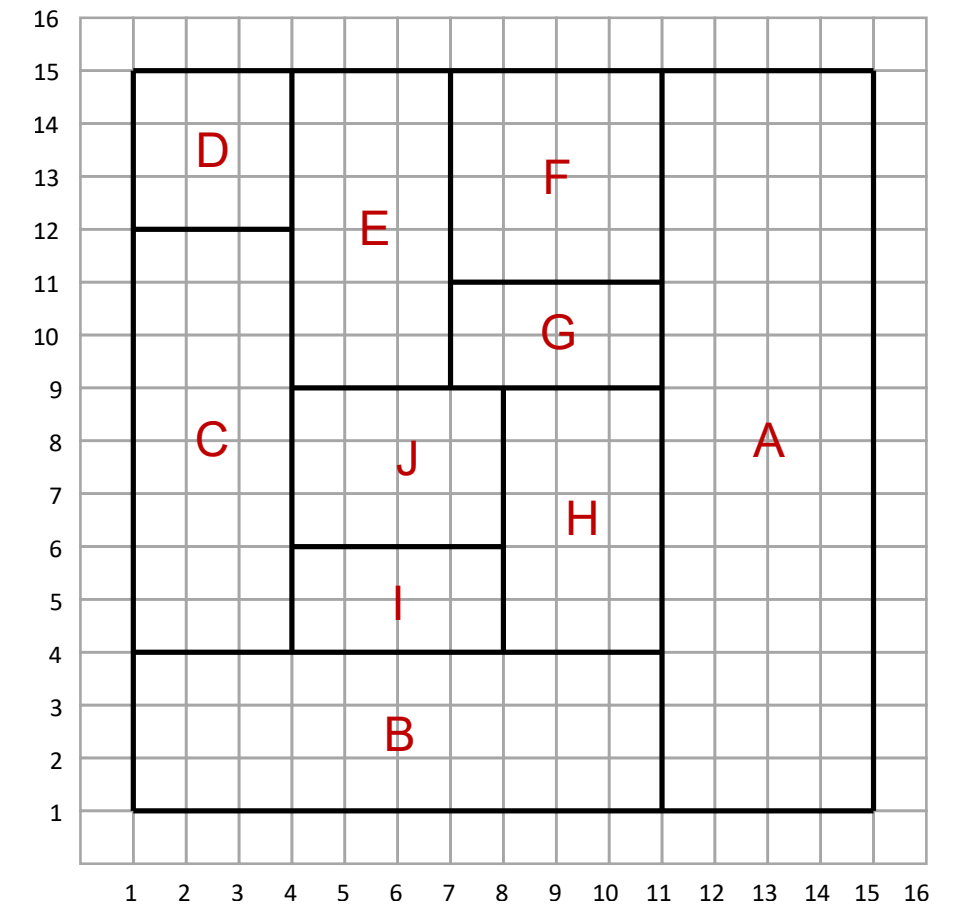
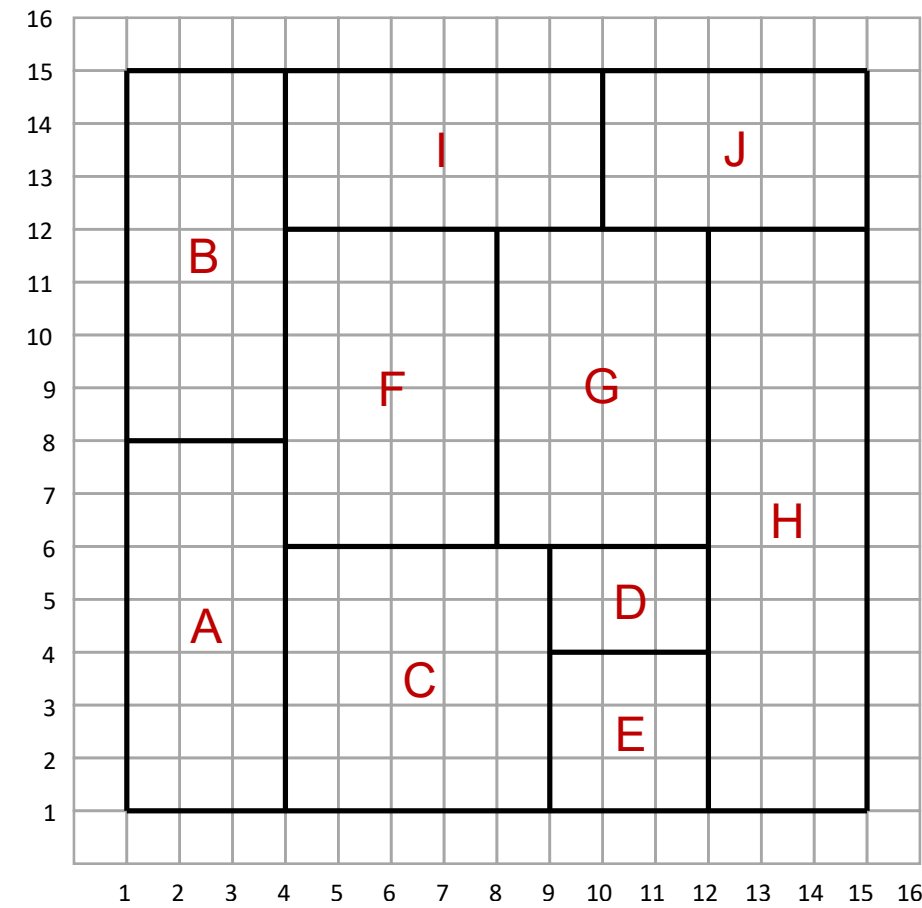
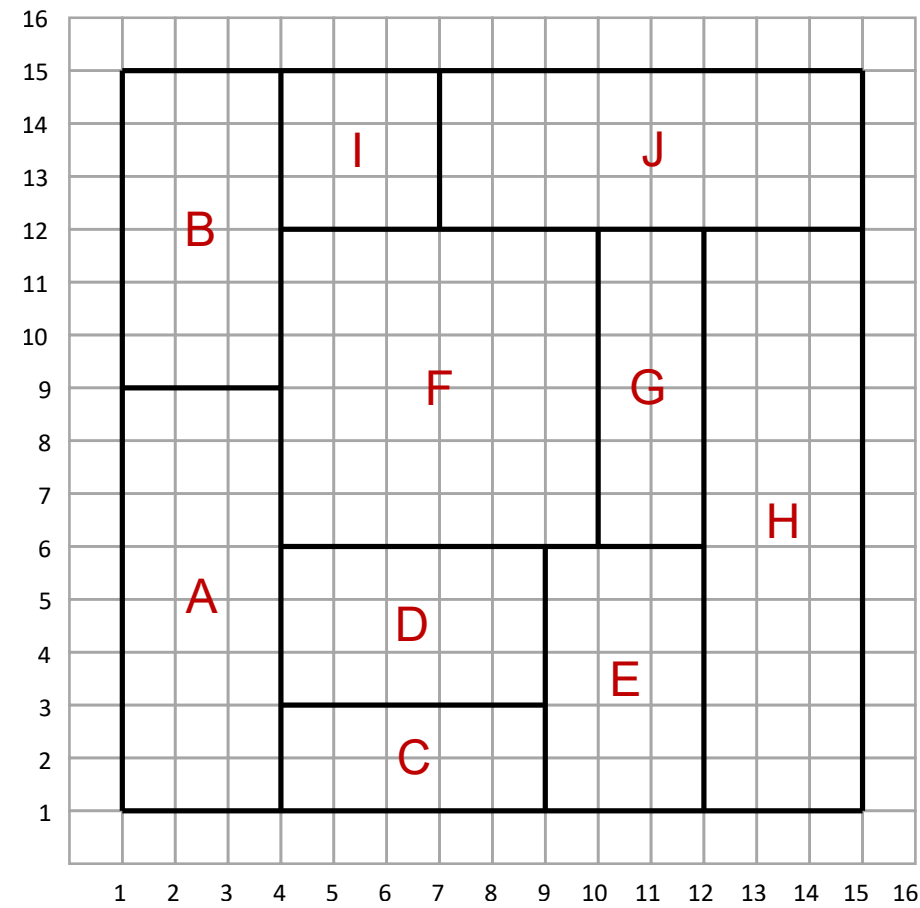
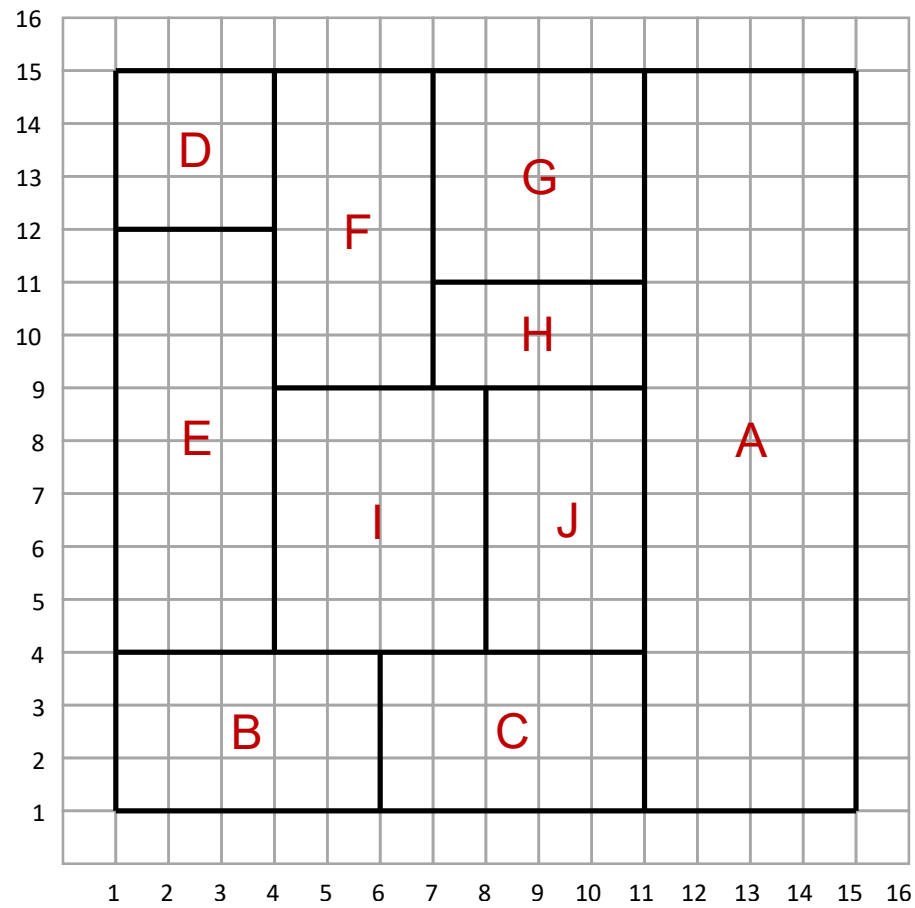
1

2

3

4

hB-Tree: *Split*



hB-Tree: *Split*

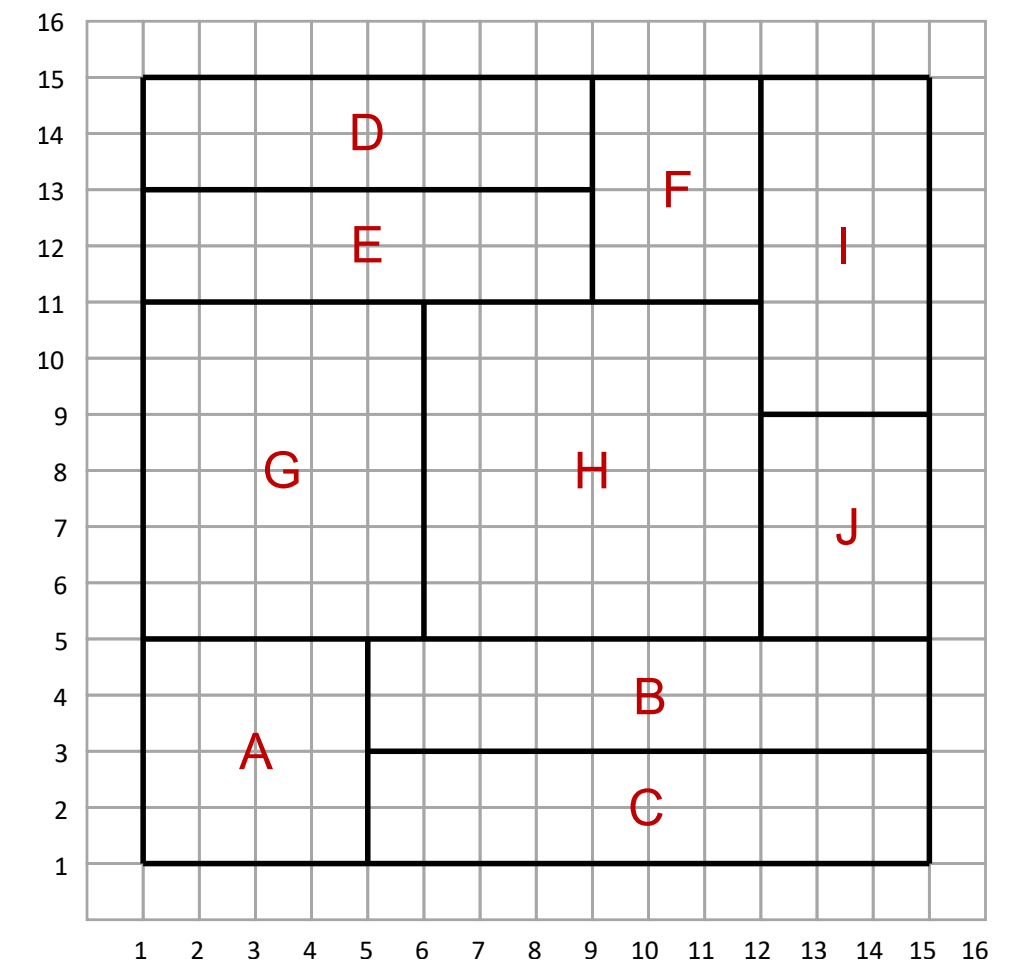
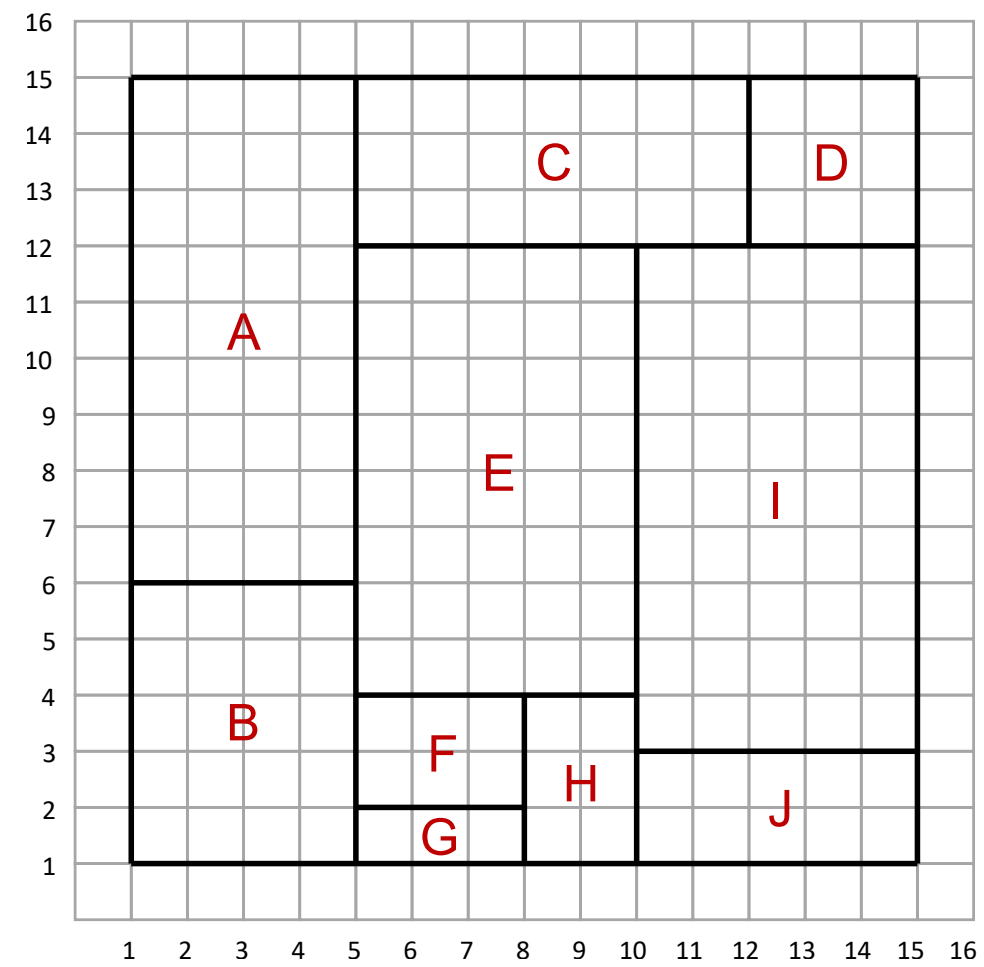
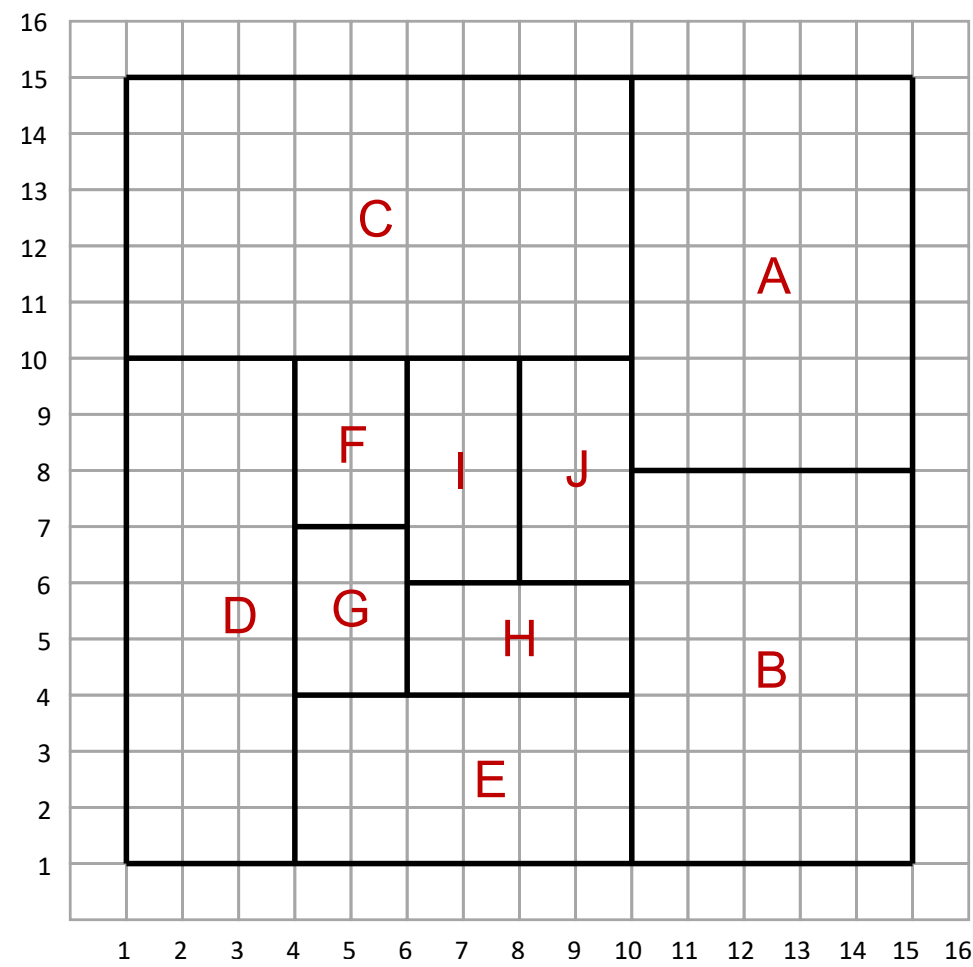
1

2

3



hB-Tree: *Split*



GRACIAS

Victor Flores Benites

