

KD Trees

Implementation

Sergio Rojas- Aguilar

What is a KD Tree

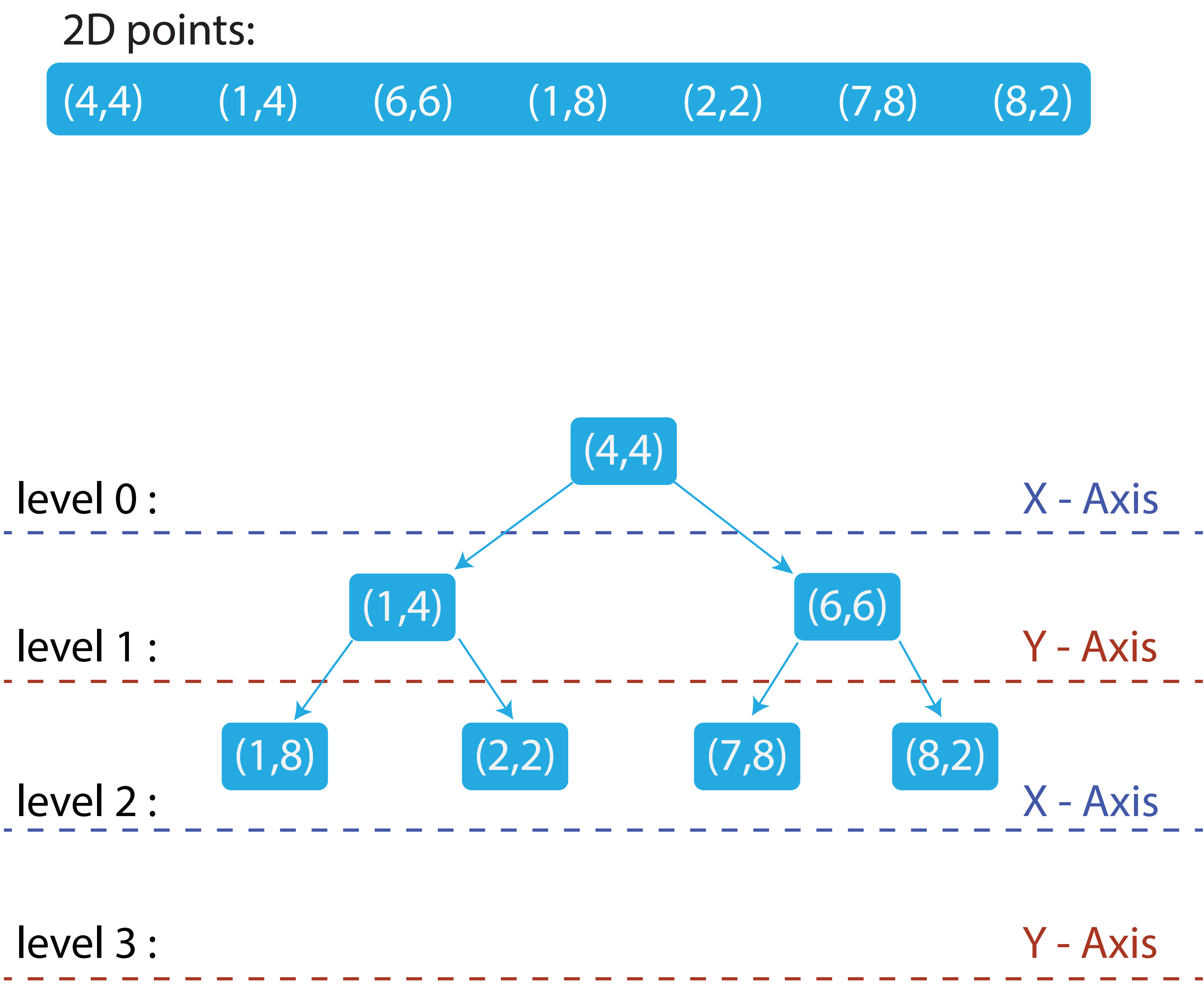
A KD Tree (k-dimensional tree) is a binary search tree used for organizing and searching points in a k-dimensional space. One of its application is performing nearest neighbor searches in k dimensions.

Given N points with dimension K , the tree is organized by cycling through the axes of the dimensions at each level.

What is a KD Tree

A KD Tree (k-dimensional tree) is a binary search tree used for organizing and searching points in a k-dimensional space. One of its application is performing nearest neighbor searches in k dimensions.

Given N points with dimension K, the tree is organized by cycling through the axes of the dimensions at each level.



What is a KD Tree

A KD Tree (k-dimensional tree) is a binary search tree used for organizing and searching points in a k-dimensional space. One of its application is performing nearest neighbor searches in k dimensions.

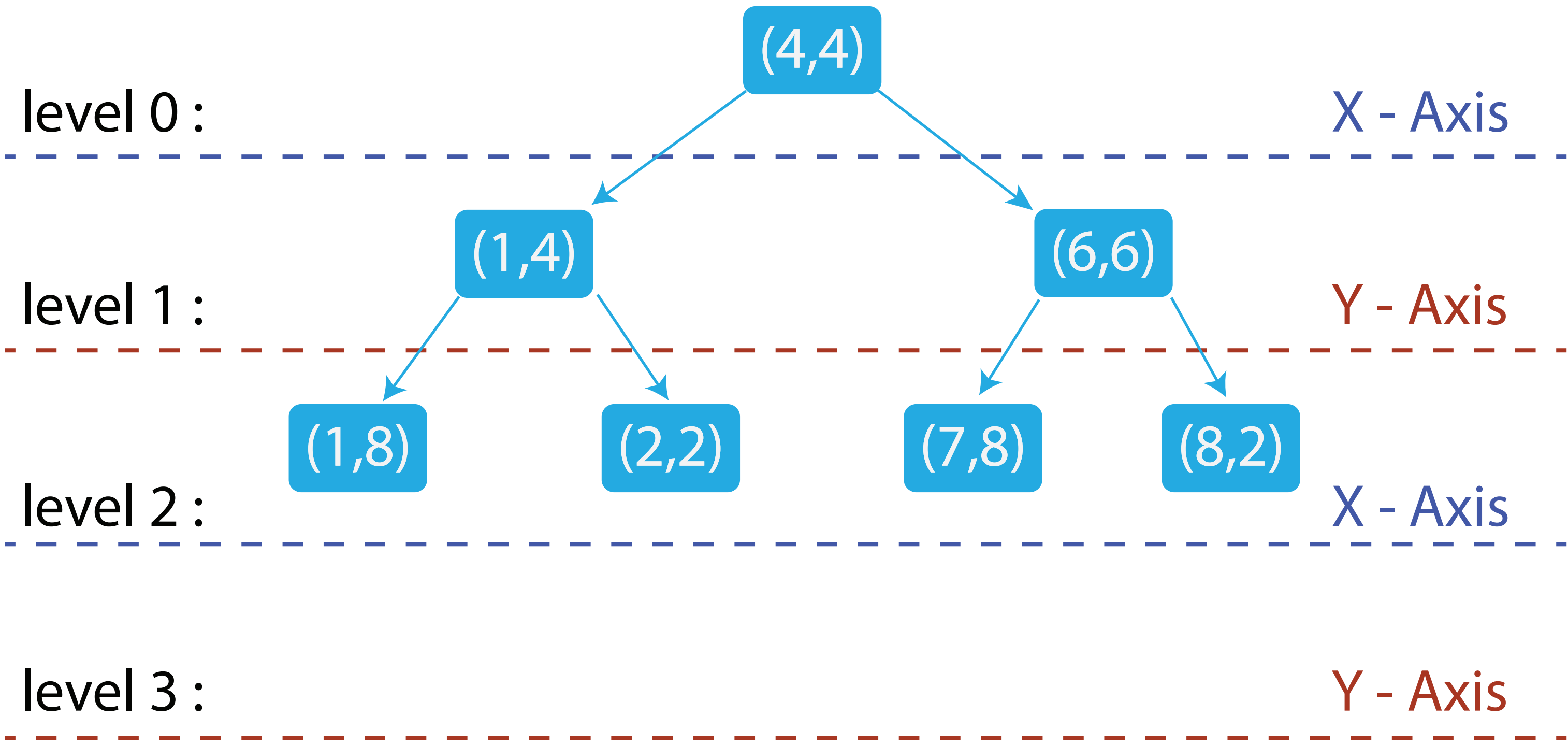
Given N points with dimension K, the tree is organized by cycling through the axes of the dimensions at each level.

2D points:

(4,4) (1,4) (6,6) (1,8) (2,2) (7,8) (8,2)

New point:

(8,7)



What is a KD Tree

A KD Tree (k-dimensional tree) is a binary search tree used for organizing and searching points in a k-dimensional space. One of its application is performing nearest neighbor searches in k dimensions.

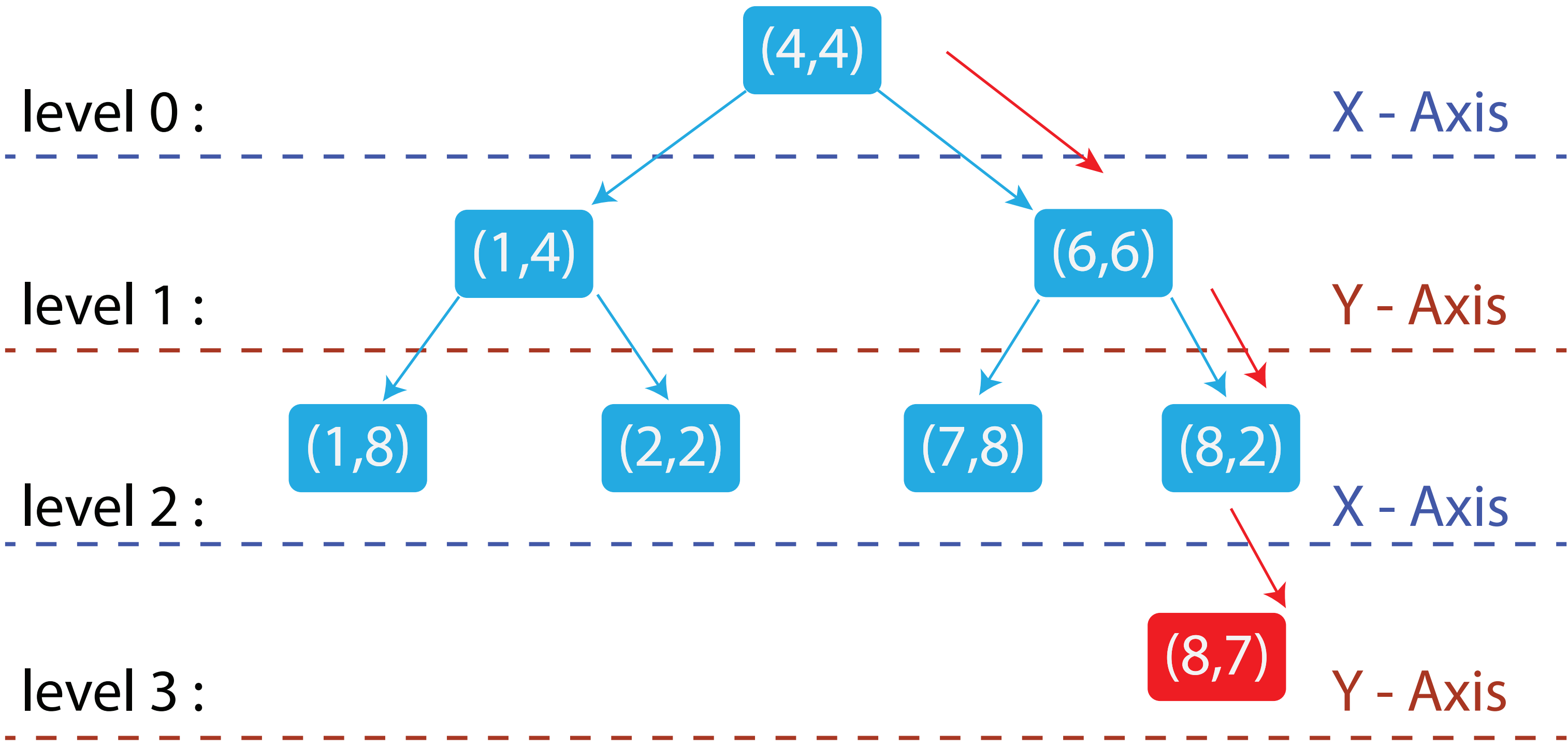
Given N points with dimension K, the tree is organized by cycling through the axes of the dimensions at each level.

2D points:

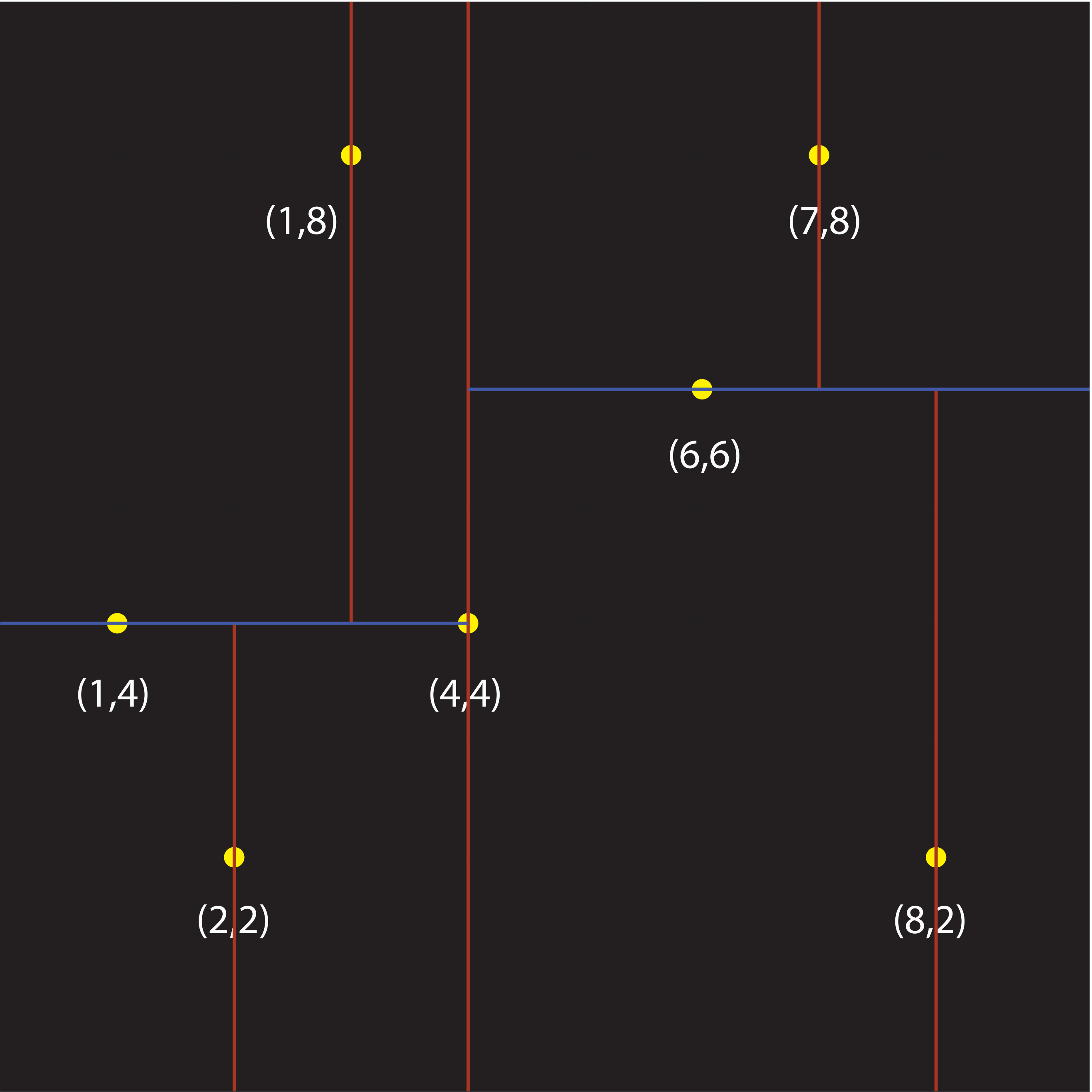
(4,4) (1,4) (6,6) (1,8) (2,2) (7,8) (8,2)

New point:

(8,7)



What is a KD Tree



2D points:

(4,4) (1,4) (6,6) (1,8) (2,2) (7,8) (8,2)

level 0 :

X - Axis

level 1 :

Y - Axis

level 2 :

X - Axis

level 3 :

Y - Axis

