

Experiment 5

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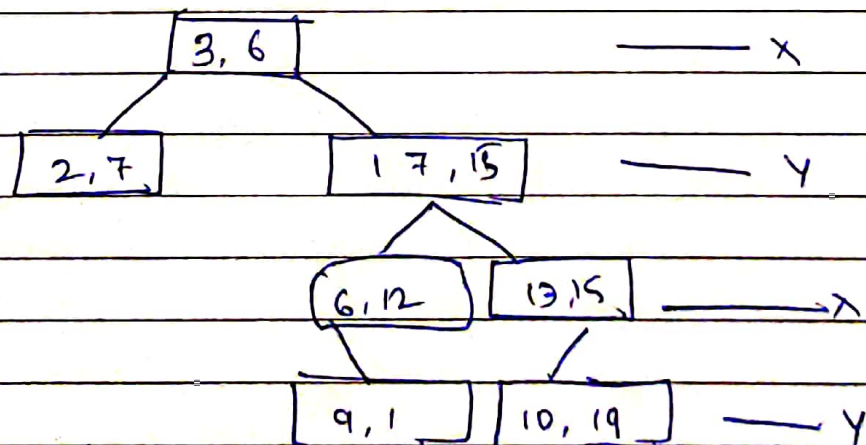
TYBtech Comps B

Aim : Implement K-D tree.

Theory : A K-D tree also known as (K-dimensional tree) is a binary search tree where data in each node is a K-dimensional point in space. In short, it is a space partitioning data structure for organising points in K-dimension space. A non-leaf node in K-D tree divides the space in 2 parts, called as half spaces.

Eg.

Create a 2D tree : $(3, 6)$ $(17, 15)$ $(13, 15)$ $(6, 12)$
 $(9, 1)$ $(2, 7)$ $(10, 19)$



Hence we have drawn the K-D tree for the 2D.

Conclusion : K-D tree have several advantages like efficient search. Dimensionality reduction, etc. It has the time and space complexity of $O(n)$.
Thus we studied and implemented K-D tree.

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