k-d Tree for points in a plane

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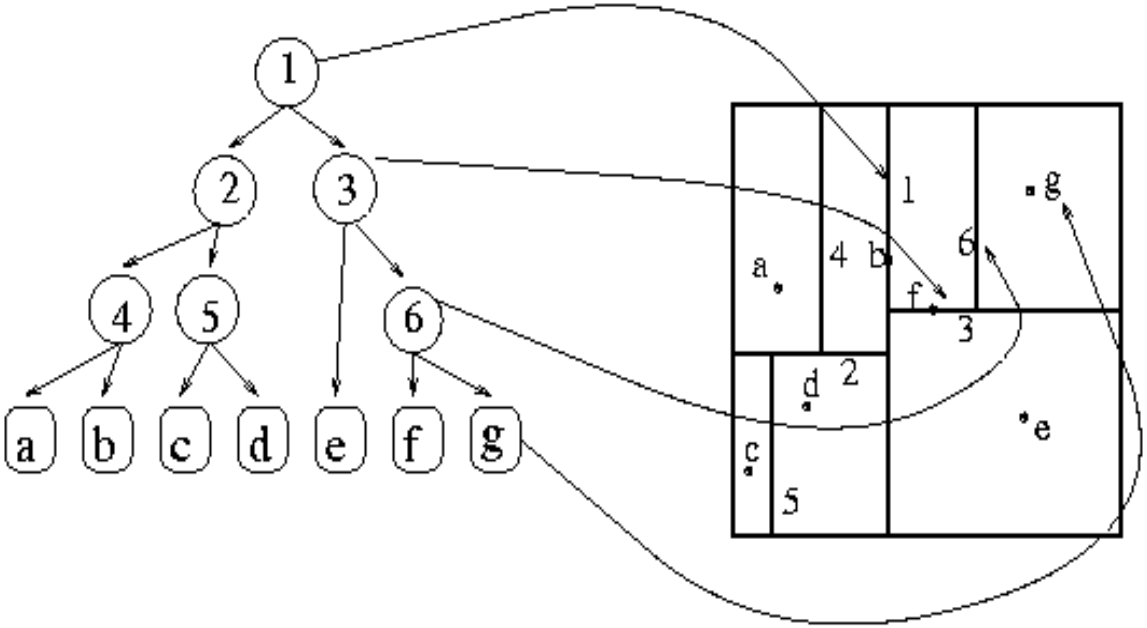
Features Provided

- Support upto 2D.
- Data structure called DataPoint.
  - Equality, Compare, Show
- KDTree data structure
  - Exists, countRectangle, reportRectangle, countCircle, reportCircle
  - countPoint, countLine

Design

Insert(Once) - Delete(Once) - Query(Any)



KDTree k(int dim, vector<DataPoint> arr)

Experimental Results

Query	Brute Force Approach	KDTree Approach
Existence	0m0.450s	0m0.081s
Count Rectangle	0m0.683s	0m0.655s
Report Rectangle	0m6.107s	0m5.368s
Count Circle	**0m0.812s**	0m1.394s
Report Circle	**0m21.745s**	0m22.744s

No of data points	Tree build+Input read time
1000	0m0.015s
10000	0m0.068s
100000	0m0.744s


DEMO
Time