We used looped double sided two linked lists as one object. Each container have next and prev for both x and y.

Runtime:

SPLIT:

Split will return an array of datastructures when in spot 0 there will be the points smaller then value and in place 1 the ones that bigger. Youll be able to use each part of the array as you use datastructure objects and ofcurse you could save them as two seperet objects if needed.

Split part of O(4|c|)=O(|c|)

Pseudo:

Container[] split(int value, Boolean axis)

datastracture[] ans <- new datastracture [2];

Container low;

Container high;

If(axis)

Low <- xhead;

High <- xhead.getprevx();

Ans[0].add(xhead);

Ans[1].add(xhead.getprevx());

While(low.getnextx().getx() < value & high.getprevx().getx() > value)

Ans[0].add(low.getnextx());

Ans[1].add(high.getprevx());

Low <- low.getnextx();

High <- high.getnextx();

If(low.getnextx().getx() < value)

Ans[1] <- narrow(value, xhead.getprevx().getx(),true);

Else

Ans[0] <- narrow(xhead.getx(),value,true);

else

Low <- yhead;

High <- yhead.getprevy();

Ans[0].add(yhead);

Ans[1].add(yhead.getprevy());

While(low.getnexty().gety() < value & high.getprevy().gety() > value)

Ans[0].add(low.getnexty());

Ans[1].add(high.getprevy());

Low <- low.getnexty();

High <- high.getnexty();

If(low.getnexty().gety() < value)

Ans[1] <- narrow(value, yhead.getprevy().gety(),true);

Else

Ans[0] <- narrow(yhead.gety(),value,true);