

# Geometric Range Search

kd-Tree: Algorithm

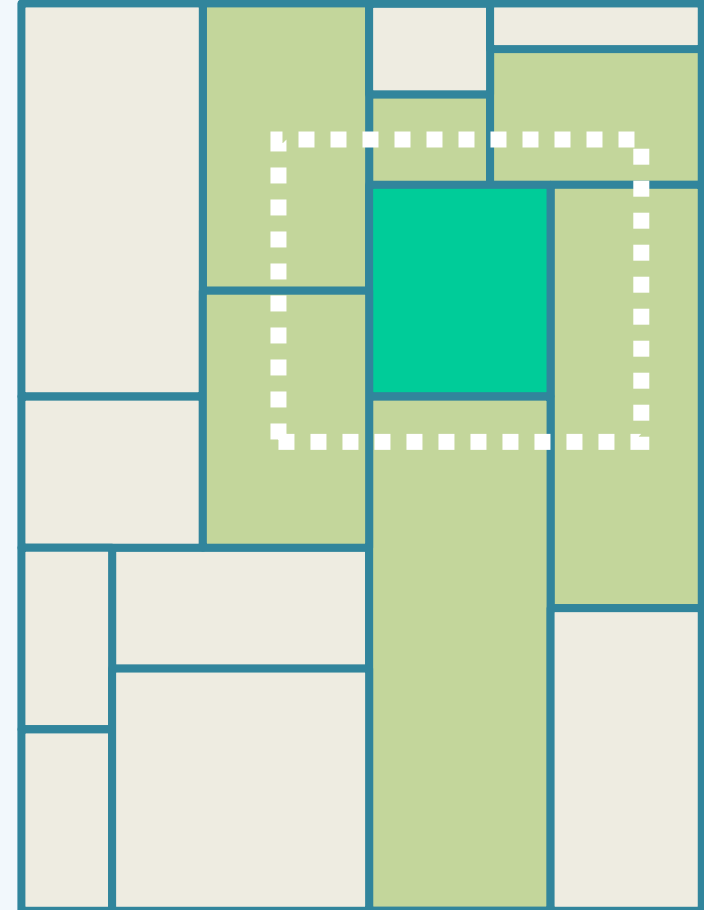
- Query

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## kdSearch( v , R )

```
❖ if ( isLeaf( v ) ) {  
    if ( inside( v, R ) )  
        report(v);  
    return;  
}
```



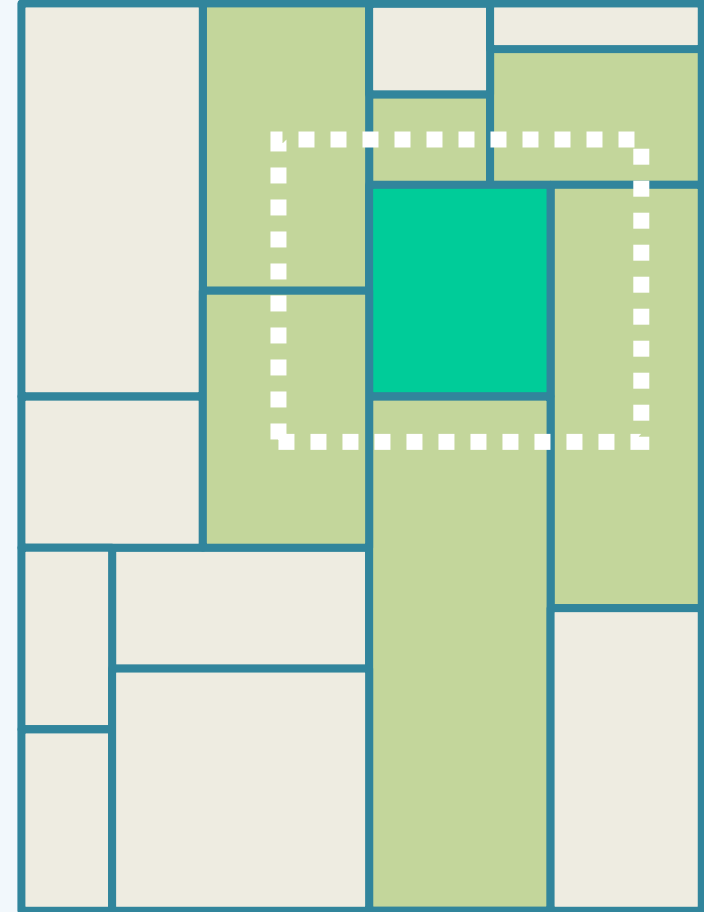
## kdSearch( v , R )

❖ if (  $\text{region}(v \rightarrow lc) \subseteq R$  )

    reportSubtree( v → lc );

else if (  $\text{intersect}(\text{region}(v \rightarrow lc), R)$  )

    kdSearch( v → lc, R );



## kdSearch( v , R )

❖ if (  $\text{region}(v \rightarrow rc) \subseteq R$  )

    reportSubtree( v  $\rightarrow$  rc );

else if (  $\text{intersect}(\text{region}(v \rightarrow rc), R)$  )

    kdSearch( v  $\rightarrow$  rc, R );

