

# R-Tree

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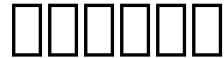
Teuku Zikri Fatahillah

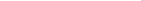
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DBMS

# R-Tree

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# Rtree

- R-tree B-tree
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- R-tree B-tree

# Algorithm 1 R-tree Search

ندیم:

- **T:** ریشه
- **S:** مورد
- **E:** عکس
- **E.I:** محدوده
- **E.p:** پایه

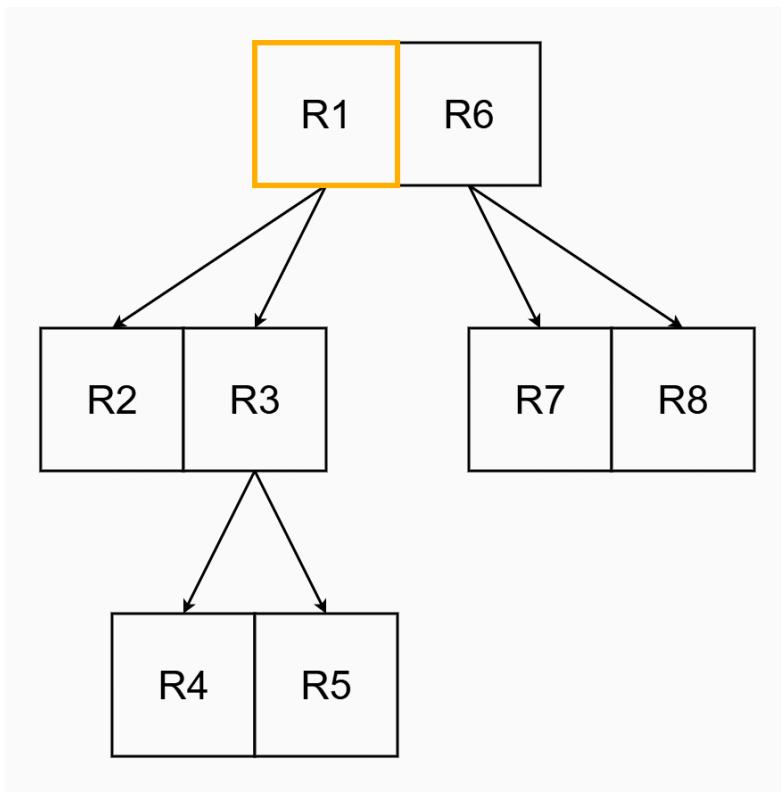
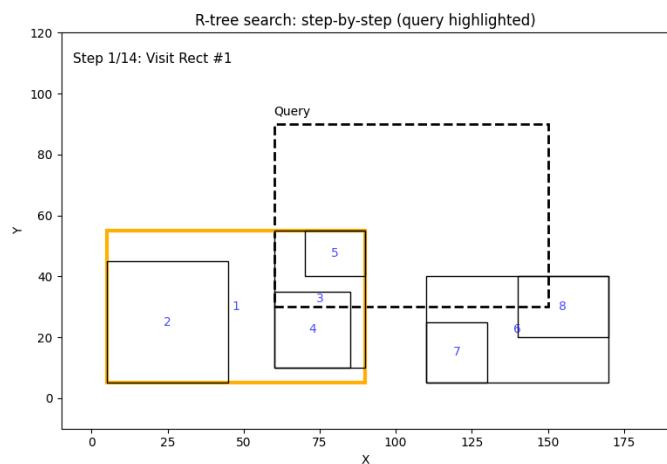
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### Algorithm 1 R-tree Search

```
1: function SEARCH(T,S)
2:   if T is not leaf then
3:     for all E ∈ T do
4:       if E.I overlaps S then
5:         SEARCH(E.p, S)
6:       end if
7:     end for
8:   else
9:     for all E ∈ T do
10:      if E.I overlaps S then
11:        Output E
12:      end if
13:    end for
14:  end if
15: end function
```

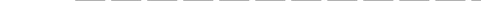
# 二叉搜索树

```
def search(node: Node, query: Rect):
    for rect, child, obj_id in node.entries:
        steps.append((rect, "visited"))
        if not rect.intersects(query):
            steps.append((rect, "skipped"))
            continue
        if node.is_leaf:
            steps.append((rect, "leaf"))
        else:
            search(child, query)
```





# Linear-Cost Algorithm



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M=6

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$$m=3$$



1. 30

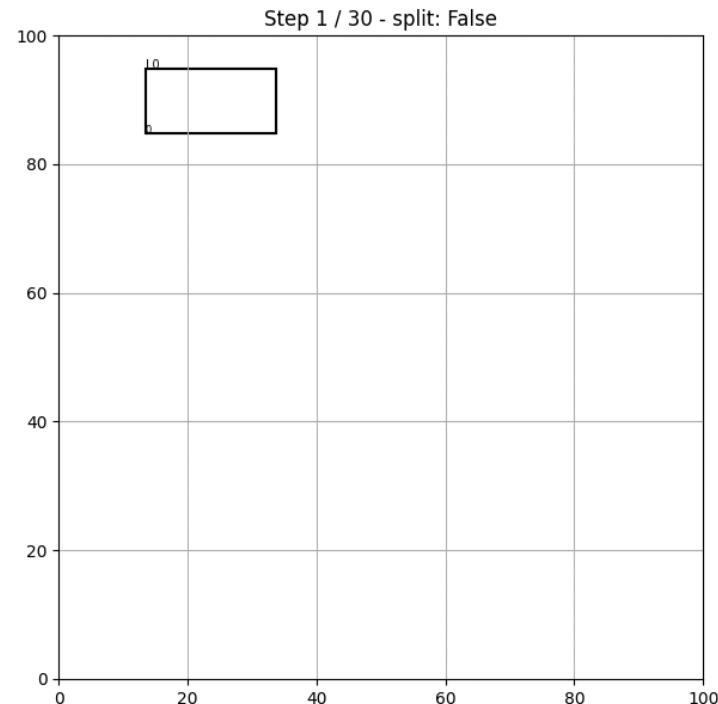
2. Node#1

3. R-tree



■ M=&

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- SNSによる位置情報
- Flickrによる位置情報
- 地図上での位置情報
- 地図上での検索
- R-Treeによる検索



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- **Flickr** □□□□□□□□□
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- **R-tree** □□□
- **Web**□□□ NEIGHB. □□

# Flickr

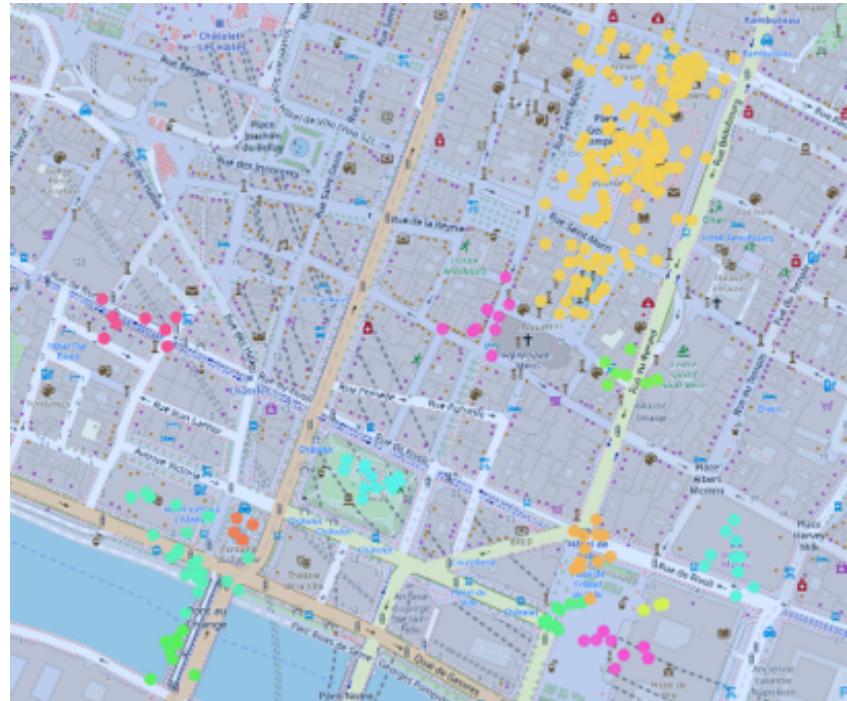
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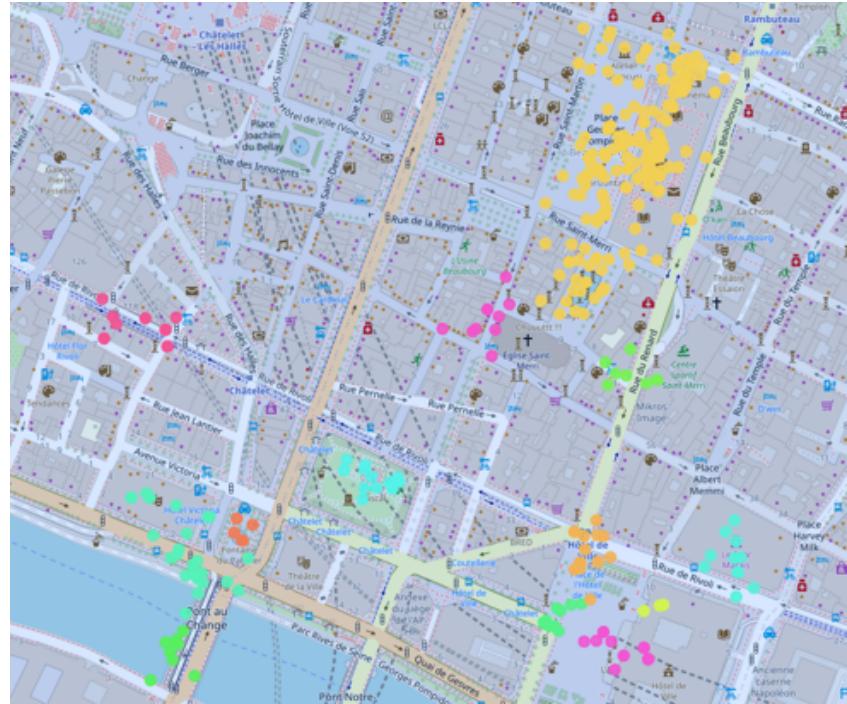


- DBSCAN密度基于距离的聚类
- 将空间对象划分为簇或类
- 参数
  - $\text{eps} = 30 \text{ m}$
  - $\text{min\_samples} = 8$



# R-tree

- 地圖查詢與分析
- 地圖索引與R-Tree



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Thank you

感谢您