06-B3

图

邻接矩阵：简单接口

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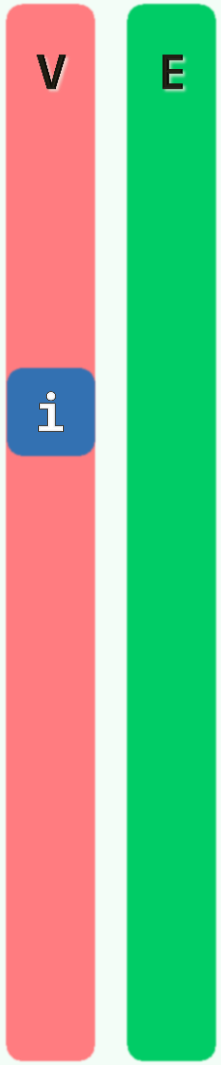
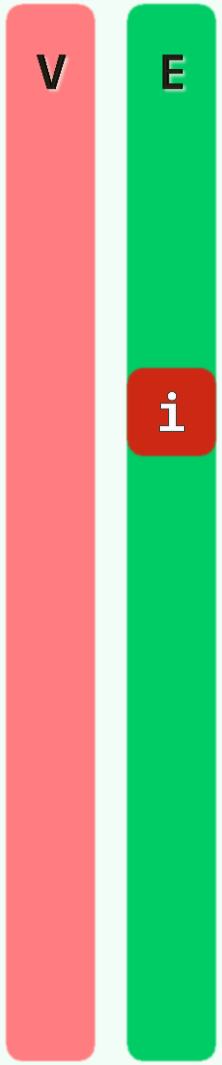
顶点的读写




```
❖ Tv & vertex(int i) { return V[i].data; } //数据
  int inDegree(int i) { return V[i].inDegree; } //入度
  int outDegree(int i) { return V[i].outDegree; } //出度
  VStatus & status(int i) { return V[i].status; } //状态
  int & dTime(int i) { return V[i].dTime; } //时间标签dTime
  int & fTime(int i) { return V[i].fTime; } //时间标签fTime
  int & parent(int i) { return V[i].parent; } //在遍历树中的父亲
  int & priority(int i) { return V[i].priority; } //优先级数
```

边的读写



❖ bool exists(int i, int j) { //判断边(i, j)是否存在(短路求值)

```
    return (0 <= i) && (i < n) && (0 <= j) && (j < n)
        && E[i][j] != NULL;
}
```

//以下假定exists(i, j) = true

❖ Te & edge(int i, int j) //边的数据，O(1)

```
{ return E[i][j]->data; }
```

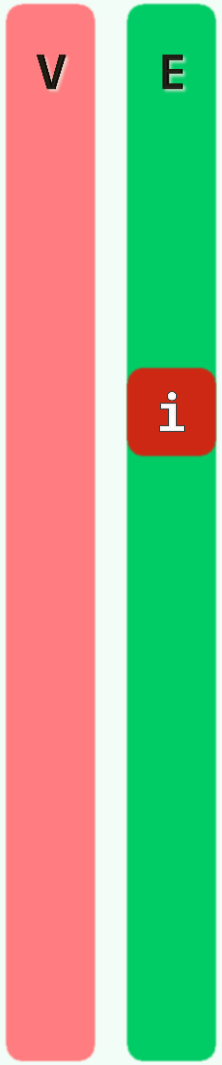
❖ EType & type(int i, int j) //边的类型，O(1)

```
{ return E[i][j]->type; }
```

❖ int & weight(int i, int j) //边的权重，O(1)

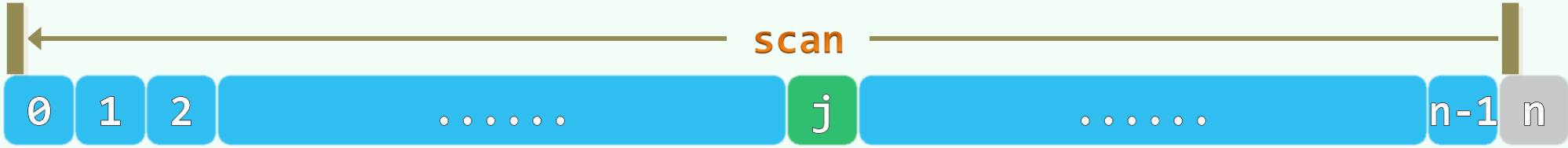
```
{ return E[i][j]->weight; }
```

邻点的枚举



❖ 对于任意顶点i，如何枚举其所有的邻接顶点（neighbor）？

❖ int firstNbr(int i) { return nextNbr(i, n); } //假想哨兵



❖ int nextNbr(int i, int j) { //若已枚举至邻居j，则转向下一邻居

```
    while ( ( -1 < j ) && ! exists( i, --j ) ); //逆向顺序查找
    return j;
} //O(n)——改用邻接表，可提高至O(1 + outDegree(i))
```