python 实现 Dijkstra

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'''
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'''
def dijkstra(graph, s):
    dis = [graph[s][i] for i in range(0, len(graph))]
    flag = [0 for i in range(0, len(graph))]

    for i in range(0, len(graph)):
        selected = -1;
        max_weight = 1E8;

        for j in range(0, len(graph)):
            if (flag[j] == 0) and (dis[j] < max_weight):
                max_weight = dis[j]
                selected = j
        if selected != -1:
            flag[selected] = 1
            for j in range(0, len(graph)):
                if  j != selected:
                    if dis[j] > dis[selected] + graph[selected][j]:
                        dis[j] = dis[selected] + graph[selected][j]
    return dis
```

图的存储用的是邻接矩阵，extractMin 用的是 O(n)的遍历，复杂度为 O(n^2)，优化点包括 extractMin 和存储的数据结构。extractMin 可参考最小堆，数据结构可根据边的多少，如果边比较少的话可使用邻接链表，较多的话可直接使用邻接矩阵。前者的优化会有更大的空间。