

3. 假定一个 2D 场景中有数量众多且分布不均匀的 (10w+) gameobject, 摄像机在场景中自由移动, 请按照您对场景管理的理解, 自定设计目标, 设计一个管理机制来管理这些 gameobject, 可用伪代码表达, 并辅以必要的文字说明。

简单的实现可以按照尺寸划分网格, 摄像机移动时简单显示摄像机所在格子和周围八个格子的物体。

进一步推广可以使用四叉树划分更细致的网格。

```
public struct QuadTreeNode
{
    public QuadTreeNode parent;
    public QuadTreeNode[] children;
    public List<GameObject> gameObjects;
    public bool IsIntersectedWith(Rect cameraRect){}
}

public class QuadTree
{
    private QuadTreeNode root;
    public bool AddObject(GameObject gameObject){}
    public bool RemoveObject(GameObject gameObject){}
    public QuadTreeNode[] GetIntersections(Rect cameraRect){}
}

public class SceneManager
{
    private QuadTree quadTree;

    public void MoveCamera(Vector3 target)
    {
        camera.transform.position = target;
        Rect cameraRect = GetCameraRect();
        QuadTreeNode[] intersections = GetIntersections(cameraRect);

        foreach(gameObject in gameObjects)
        {
            gameObject.SetActive(gameObject.treeNode.IsVisible());
        }
    }
}
```