TASK 4 - Define ADT for Quad Tree

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quadtree.h

```
#ifndef _QUADTREE_INCLUDE_QUADTREE_H
#define _QUADTREE_INCLUDE_QUADTREE_H

#ifdef __cpluplus
extern "C"{
#endif
        typedef struct quadtree* quadtree; //opaque quadtree structure

        #ifdef __cplusplus
}
#endif

#endif //!_QUADTREE_INCLUDE_QUADTREE_H
```

quadtree.c

```
#include "quadtree.h"

//Quadtree node
struct quadtree_node{
        struct quadtree_node *northwest; //Northwest Quadrant of the node
        struct quadtree_node *northeast; //NorthEast Quadrant of the node
        struct quadtree_node *southwest; //SouthWest Quadrant of the node
        struct quadtree_node *southeast; //SouthEast Quadrant of the node
        uint8_t count; //count of the number of elements in the node
} quadtree_node;

//Quadtree box
struct quadtree
{
        uint8_t max_node_count; //count maximum number of nodes
        quadtree_node *root_node; //root node of the quadtree

}quadtree;
```