

CSSE2310@UQ20 Assignment 1

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1 Introduction

- `naval.c` is the entry point which uses the other ADT's
- A `char *` is used as a thing in `thing.h`. In `thing.h` when a new thing is made it is automatically cleaned of excess white space. A thing is used inside a node in `node.h`. A node is used to make a list in `list.h`. A list is used to make a queue in `queue.h`.
- important files to checkout...
 - `thing.h`
 - `grid.h`
 - `move.h`
 - `game.h`

2 File Handling

- Basic checks to ensure correct arguments are provided, c standard library functions used to ensure read access to files allowed, in `check.h`.
- Files are opened and read checked and converted to thing/s i.e. `char *` and saved in a Queue of things, from `read.h`.

3 Data Structures

- Array's are used to store,
 - the Grid as a `Thing *` for `n` rows. Each row represents a Thing (i.e. `char *`).
 - The cpu and player ship healths so when a ship is hit we can tell if it sunk.
- List is used,
 - in a Queue to handle moves cpu from file, good for reading line by line from file and deque'ing.

4 Game Logic

- Initialization
 - The Game ADT uses a Grid ADT as a back end and forwards the errors that may occur in grid initialization because of large input of xy-axis or overlap/bound error placing ships caused by draw function (recursive) in grid.h.
- Move
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- Play
 - gets and sets fire element on a Grid checks if get returned a ship number if so uses the ship number to reverse search the health of the ship in an array of player_ship_health same and reduces the health, if zero reached then ship sunk signal sent, display.h appropriately prints the signals sent by these functions.

5 Display

- The Messages needed to be printed are kept in handle.h and handled by the appropriate # defined errors using switch. Easy if messages needed to be changed, in handle.h.
- The Game display is handled by the Grid in grid.h itself where grid is a m by n char **plain used store the values water, ship, hit and miss. grid.h also handles a discrete method that hides particular character showing only chars provided as argument to function.
- display.h handles the result of functions applied to a Game, Grid to display appropriate messages for whose move, did the move hit, miss, game win and so on.

6 Error Handling

- handle.h has errors and error messages handled by switch