Assignment 1

Report

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"I have commented my code clearly. For that case maybe that report can be a bit skimpy.I ask you to keep my comments"

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Experiment	: Assignment 1
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Explaining the problem What is the main goal

In this assignment i am expected to develop an board game which is runned with commands from an input file. This game is based on a fantastic adventure board game and runs on a given multi-dimensional array. There is two sides (monsters, heroes) and they are attacking to each other.After given commands executed,my program prints realted outputs into a text file such as the map status and charachters HP DP XP exc.

I have to write an program which can read characters data from a file and assign them at the correct style to struct. it must be capable to load a map which is dynamically at wanted size, put the characters to wanted location;

move the heroes to wanted location and print some errors at some situations;show maps,heroes and monsters status at wanted moment,and finally if one of the characters type has all dead print (the characters which has been survived) has won the game.

Give your solution in detail

i have to read the charachters information form chars_<number>.txt and split them by comma and assign them to struct type.

Then i have to implement my functions whichs will be execute the wanted commands.

Then i have to read the commands line by line form the file commands_<number>.txt and execute them.

İ have to chechk wheter a type has won the game.

Explain your data structure

char *char_readline = it includes Unsplitted chars.txt line like "HERO,DRIZZ,4,3" it is an char pointer
char *command_readline = it includes Unsplitted commands.txt line like "LOADMAP,5,5" it is an char pointer
char* char_readline_split[4][25] =it can contain 4 values whichs string lenght is mostly 25. İt is an 2d array. İt includes like {"HERO","DRIZZ","4","3"}
char* command_readline_split[x][25] =it can contain x values whichs string lenght is mostly 25. İt is an 2d dynamic array. İt includes like {"LOADMAP","5","5"}

Charecters data is stored in struct
Struct type{
char char_name[25] = it includes charachters name mos to 25 lenght string. İt is an charachter array.
int char_HP = it stores HP as integer.

İnt char_DP = it stores DP as integer.

İnt char_XP = it stroes XP as integer.

İnt char_location_x = it stores charcters location row at map it is an integer

İnt char_location_y = it stores charcters location column at map it is an integer

İnt char_life = it stores wheter the character is dead(0) or alive(1). İ is an integer
}

MAP[load_row][load_col]= it is a dynamic memory allocated array.
Struct type *hero[hc] = it is a dynamic struct which mallocs an area sizeof(struct type) * hc
Struct type*monster[mc] = it is a dynamic struct which mallocs an area sizeof(struct type) * mc

Explain your code

I did not use any more function since the code is in the main function.
At first a declared my structs dynamically .And other static variables.
For declare my structs i opened my chars text file and counted monsters and heroes. And i declared my structs size from that data.
Then i setted my structs variables to zero for error preventation.
I opened files and assign chars data to structs.
And then i executed commands text file line by line.
There is 5 main steps of my commands execute part.
1- LOADMAP = In that part i have loaded dynamically a map by wanted size.
2- PUT = I putted chars to wanted location by using an special formula

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int a = 2 + 3 * x;
```

3- SHOW = I showed map hero and monster status by using standard ways.

4 - ATTACK = for (j = 0; j < hero_count; ++j) { /*for each hero*/

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        if (hero[j].char_life == 1) { /*if hero is dead it cannot attack .*/
            for (k = 0; k < monster_count; ++k) { /*to each monster*/
                if (monster[k].char_location_x == hero[j].char_location_x - 1 &&
                    monster[k].char_location_y == hero[j].char_location_y) { /*if it is adjanet or not*/
                    if (monster[k].char_HP > hero[j].char_DP) { monster[k].char_HP -= hero[j].char_DP; }
                        /*i added that condition for know if it cant kill  at one shot just decrease the hp*/
                    else {  /*but if it can kill it with one shot*/
                        if (monster[k].char_HP > 0) {  /*if it hasnt killen already*/
                            MAP[monster[k].char_location_x][monster[k].char_location_y] = '.'; /*set maps location as empty, as "."*/
                            hero[j].char_XP++; /*and increase heroes XP*/
                        }
                        monster[k].char_HP = 0;  /*set its HP to 0*/
                        monster[k].char_life = 0;/*set its life to 0(dead)*/
                    /*The remaining 7 blocks alghorithm is the same of it. At each step it check other seven direction. */
                    }
```

So as you can see i have explained that part with my comments clearly.

MOVE = To be honest i have just copy paste the PUT function part and modified some parts of it.

Check If Won = I have checked etiher all dead or not . If one of them was alive the result will different from zero . So if resut = 0 its mean that all dead.

Finally close files and free the memory

Give your detailed alghorithm step by step

Define a struct named as type
    Include s char name,HP,DP,Map location,life
get the hero count
get the monster count

Initialize struct type hero by hero count
    Initialize standard values for error preventation
Initialize struct type monster by montser count
    Initialize standard values for error preventation
Declare file pointers
And other declarations
Declare MAP s dynamic pointer pointer
Open files
While it is not EOF read a line from chars_1.txt
Split it
If char_readline_split[0] == " HERO"
    Assign name,HP,DP to struct
If char_readline_split[0] == " MONSTER"
    Assign name,HP,DP to struct
While it is not EOF read a line from commands_1.txt
Split it
If LOADMAP
    Assign to load_row load_col
    Declare MAP dynamically as MAP[load_row][load_col]
    Make MAP s all values "."

If PUT
    If check wheter monster or hero
        Put thems into wanted locations
If SHOW
    If MAP
        Print map in two for loop
    If HERO/monster
        Print hero/monster status
If ATTACK
    If hero/monster
        For each hero
            If hero is alive
                To each monster
                    Check if it is adjanet or not
                        If it hasn't killen already
                            Set targets location at map to"."
                            Set targets HP =0
                            Set targets life to 0

Increase if hero his XP

If MOVE
    If HERO
        It is just like PUT function.
        If life = 0
            Print cant move.Dead.
        If out of map
            Print hero cant move. there is a wall
        If occupied
            Print lace is occupied.
        Else set current location to "."
        Go to wanted location.

Check if all dead
    Add the char_life
        If all is dead the result will be 0
            Print all (types which dead) killed..
Close files.