About this program.

Game "Hunter" proposes the player to take role of hares’ hunter, but it's not so easy. Hares are strong and aggressive. Good news - you can kill them, bad news - they can kill you as well. Very bad news - there are plenty of these evil creatures.

Rules:

You play as a hunter, who has a rifle and traps. Hunter has 2 action points, which he can use on turning, moving, shooting, setting trap or use binocular. ('z'- shoot, 'x' - set trap, 'c' - binocular, arrow keys - turn/move up or right, Esc - in game menu). Each action takes 1 action point, but moving always ends turn. You can shoot - but only directly right or up. The chance to hit - 95% on 1-4 cells distance, 45% - 5-10 cells, 5% - more than 10 cells. Dead hare transforms into grave, which is barrier for hunter and hares. Bullets can't fly thru grave too. You can set a trap on cell you stand, but - if hunter remains on that cell to next move - he dies.

Also you can choose difficulty level: easy, medium or hard. On easy level you see entire field, on medium - sector before hunter of 2 cells right and up, and on hard level only one cell before hunter in direction he looks. You can use binocular, which shows cells in direction you looking, but only to closest hare or grave and only to next move.

There are 80 of hares in the field 30\*60 cells. 15 closest of them move to hunter on each move. If hare stands on trap - it dies, and new grave appears, like after shooting. If hare stands on hunter cell - hunter dies.

After the game end you can record your result to table of records, which is sorted in descending order.

How it works:

In game, hunter and hares move by turns. Hunter uses his 2 action points, after that hares are recalculated referral to hunter’s new position, then being sorted by distance to hunter in ascending order, and 15 closest hares move to hunter’s direction. If on hare’s way appears grave or another hare – id doesn’t move, if trap appears (hares don’t see traps) – hares dies and on these coordinates appears new grave. When hare overtakes hunter – game ends. Game also checking traps (if they exist) on the field by searching in array. If coordinates of hunter matches with trap – game ends, with hare – hare dies and so on.

Creating the game:

Creating the game, I used structures (Struct ) for different objects , in which I wrote properties of each game object. Characteristics are set as structure fields. Similar objects were united in dynamic arrays of structures, this allowed me to change their quantity correctly. Objects are linked with cells on playing field, with feedback (changes in object structure reassign to field, described as double-dimensioned array). For working with screen (output of game objects and actions) I used WinAPI console functions, console descriptor etc. For better clearance of code, I separated different elements and actions in discrete functions. Interaction between functions is realized by transmitting structure arrays and parameters as functions arguments. I also used “fstream” for writing to file and reading from file (for save and load game, table of records).

Difficulties:

The most difficult thing in creating this game was not the complicated algorithm or abstruse logic, but accuracy and correct sequence of actions and setting the proper feedback. I had to transfer only necessary and sufficient data for each function. It was available with dynamic memory using.

Resume:

While creating this game, I learned to work with structures, reading/writing files, console API, improved knowledge of dynamic memory usage. It was very helpful and inspiring practice of coding.