

Draft user Manual

Battleships



Version 1
18 October 2014

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Aim of the game

Battleship (also Battleships or Sea Battle) is a guessing game for two players. It is known worldwide as a pencil and paper game which dates from World War I. It was published by various companies as a pad-and-pencil game in the 1930s, and was released as a plastic board game by Milton Bradley in 1967.

The game is played on three mazes, one for each player. The mazes are square - usually 10×10 - and the target in the maze are identified by 2 number. On one maze the player can see his ships and on the other he can record the shots by the opponent and himself.

Before each game begins, each player secretly knows the position of ships on their primary maze. Each ship occupies a number of consecutive blocks on the maze, arranged either horizontally or vertically. The ships cannot overlap (i.e., only one ship can occupy any given block in the maze).

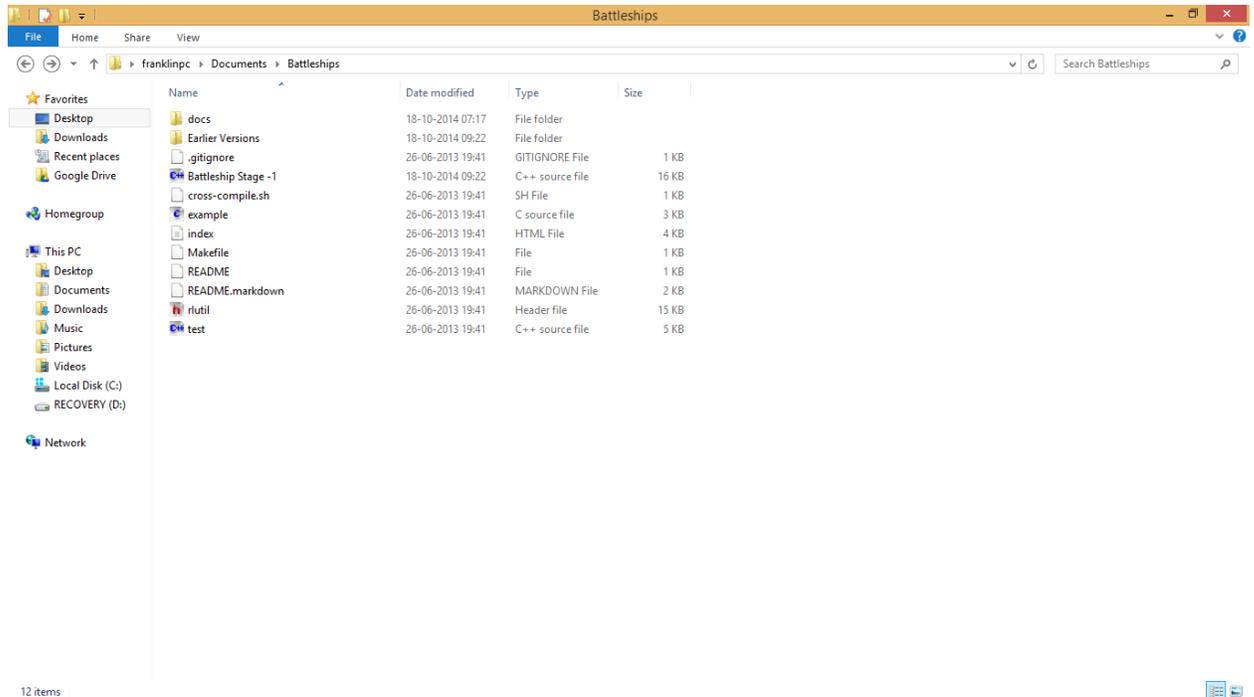
The game proceeds in a series of rounds. In each round, each player takes a turn to input a target square in the opponent's maze which is to be shot at. The Hit matrix shows whether or not the square is occupied by a ship, and if it is a "hit" the computer marks this on the maze with a specific color code. This helps in order to build up a picture of the opponent's fleet.

When all of the squares of a ship have been hit, the ship is sunk, and the Hit matrix shows the destroyed ship. If all of a player's ships have been sunk, the game is over and the opponent wins.

Source : Wikipedia (with a few modifications)

How to execute the file

1. Download the zip file.
2. navigate to Battleships Stage 1



3. Open it in code::blocks.

4. compile and execute from menubar.

```
1 // A
2
3 #inc
4 #inc
5 #inc
6 #inc
7 #inc
8 #inc
9 usin
10
11 #def
12 1. There are 4 ships for each player
13 2. The ships are placed on a 10x10 matrix
14 3. The ships are placed horizontally or vertically
15 4. The bombs have to be placed using co-ordinates like (0 0), (1 1)
16 5. Once a player hits the opponents ship or misses it a color coded
17 symbol is used to denote it
18 6. After the player's turn the computer will hit a block and it
19 shown in Hit maze
20
21 void
22
23
24
25
26 a[1][1]=1;
27 a[1][2]=1;
28 a[1][3]=1;
29
30 a[8][6]=1;
31 a[8][8]=1;
32 a[8][7]=1;
33
34 a[8][1]=1;
35 a[8][2]=1;
36 a[8][3]=1;
37
38 a[2][8]=1;
```

```
mingw32-g++.exe -o "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.exe" "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.cpp" -o "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.o"
mingw32-g++.exe -o "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.exe" "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.o"
Process terminated with status 0 (0 minute(s), 3 second(s))
0 error(s), 0 warning(s) (0 minute(s), 3 second(s))

Checking for existence: C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.exe
Executing: C:\Program Files (x86)\CodeBlocks\cb_console_runner.exe "C:\Users\franklinpc\Documents\Battleships\BattleShip Stage -1.exe" (in C:\Users\franklinpc\Documents\Battleships)
```

Instructions

1. On the start of the program a few instruction have been given on how to play the program.
2. After reading the following points can be made :
 1. There are 4 ships for each player
 2. The ships are placed on a 10X10 matrix
 3. The ships are placed horizontally or vertically
 4. The bombs have to be placed using co-ordinates like eg : 0 1 which means the 0th row and 1st coloumn
 5. Once a player hits the opponents ship or misses it a color coded symbol is used to denote it
 6. After the player's turn the computer will hit a block and it shown in Hit maze
3. After you press y to continue you will see two mazes one which is the player's and one which is the hit maze which will show the places where the players played and missed and also where the player's or the computer's ship died.
4. The empty spaces are denoted by " " which says that the space are empty.
5. the computer i.e the host will ask you to enter your choice of coordinates where you want to bomb and the format is

x y

note: there is one space between x and y

6. The game get over when If all of a player's ships have been destroyed.

Sample Play

1. Compile and run

```
1 // A C++ Game to play Battleships with Computer
2
3 #include <iostream>
4 #include <string>
5 #include <vector>
6 #include <map>
7 #include <algorithm>
8 #include <random>
9 using namespace std;
10
11 #define MAX 10
12
13 //function
14
15 //change maze
16 void mazege
17
18 int
19 //game
20
21
22 a[1][1]
23 a[1][2]
24 a[1][3]
25
26 a[8][6]
27 a[8][8]
28 a[8][7]=1;
29
30 a[8][1]=1;
31 a[8][2]=1;
32 a[8][3]=1;
33
34 a[2][8]=1;
```

```

Battle Ships !
This program will help you to play a well known pass-time the Battleships.
The basic aim of the game is to kill all the opponents ships before he
kills your's. The players play chance by chance, to make the game more
interesting none of them know where the other player's ship is so they have
to guess where the other players ship could be and start randomly hitting

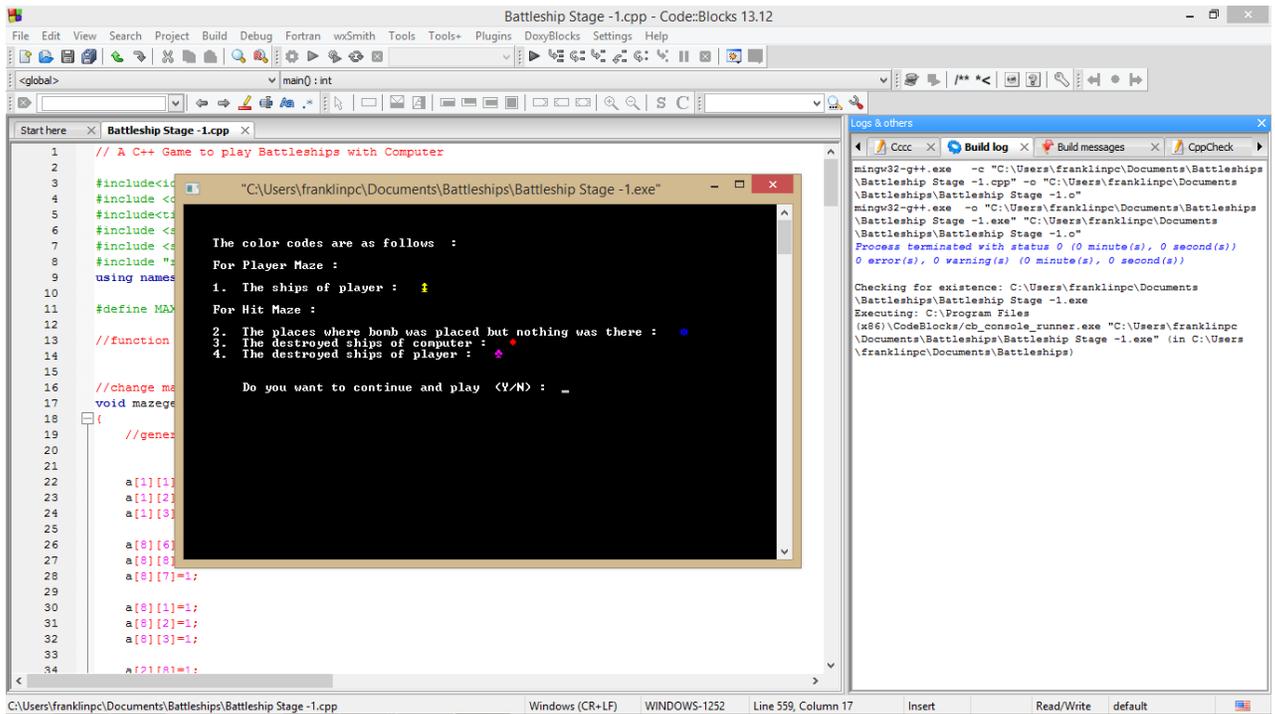
The main things to remember are :
1. There are 4 ships for each player
2. The ships are placed on a 10x10 matrix
3. The ships are placed horizontally or vertically
4. The bombs have to be placed using co-ordinates like (0 0), (1 1)
5. Once a player hits the opponents ship or misses it a color coded
symbol is used to denote it
6. After the player's turn the computer will hit a block and it
shown in hit maze
7. When entering choice of coordinates where you want to bomb
the format is x y (only one space between x & y)

Do you want to continue and play <Y/N> :
```

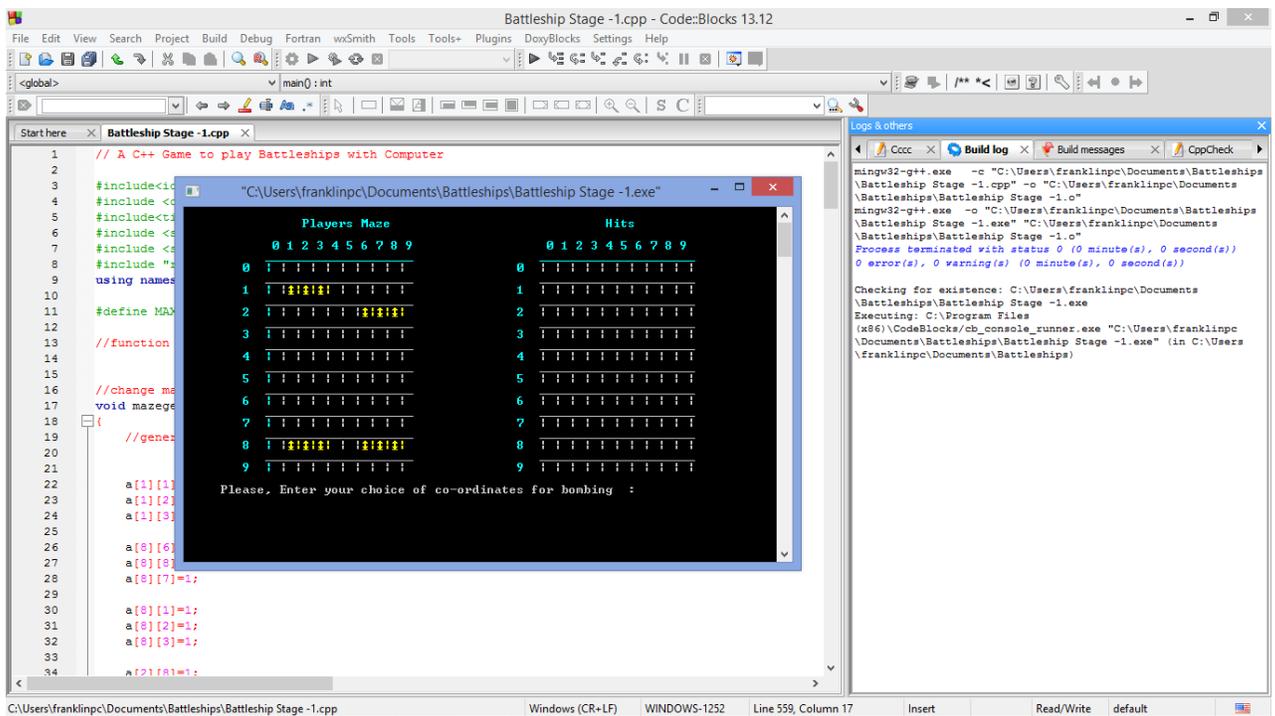
```
mingw32-g++.exe -c "C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.cpp" -o "C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.o"
mingw32-g++.exe -o "C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.exe" "C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.o"
Process terminated with status 0 (0 minute(s), 0 second(s))
0 error(s), 0 warning(s) (0 minute(s), 0 second(s))

Checking for existence: C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.exe
Executing: C:\Program Files(x86)\CodeBlocks\cb_console_runner.exe "C:\Users\franklinp\Documents\Battleships\BattleShip Stage -1.exe" (in C:\Users\franklinp\Documents\Battleships)
```

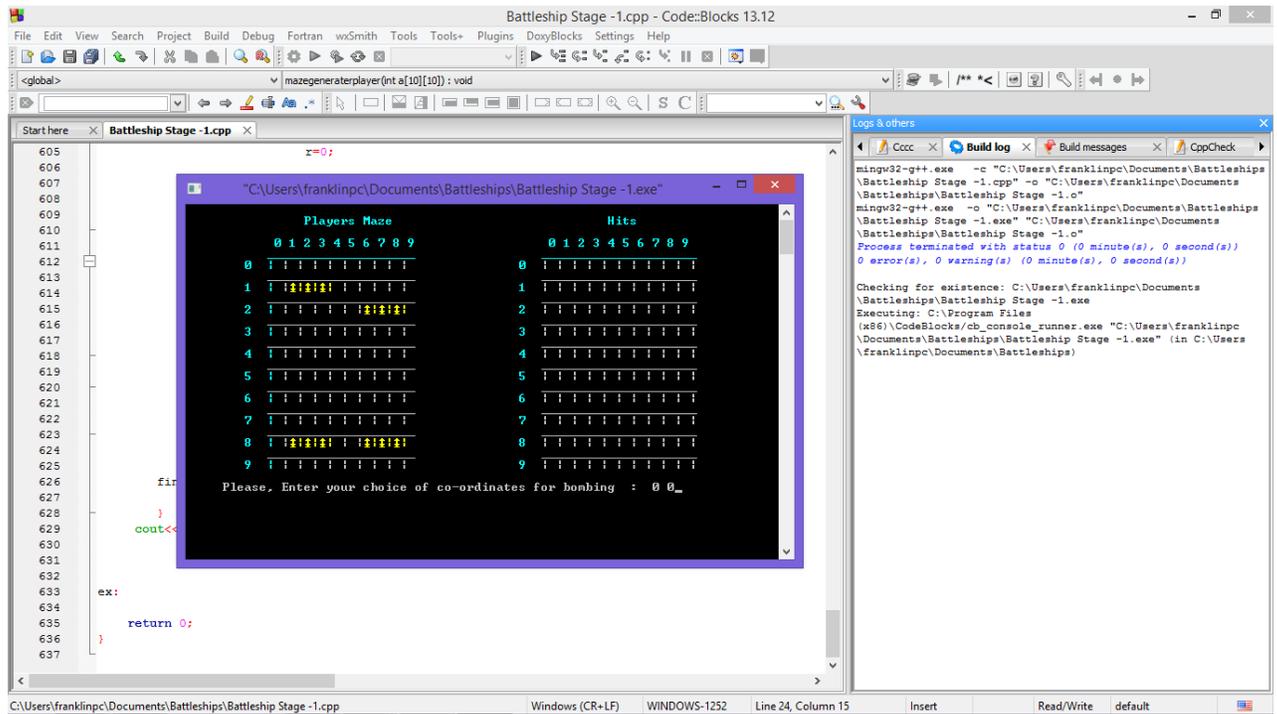
2. Press 'y' to continue



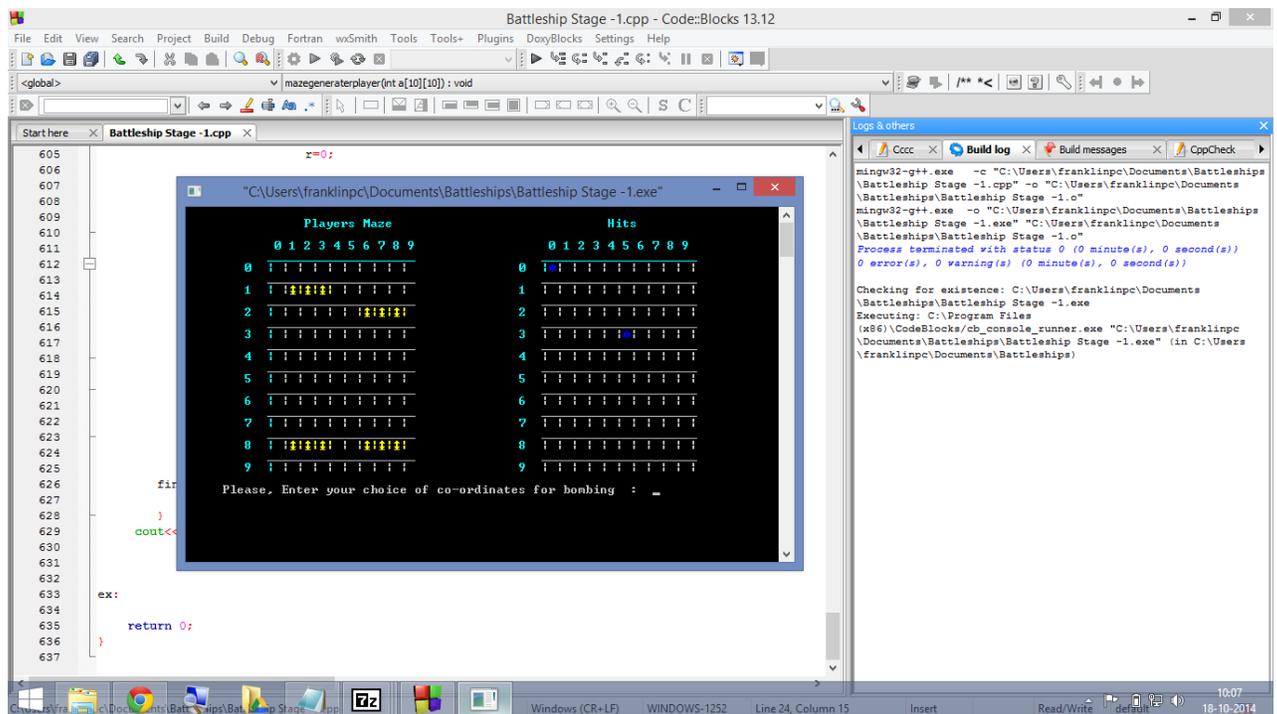
3. Press 'y' again to continue



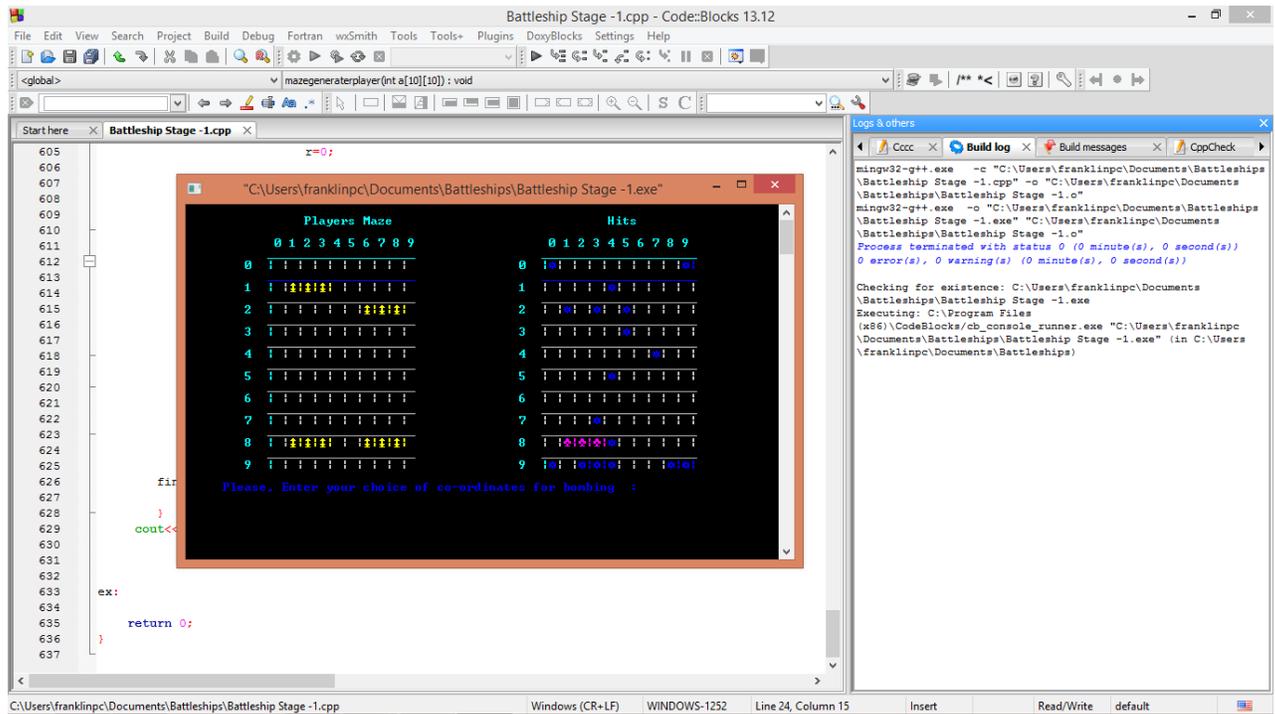
4. I write a sample coordinates



5. here after pressing enter the computer also plays its chance

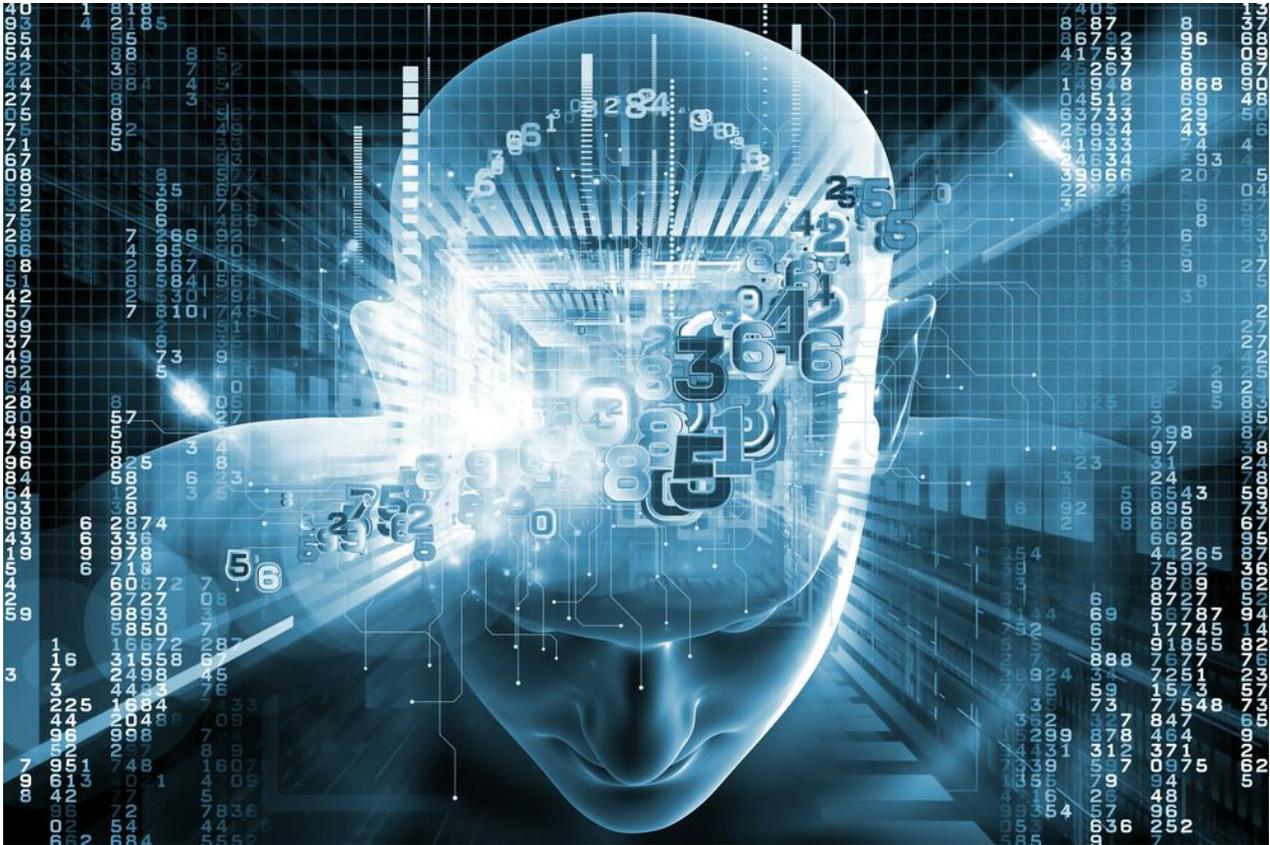


6. After a few rounds



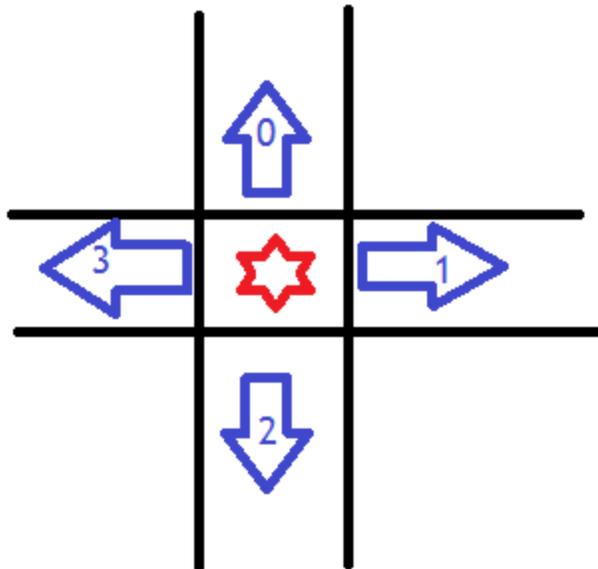
7. here the computer is in a winning position.

The Artificial Intelligence

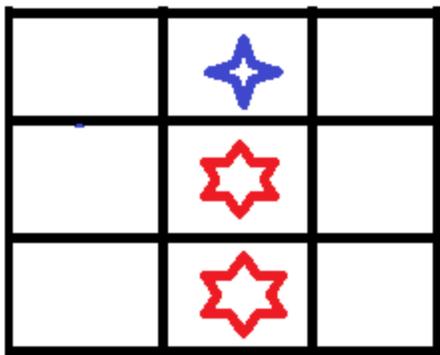


The logic behind the a.i. is that initially the computer does not know where the player's ship is located so he starts by randomly hitting targets. Once he gets lucky and hits a player's ship he stops randomising and goes hitting around the target to get the rest of the ship. The A.I. cannot go randomly hitting targets near the killed block (i will refer kill block as the block killed by the A.I.)so a specific algorithm had to be deployed so not to miss any case.

The a.i. goes around the kill block in a clockwise fashion starting from top. we gave codes to different directions .(red star-killed block, blue star- means hit but miss)



the A.I. goes from 0->1->2->3. On following a direction if it does not find ship i.e by bombing in that direction it changes it direction to the next one . Suppose a case arises where



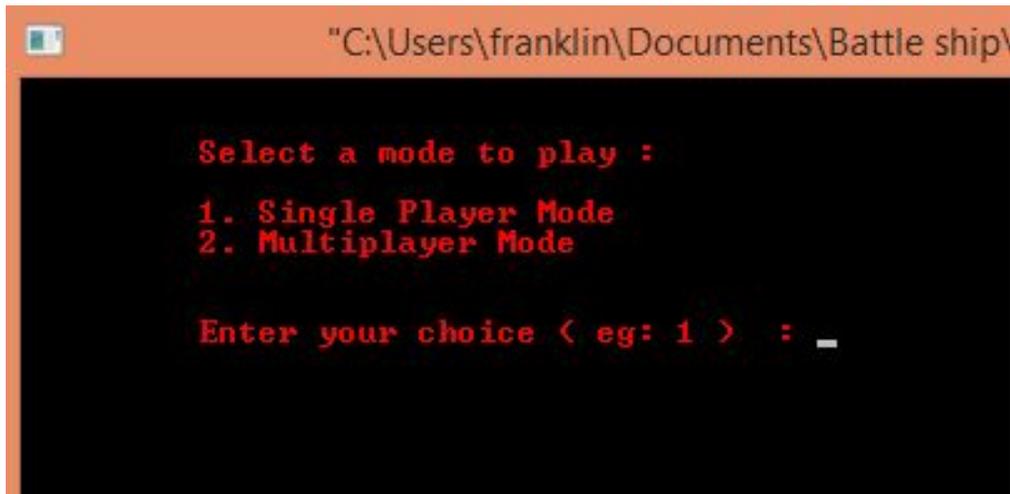
here its obvious that the other part of the ship is in the direction 2 so on encountering such cases we flip the direction to the opposite direction (here 2).

One more maze has been used to save the direction at every position that has to be followed . On hitting successively

we pass on the direction to it i.e the new block so that it can continue with the direction. Care has been taken to avoid blocks were hits have been done and missed ones also the blocks where the computer's ships are located.

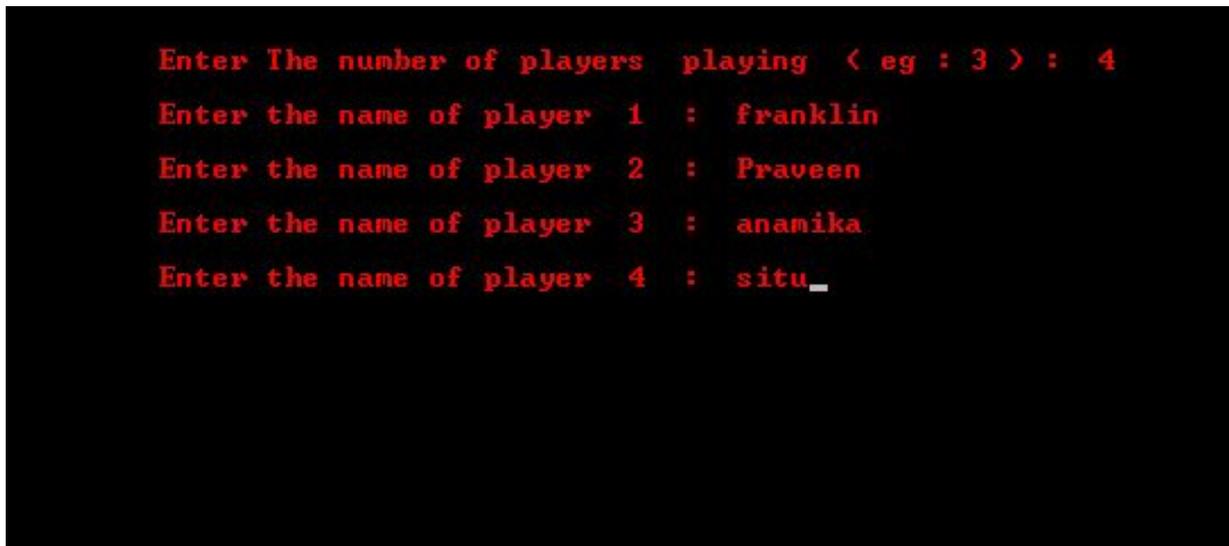
Multiplayer Mode

- The multiplayer mode can be chosen from the menu provided



```
"C:\Users\franklin\Documents\Battle ship\  
  
Select a mode to play :  
1. Single Player Mode  
2. Multiplayer Mode  
  
Enter your choice < eg: 1 > : _
```

- After logging in the admin mode you will be asked to name your players and will be shown the ranks after that.



```
Enter The number of players playing < eg : 3 > : 4  
Enter the name of player 1 : franklin  
Enter the name of player 2 : Praveen  
Enter the name of player 3 : anamika  
Enter the name of player 4 : situ_
```


- Now you can chance by chance give inputs in the form of co-ordinates and play the game.
- You can always give input as 10 10 for help.