CS 101 PROJECT PRESENTATION
CHAIN REACTION

TEAM ID : 231

TEAM MEMBERS

1. Pushkaraj Dhake 140070019
2. Gaurav Sinha 140040082
3. Mohammed Rafi 140070049
4. Maddela Sai Karthik 140040102

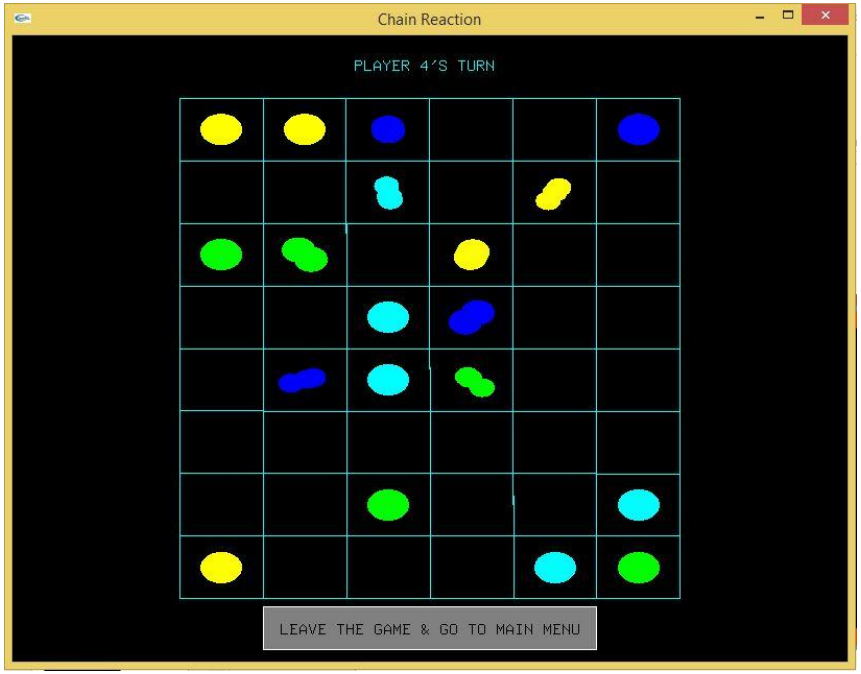
➢ PROBLEM STATEMENT :

- To make a fun game “**Chain Reaction**” which can be played among 2 to 4 players from whatever programming we have learnt in CS101 and using OpenGL graphics package.

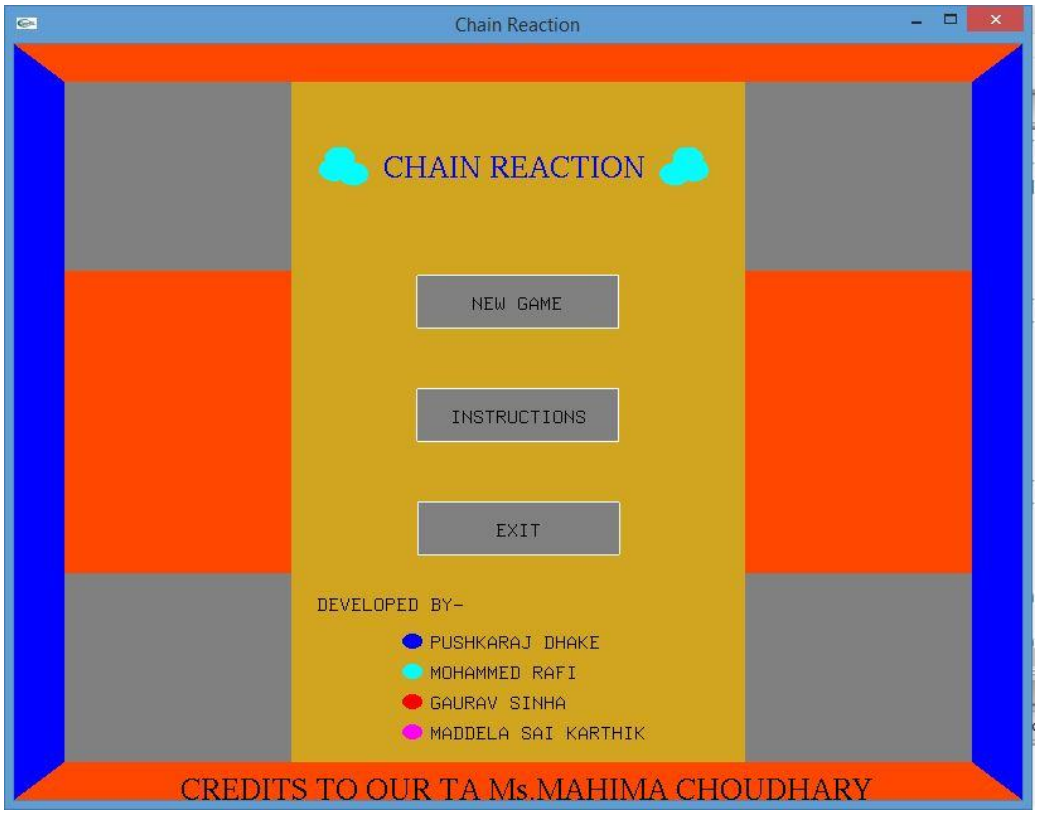
➢ ABOUT THE GAME :

- Chain Reaction is a strategy game for 2 to 4 players.
- The objective of the game is to eliminate the opponent's balls from the board.

A screenshot of the game



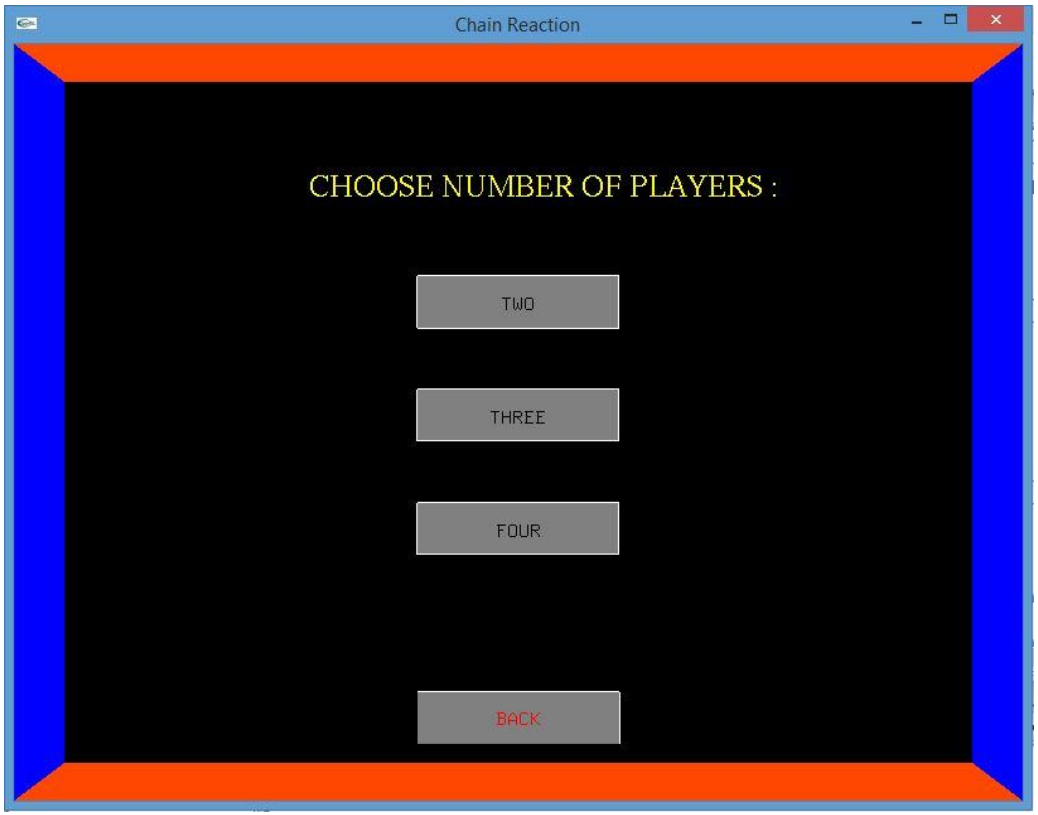
➢ DESCRIPTION :



- After running the game an initial window will appear which will contain 3 buttons.

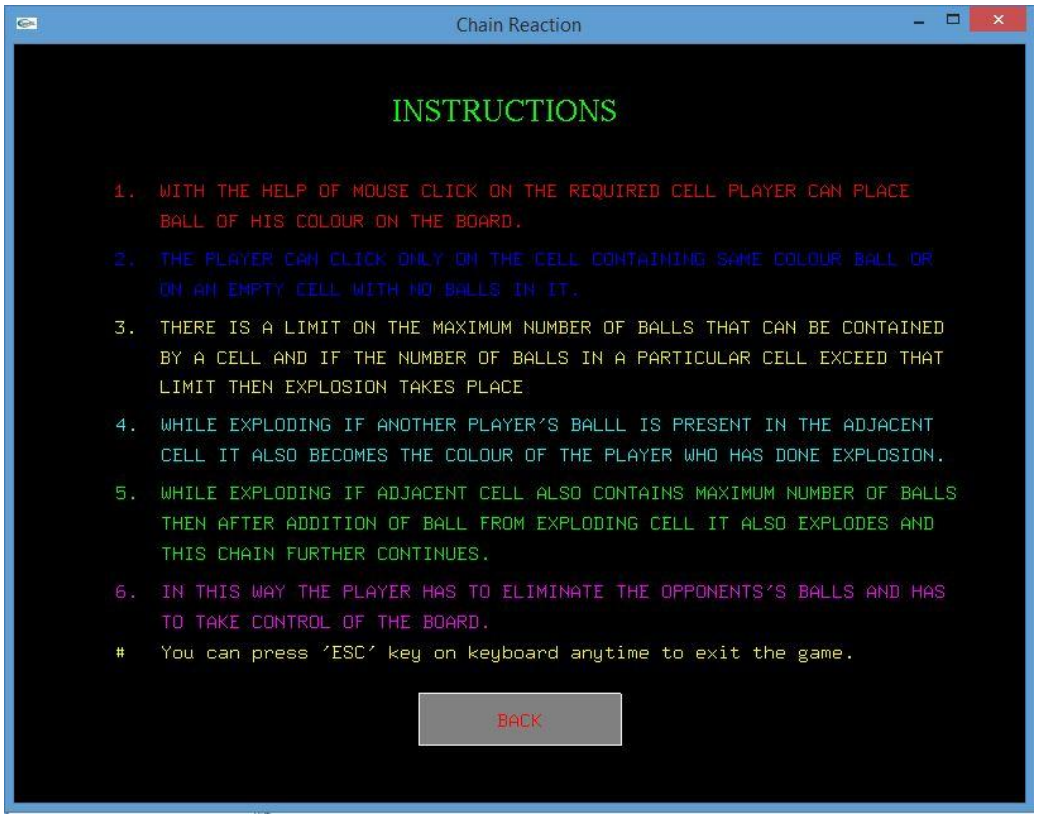
1. NEW GAME
2. INSTRUCTIONS
3. EXIT

➢ DESCRIPTION :



1. NEW GAME : If you click on this button, another window will appear which will ask for choosing no. of players (2 to 4).You can choose no. of players by clicking on the button showing respective number.

➢ DESCRIPTION :



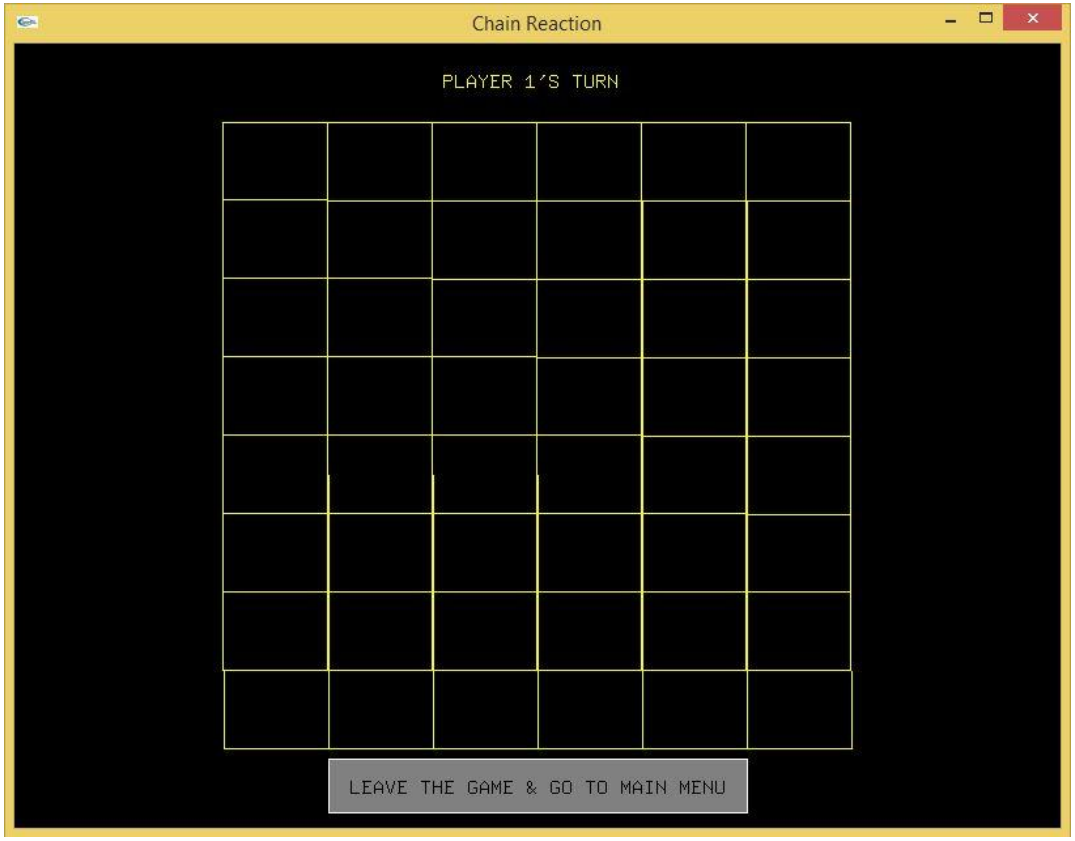
2. INSTRUCTIONS : You can click on this button if you don't know how to play this game. After clicking a window showing instructions to play game will appear.

➢ DESCRIPTION :

3. EXIT : You can exit the application by clicking on this button.

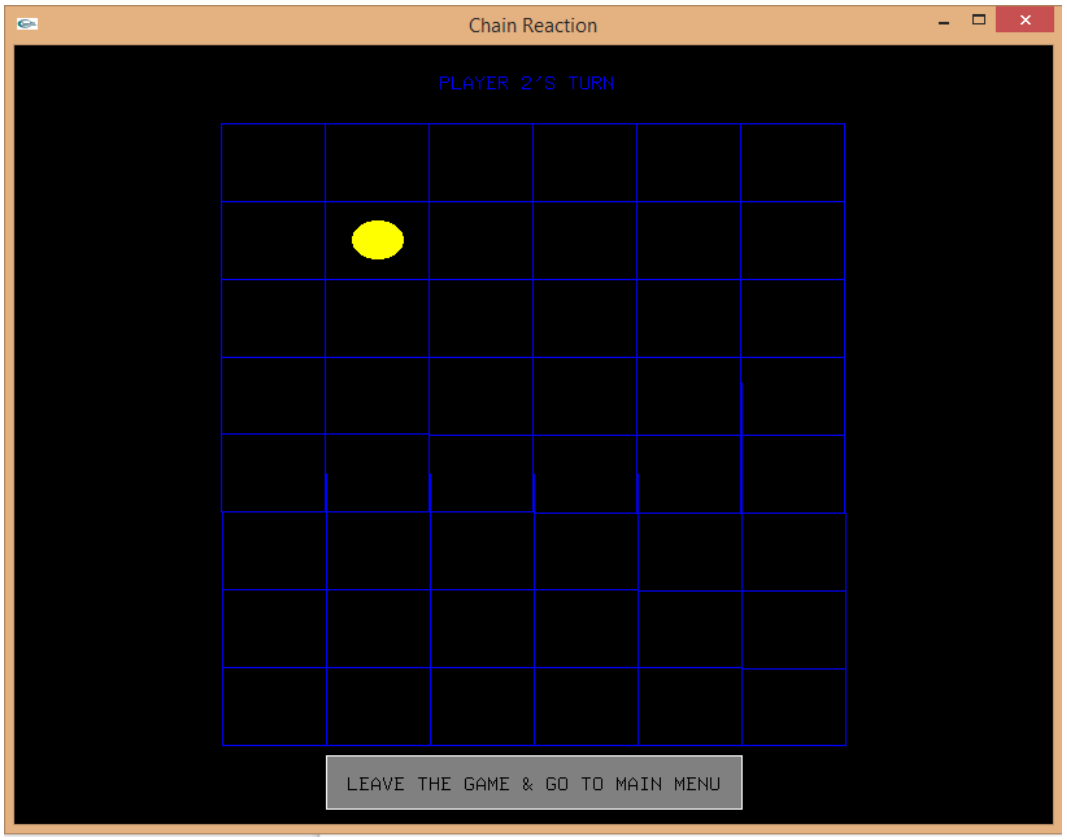
- Note that by clicking on the button with ‘EXIT’ written over will always close the application.
- You can also press ‘ESC’ key on the keyboard to exit the application at any situation any time.
- You can also click on the ‘LEAVE THE GAME & GO TO MAIN MENU’ button which appears below the grid while playing game to leave the present game and go to initial window with menu buttons.
- Now, after choosing no. of players to play, another window where game can be played will appear which is explained in following slides.

➢ DESCRIPTION :



- Initially a grid as shown is displayed.
- Colour of the grid indicates which player's turn it is to place the ball.
- A ball can be placed by the player by taking the mouse pointer to the corresponding box on the grid and clicking.

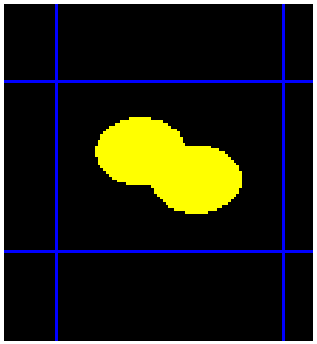
➢ DESCRIPTION :



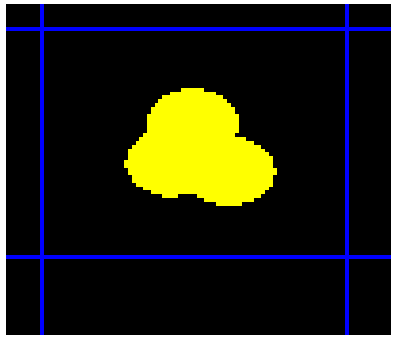
- Player1(yellow) places his ball as shown on the left picture.
- Colour of the grid will change to player2's colour(blue) indicating it is his turn.
- A player can place a ball only in empty boxes or the boxes containing his balls.

➢ DESCRIPTION :

- If a player places a ball where his ball is already present, one ball gets added to that cell of his colour.
- There is a limit to maximum balls that a cell can occupy.
- Cells on the corners of the grid can occupy 1 ball, cells on the sides but not corners of the grid can occupy 2 balls and rest of the cells can occupy max. 3 balls.

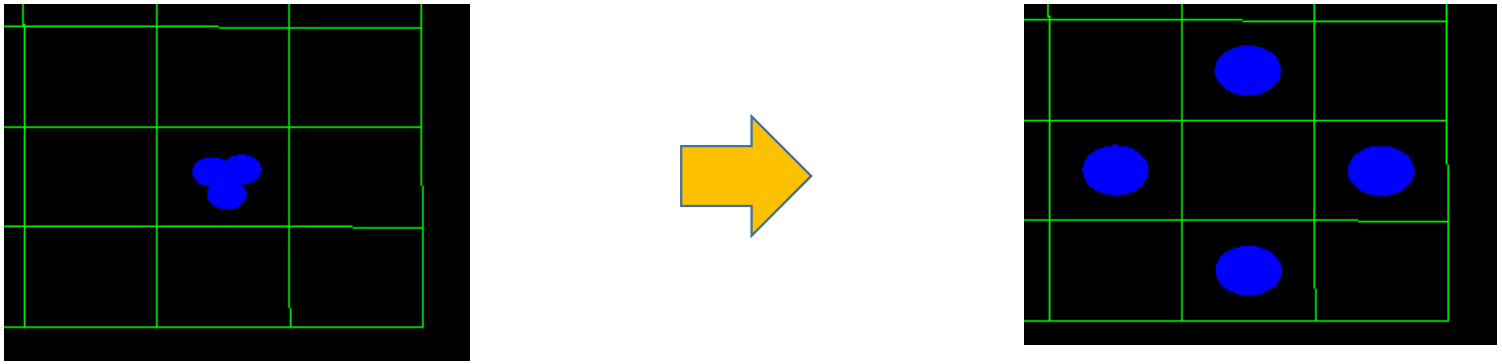


Cells with 2 and 3 balls of same player placed in it

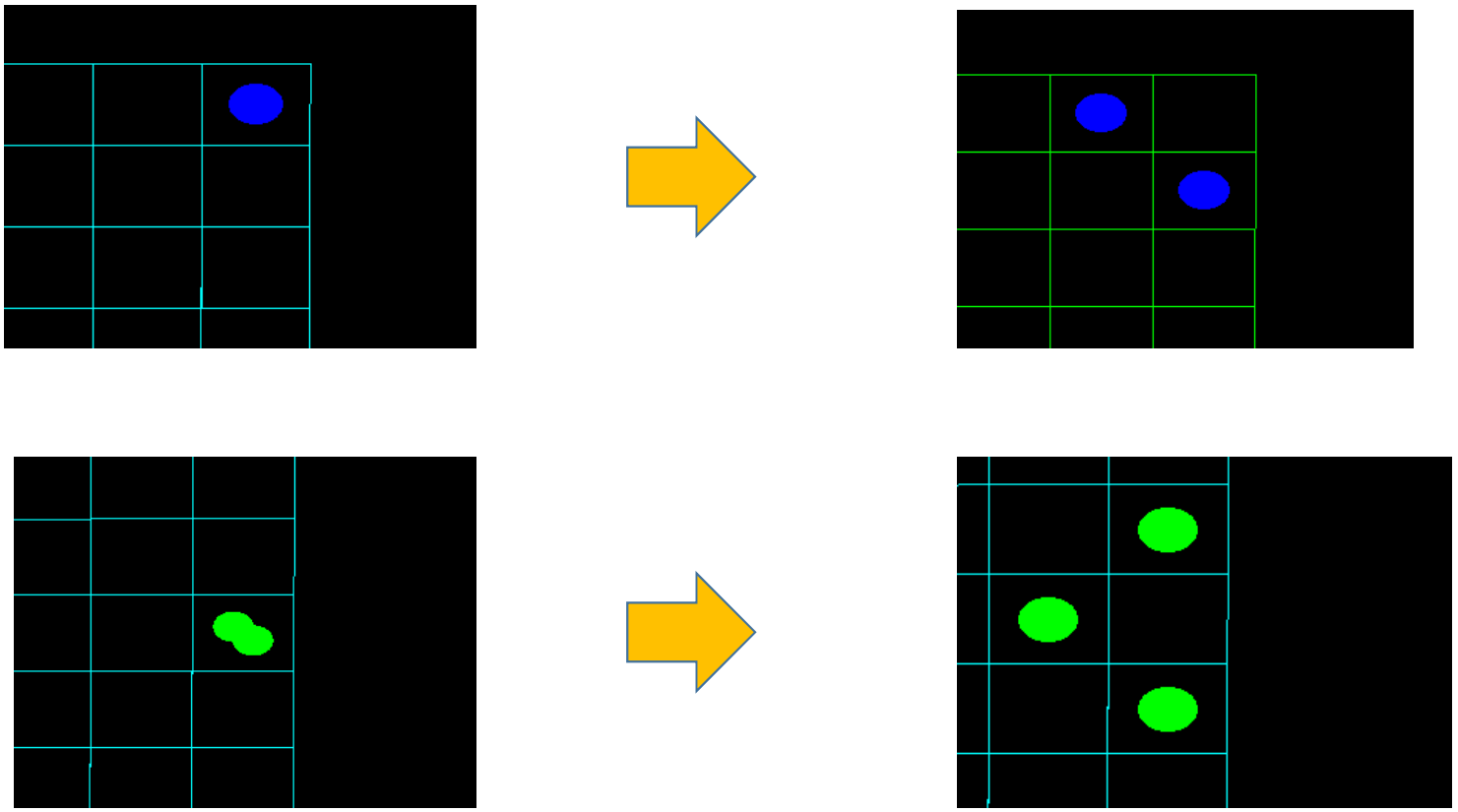


➢ DESCRIPTION :

- If a cell has maximum no. of balls it can occupy and the player clicks one more time into the same cell to place a ball, the balls in the cell explode in all possible directions where another cell is present with one ball going into the adjacent cell in every direction



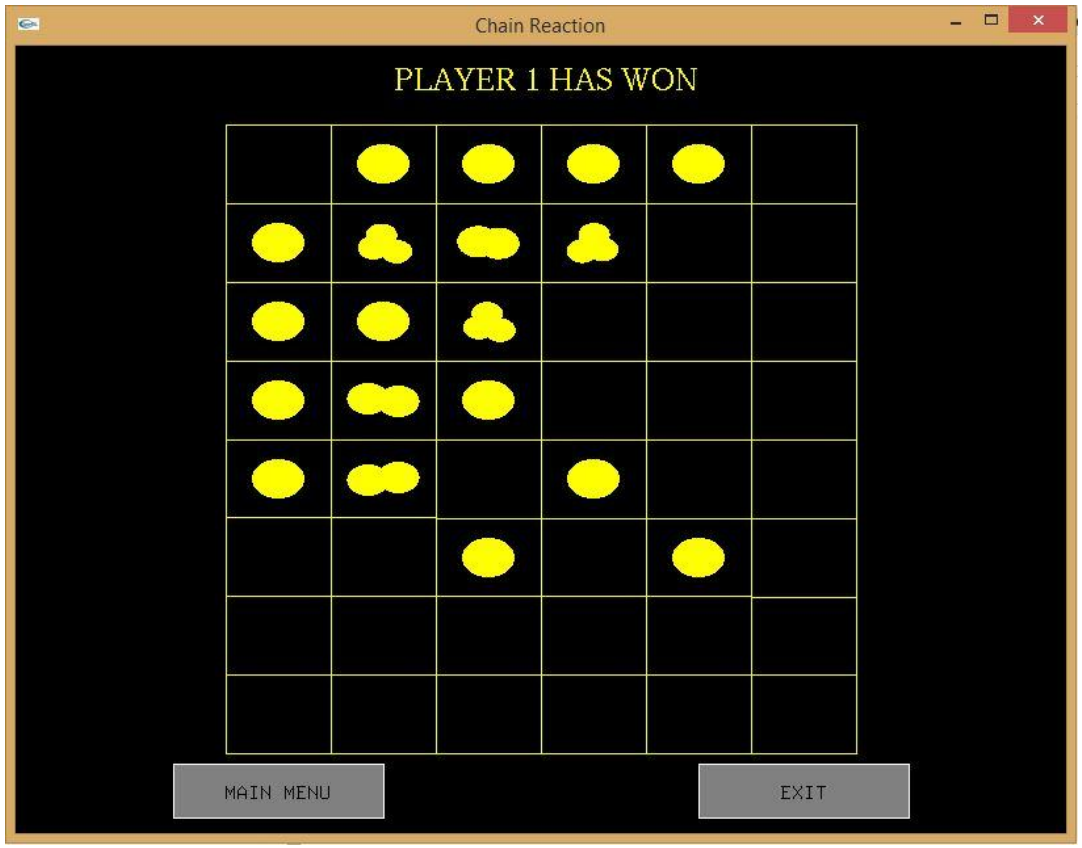
➢ DESCRIPTION :



➢ DESCRIPTION :

- While exploding if another player's ball is present in adjacent cell, it also becomes of the colour of the player who has done explosion with addition of one ball from exploding cell to it.
- While exploding if the adjacent cell also contains max. no. of balls it can have, after addition of the ball from exploding cell it also explodes and this chain continues till the final exploding cell has all its adjacent cells with less no. of balls than max. they can have.
- If no balls of a player are present on the grid, he is eliminated.
- The game ends when all the balls on the grid belong to same player and that player is the winner.

➢ DESCRIPTION :



- Suppose if the player 1 has won, then the win will be displayed as shown in the screenshot.
- Now, again 2 buttons will appear below as shown
- ‘MAIN MENU’ button will take you to initial window with menu buttons
- ‘EXIT’ button will exit the game.

➢ CHALLENGES :

1. The main challenge was to learn OpenGL graphics package:

- We tried our best to learn various commands in OpenGL graphics package from youtube and tutorials on internet and still we are learning it to make our game better.

2. Getting mouse coordinates in terms of our window:

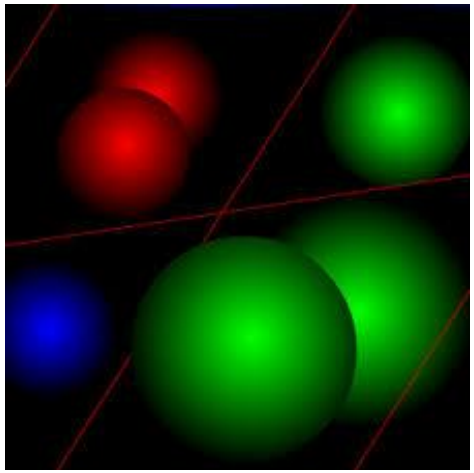
- We searched on internet about it a lot, then we got some hints to convert mouse coordinates in terms of our window coordinates and then we wrote a function to get them.

3. A big challenge faced is to stop taking input and show the win after a player has won:

- We had written a function for the above problem, but it was not getting displayed on the window. Then, after too much thinking, we wrote a different function to implement the same.

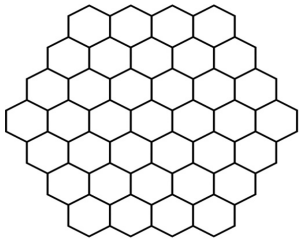
➢ INNOVATION:

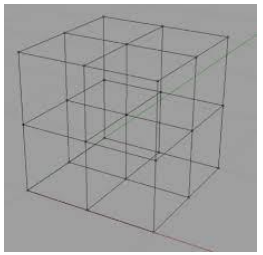
- To make our project innovative, we have added the rotation of balls around an axis in the plane of grid. This gives a 3-D touch to our game.



➢ FUTURE WORK…..

- In future this game can be extended to be played by only one player with whom computer will play.
- This game can also be extended to 3-D where the grid will also be 3-D and the balls will explode in adjacent cells in 3-D.
- We have used square cells in this game. This game can be extended to different shaped cells (like pentagon or hexagons) by which no. directions to explode the balls can be increased.





Thank You!