Two Player Maze game

Mohit Thakur 2019CS10373
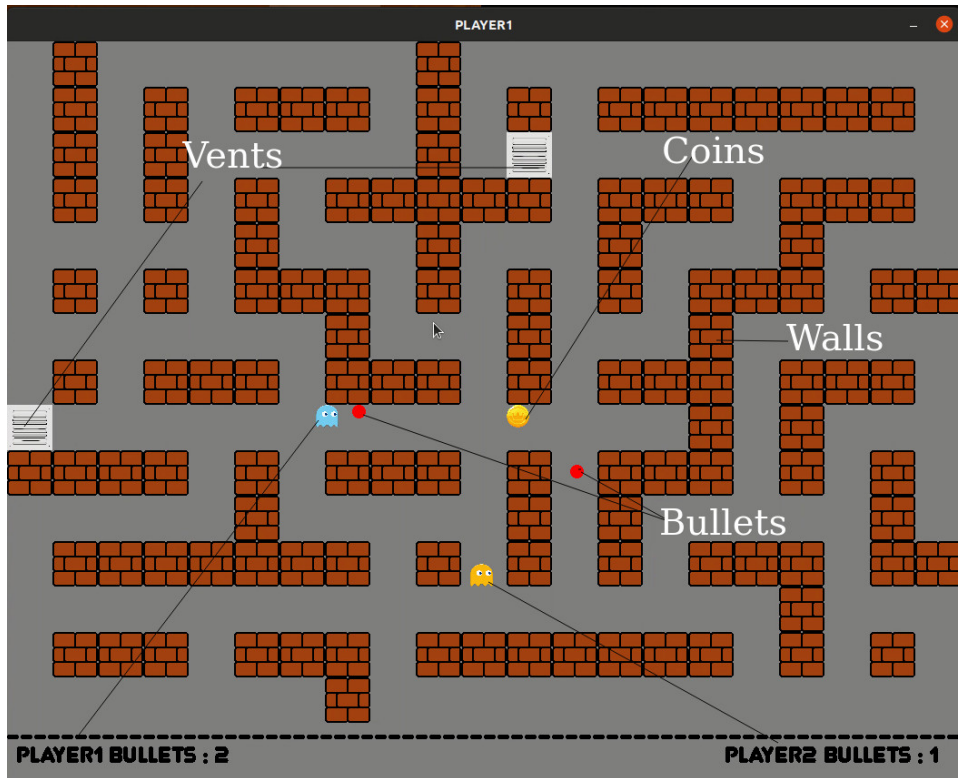Sidharth Agarwal 2019CS50661

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This two player shooting maze game involves features like invisibility, teleportation, reflecting bullets, random map generation all blended together to give a wonderfull gaming experience to the user.

Contents

1 Basics

1.1 Understanding game screen

Window name(PLAYER1) indicates whose screen we are viewing
Blue ghost is player1, and yellow ghost is player2
Golden ones are coins, collect them to use bullets or go invisible
Small red circles are bullets
Brown blocks are impenetrable, even bullets reflect from them
Gray area is game zone, player can walk freely in this area, of course other
player is trying to hunt you down
White ones are vents, player can use to teleport to other opening.
At the bottom we have scoreboard to show the bullets of the each player.

1.2 Knowing basic controls

For basic movement use UP, LEFT, RIGHT and DOWN arrow keys to
NORTH, WEST, EAST, SOUTH respectively.
Their are few powerup too,
S for shooting(Hunt down opponent to win the game)
W for invisibility, yes you can go invisible
**V** to teleport when you are near a vent
Esc to quit current game, if you think opponent is overpowered

2   Entities

2.1   Coins

Coins are the most essential resource in this world, every thing requires coin. You need one coin to shoot and two coins to teleport. By default, each player holds two coins. Coins are randomly generated across the maze without bias. Hover over a coin to pick it.
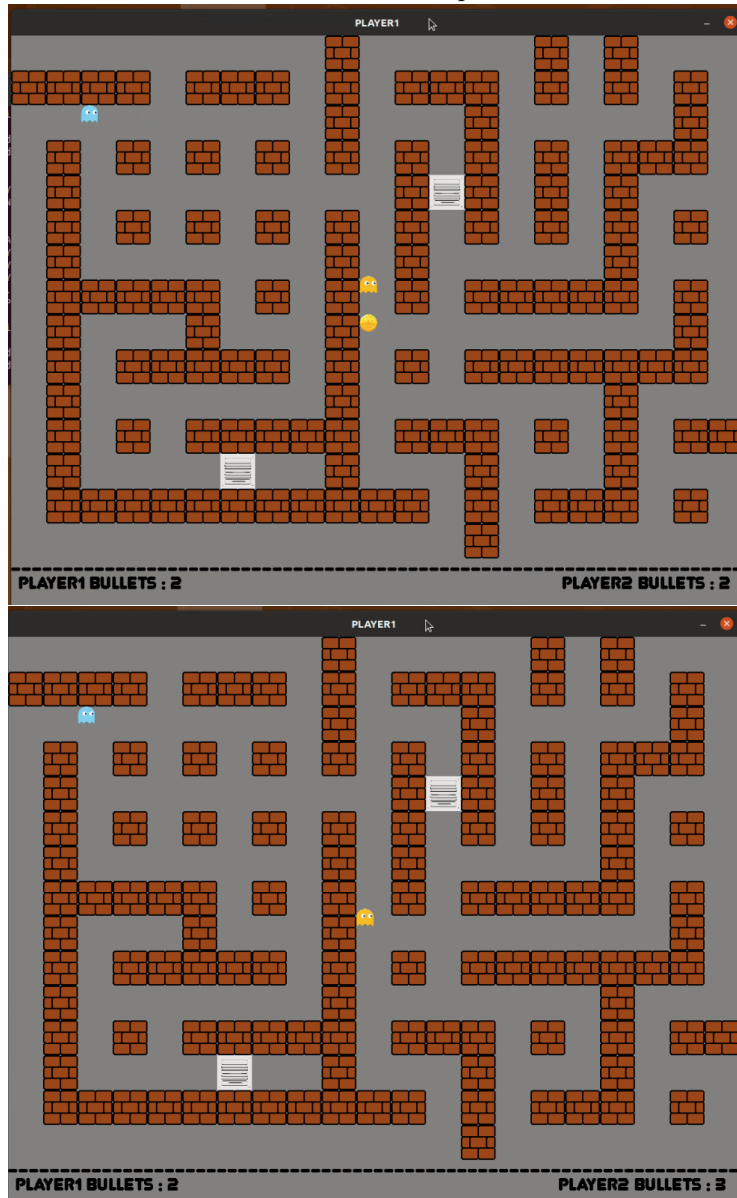

In above 2 images player2 hovers over a coin to collect it. By doing this, we can see his bullet count increased by one.

2.2 Bullets

Bullets are vital to win a game. In order to win your opponent must be shot(not necessarily your bullet). It costs one coin to shoot a bullet. Bullets reflect from wall when shot from a large distance, and travel a some total distance before falling down. When they are shot close to the wall they penetrate the wall and get stuck.
Pro tip: You can also block or trap other player with bullets for some time.
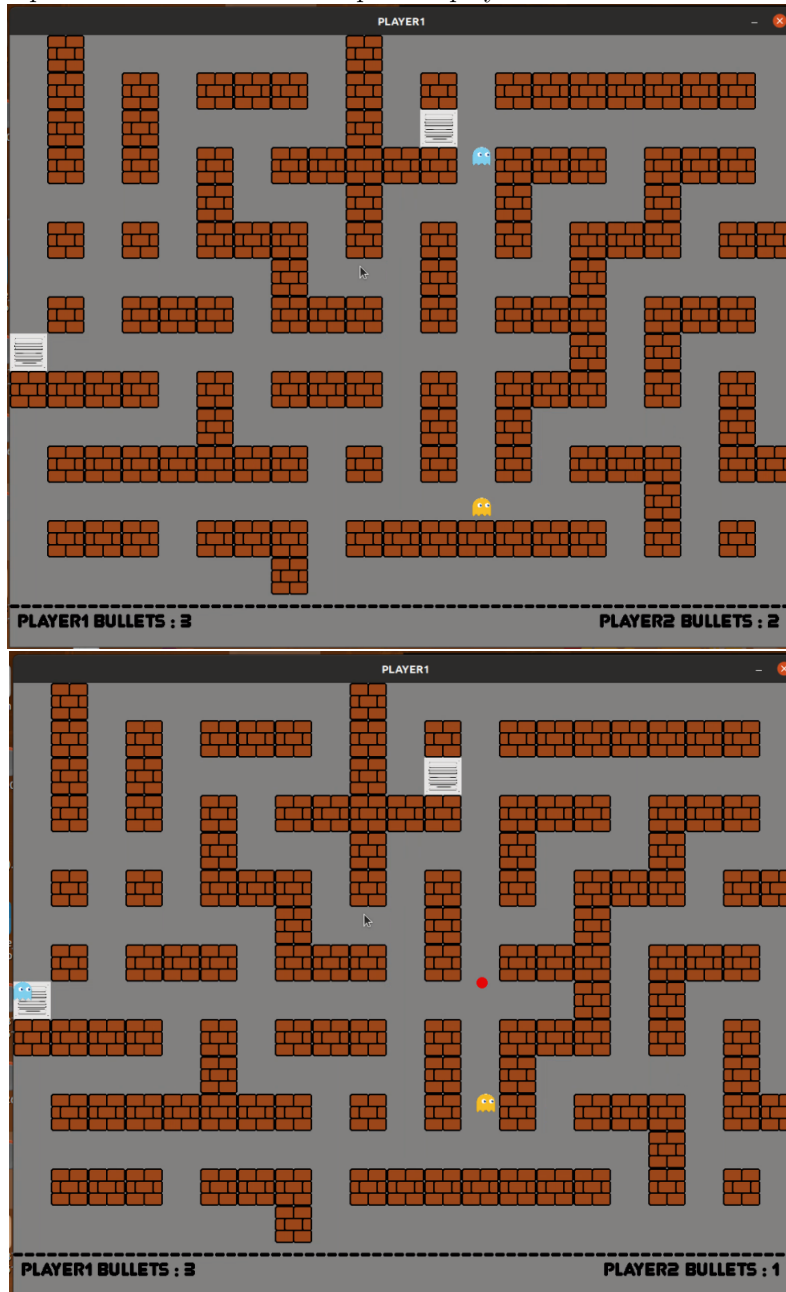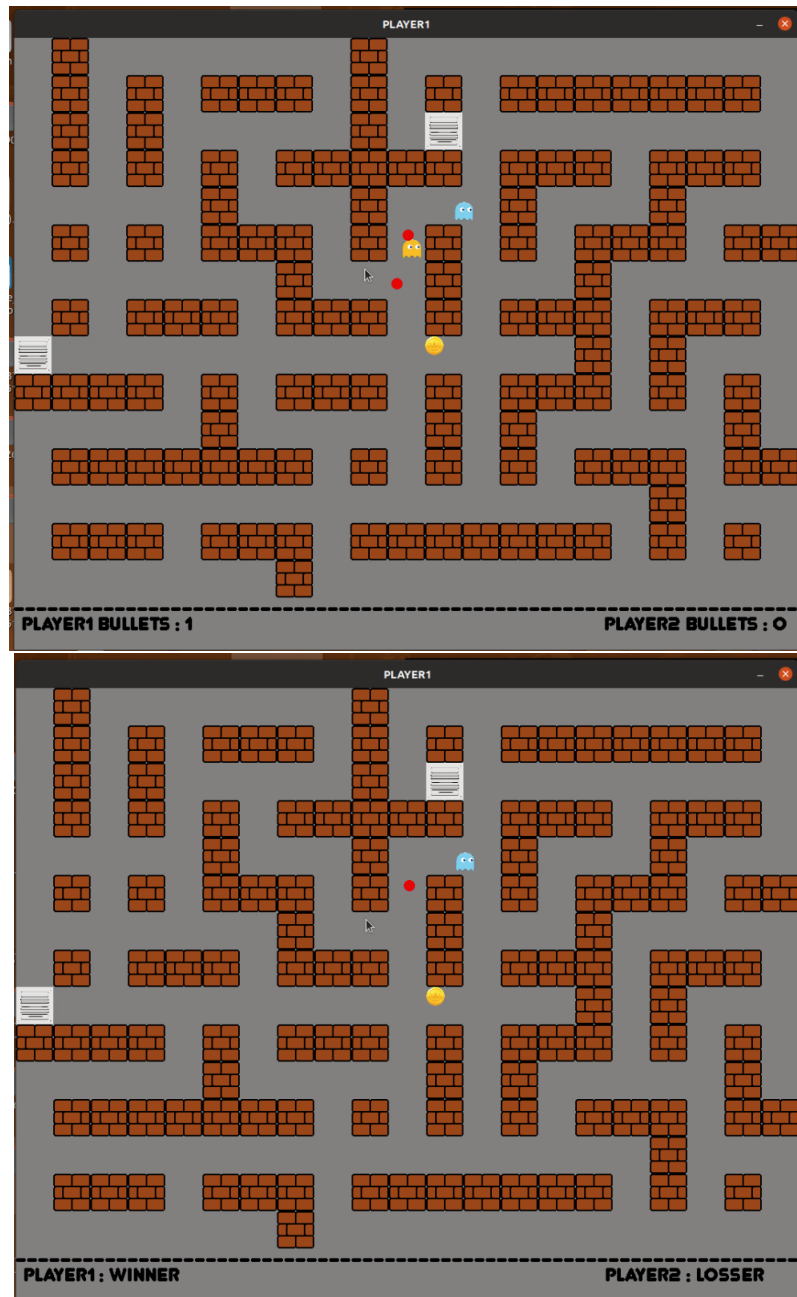
From first 2 images, it can be seen that shooting costs 1 coin, and opponent
has no other option than run for his life. Last 2 images shows the player2
dying and player1 is the winner.
Note: I doesn't matter who shot him.

2.3   Vents

A player can use them to teleport to different fronts of arena maybe to collect coins or getting a better shot at opponent. Opponent will not hear the player teleporting and hence will have hard time focusing on his enemy's position. Pro tip : Staying near the vents give you upper-hand with the coin collection, and may lead to a close save from the opponent's bullet.
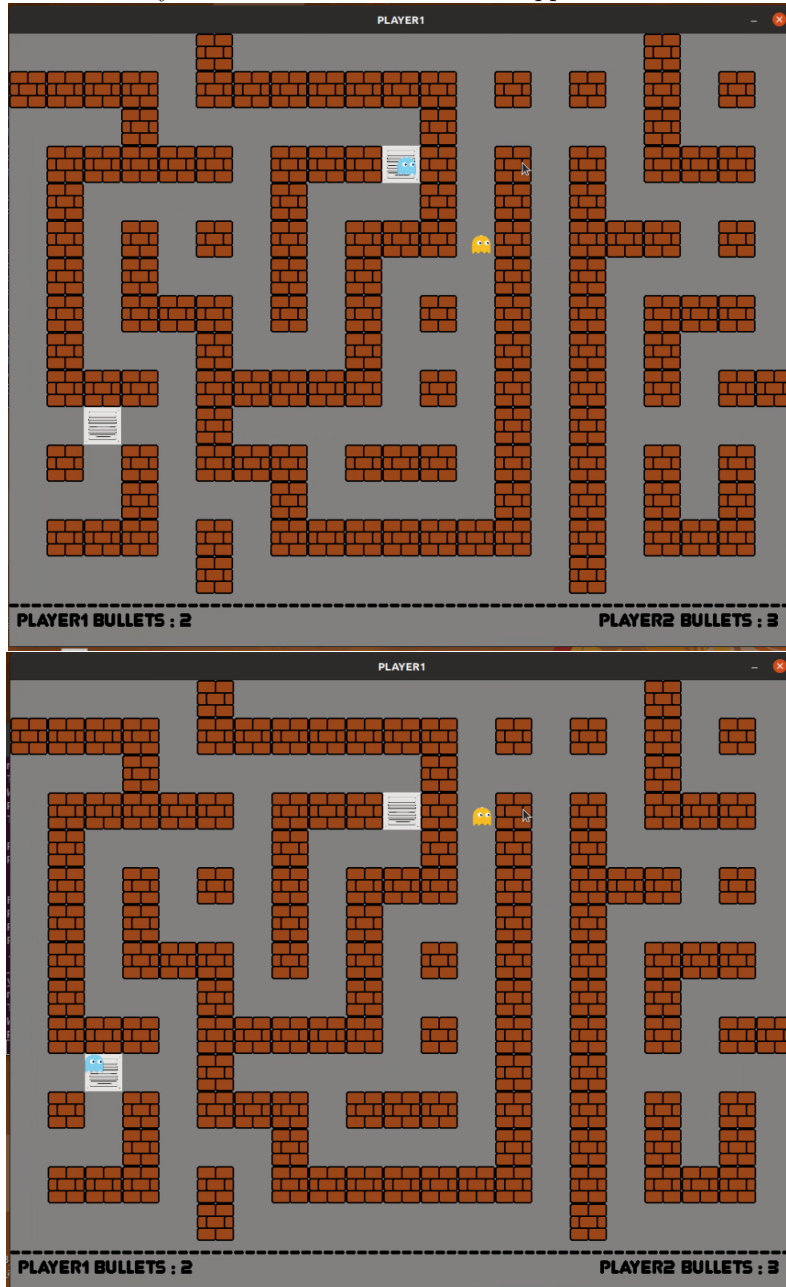

From image, it is clear that vent takes you from one place to another, and do not cost any coin.

2.4 Invisibility

Any player can go invisible at cost of two coins to gain enormous advantage over the opponent, he doesn't know from where you are coming. Bullet maybe the last thing he sees. Invisibility is accompanied with a track that usually make adrenaline rush.

Pro tip : You can also go invisible when opponent just went invisible, this way he will not be able to predict your location.
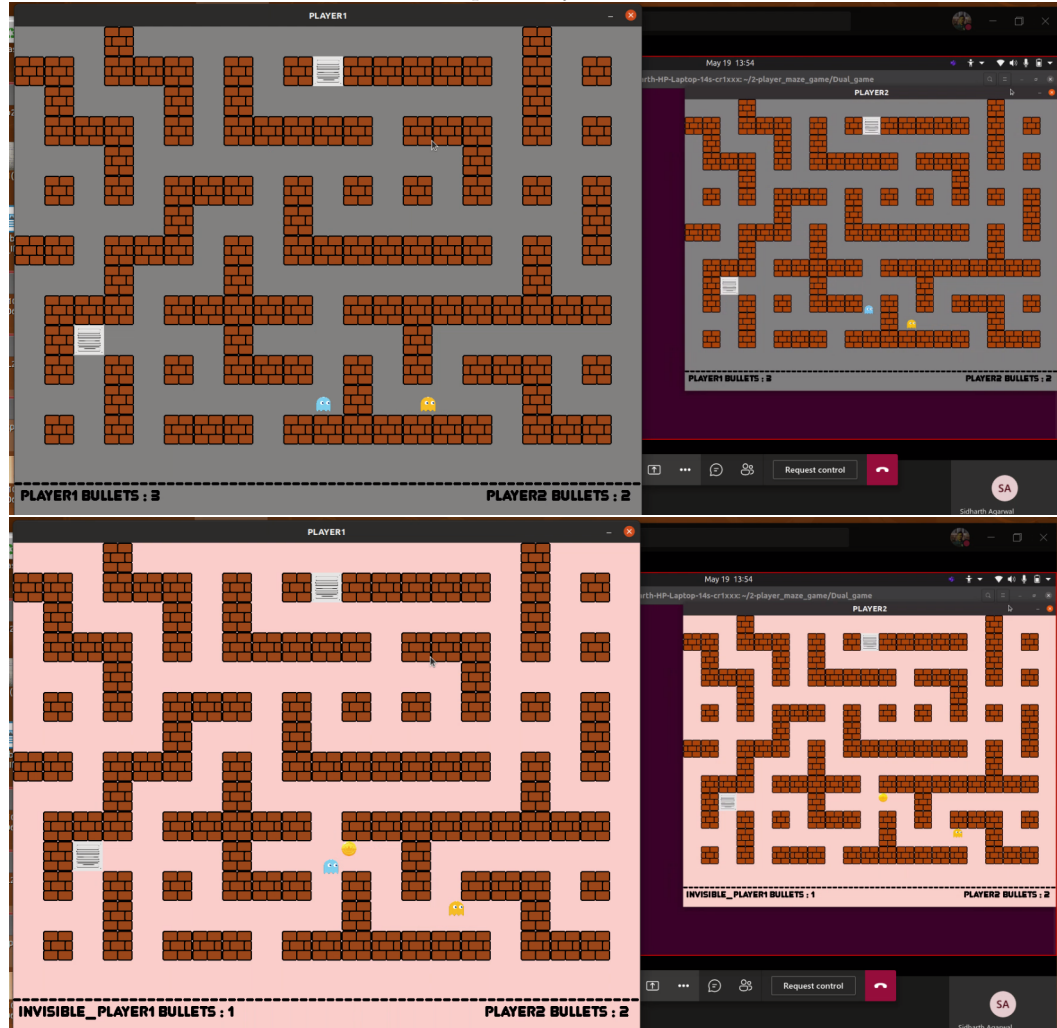
From the shots above, it is clear that the other player cannot see you when you are invisible. He can deduce your location only through bullets.

2.5   Maze

Maze generated is totally random and so are coin generated in it. Maze generation algorithm only ensures that all the cells are connected so that no player gets trapped in the walls and ruin the game. Walls in maze are pretty solid and reflect back any thing thrown at them. All shots added in this document are from different arenas, which is evident that the map is generated randomly each time.

3   Setup

To setup the game follow the commands,

```
$ git clone https://github.com/Mohit1908/2-player_maze_game
$ cd Dual_game
$ make
$ ./game s  (to host and run as server)
            or
$ ./game c ip_addr  (to join the game hosted by server at ip_addr).
```

You will need to press y to extend the game further. First on the server side and then on client side.
To play over the internet we used hamachi to make 2 system on internet to be on same virtual network.
To get better insights of game watch link, all screenshots in this video are from this video.