

EXPLANATORY PRESENTATION FOR IITD CHAMP

A maze game developed by Isha Chaudhary (2018EE30614)
for the COP 290 course during Spring'22

Motivation

- IITD Champ is a maze game derived from the typical daily routine of a student at IIT Delhi.
- To champion this game, one needs to optimize for the quickest and most energy efficient way of reaching one's goal.
- IITD Champ is currently based on abstractions of the setting. It has been developed with the intention to experiment with the various components of Game Development.

Software used

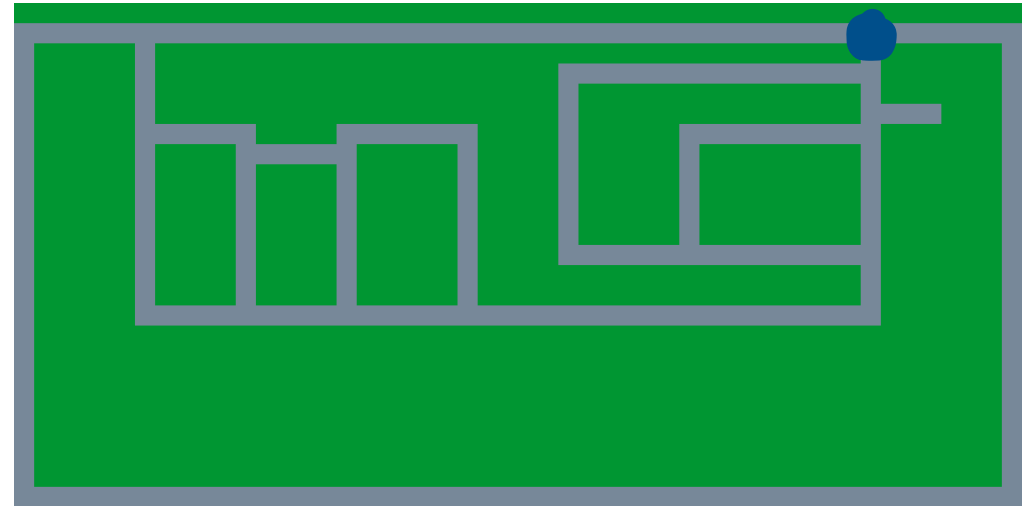
- IITD Champ is developed using C++ and compiled using GCC.
- The C++ libraries used include:
 - Simple DirectMedia Layer library (to facilitate I/O)
 - string and stringstream libraries (for string operations)
- ENet library (used to facilitate UDP networking)

Metadata of IITD Champ

- IITD Champ is currently developed to be played by a single player.
- Dual-player version of IITD Champ is under-construction due to technology issues. The dual-player game either hangs up or gets killed on low RAM laptops.
- So let us further describe the properties of the single-player version and defer the discussion of the errors in the dual-player version to the *status.txt* file.

Setting of the game

- The adjacent figure presents the *fixed* maze used in the game.
- It is designed to resemble the campus map of IIT Delhi as much as possible, with horizontal and vertical roads.
- The player starts at the point indicated in blue, which marks the main gate of IIT Delhi. The outline roads represent the roads of Delhi outside the campus.



Components of the game

- The single player game has rectangular components which are color-coded as described next.
 - **Blue** rectangle denotes the **player**. It can be moved using the up/down/left/right arrow keys over the road.
 - The **gray** colored strips are **roads** over which the player is allowed to move.
 - The particle may come across **bright red** rectangles on the road which denote the **dog** obstacles. These obstacles move, appear, or disappear randomly.
 - The particle may also come across **green** rectangles on the road, which denote **security guards** on the road. These obstacles also move, appear, or disappear randomly.

Components of the game (cont'd)

- The **Silver** rectangle represents a **key** which needs to be taken before reaching the goal. The key here is a badminton kit which needs to be taken from the player's hostel.
- The **Golden** rectangle represents the **goal** of the game. The player is declared as a champion if it reaches this goal with the key. The goal here is the SAC building. The player needs to arrive here with the badminton kit to play.
- The player keeps losing energy while travelling to reach the goal. The player's energy can be replenished by entering into the **cyan** rectangles, which are the **energy centers**. These energy centers are equivalent to eateries around the campus which energize the player with food.



Rules of the game

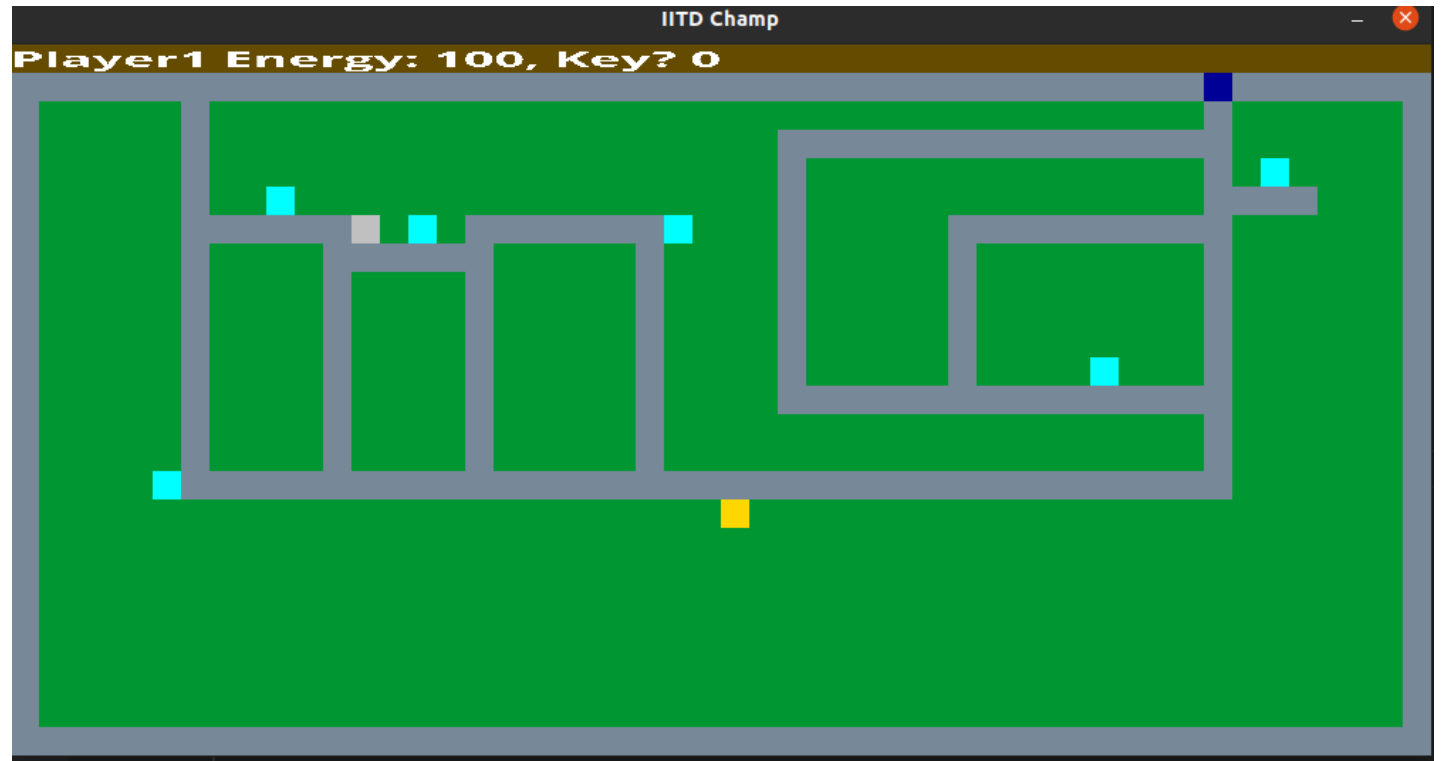
- The player starts from the main gate and is allowed to traverse only along the roads shown on the map.
- The player starts with 100 units of energy and keeps losing 2 units of energy on every movement.
- If the player walks into an energy center, then the player gets 10 units of energy upto a maximum of 100 units.
- The player drops unconscious and hence loses the game if its energy becomes 0 before reaching the goal.



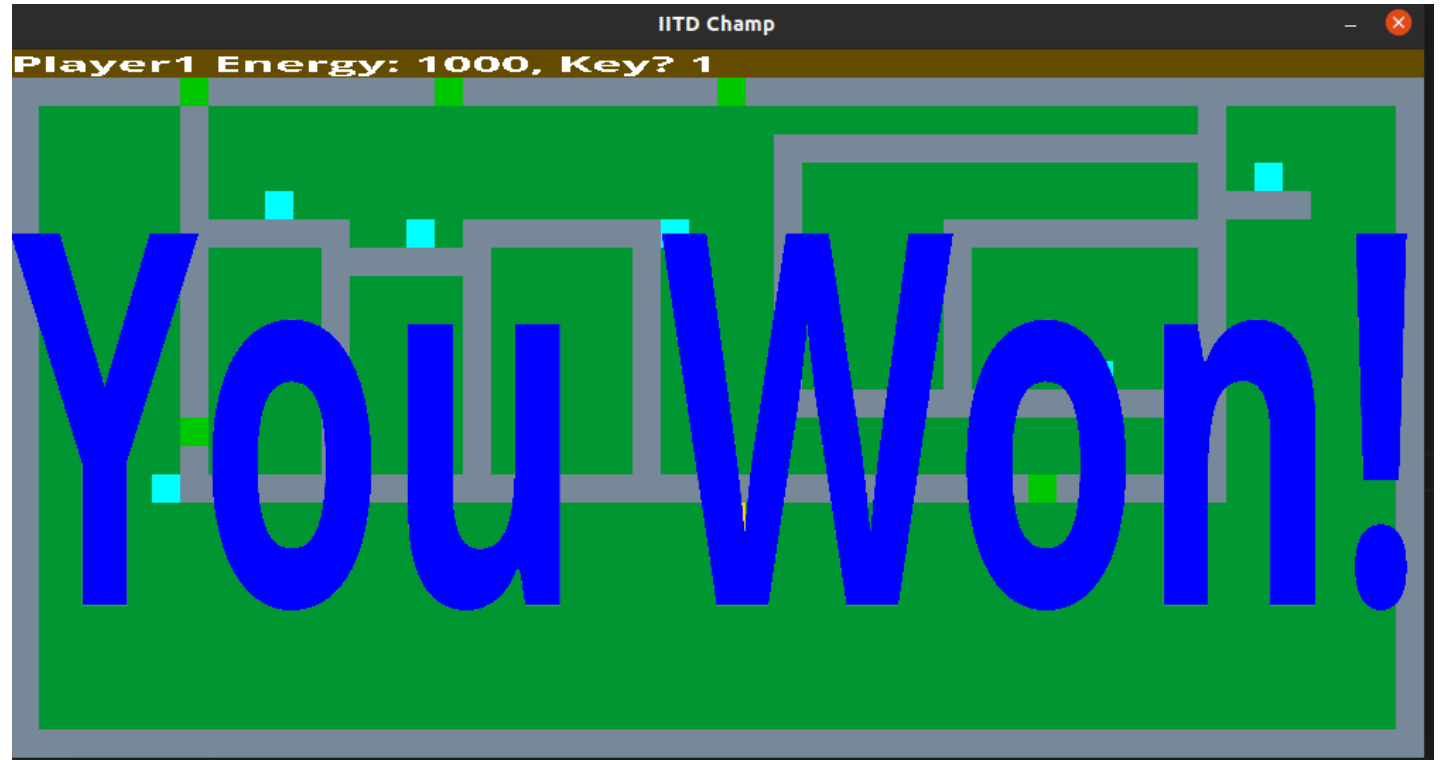
Rules of the game (cont'd)

- If the player encounters a dog obstacle, it loses all of its energy and hence loses the game.
- If the player encounters a guard obstacle, then its energy drops down to half of its value before encountering the obstacle.
- The player needs to acquire the key before reaching the goal. Any attempts by the player to reach the goal without the key do not lead to victory.
- The player's energy level and key acquiring information are always shown on the top of the game screen.

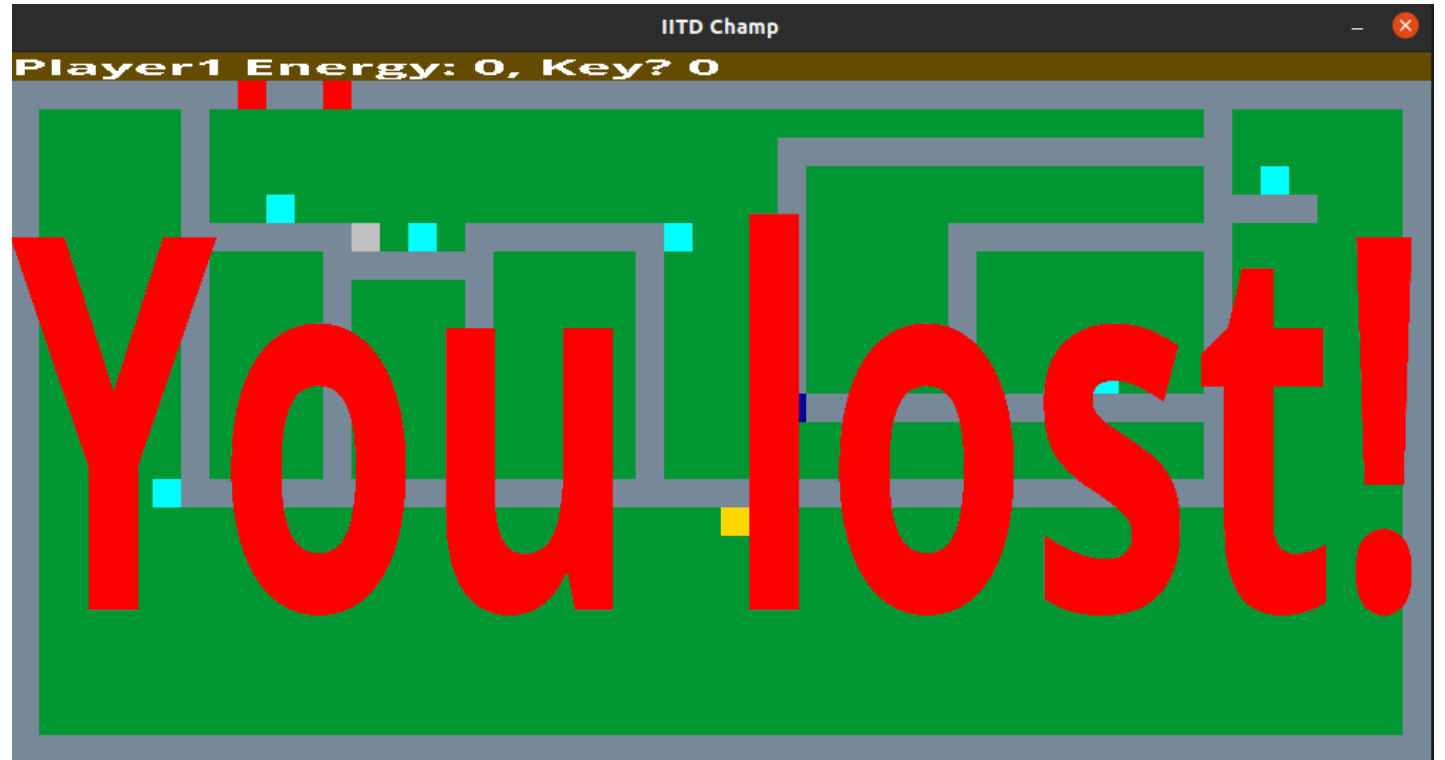
Screens of
the game:
starting
screen



Screens of
the game:
winning
screen

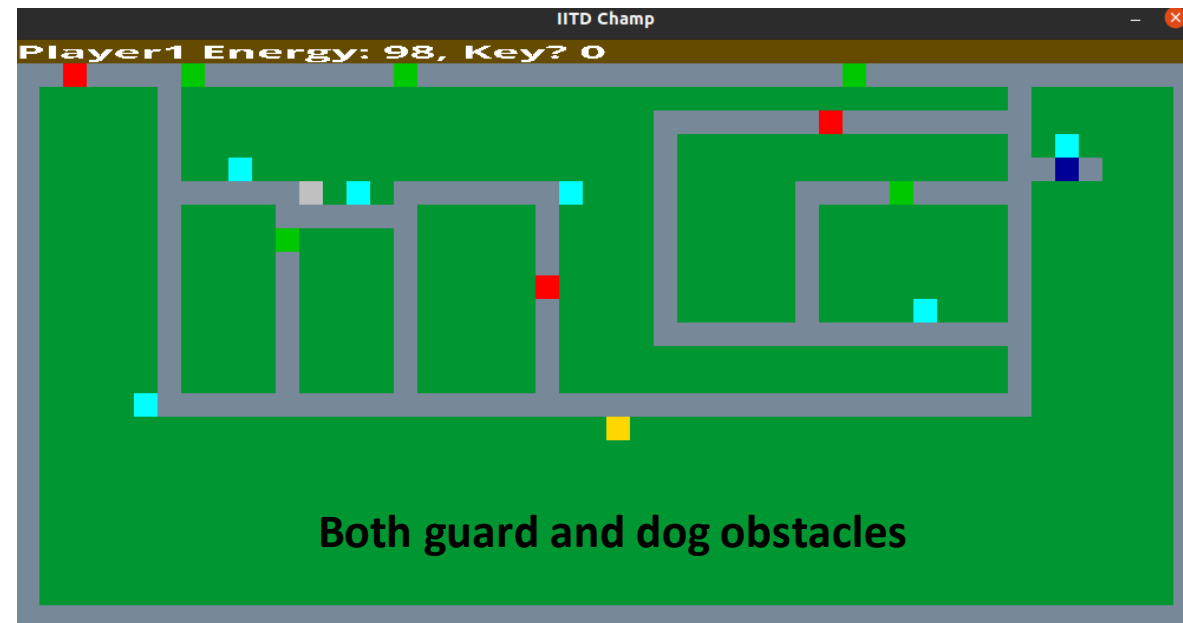


Screens of
the game:
losing screen





Screens of the game:
different obstacles
sampled at random
times



Thank You!

