**Read Me:**

Welcome to Ying’s Game Engine! Here are some instructions on how to play the game and introduction of some features in the game.

1. How to start the game:
2. Open the game engine
3. press F5
4. How to play through the game:

1)You will see a greeting message:

>> Hello! Welcome to this game!Please enter your name here to start the game!

Then, you have to enter your name to play the game.

Then, a greeting message with your name will appear.\*

2) Several lines of sentences appear, telling you where you are, and where you can go to.

3) Conditions displayed on the screen:

A. You have spent \* min \* seconds in the game.

This function uses mod, time.time() and %d to keep track with the time you spend in the game.

B. Your current health point is \*.

This function checks your health. It is not necessarily the same thing as move.(It is the same in my game because there are no object that can increase health and entering each room will take one point off from your health.

C. This is the \* th move.

This function checks how many move you have made.

4) Commands that you can use when you are in the game:

A. pick—

a.You will be able to pick up whatever you want on the floor in the current room.

After you type pick in the game, a list of things that are in the room will be listed out.

Enter one object names in the list, and you will be able to pick that thing up to your backpack. You don’t need to pick up things in the order of the list. \*

b.Before you pick an object, the weight of your backpack will be calculated. And if your packpack weight is more than the maximum number defined in the .txt file, you won’t

be able to pick it up unless you drop something first.

B. drop—

a.You will be able to drop the things you have in your backpack(not including those things you have used). You will be able to drop it in the order you want by entering the name of the object, and you will be able to drop things in the current room and pick them up again.

b. sometimes you will need to pick up something from a room and drop it to some place in order to go through some constraint. If you attempt to do this without satisfying the constraints, you will have hints like "You have to pick up %s and put it into %s before going there."

C.use—

a.You will be able to use whatever object you pick up. But you are only allow to use the objects once!(Because there are no unuse command in the game). If some .txt file does not have this function, they will still be able to use this game engine to play their game.

They can use the objects too. But they cannot find them again in the game.

D.look—

a.when you type ‘look’ in the command line, you will be able to look at the description of the objects you have. You can choose to one object to look at from the list. The description will include how the object look like and the weight of the object.

E.help—

a.by entering help, you will be asked to enter the room/the place you want to be in. The computer will generate the shortest path that you can go through and reach your target room. However, that does not necessarily mean you can go through all of the constraints. Whenever you meet constraint, you should look at the hints and see where you want to go.

F. Direction commands: east, south, north, and west—

a. if you are playing my game.txt, you will only use four direction command to move around the maze. However, when people design their own game.txt, they don’t need to limit their commands to four directions. It can be anything that can lead to another state.

b.When you are attempting to move to another state, the system will check whether the constraints are satisfied: if they are, you will be able to go through the door; if they are not, you will get the description of the current state again as well as an hint message telling you what you have to do to go through that door.

G.quit—

a. When you type in quit, you will be able to quit the game immediately.

H.any other random and unexpected commands—

If players type in some unrecognizable commands, the description of the current state will be displayed again. Nothing really happens.

5) The ending of the game:

a. If the health point is below zero, the game will be ended. You will be asked whether you want to play it again. If yes, you will be in the first chamber; if no, you will quit the game.

b.If you want to make the game more playable, you can change the health value of each edge in the .txt file.

**Bonus:**

1. The use of Breadth First Search to find out the path to the target room

This function gives you back the shortest path to the target room from your current location.

1. Time counter

Show you how much time you spend in the game.

1. User interaction

Enter your name and the system will have interaction with you!

1. Game Ending

You can choose to quit the game anytime you want or, when you are gave-over, you can choose to replay it even without quitting the system

1. Pick/drop object selectively

You can pick up and drop objects wherever you want. And if there are multiple objects in a certain place, you can choose to pick up whichever you want, not necessarily in order.

1. Weight Calculation before picking up things

Before picking up the objects, the system will calculate the possible weight of your backpack after you pick the object up. If it is going to overweight, you won’t be able to pick the object up unless you drop some objects.

1. Constraint hints

If you cannot go through a door, you will be given some hints on what you should do to go through the door.

**Things that need to improve:**

1. If a game.txt file strictly follow the given format in the webpage (except that for each edge, only one command and one to\_node can be used), this game engine should be compactable with other people’s game. Here I assume even people do not use backpack weight function or any other functions listed in the format will have related lines in the game, so that when the engine load the game, it will have something to load. I think I should have been able to set some functions to have default.
2. I wanted to do the random node thing but ended up spend more time doing the breadth first search function. This is not a difficult thing to do and I should have done better in this part.
3. The current state description displays again and again, sometimes it is annoying. I think Ed Oh did a good job in his game. I can do better in this part. And my code is not very need because I did not take good use of functions. I should pay attention to this next time when I code.