

# CS 246 Final Project Demo

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Once upon the time, heros moved through the dungeon and slayed evil enemies while collecting treasures along the way. However, the monsters have revolted and demanded to be made the heroes! Yes, you, in CC3K is a monster that climbs up floors in the dungeon to reach exit.

In this document, we show two demos of the game, one reads in the default floor layout “default.txt” and the other reads in “cc3kfloor.txt”. And we showcase any features not included in the two demos in section 3.

Our program can be run in the following ways:

1. to read “cc3kfloor.txt” as input file, run as follows:

```
./cc3k cc3kfloor.txt
```

2. to use the default file and randomly generate game elements, run as follows:

```
./cc3k
```

3. to fix a seed, use either txt file as the first commandline argument, then pass a number as the second commandline argument.

```
./cc3k cc3kfloor.txt 1  
./cc3k default.txt 4
```

The game will ask us to choose a race: Player character races we can choose from:

races	HP	Atk	Def
shade	125	25	25
drow	150	25	15
vampire	50	25	5
troll	120	25	15
goblin	110	15	20

# 1 Demo 1

For Demo 1, use the following command to generate the game. “default\_input” is the file that contains a list of commands that plays the game from the start to the end.

```
./cc3k default.txt 4 < default_input
```

All graphs displayed in this subsection can be found in the output of this command when running in terminal. Here, we highlight the features that are shown in this demo1.

To see inputs in input4 and the layout of default.txt, use following commands,

```
cat default_input
cat default.txt
```

## 1. Initialization

command: t (initialize player race to troll)

Please select a race:

t

```
|-----|
|
| |-----| |-----| |
| |.....| |.....@.....L.|
| |...G.....E...L.#####+.....|-----|
| |.....G...H.....| # |.....M.....P.|--|
| |...G.....| # |...P.....H.P.|--|
| |-----+-----| # |-----+-----|
| # ##### |.....|
| # # |-----+-----| |.....|
| # # |.P.....| |.....|
| ##### |.....H...| #####+...G.....|
| # # |...M.G.P..| # |...M.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....D...| # # # |-----+-----| | |
| |.....G.....GO..| ##### |.....|
| |...H.....H...H...| # # |.L.....|
| |.W.....P.| # |-----+-----| |...W..H..|
| |.....| # |.....G.....D.....|
| |...L...P.....+#####+.H.P.D...P.....\G.....|
| |...W.....P.....| |...G.....|
| |-----| |-----|
|
|-----|
```

Race: troll Gold: 0

Floor: 1

HP: 120

ATK: 25

DEF: 15

The default.txt is read-in, pc, stair, potion, gold, enemies are spawn. Display shows the initial board.

You may choose other player characters, but we are using troll here as demo.

## 2. PC move

Command: ea

```

|-----|
| |-----| |-----|
| |.....E.....| |.....|
| |...G.....L+#####+.....M@.....|-----|
| |.....G.....| # |.....L.....P.|--|
| |...G.....H.....| # |...P.....P.....|--|
| |-----+-----| # |-----+-----|...H.....|
| # ##### |
| # # |-----+-----| |.....|
| # # |.P...H....| |.....|
| ##### |.....| #####+...G.....|
| # # |...M...G.P..| # |...M.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....H.....D....| # # # |-----+-----| |
| |.....G.....OG...| ##### |.....|
| |.W.....H.....| # # |.....|
| |...H.....P..| # |-----+-----|.....WH..|
| |.....| # |.H.....G.....D.....L.....|
| |...L...P.....+#####+...P.D...P.....\G.....|
| |...W.....P.....| |...G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 120
ATK: 25
DEF: 15
You moved east.

```

PC moves east, enemies move randomly.

Other directions of move will be follows a similar procedure.

### 3. PC move and get attacked

```

|-----|
| |-----| |-----|
| |-----| |-----M-----|
| |...G...H...+#####+-----|
| |...G...G...| # |-----P.--|
| |...G...E...L| # |...P...L...@...P...|--|
| |-----| # |-----+-----|...H...|
| # |-----| |-----|
| # |-----| |-----M-----|
| # |...P...| |-----|
| ##### |...MH...| #####+...G...|
| # |...G.P...| # |-----|
| # |-----| # |-----+-----|
| |-----+-----| # # # #
| |...D...| # # # |-----+-----| |
| |...G...G...| ##### |-----|
| |W...O...| # # |...H...|
| |...P...| # |-----+-----|...W...|
| |...L...H...| # |...G...D...|
| |...W...P...H...+#####+HP.D...P...\.G...|
| |...H...P...| |...G...L...|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 102
ATK: 25
DEF: 15
You moved east. human dealt 18 damage to you.

```

When you get near an enemy, that enemy will be notified and attack you (except for merchant that is initially neutral).

The damage calculation according to cc3k-villain.pdf was

$$\text{Damage(Defender)} = \text{ceiling}((100/(100+\text{Def (Defender)})) * \text{Atk(Attacker)})$$

In this case, the enemy is Human(H) which has Atk 20, then

$$\text{Damage(pc)} = \text{ceiling}((100/(100+15)) * 20) = \text{ceiling}(17.3)=18$$

so the damage was correct.

#### 4. PC attack enemy and enemy miss attack

command: a se

```
|-----|
| |-----| |-----|
| |-----| |-----|
| |...G.....+#####+.....M.....|-----|
| |.....G...H....L | # | .....L.....P. |--|
| |...G.....E.....| # | .....P.....@...P.....|--|
| |-----+-----| # |-----+-----|...H.....|
| |          #          #####          |
| |          #          # |-----+-----| .....|
| |          #          # |.P.....| .....M.....|
| |          ##### |...M..H...| #####+...G.....|
| |          #          # |.....G.P..| # | .....|
| |          #          # |-----+-----| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....D....| #          #          # |-----+-----| |
| |W.....G.....G...| #####          | .....|
| | .....| #          #          | .....|
| |...H.....O....P.| # |-----+-----|...H.....|
| |..W.....H....| # |...H.....G.....D.....W|
| |...L.H....P.....+#####+...P.D....P.....\G...L.....|
| | .....P.....| .....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 107
ATK: 25
DEF: 15
human misses attack on PC. You dealt 21 damage to human.
```

This showcases a combat which the enemy misses the attack.

## 5. pc attack enemy and enemy miss

command: a se

```
|-----|
| |-----| |-----|
| |.....M.....|
| |...G...HE...+#####+...L..|-----|
| |.....G.....L.# |.....P.--|
| |...G.....| # |...P...@...P.--|
| |-----+-----| # |-----+-----|...H.....|
| # ##### |.....|
| # # |-----+-----| |.....|
| # # |.P.....| |.M.....|
| ##### |.M.....| #####+...G.....|
| # # |.....GHP..| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....D...| # # # |-----+-----| |
| |.W...H.G...G...| ##### |.....|
| |.....O...| # # |...H.....|
| |...H.....P.| # |-----+-----|.....|
| |.W...L.....| # |...H...G.....D.....W..|
| |.....P.....+#####+...P.D...P.....\G...L.....|
| |.....P...H...| |...G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 102
ATK: 25
DEF: 15
You dealt 21 damage to human. human dealt 18 damage to you.
```

Our pc and enemy both successfully attack each other.

As you can verify, the damage made was correct.

## 6. PC slay human and two gold spawned

command: a se

```
|-----|
| |-----| |-----|
| |.....L| |.....M.....L|
| |...G...H.....+#####+.....|-----|
| |.....GE.....| # |.....P. |--|
| |...G.....| # |...P.....@...P. |--|
| |-----+-----| # |-----+-----|...G.....|
| # ##### |
| # # |-----+-----| |.....|
| # # |.P.....| |.....G.....|
| ##### |...M...H...| #####+...G.....|
| # # |.....G.P..| # |.M.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....D...| # # # |-----+-----| |
| |W.....G....O..G...| ##### |.H.....|
| |...H.....| # # |.....|
| |.W....H.....P.| # |-----+-----|.....|
| |.....| # |.....G.....D..L.....|
| |.....P.....+#####+...P.DH...P.....\G.....W|
| |....L....P.H....| |...G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 2 Floor: 1
HP: 94
ATK: 25
DEF: 15
You dealt 21 damage to human. PC slains H. Some gold is left on the floor. You saw some gold.
```

After intense combat, we slayed Human! Human drops one gold at his position and another gold is randomly put in this chamber.

## 7. PC pick gold

```

|-----|
| |-----| |-----|
| |.....H.....L. | |.....M..... |
| |...G.....E.....+#####+.....L. |-----|
| |.....G..... | # |.....P. |--|
| |...G..... | # |...P.....P..... |--|
| |-----| # |-----|...@.....|
| # ##### |.....|
| # # |-----| |.....|
| # # |.P.....H. | |.....G.....|
| ##### |...M.....| #####+.M..G.....|
| # # |.....G.P. | # |.....|
| # # |-----| # |-----|
| |-----+-----| # # # #
| |.W.....OD. | # # # |-----|
| |...H...G.....G...| ##### |.....|
| |.W....H..... | # # |..H.....|
| |.....P. | # |-----|
| |..... | # |...H.....G.....D.....W|
| |.....L...P.....+#####+...P.D....P.....\G...L.....|
| |.....PH..... | |...G.....|
| |-----| |-----|
|-----|

```

Race: troll Gold: 4

Floor: 1

HP: 99

ATK: 25

DEF: 15

You picked up 2 piece(s) of gold. You saw some gold.

You picked up gold that was dropped by Human, which notified you that it was there.



## 8. PC near dragon hoard

command: we

```
|-----|
| |-----| |-----|
| |.....| |.....M.....|
| |...G.....+#####+.....|-----|
| |.....G...H...L...| # |.....P. |--|
| |...G...E.....| # |...P.....P.....|--|
| |-----+-----| # |-----+-----|.....|
| |          #          #####          |.....|
| |          #          # |-----+-----| |.....|
| |          #          # |.P.....H..| |.M.....|
| |          ##### |...M.....| #####+...L.....|
| |          #          # |.....G.P..| # |.....|
| |          #          # |-----+-----| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....D...| #          #          #          |-----+-----| |
| |H...L..G.....HG...| #####          |.....|
| |.....H.....| #          #          |..W.....|
| |..W.....P..| # |-----+-----|.....|
| |.....| # |.....G.....D.....L.....|
| |.....WP.O.....+#####+...P.DH...P.....\G.....|
| |.....P.....| |...G.....@.....H.....|
| |-----| |-----|
|-----|
Race: troll Gold: 8                               Floor: 1
HP: 79
ATK: 25
DEF: 15
You moved west. dragon dealed 18 damage to you.
```

Although you are not near dragon, you are near its dragon hoard! It will attack you even you are not close to it!

## 9. Go to next floor

Command:

we

no

```
|-----|
|
| |-----| |-----| |
| |.....G.....L.....+#####+.....M.....|
| |.....E.G...H.....| # |.....P. |--|
| |.....G.....| # |.....P.....P..... |--|
| |-----+-----| # |-----+-----|
| # ##### |.....|
| # # |-----+-----| |.....|
| # # |P.....H..| |.....|
| ##### |.....| #####+..M.L.....|
| # # |...M..G.P..| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |H...L.....D...| # # # |-----+-----|
| |.....G.....HG...| ##### |.....|
| |.....H.....| # # |W.....|
| |W.....P..| # |-----+-----|
| |.....| # |.....G.....D.....L.H.....|
| |.....WP..O.....+#####+..P.D.H..P.....\G.....|
| |.....P.....| |G.....@.....|
| |-----| |-----|
|
|-----|
Race: troll Gold: 8 Floor: 1
HP: 71
ATK: 25
DEF: 15
You moved west.
```

```
|-----|
|
| |-----| |-----| |
| |.....G.....| |.....|
| |P..H.....L...G.....+#####+.....H.....P.. |--|
| |.....WO...H..G.....P..| # |.....G.....G..... |--|
| |-----+-----| # |-----+-----|
| # ##### |.....|
| # # |-----+-----| |.....G....|
| # # |...G.GD.H..| |.....P..|
| ##### |...DHP....| #####+.....|
| # # |...G.....OG| # |.....\|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----|
| |P.....W...| ##### |.....|
| |.....L.....O| # # |.....|
| |.....P.....@..| # |-----+-----|
| |.....M.....| # |.....P.....O..L.W.....|
| |.....+#####+.....P.....P..|
| |.....W...W...H..| |O.....|
| |-----| |-----|
|
|-----|
Race: troll Gold: 8 Floor: 2
HP: 76
ATK: 25
DEF: 15
You moved north.
```

Nice, you reached the stair of first floor and climbed to second floor!

## 10. Sees potion

```

|-----|
| |-----| |-----|
| |.....L...G.....| |.....|
| |...P...O.....G.....+#####+.....H.....P..|-----|
| |.....H.....| # |.....|--|
| |..H..W.....G.....P..| # |.....G...G.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |.....G...|
| | # | # |...G.GD...| |.....P..|
| |#####| |...D.P..OH..|#####+.....|
| | # | # |...G..H...G| # |.....\|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | # |
| |.....| # | # | # | |-----+-----|
| |P.....O...|#####| |.....|
| |.....L.....W..| # | # | |.....|
| |.....PQ.....| # |-----+-----| |.....|
| |.....M.....| # |.....P.....O.....W.....|
| |.....H+#####+.....O.....L...P.....P..|
| |...W.....W.....| |.....|
| |-----| |-----|
|
|-----|

```

Race: troll Gold: 8

Floor: 2

HP: 106

ATK: 25

DEF: 15

You saw an unknown potion.

You are sees an unknown potion! You will see what potion it is after you drink it for the first time.

## 11. Drink Potion

command: u we

```

|-----|
| |-----| |-----|
| |.....G.....| |.....|
| |...P...O.L.....G.....+#####+.....P..|-----|
| |...W.....| # |...H.....|--|
| |...H.....H.G.....P..| # |.....G.....G.....|--|
| |-----+-----| # |-----+-----|.....|
| | # |#####| |.....|
| | # | # |-----+-----| |.....G....|
| | # | # |....G.GD...| |.....P..|
| |#####| |...D.PH...H|#####+.....|
| | # | # |...G...O..G| # |.....\|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |P.....|#####|.....|
| |.....L.....O....| # # |.....|
| |.....@.....W..| # |-----+-----|..W.....|
| |.....M.....H..| # |.....P.....|
| |.....W.....+#####+.....OL...P.....P..|
| |...W.....| |O.....|
| |-----| |-----|
|-----|
Race: troll Gold: 8 Floor: 2
HP: 111
ATK: 25
DEF: 10
You drank WD.

```

You drank Potion WD and lost 5 defence! Now you will know if a potion is WD after you get close to it, avoid them!

## 12. Near multiple enemies

Command: se

```

|-----|
| |-----| |-----|
| |.....O.....G.....| |.....|
| |..P.....G.....+#####+.....P..|-----|
| |..H.....L.....| # |.....H.....|--|
| |..W.....H..G.....P..| # |.....G.....G.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |.....G....|
| | # | # |.....GHGD..H| |.....P..|
| |#####| |...D.P.O...|#####+.....|
| | # | # |...G.....G| # |.....\|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |P.....|#####| |.....|
| |.....W..| # # |W.....|
| |.....L.M...O...H..| # |-----+-----|
| |.....@.....| # |.....P.....L.....|
| |.....W.....+#####+O.....O...P.....P..|
| |.....W.....| |.....|
| |-----| |-----|
|-----|
Race: troll Gold: 8 Floor: 2
HP: 88
ATK: 25
DEF: 10
dwarf misses attack on PC. You moved southeast. orcs dealt 28 damage to you.

```

When you are close to multiple enemies, they will all try to attack you, be careful not to die.

### 13. Drink Potion that has been drunk before

```

|-----|
| |-----| |-----|
| |.....L.....| |.....P.....|-----|
| |...P...E...+#####+...P.....|-----|
| |..PH...GP...E...| # |...G...P.....|--|
| |...WP...G...| # |.....|-----|
| |-----| # |-----|
| | # |#####| |...W.....|
| | # | # |-----| |.....|
| | # | # |..LL.....| |.....|
| |#####| |...ML...|#####+..E.....|
| | # | # |.....\..| # |.....P.L...|
| | # | # |-----| # |-----|
| |-----| # | # | # |
| |..H.....| # | # | # |-----|
| |.....H...|#####| |.....|
| |P...GD...G.....| # | # | |.....|
| |...GD...G.L.....| # |-----| |.....|
| |.....L.....| # |.....E.....M.....|
| |.....L+#####+..@.....H...P.....|
| |.....G| |..P.....|
| |-----| |-----|
|-----|
Race: troll Gold: 12 Floor: 3
HP: 120
ATK: 25
DEF: 15
You saw a bootle of WD.

```

```

|-----|
| |-----| |-----|
| |.....E.....| |.....P.....|-----|
| |...H.P...L.E...+#####+...P.....|-----|
| |..P..W.GP.....| # |...G...P.....|--|
| |...P...G...| # |.....|-----|
| |-----| # |-----|
| | # |#####| |.....|
| | # | # |-----| |.....|
| | # | # |...ML...| |.....|
| |#####| |..LL.....|#####+..E.....L...|
| | # | # |.....\..| # |.....P.....|
| | # | # |-----| # |-----|
| |-----| # | # | # |
| |.....| # | # | # |-----|
| |..H.....H...|#####| |.....|
| |P...GD...G.....| # | # | |.....|
| |...GD...G.L.....| # |-----| |.....|
| |.....L.....L+#####+..@.....E.....M.....P.....|
| |.....G| |.....H.....|
| |-----| |-----|
|-----|
Race: troll Gold: 12 Floor: 3
HP: 120
ATK: 25
DEF: 10
You drank WD.

```

You have drank WD before, so the message will tell you this is a WD potion. If you drink it, sad, you lose 5 def again!

This shows that our potion can be added up.

## 14. Sees gold

Command: ne

```
|-----|
|
| |-----| |-----| |
| |.....| |.....H..G.....|
| |.....0..P.....P..+#####+..H.....G.....|-----|
| |.....P.D....HP....| # |.....L.....|--|
| |..GGD.L.....G.....| # |.....P....P.....|--|
| |-----+-----| # |-----+-----|.....|
| # ##### |.....L...|
| # # |-----+-----| |.....L...|
| # # |L.....P..| |.....G...|
| ##### |...E.@\..M.G| #####+.....|
| # # |.....G..D..| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |..L.....| # # # |-----+-----| |
| |.....P.....H| ##### |.....L...|
| |.....| # # |.....|
| |...E.H.....W.....| # |-----+-----+-----|G.....|
| |.....| # |.....L..G.....|
| |.....P.....L+#####+.....|
| |..W.....| |.....|
| |-----| |-----|
|
|-----|
Race: troll Gold: 12 Floor: 4
HP: 120
ATK: 20
DEF: 15
You moved northeast. You saw some gold.
```

The message will tell you if some gold is near.

## 15. Dragon and Dragon Hoard

```

|-----|
| |-----| |-----|
| |...H...O...H...E+#####+O...G...M...O...|-----|
| |.M...O...H...E+#####+O...G...M...O...|-----|
| |.P...G...W...D...# |...L...M...O...|--|
| |...H...W...G...# |...W...P...|--|
| |-----+-----| # |-----+-----|
| |          #          #####          |
| |          #          #          |-----+-----|
| |          #          #          |...L...G...|
| |          #####          |...G...D...| #####+P...P...|
| |          #          #          |GP...O...| #          |
| |          #          #          |-----+-----|
| |-----+-----| #          #          #          #
| |...O...| #          #          #          |-----+-----| |
| |...O...| #####          |...GD...|
| |...P...| #          #          |
| |...P...| #          |-----+-----|...P...|
| |...P...+#####+...L...D...|
| |...W...| |...@GG...|
| |-----| |-----|
|-----|

```

Race: troll Gold: 13

Floor: 5

HP: 102

ATK: 20

DEF: 15

You moved east. dragon dealt 18 damage to you.

```

|-----|
| |-----| |-----|
| |.M...O...H...E| |-----|
| |...H...W...+#####+O...G...M...O...|-----|
| |.P...G...H...D...# |...L...M...O...|--|
| |...W...G...# |...W...P...|--|
| |-----+-----| # |-----+-----|
| |          #          #####          |
| |          #          #          |-----+-----|
| |          #          #          |...L...G...|
| |          #####          |...GO...D...| #####+P...P...|
| |          #          #          |GP...O...| #          |
| |          #          #          |-----+-----|
| |-----+-----| #          #          #          #
| |...O...| #          #          #          |-----+-----| |
| |...O...| #####          |...GD...|
| |...OP...| #          #          |
| |...P...| #          |-----+-----|...P...|
| |...P...+#####+...D...|
| |...W...| |...L...@GG...|
| |-----| |-----|
|-----|

```

Race: troll Gold: 13

Floor: 5

HP: 107

ATK: 20

DEF: 15

dragon misses attack on PC. Dragon is still alive, you cannot pick up the Dragon Hoard. You saw some gold.

If you step onto a dragon hoard which the dragon is still alive, then you CANNOT pick it up. You will have to kill the dragon.

The other gold you saw which is on the right side is not attached to any dragon, you can pick it up.



## 16. Move to invalid position

Command:

we

we

```

|-----|
| |-----| |-----|
| |.H...H...M.E.\.....| |.....M.....O....|
| |.....+#####+.....G.....W.....|-----|
| |.P...G.....H.D..| # |L.....O.....|--|
| |...W...O.....W.G.| # |.....P.....|--|
| |-----| # |-----|
| | # |#####| |.....|
| | # | # |-----+-----| |.....|
| | # | # |.....G.| |.....|
| | @##### |L..G...D..| #####+P...P.....|
| | # | # |GP...O.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| | |-----+-----| # | # | # |
| | |.....| # | # | # |-----+-----|
| | |.....| ##### |...GD.....|
| | |.O.....| # | # | |.....|
| | |.....P.| # |-----+-----|..P.....|
| | |...O.....| # |.....O.....P|
| | |.PW.....+#####+.....D.....|
| | |.....| |.....L.....G.....|
| |-----| |-----|
|
|-----|
Race: troll Gold: 15 Floor: 5
HP: 120
ATK: 20
DEF: 15
You moved west.

```

```

|-----|
| |-----| |-----|
| |.....M.\.....| |.....O....|
| |.H..H...E.....H...+#####+.....GM.....|-----|
| |.P..W.G.O.....WD..| # |L.....O..W.....|--|
| |.....G.| # |.....P.....|--|
| |-----| # |-----|
| | # |#####| |.....|
| | # | # |-----+-----| |.....|
| | # | # |.....G.| |.....|
| | @##### |...GO...D..| #####+P...P.....|
| | # | # |GPL.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| | |-----+-----| # | # | # |
| | |.....| # | # | # |-----+-----|
| | |.O.....| ##### |...GD.....|
| | |.....| # | # | |.....|
| | |.....P.| # |-----+-----|..P.....|
| | |.O.....| # |.....O.....P|
| | |.P.W.....+#####+.....L...O.....D.....|
| | |.....| |.....G.....|
| |-----| |-----|
|
|-----|
Race: troll Gold: 15 Floor: 5
HP: 120
ATK: 20
DEF: 15

```

If you move to a position that cannot be moved to, in this case, it is an empty space, then the board will still be displayed, pc will not move, but enemies will still move.

\*Behaviour when pc tries to move to potion, onto an enemy or a wall is similar.

## 17. Reach final stair

Command: ea

```
|-----|
| |-----| |-----|
| |.....M.@\.....| |.....L.....O.....|
| |...H....E..O.....+#####+.....G..M.....|-----|
| |.P....GH.....HW.D..| # |.....|---|
| |...W.....G..| # |.....WO.....P.....|---|
| |-----+-----| # |-----+-----|
| |          #          #####          |.....|
| |          #          #          |---+---| |.....|
| |          #          #          |.....G..| |.....|
| |#####          |..O.G...D..| #####+P...P.....|
| |          #          #          |GP.L.....| # |.....|
| |          #          #          |---+---| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....| #          #          #          |---+---| |
| |.....| #####          |...GD.....|
| |.....O..| #          #          |.....|
| |.....P..| #          |-----+-----|..P.....|
| |.O....W.....| #          |.....O.....P|
| |.P.....+#####+.....L.....D.....|
| |.....| |.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 15                                     Floor: 5
HP: 76
ATK: 20
DEF: 15
You moved east. You reached the final stair. Your score is 15.
```

Congratulations, you reached the stair of final floor, you win! And you score is 15.

In this game, we also implemented a scoreboard feature, which a demo is this feature can be found later in this document.

## 1.1 Demo 2

For Demo 2, use the following command to generate the game. “input” is the file that contains a list of commands that plays the game from the start.

```
./cc3k cc3kfloor.txt 1 < ccfloor_input
```

All graphs displayed in this subsection can be found in the output of this command when running in terminal. Here, highlight the features that are shown in this demo2.

### 1. Initialization:

In “input”, we chose troll for demo, after t and return, the board will be displayed, which is read in from “cc3kfloor.txt”, the following is the initial interatction.

Please select a race:

t

```
|-----|
|
| |-----| |-----| |
| |.....@.P.....M.....| |.....GD.....|
| |.....P.....+#####+.....E.....|-----|
| |.....L.....# |.....O.....GD..|--|
| |...O.....P.....# |.....|
| |-----+-----| # |-----+-----|.....|
| # ##### |.....W.....|
| # # |-----+-----| |P.....|
| # # |.....| |.....|
| ##### |...W...P..| #####+.....|
| # # |.....| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |...\.P.....P...| # # # |-----+-----| |
| |.....| ##### |.....|
| |.....P.....P...| # # |P.....|
| |...L.....| # |-----+-----|.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....H.....|
| |..G.....G.....| |.....G.....G...|
| |-----| |-----|
|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 120
ATK: 25
DEF: 15
```

The initial stat for pc and floor and also the position of all game elements are all correct as you may check.

## 2. PC moves and Enemy Moves

Command: ea

```

|-----|
| |-----| |-----|
| |.....@.P.....| |.....GD.....|
| |.....LP.....M.....+#####+|-----|
| |.....0.....| # |.....E.....GD..|--|
| |.....P.....| # |.....0.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....W.....|
| | # | # |...W.....| |.....|
| | ##### | |.....P..| #####+|.....|
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # |
| |...\.P.....P...| # | # | |-----+-----|
| |.....| |#####| |.....|
| |...L...P.....P...| # | # |P.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....H.....|
| |.....+#####+|.....H.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 106
ATK: 25
DEF: 15
You moved east. halfling dealt 14 damage to you. You saw an unknown potion.

```

In this round, the following features are shown:

- PC moves east.
- All enemies move randomly (except dragon which is always stationary).
- Halfling is beside PC so it attacks PC causing damage of 14. This damage is calculated using the formula in cc3k-villan.pdf.
- There is a potion on the bottomleft corner, and it is unknown, so a message is displayed saying “You saw an unknown potion”.

### 3. Drink Potion

Command: ea

```
|-----|
| |-----| |-----|
| |.....@P.....M.....| |.....GD.....|
| |.....LP.....+#####+.....E.....|-----|
| |.....0.....P.....| # |.....0.....GD..|--|
| |-----+-----| # |-----+-----| |-----|
| |          #          #####          | |-----|
| |          #          #          |-----+-----| |P.....|
| |          #          #          |.....W.....| |.....W.....|
| |          #####          |.....P..| #####+.....|
| |          #          #          |.....| #          |
| |          #          #          |-----+-----| #          |-----+-----|
| |-----+-----| #          #          #          #          |
| |.....\..P.....P...| #          #          #          |-----+-----|
| |.....L.....P.....| #####          | |.....|
| |.....P.....P...| #          #          |P.....|
| |.....P.....| #          |-----+-----| |.....|
| |.....P.....| #          |.....H...P.....H.....|
| |.....+#####+.....|
| |..G.....G.....| |.....G.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0                                     Floor: 1
HP: 97
ATK: 25
DEF: 15
```

You moved east. You saw an unknown potion. You saw an unknown potion. halfling dealt 14 damage to you.

Command: u ea

```
|-----|
| |-----| |-----|
| |.....@.....M.....| |.....GD.....|
| |.....LP.....+#####+.....|-----|
| |.....0.....P.....| # |.....E.....0.....GD..|--|
| |-----+-----| # |-----+-----| |-----|
| |          #          #####          | |-----|
| |          #          #          |-----+-----| |P.....|
| |          #          #          |.....W.....P..| #####+.....W.....|
| |          #          #          |.....| #          |
| |          #          #          |-----+-----| #          |-----+-----|
| |-----+-----| #          #          #          #          |
| |.....\..P.....P...| #          #          #          |-----+-----|
| |.....L.....P.....| #####          | |.....|
| |.....L..P.....P...| #          #          |P.....|
| |.....P.....| #          |-----+-----| |.....|
| |.....P.....| #          |.....P.....|
| |.....+#####+.....H.....H.....|
| |..G.....G.....| |.....G.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0                                     Floor: 1
HP: 88
ATK: 25
DEF: 10
```

You drank WD. You saw an unknown potion. halfling dealt 14 damage to you.

- PC moves east
- Since the halfling is still near PC, it continues to deal damage to pc
- PC then use the unknown potion in the east
- The potion is a WD(wound Defence), the DEF line in the status area decreases by 10

#### 4. PC Moves Through Chambers And Passages

Command: ea so so so...

```
|-----|
| |-----| |-----|
| |.....O...P@.....| |.....E....GD.....|
| |.....L.....M.....| +#####+ |-----|
| |.....P.....| # |.....O.....GD..|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....W.....| |.....|
| |#####| |.....P..| +#####+ |.....W.....|
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\..P.....P...| # # # |-----+-----| | |
| |.....P.....P...| +#####+ |.....|
| |.....L.....| # |-----+-----| |.....|
| |.....| # |.....P.....|
| |.....+#####+ |.....H.....|
| |..G.....G.....| |.....G.....H.....G..|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
```

HP: 84

ATK: 25

DEF: 10

You moved south. You saw an unknown potion. halfling dealt 14 damage to you.

```
|-----|
| |-----| |-----|
| |.....O...L.....| |.....GD.....|
| |.....P.....M... +#####+ |-----|
| |.....P.....| # |.....E.....O.....GD..|--|
| |.....P.....| # |.....+-----|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |W.....P..| +#####+ |.....W.....|
| | # | # |.....| # |.....|
| | @ | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\..P.....P...| # # # |-----+-----| | |
| |.....P.....| +#####+ |.....|
| |.....L..P.....P...| # # |P.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....H.....|
| |.....+#####+ |.....H.....|
| |..G.....G.....| |.....G.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
```

HP: 101

ATK: 25

DEF: 10

You moved south.

- We issue a series of command to move towards the chamber in the south
- Note that by design enemies can never leave its chamber
- Also note that HP is recovered at 5 per turn due to troll's ability

## 5. Attack Enemy

Command: a direction

```

|-----|
| |-----| |-----|
| |.....P..O..L.....M...| |.....GD.....|
| |.....P..O..L.....+#####+.....O..|-----|
| |.....P.....| # |...E.....GD..|--|
| |.....P.....| # |.....|-----|
| |-----+-----| # |-----+-----|W.....|
| # |#####| |.....|
| # # |-----+-----| |P.....|
| # # |.....| |.....|
| ##### |...W....P..| #####+
| # |.....| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |....\.....| # # # |-----+-----| |
| |.....| ##### |.....|
| |....@.....| # # |P.....|
| |....L.....| # |-----+-----|.....H.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 0

Floor: 1

HP: 107

ATK: 35

DEF: 20

You moved west. halfling dealt 13 damage to you.

```

|-----|
| |-----| |-----|
| |.....L.....M...| |.....GD...O..|
| |.....P..O.....+#####+...E.....|-----|
| |.....P.....| # |.....GD..|--|
| |.....P.....| # |.....|-----|
| |-----+-----| # |-----+-----|W.....|
| # |#####| |.....|
| # # |-----+-----| |P.....|
| # # |...W.....| |.....|
| ##### |.....P..| #####+
| # |.....| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |....\.....| # # # |-----+-----| |
| |.....| ##### |.....|
| |....@.....| # # |P.....|
| |....L.....| # |-----+-----|.....H.....|
| |.....| # |.....H.....P.....|
| |.....+#####+.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 0

Floor: 1

HP: 99

ATK: 35

DEF: 20

PC misses attack. halfling dealt 13 damage to you.

```

|-----|
| |-----| |-----|
| |.....L.....| |.....GD.....O.|
| |.....P.....+#####+.....E.....|-----|
| |.....O.....M...| # |.....GD...|--|
| |.....P.....| # |.....|
| |-----+-----| # |-----+-----|
| | # |#####| |W.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |...W...P..|#####+
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\.....| # # # |-----+-----| |
| |.....|#####| |.....H.....|
| |.....@.....| # # |P.....|
| |.....L.....| # |-----+-----|
| |.....| # |.....H.....P.....|
| |.....+#####+.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 0 Floor: 1  
HP: 75  
ATK: 35  
DEF: 20  
You dealt 30 damage to halfling. halfling dealt 13 damage to you.

```

|-----|
| |-----| |-----|
| |.....GD.....|
| |.....P.....M..+#####+.....E.....|-----|
| |.....L.....| # |.....O.....GD...|--|
| |.....O...P.....| # |.....|
| |-----+-----| # |-----+-----|
| | # |#####| |W.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |...W...P..|#####+
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\.....| # # # |-----+-----| | |
| |.....|#####| |.....|
| |.....@.....| # # |P.....|
| |.....| # |-----+-----| |H.....|
| |.....| # |.....H.....P.....|
| |.....+#####+.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 1 Floor: 1  
HP: 48  
ATK: 35  
DEF: 20  
You dealt 30 damage to halfling. PC slains L.

- After collecting a few potions that boost ATK and DEF, PC proceeds to attack an enemy
- note that PC has a 50% chance of missing when attacking Halfling, as shown in the message line
- After PC killed the enemy, the Gold PC has automatically increases by 1



## 6. Collect Gold

```

|-----|
| |-----| |-----|
| |.....L.....| |.....GD.....|
| |.....P.....L.....M.+#####+.....E.....|-----|
| |.....O.....| # |.....GD..|--|
| |.....P.....| # |.....O.....|--|
| |-----| # |-----| |.....|
| # |#####| |.....|
| # # |-----| |P.....|
| # # |.....| |.....W.....|
| ##### |.....P..| #####+.....|
| # # |...W.....| # |.....|
| # # |-----| # |-----+-----|
| |-----+-----| # # # #
| |...\......| # # # |-----+-----| | |
| |.....| ##### |.....|
| |.....| # # |P...H.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....|
| |.....+#####+.....|
| |..G.....@G.....| |..H.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 1

Floor: 1

HP: 83

ATK: 35

DEF: 20

You moved east. You saw some gold.

```

|-----|
| |-----| |-----|
| |.....L.....| |.....E.....GD.....|
| |.....P.....+#####+.....|-----|
| |.....O.....M..| # |.....O.....GD..|--|
| |.....P.....| # |.....|--|
| |-----| # |-----| |.....|
| # |#####| |.....|
| # # |-----+-----| |P...W.....|
| # # |.....| |.....|
| ##### |.....P..| #####+.....|
| # # |...W.....| # |.....|
| # # |-----| # |-----+-----|
| |-----+-----| # # # #
| |...\......| # # # |-----+-----| | |
| |.....| ##### |.....|
| |.....| # # |P...H.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....|
| |.....+#####+.....|
| |..G.....@.....| |..H.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 3

Floor: 1

HP: 88

ATK: 35

DEF: 20

You picked up 2 piece(s) of gold.

```

|-----|
| |-----| |-----|
| |-----| |-----GD-----|
| |-----P-----+#####+-----E-----|-----|
| |-----M-----# |-----GD-----|--|
| |-----O..P..L-----# |-----|--|
| |-----+-----# |-----+-----|-----W-----|
| |-----#-----#####|-----O-----|
| |-----#-----# |-----+-----|-----P-----|
| |-----#-----# |-----|-----|-----|
| |-----#####|-----W..P..|#####+-----|
| |-----#-----# |-----|-----# |-----|
| |-----#-----# |-----+-----|-----+-----|
| |-----+-----|-----#-----#-----#-----|
| |-----\-----|-----#-----#-----|-----+-----|
| |-----|-----#####|-----|-----|
| |-----|-----#-----#-----|-----P-----|
| |-----|-----# |-----+-----|-----|
| |-----|-----# |-----H-----P-----|
| |-----+#####+-----H-----|
| |-----@-----|-----G-----G-----|
| |-----|-----|
|-----|

```

Race: troll Gold: 4

Floor: 1

HP: 120

ATK: 35

DEF: 20

You picked up 1 piece(s) of gold.

- Any gold is denoted by the character G on the map
- When PC moves to the same cell as the gold, it is automatically picked up and its value will be added to the Gold field.
- PC will not know the size of the gold until its picked up

## 7. Goes to next floor

Command: no ea ...

```

|-----|
| |-----| |-----|
| |.....GD.....|
| |.....P.....+#####+.....|-----|
| |.....O.....L | # | .....GD..|--|
| |.....P.....M. | # | .....E.....|--|
| |-----+-----| # |-----+-----|...W.....|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....O.....|
| |#####| |.....W.P..|#####+.....|
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | # |
| |...@\.....| # | # | # |-----+-----|
| |.....|#####| |.....|
| |.....| # | # |P.....|
| |.....| # |-----+-----| |.....|
| |.....| # | .....P.....H...|
| |.....+#####+.....H.....|
| |.....G.....G.....G..|
| |-----| |-----|
|-----|
Race: troll Gold: 4 Floor: 1
HP: 120
ATK: 35
DEF: 20
You moved east.

```

```

|-----|
| |-----| |-----|
| |.....@\..P.....M.....| |.....GD.....|
| |.....P.....+#####+.....E.....|-----|
| |.....L.....| # | .....O.....GD..|--|
| |.....O.....P.....| # | .....|--|
| |-----+-----| # |-----+-----| |.....|
| | # |#####| |.....W.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |...W...P..|#####+.....|
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | # |
| |...@\..P.....P...| # | # | # |-----+-----|
| |.....|#####| |.....|
| |.....P.....P...| # | # |P.....|
| |...L.....| # |-----+-----| |.....|
| |.....| # | .....P.....|
| |.....+#####+.....H.....H.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|
Race: troll Gold: 4 Floor: 2
HP: 120
ATK: 25
DEF: 15
You moved east.

```

- Floor is denoted by the character \ on the map
- When PC moves on to the cell marked floor, PC is automatically sent to the next floor
- The current floor is displayed at the right of the first status line

## 8. Dragon and Dragon Hoard

```

|-----|
| |-----| |-----|
| |...L...M...| |...GD...|
| |...P...M...+#####+...E...@...O...|-----|
| |...O...| # |...GD...|--|
| |...| # |...W...|--|
| |-----| # |-----|
| # ##### |
| # # |-----| |P...|
| # # |...| |...|
| ##### |...P...| #####+...|
| # # |W...| # |...|
| # # |-----| # |-----|
| |-----+-----| # # # #
| |...\.P...P...| # # # |-----| |
| |...| ##### |...|
| |...P...P...| # # |P...|
| |...| # |-----+-----|H...|
| |...L...| # |...P...|
| |...+#####+...|
| |..G...G...| |...G.H...G...|
| |-----| |-----|
|-----|

```

Race: troll Gold: 4

Floor: 2

HP: 101

ATK: 30

DEF: 10

You moved east. dragon dealt 19 damage to you.

```

|-----|
| |-----| |-----|
| |...L...GD...|
| |...P...M...+#####+...@O...|-----|
| |...O...| # |...GD...|--|
| |...| # |E...|--|
| |-----| # |-----|
| # ##### |
| # # |-----| |P...|
| # # |...| |...|
| ##### |W...P...| #####+...|
| # # |...| # |...|
| # # |-----| # |-----|
| |-----+-----| # # # #
| |...\.P...P...| # # # |-----| |
| |...| ##### |H...|
| |...P...P...| # # |P...|
| |...L...| # |-----+-----|...|
| |...| # |...P...|
| |...+#####+...H...|
| |..G...G...| |...G...G...|
| |-----| |-----|
|-----|

```

Race: troll Gold: 4

Floor: 2

HP: 50

ATK: 30

DEF: 10

orcs misses attack on PC. You dealt 24 damage to orcs. dragon dealt 19 damage to you.

```

|-----|
| |-----| |-----|
| |.....G.....|
| |.....P.....M.....+#####+.....@.....|-----|
| |.....L.....| # |.....E.....GD..|--|
| |.....O.....| # |.....|-----|
| |-----+-----| # |-----+-----|.....|
| # |#####| |.....W.....|
| # # |-----+-----| |P.....|
| # # |.....| |.....|
| ##### |.....P..| #####+
| # # |.....W.....| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\..P.....P...| # # # |-----+-----| |
| |.....|#####| |.....H.....|
| |.....P.....P...| # # |P.....|
| |.....L.....| # |-----+-----|.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 7

Floor: 2

HP: 71

ATK: 30

DEF: 10

You dealt 25 damage to dragon. PC slains D.

```

|-----|
| |-----| |-----|
| |.....@.....|
| |.....L.P.....M.....+#####+.....|-----|
| |.....O.....| # |.....GD..|--|
| |.....| # |.....E.....|-----|
| |-----+-----| # |-----+-----|.....|
| # |#####| |.....W.....|
| # # |-----+-----| |P.....|
| # # |.....| |.....|
| ##### |.....W..P..| #####+
| # # |.....| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\..P.....P...| # # # |-----+-----| |
| |.....|#####| |.....|
| |.....P.....P...| # # |P..H.....|
| |.....L.....| # |-----+-----|.....|
| |.....| # |.....H....P.....|
| |.....+#####+.....|
| |..G.....G.....| |.....G.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 13

Floor: 2

HP: 76

ATK: 30

DEF: 10

You picked up 6 piece(s) of gold.

- Dragon always guards a dragon hoard and unlike other enemies, it is stationary.
- Dragon will attack PC when PC is near the dragon hoard it guards, even when PC is not near the dragon and cannot attack it.
- Dragon Hoard cannot be picked up until the dragon guarding it is killed.
- Also note that if multiple enemies are near PC, they can all attack you. However PC can only attack one enemy at a time (specified by the direction)
- After killing the dragon, PC proceeds to collect the dragon hoard.

## 9. Merchant Behaviour

```

|-----|
| |-----| |-----|
| |...L...P...| |...GD...|
| |...P...+#####+|-----|
| |..O...M@...| # |...GD..--|
| |...| # |...E...O...W|--|
| |-----| # |-----|
| # ##### |
| # # |-----| |P...|
| # # |...W...| |
| ##### |...P...| #####+|
| # # |...| # |
| # # |-----| # |-----|
| |-----+-----| # # #
| |...\.P...P...| # # # |-----|
| |...L...| ##### |
| |...P...P...| # # |P...|
| |...| # |-----|
| |...| # |...P...H...|
| |...+#####+|
| |..G...G...| |...H..G...G...|
| |-----| |-----|
|
|-----|

```

Race: troll Gold: 13

Floor: 5

HP: 74

ATK: 30

DEF: 15

You moved north.

```

|-----|
| |-----| |-----|
| |...L...P...| |...GD...|
| |..O...P...+#####+|-----|
| |...M@...| # |...E...O...GD..--|
| |...| # |...| |--|
| |-----| # |-----|
| # ##### |
| # # |-----| |P...|
| # # |...W...| |
| ##### |...P...| #####+|
| # # |...| # |
| # # |-----| # |-----|
| |-----+-----| # # #
| |...\.P...P...| # # # |-----|
| |...L...| ##### |
| |...P...P...| # # |P...|
| |...| # |-----|
| |...| # |...P...H...|
| |...+#####+|
| |..G...G...| |...G...G...|
| |-----| |-----|
|
|-----|

```

Race: troll Gold: 13

Floor: 5

HP: 18

ATK: 30

DEF: 15

You dealt 29 damage to merchant. All merchants are now hostile to PC. merchant dealt 61 damage to you.

```

|-----|
| |-----| |-----|
| |..0.....P.....@G.| |.....GD.....|
| |.....P.....+#####+.....|-----|
| |.....| # |.....E.....GD..|--|
| |..L.....| # |.....|
| |-----+-----| # |-----+-----|.....|
| | # |#####|.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....0.....|
| |#####| |.....W.P..|#####+.....|
| | # | # |.....| # |.....W.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....\.....| # # # |-----+-----| |
| |.....|#####|.....|
| |.....| # # |P.....|
| |.....| # |-----+-----|.....|
| |.....| # |.....P.....|
| |.....L.....+#####+.....H.....|
| |..G.....G.....| |.....G...H.....G..|
| |-----| |-----|
|-----|

```

Race: troll Gold: 14

Floor: 5

HP: 69

ATK: 40

DEF: 25

You dealt 39 damage to merchant. PC slains M. Some gold is left on the floor. You saw some gold.

- By default, Merchant will not attack PC. Although like other enemyies, it will be stationary when PC is near it
- When PC attacks any merchant on any floor, all Merchant in the game will be hostile to PC, and will attack PC.
- When a merchant is killed, it will drop a merchant gold on the floor.

## End Game

```

|-----|
| |-----| |-----|
| |.....P.....| |.....E.....GD.....|
| |.....P.....+#####+.....|-----|
| |O.....| # |.....GD..|--|
| |.....L.....| # |.....|--|
| |-----| # |-----|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |.....P..|#####+...O.....|
| | # | # |.....W..| # |...W.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |... \@.....| # # # |-----+-----| | |
| |.....|#####| |.....|
| |.....L.....| # # |P.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....|
| |..G.....G.....| |.....G.....H.....G..|
| |-----| |-----|
|
|-----|

```

Race: troll Gold: 16

Floor: 5

HP: 120

ATK: 40

DEF: 25

You moved west. You reached the final stair. Your score is 16.

- When the player reaches the stair at the final (fifth) floor, the game is ended.
- The score is calculated as the pieces of gold PC collects at each floor.



## 2 Other Features

For features that are not included in the above two demos, we include them in this section.

### 1. Player inputs 'q'

If player input 'q' when selecting race, then the game is immediately quitted.

```
/D/U/C/p/cc3k-dd2 (master) [1]> ./cc3k
Please select a race:
q
/D/U/C/p/cc3k-dd2 (master) [1]> |
```

If player input 'q' during the game, player admits loss, the game ends.

```
q
|-----|
|
| |-----| |-----| |
| |...P...P...L...| |-----|
| |...L.E...E...+#####+...H...L...|-----|
| |...H...| # |...G...|--|
| |...G...L...L...| # |...H...|--|
| |-----+#####+-----+-----|
| # |-----+-----| |...P...|
| # |-----+-----| |...P...|
| # |...G...| |...P...|
| ##### |...GGP...| #####+...H...@|
| # |P..W..P\GL...| # |...W...|
| # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |...G...| # # # |-----+-----|
| |...G...| ##### |...L...|
| |...L...| # |-----+-----|
| |...L...| # |...M...L...P...G...|
| |...L...+#####+...L..G...P...W...|
| |-----| |-----|
|-----|
Race: vampire Gold: 0 Floor: 1
HP: 50
ATK: 25
DEF: 25
Your score is 0.
```

↑ this is the end of game

## 2. Player inputs 'f'

If player inputs 'f' for the first time, the enemies no longer moves until player hit 'f' for the next time.

Hit 'f' for the first time:

```

|-----|
| |-----| |-----|
| |.....W..M.....| |.....P.....|
| |.....DG.....+#####+.....|-----|
| |.....OL.....| # |.....|---|
| |.....P.....| # |.....|---|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |...H...L...|
| | # | # |P...GP.PGP.| |.....|
| |#####| |D...HP.MO..|#####+.....G|
| | # | # |.G.....HGG.| # |.....L.....D|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |.....G.....|#####| |...H...\.|
| |O..H.....@..W..G...| # # |.....|
| |P.....| # |-----+-----|.....G..|
| |.....| # |.....P.....P.....L..|
| |.....W.....+#####+.....E.....|
| |.....L....| |.....H.....|
| |-----| |-----|
|-----|

```

Race: vampire Gold: 0

Floor: 1

HP: 50

ATK: 25

DEF: 25

f

```

|-----|
| |-----| |-----|
| |.....W..M.....| |.....P.....|
| |.....DG.....+#####+.....|-----|
| |.....OL.....| # |.....|---|
| |.....P.....| # |.....|---|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |...H...L...|
| | # | # |P...GP.PGP.| |.....|
| |#####| |D...HP.MO..|#####+.....G|
| | # | # |.G.....HGG.| # |.....L.....D|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |.....G.....|#####| |...H...\.|
| |O..H.....@..W..G...| # # |.....|
| |P.....| # |-----+-----|.....G..|
| |.....| # |.....P.....P.....L..|
| |.....W.....+#####+.....E.....|
| |.....L....| |.....H.....|
| |-----| |-----|
|-----|

```

Race: vampire Gold: 0

Floor: 1

HP: 50

ATK: 25

DEF: 25

f

```
|-----|
| |-----| |-----|
| |.....M.....| |.....P.....|
| |.....W.DG.....+#####+|-----|
| |.....L.....| # |.....|--|
| |.....P..O.....| # |.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....|
| | # | # |-----+-----| |.....|
| | # | # |P....GPMPGP.| |...H...L....|
| |#####| |D...PHO...|#####+.....L....G|
| | # | # |.G...H...GG.| # |.....D|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | # |
| |.....| # | # | # | |-----+-----|
| |.O.....G.....|#####| |.....\..|
| |..H.....@.....G....| # | # | |...H....|
| |P.....W.....| # |-----+-----|.....G..|
| |.....| # |.....P.....P.....|
| |.....W.....+#####+.....E...L..|
| |.....L.....| |.....H.....|
| |-----| |-----|
|-----|
Race: vampire Gold: 0 Floor: 1
HP: 50
ATK: 25
DEF: 25
```

### 3. Player inputs 'r'

During the game, if player fit 'r', player will need to reinput race, the game restarts from level 1.

```
|-----|
|
| |-----| |-----| |
| |.....P.....P...| |.....|
| |...0.....L.L+#####+.....E...|-----|
| |...L...P.....| # |.....G.....|--|
| |@.....G.H.E.....| # |.....P.....|--|
| |-----+-----| # |-----+-----|
| |          #          ##### |.....|
| |          #          # |-----+-----| |.....|
| |          #          # |...L...M...| |.....|
| |          ##### |G...G...G.| #####+.....|
| |          #          # |.H...G...P| # |.....|
| |          #          # |-----+-----| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....P.....| #          #          #          |-----+-----| |
| |.....L.....| ##### |.....|
| |...W\.....P.| #          #          |...L.....|
| |...G.....| # |-----+-----| .W.....|
| |.....LG.| # |.....P.....|
| |.....P.....+#####+.....|
| |L.....M..G.| |.H.G...P.....M...L.|
| |-----| |-----|
|
|-----|
Race: vampire Gold: 0                               Floor: 2
HP: 50
ATK: 25
DEF: 25
You moved west.
r
Please select a race:
v
```

```
|-----|
|
| |-----| |-----| |
| |.....P.....G.|
| |.....L.+#####+.....|-----|
| |.....E.....| # |.....P.....|--|
| |..WP.....G....| # |.....G.....|--|
| |-----+-----| # |-----+-----|
| |          #          ##### |.....|
| |          #          # |-----+-----| |.....P...L...|
| |          #          # |...H...| |.....|
| |          ##### |...P...G..L| #####+L.....|
| |          #          # |L...G....| # |.....|
| |          #          # |-----+-----| # |-----+-----|
| |-----+-----| #          #          #          #
| |...M...G.....L| #          #          #          |-----+-----|
| |...G.....P| ##### |...L.....|
| |...P.....\.....| #          #          |.GD....W.|
| |.....L.....| # |-----+-----|
| |.....| # |.@.W.....|
| |.....P..P.....+#####+..G.....W..P.....E...|
| |.....| |...H...H.....H...|
| |-----| |-----|
|
|-----|
Race: vampire Gold: 0                               Floor: 1
HP: 50
ATK: 25
DEF: 25
You saw some gold.
```

#### 4. When selecting race

When selecting race, the program will not start until player input a valid race char.

Please select a race:

a  
b  
c  
d

```
|-----|
| |-----| |-----|
| |..EW.....PP.....| |.....L.....|
| |.....GP.....+#####+.....|-----|
| |.....L.....L.....G.L| # |.....G..G.....@.....|--|
| |.....H.....| # |.....|-----|--|
| |-----+-----| # |-----+-----|.....M..H|
| # ##### |.....|
| # # |-----+-----| |.....G..|
| # |.....LL| |...EG.....|
| ##### |O...G.....| #####+.....|
| # # |..L.....PL| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |.....P| ##### |.....|
| |...P...P...W...| # # |.....|
| |...P.....| # |-----+-----|.....|
| |...G...W.....| # |.....E.....G.....|
| |.....+#####+..L...G.....L...P.....|
| |.....P| |.....\.....|
| |-----| |-----|
|-----|
Race: drow Gold: 0 Floor: 1
HP: 125
ATK: 25
DEF: 15
```

If player input 'q' during race selection, the program is immediately quitted as we have discussed before.

If player input 'ctrl-d' during race selection, the program also immediately quits.

## 5. If PC gets killed

If PC gets killed, the score is outputted, and the game restarts with player choosing a player character race.

```
|-----|
|
| |-----| |-----| | |
| |.....P.....| |.....G.....|
| |.....G.....+#####0.....W.....G..L..|-----|
| |.....H.....H.....| # |.....G.....DG.P..|--|
| |.....L.....G.....| # |.....W.....P.....|--|
| |-----+-----| # |-----+-----| |.....|
| # |#####| |.....|
| # # |-----+-----| |..P.....|
| # # |..G..GP..HG..| |.....|
| ##### |..H....P.P.| #####+.....@W...L....|
| # # |..L.....W..| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....| # # # |-----+-----| |
| |.....H.....| ##### |.....|
| |.....| # # |.....P....P|
| |.....| # |-----+-----|..W...O....|
| |.....| # |.....\.....|
| |.....L.....L.....+#####+.....M.....|
| |.....G.....P..| |...H.....|
| |-----| |-----|
|
|-----|
Race: vampire Gold: 0 Floor: 1
HP: 0
ATK: 25
DEF: 25
dwarf dealt 16 damage to you. You died. Your score is 0.
Please select a race:
```

## 6. PC drinks potion unsuccessfully

u no

```

|-----|
| |-----| |-----|
| |...H...L...| |...|
| |...L...+#####+...|-----|
| |...DG..DL.H..P...| # |..G...W\...|--|
| |...P...G..W...L..| # |...G...|--|
| |-----+-----| # |-----+-----|
| | # |#####| |H...|
| | # | # |-----+-----| |...|
| | # | # |..G...| |...G...|
| |#####| |..P..PE.W.G.| #####+..H...P...|
| | # | # |...LH..| # |...|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |...| # # # |-----+-----| |
| |.Q...| #####| |...|
| |...P...O| # # |...|
| |..H...G...| # |-----+-----|...|
| |...P...G...| # |...P...|
| |...W...W...+#####+...PE...P...L...|
| |...| |...G...|
| |-----| |-----|
|
|-----|
Race: vampire Gold: 0 Floor: 1
HP: 50
ATK: 25
DEF: 25

```

If you the direction you choose to drink does not have a potion, of course this drink potion try is unsuccessful but no message indicating the failure will be displayed. The board will still be displayed and enemies will still move.

## 7. PC slays an enemy other than human and merchant

```

|-----|
| |-----| |-----|
| |G.....G....| |.....G...G..|
| |.....@0..L....+#####+.....G|-----|
| |.....G.....G....| # |.....|--|
| |.....| # |.....L...L.....|--|
| |-----| # |-----|.....M.....|
| # ##### |.....P....E|
| # # |-----+-----| |.....G..|
| # # |P.....E.W.| |.....W..L..|
| ##### |W...D.....| #####+.....|
| # # |.H.GG.P.PP.| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....W.....P.P| # # # |-----+-----| |
| |.....| ##### |.....|
| |.....E.....| # # |.....|
| |.....| # |-----+-----|.....H|
| |.....| # |.....\...P.....P.....|
| |.....+#####+.....W.....0.....G.....|
| |.....H| |.....|
| |-----| |-----|
|-----|

```

Race: troll Gold: 6

Floor: 1

HP: 69

ATK: 20

DEF: 15

orcs misses attack on PC. You dealt 16 damage to orcs.

a ea

```

|-----|
| |-----| |-----|
| |G.....G....| |.....G...G..|
| |.....@.....+#####+.....G|-----|
| |.....G.....L..G....| # |.....L.....|--|
| |.....| # |.....L.....M.....|--|
| |-----| # |-----|.....E|
| # ##### |.....P....|
| # # |-----+-----| |.....L.G..|
| # # |P.....E..| |.....W.....|
| ##### |.H..D...W.| #####+.....|
| # # |.W..GG.P.PP.| # |.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....W.....P.P| # # # |-----+-----| |
| |.....| ##### |.....|
| |.....| # # |.....|
| |.....E.....| # |-----+-----|.....H|
| |.....| # |.....\...P.....P.....H|
| |.....H.+#####+.....W.....G.....|
| |.....| |.....0.....|
| |-----| |-----|
|-----|

```

Race: troll Gold: 8

Floor: 1

HP: 74

ATK: 20

DEF: 15

You dealt 16 damage to orcs. PC slains 0.

If PC slays an enemy other than human and merchant, that enemy is removed from board and no gold will be spawned. In this case, and orcs is killed, an message saying "PC slains O" is displayed.



## 8. Merchant and Merchant Hoard spawned

```

|-----|
| |-----| |-----|
| |.....G.....| |.....G..G..|
| |.....L.....+#####+.....L...G|-----|
| |.....L.....G...| # |.....M.....|--|
| |.....H.....O.....| # |.....L.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....P.L...|
| | # | # |-----+-----| |.....G...|
| | # | # |P...WE.H...| |.....E.....|
| |#####| |.....DW....| #####+.....W...|
| | # | # |...GG.P.PP.| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # |
| |.....P.P| # | # | # |-----+-----|
| |.....| #####| |.....|
| |.G.....| # | # | |.....|
| |.Q.....H.W.....| # |-----+-----| |.....|
| |.....| # |.....\...P....O.....P.....|
| |.....+#####+.....G.....|
| |.....E.....| |.....W.....H.....|
| |-----| |-----|
|-----|

```

Race: troll Gold: 3

Floor: 1

HP: 64

ATK: 20

DEF: 15

You dealt 20 damage to merchant. All merchants are now hostile to PC. PC slains M. Some gold is left on the floor. You saw son

```

|-----|
| |-----| |-----|
| |.....G.....| |.....G.L.G..|
| |.....L.....+#####+.....G|-----|
| |.....H.....O.....G...| # |.....L.....|--|
| |.....| # |.....M.....|--|
| |-----+-----| # |-----+-----|
| | # |#####| |.....P....|
| | # | # |-----+-----| |.....E...L..G...|
| | # | # |P.....H..| |.....|
| |#####| |.....WDEW....| #####+.....|
| | # | # |...GG.P.PP.| # |.....W...|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | # |
| |.....P.P| # | # | # |-----+-----|
| |.....| #####| |.....|
| |.Q.....W.....| # | # | |.....|
| |.....| # |-----+-----| |.....|
| |.....H.....| # |.....\...P.....P.....|
| |.....+#####+.....O.....G.....|
| |.....E.....| |.....W.....H.....|
| |-----| |-----|
|-----|

```

Race: troll Gold: 5

Floor: 1

HP: 69

ATK: 20

DEF: 15

You picked up 2 piece(s) of gold.

After merchant is killed, the gold spawned is Merchant hoard which has value 2.

## 9. Extra Feature: Scoreboard

During the game, if we type in command 'l', the scoreboard feature of our game will be on.

```
1
|-----|
| |-----| |-----|
| |.....@.P.....M.....| |.....GD.....|
| |.....P.....+#####+.....E.....|-----|
| |.....L.....| # |.....O.....GD..|--|
| |...O.....P.....| # |.....|
| |-----+-----| # |-----+-----|.....|
| | # |#####| |.....W.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |.....W....P..|#####+.....|
| | # | # |.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # |
| |...\.P.....P...| # | # | # |-----+-----|
| |.....|#####| |.....|
| |.....P.....P...| # | # |P.....|
| |...L.....| # |-----+-----|.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....H.....|
| |...G.....G.....| |.....G.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 0 Floor: 1
HP: 120
ATK: 25
DEF: 15
```

DLC is on.

If we win, the game will ask us to enter name and a scoreboard will be displayed.

```
|-----|
| |-----| |-----|
| |.....M.@\.....| |.....L.....O.....|
| |...H...E...O.....+#####+.....G..M.....|-----|
| |.P...GH.....HW.D..| # |.....|
| |...W.....G..| # |.....WO.....P.....|
| |-----+-----| # |-----+-----|.....|
| | # |#####| |.....|
| | # | # |-----+-----| |.....|
| | # | # |.....G..| |.....|
| |#####| |..O.G...D..|#####+P...P.....|
| | # | # |GP.L.....| # |.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # |
| |.....| # | # | # |-----+-----|
| |.....|#####| |...GD.....|
| |.....O..| # | # |.....|
| |.....P..| # |-----+-----|P.....|
| |.O....W.....| # |.....O.....P|
| |.P.....+#####+.....L.....D.....|
| |.....| |.....G.....|
| |-----| |-----|
|-----|
Race: troll Gold: 15 Floor: 5
HP: 76
ATK: 20
DEF: 15
You moved east. You reached the final stair. Your score is 15.
Enter your name to leave on the score board (hit enter if you want to leave as anonymous):
rank    score    player
1        15      newplayer
```

If we complete another game, the score of all past games will displayed in decreasing order:

```
|-----|
| |-----| |-----|
| |.....P.....| |...E....GD....|
| |.....P.....+#####+.....|-----|
| |O.....| # |.....GD..|--|
| |.....L.....| # |.....|--|
| |-----+-----| # |-----|
| | # |#####| |.....|
| | # | # |-----+-----| |P.....|
| | # | # |.....| |.....|
| |#####| |.....P..|#####+...O.....|
| | # | # |.....W..| # |...W.....|
| | # | # |-----+-----| # |-----+-----|
| |-----+-----| # | # | # | #
| |... \@.....| # | # | # |-----+-----|
| |.....|#####| |.....|
| |.....L.....| # | # |P.....|
| |.....| # |-----+-----| |.....|
| |.....| # |.....P.....|
| |.....+#####+.....H.....|
| |..G.....G.....| |.....G.....H....G..|
| |-----| |-----|
|
|-----|
Race: troll Gold: 16 Floor: 5
HP: 120
ATK: 40
DEF: 25
You moved west. You reached the final stair. Your score is 16.
Enter your name to leave on the score board (hit enter if you want to leave as anonymous):
rank score player
1 16 we
2 15 newplayer
```

## 10. Extra Feature: Our PC Race Ghost

At the beginning of the game, we choose an arbitrary basic player character, then type command 'l' to open DLC, then revert the game using 'r' and select 'h' for race, you can get our "hidden" player character race Ghost!

l

DLC is on.

```

|-----|
| |-----| |-----|
| |...PE..WH.....| |.P.....P....|
| |E.....+#####+.....G. |-----|
| |.....P.....G. | # |.....E.....|--|
| |...E..... | # |.....@.....|--|
| |-----+-----| # |-----+-----|
| # ##### |...GE.....|
| # # |-----+-----| |...M.....|
| # # |...P.....| |...M.....|
| ##### |...M. | #####+E.....|
| # # |...H.....E | # |...G.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # #
| |.L.H..... | # # # |-----+-----| | |
| |...G..P.....| ##### |...|
| |P.G..O.....| # # |...|
| |... | # |-----+-----| |...|
| |.P..... | # |...E..L.....|
| | \.....D.....+#####+.....P..H..G.G.....|
| |...P..G..... | |.H.....G.....E...|
| |-----| |-----|
|-----|

```

Race: goblin Gold: 0

Floor: 1

HP: 110

ATK: 15

DEF: 20

r

Please select a race:

h

```

|-----|
| |-----| |-----|
| |.....M..P.....| |...L.....|
| |.....H..P.....+#####+.....@..... |-----|
| |...W.....G.. | # |...G.....|--|
| |P.....G.....LW.. | # |...P.....HP. |--|
| |-----+-----| # |-----+-----|
| # ##### |...P.....|
| # # |-----+-----| |...|
| # # |.HH...L\... | |...M.....|
| ##### |...L..... | #####+.....|
| # # |..HP..... | # |...G.....|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # #
| |.G..... | # # # |-----+-----| | |
| |...G..... | ##### |...|
| |...P..... | # # |...|
| |.....G..... | # |-----+-----| |...L.....|
| |.....W..... | # |...D.....G.....W...|
| |O.....+#####+G.....G.M.....|
| |.....L..... | |.H...P.....P.....|
| |-----| |-----|
|-----|

```

Race: ghost Gold: 0

Floor: 1

HP: 80

ATK: 30

DEF: 15

However, if you choose 'h' at the beginning of the game, it will be a invalid choice of race since you have not turned on DLC.

The characteristic of our ghost is enemies have a high chance of missing an attack on ghost, except for halfling as halfling takes priority over player character's ability to never miss. For example, in the combat below, dwarf misses in three consecutive rounds and got killed.

a ea

```

|-----|
| |-----| |-----|
| |.....D..E...G| |.....G...|
| |.....G.....H.H+#####+.....P.....G..G.....|-----|
| |G.....P..| # |.....|---|
| |...H.....| # |...\.....G.G.....|---|
| |-----+-----| # |-----+-----|.....|
| |          #          #####          |.....P....|
| |          #          #          |---+---| |..H...H.....|
| |          #          #          |.....E.P..| |..O.....|
| |          #####          |LE...H....| #####+..O.....|
| |          #          #          |..PG...PP.L..| # |...H.....|
| |          #          #          |---+---| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....| #          #          #          |---+---| |
| |.....P.....| #####          |.....|
| |.....| #          #          |..@W.....|
| |.....| #          |-----+-----|.....|
| |.....| #          |...L.....G.....L.....|
| |.....H..HH.....+#####+.....|
| |.....| |P.....P.....|
| |-----| |-----|
|-----|

```

Race: ghost Gold: 0 Floor: 1  
HP: 62  
ATK: 30  
DEF: 15  
dwarf misses attack on PC. You dealt 24 damage to dwarf.  
a ea

```

|-----|
| |-----| |-----|
| |.....D..E...HG| |.....G...|
| |.....G.....H..+#####+.....P.....G..G.....|-----|
| |G...H.....P..| # |.....|---|
| |.....| # |...\.....G.G.....|---|
| |-----+-----| # |-----+-----|.....|
| |          #          #####          |..H.....P....|
| |          #          #          |---+---| |O....H.....|
| |          #          #          |.....P..| |.....|
| |          #####          |.....HE.L..| #####+.....|
| |          #          #          |LEPG...PP....| # |..OH.....|
| |          #          #          |---+---| # |-----+-----|
| |-----+-----| #          #          #          #
| |.....| #          #          #          |---+---| |
| |.....P.....| #####          |.....|
| |.....| #          #          |..@W.....|
| |.....| #          |-----+-----|.....|
| |.....| #          |...L.....G.....|
| |.....H.....+#####+.....L.....|
| |.....H.H.....| |P.....P.....|
| |-----| |-----|
|-----|

```

Race: ghost Gold: 0 Floor: 1  
HP: 62  
ATK: 30  
DEF: 15  
dwarf misses attack on PC. You dealt 24 damage to dwarf.  
a ea

```

|-----|
| |-----| |-----|
| |.....D.....G| |.....G...|
| |..H.....G....E.H.+#####+...P.....G..G.....|-----|
| |G.....HP..| # |.....|---|
| |.....| # |.\.....G.G.....|---|
| |-----+-----| # |-----+-----|.....|
| | # |#####| |..H....H..P...|
| | # | # |-----+-----| |..O.....|
| | # | # |.....H.EP..| |.....|
| | ##### |E.....| #####+.HO.....|
| | # | # |.LPG..PP..L.| # |.....|
| | # | # |-----+-----| # |-----+-----|
| | |-----+-----| # # # #
| | |.....P.....| # # # |---+---| |
| | |.....P.....| #####|.....|
| | |.....| # # |.W.....|
| | |.....H.....| # |-----+-----|.....|
| | |.....L.....G.....|
| | |.....+#####+.....L.....|
| | |.....H....H.....| |P.....P.....|
| | |-----| |-----|
|-----|

```

Race: ghost Gold: 0

Floor: 1

HP: 62

ATK: 30

DEF: 15

dwarf misses attack on PC. You dealt 24 damage to dwarf.

a ea

```

|-----|
| |-----| |-----|
| |.....D.....HG| |.....G...|
| |..H.....G....EH.+#####+...P.....G..G.....|-----|
| |G.....P..| # |.....|---|
| |.....| # |.\.....G.G.....|---|
| |-----+-----| # |-----+-----|..H.....|
| | # |#####| |..O....H.P...|
| | # | # |-----+-----| |.....|
| | # | # |.....P..| |..O.....|
| | ##### |E.....HEL..| #####+.....|
| | # | # |.LPG..PP...| # |H.....|
| | # | # |-----+-----| # |-----+-----|
| | |-----+-----| # # # #
| | |.....P.....| # # # |---+---| |
| | |.....P.....| #####|.....|
| | |.....| # # |.W.....|
| | |.....| # |-----+-----|.....|
| | |.....G.....L.....|
| | |.....H.....+#####+.....L.....|
| | |.....H....H.....| |P.....P.....|
| | |-----| |-----|
|-----|

```

Race: ghost Gold: 1

Floor: 1

HP: 62

ATK: 30

DEF: 15

You dealt 24 damage to dwarf. PC slains W.

But when ghost confronts a halfling, this advantage disappears.

```

|-----|
| |-----| |-----|
| |.L..G.....G.....| |E.....|
| |.....+#####+.....L.....E.....|-----|
| |.....P.....L.....P..| # |.....G.....|---|
| |.....H...W...P| # |.....L.P...P.....|---|
| |-----| # |-----|.....W.....|
| # ##### |.....|
| # # |-----+-----| |.....W.....|
| # # |.....| |.....|
| ##### |.....HW.P...| #####+.....|
| # # |.G.....L..| # |.....P..|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....L@.....| # # # |-----+-----| |
| |G.....G.....| ##### |.....|
| |G.....M.....| # # |.....H....|
| |.....L.....| # |-----+-----|.....|
| |.....P| # |.....P.....|
| |.G.....+#####+.....W.....G.....|
| |.....P...| |.L.....W.....D.\...G.....|
| |-----| |-----|
|-----|

```

Race: ghost Gold: 0

Floor: 1

HP: 38

ATK: 30

DEF: 15

You dealt 25 damage to halfling. halfling dealt 14 damage to you. You saw some gold.  
a we

```

|-----|
| |-----| |-----|
| |.L..G.....G.....| |E...L.....|
| |.L.....+#####+.....L.....E.....|-----|
| |.....P.....P..| # |.....L..E...G.....|---|
| |.....L...H...W...P| # |.....P...P.....|---|
| |-----| # |-----|.....W.....|
| # ##### |.....|
| # # |-----+-----| |.....|
| # # |.....W.....| |.....W.....|
| ##### |...H...P.L..| #####+.....|
| # # |.G.....| # |.....P..|
| # # |-----+-----| # |-----+-----|
| |-----+-----| # # # #
| |.....L@.....| # # # |-----+-----| |
| |G.....G...M...| ##### |.....|
| |G...L.....| # # |.....|
| |.....| # |-----+-----|.....H....|
| |.....P| # |.....W.....P.....|
| |.G.....+#####+...L.....W...G.....|
| |.....P...| |.....D.\...G.....|
| |-----| |-----|
|-----|

```

Race: ghost Gold: 0

Floor: 1

HP: 24

ATK: 30

DEF: 15

PC misses attack. halfling dealt 14 damage to you. You saw some gold.