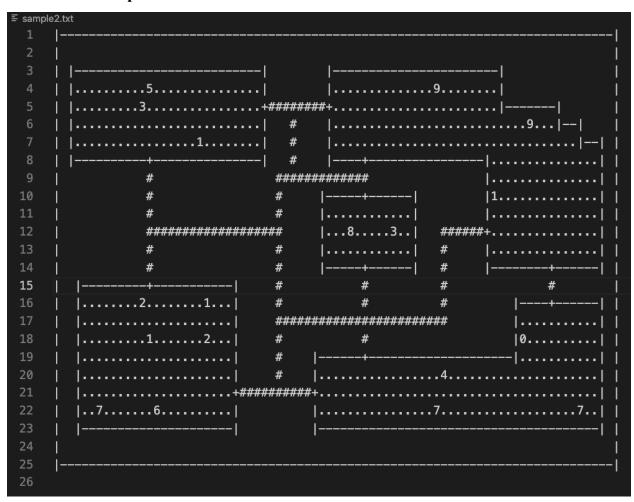# Demo PDF CC3K

Our program covers all areas and all specific details of the CC3k project specifications. The demo may not include super specific cases since then the demo will most likely exceed 30 pages.

Command line option:

```
≡ sample2.txt
 1    |-------------------------------------------------------------------------|
 2    |                                                                         |
 3    |   |-----------------------------|     |-----------------------------|   |
 4    |   |.........5...............|         |.............9........|         |
 5    |   |.........3...............+########+.....................|-------|    |
 6    |   |.........................|     #     |.....................|....9...|--|    |
 7    |   |...............1........|     #     |.............................|--| |
 8    |   |----------+--------------|     #     |----+---------------|.............| |
 9    |              #                  ############              |..............| |
10    |              #                  #     |-----+------|       |1.............| |
11    |              #                  #     |...........|        |..............| |
12    |         ##################      |...8.....3..|   ######+..............| |
13    |              #                  #     |...........|   #     |..............| |
14    |              #                  #     |-----+------|   #     |---------+-----| |
15    |   |-----------+-----------|     #         #         #           #        |
16    |   |........2.........1...|     #         #         #     |----+------| |
17    |   |....................|     ########################      |..........| |
18    |   |........1.......2...|     #         #              |0..........| |
19    |   |....................|     #     |------+-------------------|..........| |
20    |   |....................|     #     |.....................4..................| |
21    |   |..................+##########+.................................| |
22    |   |..7.......6........|         |....................7..................7..| |
23    |   |----------------------|         |------------------------------------| |
24    |                                                                         |
25    |-------------------------------------------------------------------------|
26
```

- We used sample2.txt that provides the layout of all 5 floors to test the optional command line argument and we interpreted the layout to contain only potions and treasure. Hence we generate the player, stairs and enemies.
- To use cmd line type ./cc3k sample2.txt
- You can also run with sample.txt
- You can also run without cmd line for random potions and gold generation
- (when you run with cmd line potions and gold should align with numbers from sample input i.e (the translation of numbers to items is as follows: 0 - RH, 1 - BA, 2 - BD, 3 - PH, 4 - WA, 5 - WD, 6 - normal gold pile, 7 - small hoard, 8 - merchant hoard, 9 - dragon hoard)

- Since each board generation is random, we provided screenshots of what should happen, but when testing, the locations of everything and specific items will not be exactly the same.

First thing when you load in you have the option to add DLC. Type y for dlc and n for no dlc.

For non-DLC:

You have the option of picking a player with following stats, the images below show the each players special abilities:

Player:

- Shade (125 hp, 25 A, 25 D, shades who have a 50% increase to their score)

```
Race: Shade Gold: 7                                          Floor 1
HP: 5
Atk: 25
Def: 25
Action: Shade moves west.
so

Last action before leaving: Shade moves south. Elf deals 5 to Shade.

You lost, better luck next time!

Score: 10
```

- initial gold was 7 now score is 10 because the player is a shade

- Drow (150 hp, 25 A, 15 D, potion effects x 1.5)

```
Race: Drow Gold: 0                                           Floor 1
HP: 150
Atk: 18
Def: 15
Action: You used a wound attack potion :(
```

- initial attack was 25 now it's 18, wound attack potion -5ATK, so potion effects increased by x1.5

- Vampire (50 hp, 25 A, 25 D, +5 hp for successful attack, hp no cap, allergic to dwarves [-5hp])

```
a we
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|
|   |---------------------------|      |---------------------------|          |
|   |..................L........|      |...........................|          |
|   |.G.........................+########+...........................|------|  |
|   |G.G...........M.....O@.....|    #  |.............................P....|--|  |
|   |PM.........M.....O........|    #  |..............................O.....|--| |
|   |---------+--------------|    #  |----+--------------|......L.O......| |
|            #                 #############          |.........E......| |
|            #                 #       |-----+------|  |................| |
|            #                 #       |...GPE..\..P|  |................| |
|            ###################       |...E..P.PG.G|  ######+...........| |
|            #                 #       |....W......P|  #  |........L.....| |
|            #                 #       |-----+------|  #  |--------+-----| |
|   |--------+----------|       #       #        #      #        #       |
|   |.....................|      #       #        #      |---+------|      |
|   |.............P.......|      ########################|......G..L.|      |
|   |..........G.........|      #       #               |......D....|      |
|   |..LW...............|      #  |------+-------------------|...O.......|   |
|   |....................|      #  |                  |................|   |
|   |..................+##########+...............P............W....W.|   |
|   |..G................|      |..............................P..|   |
|   |------------------|      |---------------------------------|   |
|                                                                            |
|--------------------------------------------------------------------------|
Race: Vampire Gold: 2                                          Floor 1
HP: 55
Atk: 25
Def: 25
Action: Vampire deals 25 to Orc (155 HP). You gained 5HP (Vampire)!
```

- vampire gained 5hp after attacking orc also it has no max HP (>50)

```
a nw
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|
|   |--------------------------|    |---------------------|         |
|   |..........................|    |.....................|         |
|   |.....E......L.............+########+..........PP.........|------|  |
|   |..........................|  #  |.....G.....W.........|--|  |
|   |..M...P.............\....|  #  |....................G..|--|  |
|   |--------+------------|  #  |----+------------------|.........O.|  |
|          #              #############          |.............|  |
|          #              #  |-----+------|       |...........G...|  |
|          #              #  |......P.G...|       |............L..|  |
|          ###################  |W.......W.LL.|  ######+...........|  |
|          #              #  |.W......@...|  #  |..............|  |
|          #              #  |-----+------|  #  |--------+-----|  |
|   |--------+----------|  #       #        #       #      |
|   |..GP.......G.....LWE.|  #       #        #      |---+------|  |
|   |...............G...P|  #####################  |M.P....L...|  |
|   |.............P.......|  #        #           |H.........|  |
|   |.............O......|  #  |------+-------------------|G.......G..|  |
|   |....................|  #  |..L.......................|  |
|   |.G................+##########+...........P.............|  |
|   |..D...........L....|  |......................P.......|  |
|   |------------------|  |---------------------------|  |
|--------------------------------------------------------------------------|
Race: Vampire Gold: 0                                          Floor 1
HP: 5
Atk: 25
Def: 25
Action: Vampire deals 25 to Dwarf (75 HP). You are allegric to dwarves (-5HP). Halfling deals 20 to Vampire. Dwarf deals
 20 to Vampire.
```

- vampire lost 5HP after attacking a dwarf since it is allergic)

- Troll (120 hp, 25 A, 15 D, +5hp each turn, 120 hp cap)

```
Race: Troll Gold: 0                                          Floor 1
HP: 105
Atk: 25
Def: 15
Action: Troll moves west. Dwarf deals 20 to Troll.
[ea
 |-------------------------------------------------------------------|
 |                                                                   |
 | |------------------------|        |----------------------|        |
 | |.E....................|         |......................|        |
 | |.....................P.........+########+.......L...............|--------|  |
 | |..P..................|        #        |........................LH..|--|  |
 | |...G..\..............L....|    #        |........................P.......|--|  |
 | |----------+-----------|      #        |----+--------------|............|  |
 |          #                ###########|#             |........L......|  |
 |          #                   #     |-----+------|   |..........G....|  |
 |          #                   #     |..@....H..G.|   |..............|  |
 |          ##################     |.W..........|   ######+...........|  |
 |          #                #     |.......P....|   #    |..........W....|  |
 |          #                #     |----+------|   #    |--------+------|  |
 | |----------+-----------|       #        #       #              #       |
 | |.W...........G......|        #        #       #    |----+------|  |
 | |.......P.....P......|        #        #       #    |...P.....MH|  |
 | |...............P........|        ##################    |..G........|  |
 | |...............L.....P.|       #        #       |........M.|  |
 | |...............E..|       #    |-------+---------------------|........|  |
 | |...............P.....+##########+................W.............L......G|  |
 | |..G...........H.....|         |..............G.........G.......H..W.|  |
 | |--------------------|         |-----------------------------------|  |
 |                                                                   |
 |-------------------------------------------------------------------|
Race: Troll Gold: 0                                          Floor 1
HP: 110
Atk: 25
Def: 15
Action: Troll moves east.
```

- Troll hp increased by 5 for their turn, from 105 HP to 110 HP

- Goblin (110 hp, 15 A, 20 D, steal 5 gold from slain enemy)

```
Race: Goblin Gold: 7                                         Floor 1
HP: 30
Atk: 15
Def: 20
Action: Goblin deals 10 to Dwarf (0 HP). You obtained a normal gold pile! You stole 5 gold!
```

- Goblin obtained 2 gold (normal) + stole 5 gold = 7 gold

Enemies:

Move 1 square randomly each action

- (H)uman (140 hp, 20 A, 20 D, drop 2 normal pile = 4 gold)

```
|-------------------------------------------------------------------------------|
| |                                                                             |
| |-------------------------|     |-------------------------|                   |
| |.........................|     |.............M...........|                   |
| |.....HH.....G.E..........+########+.............M.........|--------|         |
| |..G..........@...........|     #  |.L.....M.................\PP|--|          |
| |..G.P....................|     #  |.........G................|--|            |
| |----------+--------------|     #  |----+--------------------|.............|  |
|         #                    #############                   |.............|  |
|         #                  #    |-----+------|               |.L.....H......|  |
|         #                  #    |.....L..DGG.|               |....H.........|  |
|      #################     #    |.P..W...E.PL|    ######+.......G.......|  |
|         #                  #    |........E...|    #    |..............|  |
|         #                  #    |-----+------|    #    |--------+------|  |
|   |---------+-----------|   #        #        #         #       |  |
|   |............G.......|    #        #        #      |---+------|  |
|   |...................|     ####################       |P.........|  |
|   |.G...DG.......W.....|    #        #              |.........P|  |
|   |......L............|     #   |------+---------------|...........|  |
|   |...................|     #   |...........................L...|  |
|   |........P.........+##########+...........P...........G...|  |
|   |...................|     |..............L..............P.....|  |
|   |-------------------|     |-------------------------------|  |
| |                                                                             |
|-------------------------------------------------------------------------------|
Race: Troll Gold: 0                                                      Floor 1
HP: 95
Atk: 25
Def: 15
Action: Troll deals 15 to Human (0 HP).
nw
|-------------------------------------------------------------------------------|
| |                                                                             |
| |-------------------------|     |-------------------------|                   |
| |.....H...................|     |.............M...........|                   |
| |...........@.E..........+########+.............M.........|--------|         |
| |..G....H.................|     #  |.............................\PP|--|      |
| |..G.P....................|     #  |.L.....M.G...................|--|         |
| |----------+--------------|     #  |---+--------------------|.............|  |
|         #                    #############                   |.............|  |
|         #                  #    |-----+------|               |......H.......|  |
|         #                  #    |.....L..DGG.|               |.L............|  |
|      #################     #    |.P......E.PL|    ######+.....H.G.......|  |
|         #                  #    |....W...E...|    #    |..............|  |
|         #                  #    |-----+------|    #    |--------+------|  |
|   |---------+-----------|   #        #        #         #       |  |
|   |............G.......|    #        #        #      |---+------|  |
|   |...................|     ####################       |P.........|  |
|   |.G...DG.....W.......|    #        #              |.........P|  |
|   |...................|     #   |------+---------------|......L....|  |
|   |......L............|     #   |...........................|  |
|   |........P.........+##########+...........P...........G...|  |
|   |...................|     |..............L..............P.....|  |
|   |-------------------|     |-------------------------------|  |
| |                                                                             |
|-------------------------------------------------------------------------------|
Race: Troll Gold: 4                                                      Floor 1
HP: 100
Atk: 25
Def: 15
Action: You picked up a human gold pile!!!
```

- After killing a human, player can pick up the human gold (+4 gold)

- D(W)arf (100 hp, 20 A, 30 D, vampire allergic)

```
a nw
|---------------------------------------------------------------------------------|
| |                                  |                                 |
| |-----------------------|          |---------------------------|     |
| |.......................|          |...........................|     |
| |.....E......L..........+#######+...........PP.........|-------|     |
| |.......................|    #    |.....G....W................|--|   |
| |..M...P..............\...|    #    |.........................G..|--|  |
| |---------+-------------|    #    |----+------------------|.............O.|  |
|         #             #############          |..............|  |
|         #          #   #     |----+------|     |...........G...|  |
|         #          #   #     |......P.G..|     |.............L..|  |
|         ##################   #     |W......W.LL.|  ######+...............|  |
|         #          #   #     |.W......@...|   #  |..............|  |
|         #          #   #     |----+------|   #  |----------+-----|  |
| |---------+----------|   #        #        #      #        |  |
| |..GP.......G.....LWE.|   #        #        #   |----+-----|  |
| |...............G...P|   ######################  |M.P....L...|  |
| |............P.......|   #          #           |H...........|  |
| |...........O.......|   #   |------+-----------------|G.......G..|  |
| |...................|   #   |..L....................|  |  |
| |.G..................+#########+..............P..................|  |
| |..D...........L....|       |...........................P.......|  |
| |-------------------|       |---------------------------------|  |
|                                                                   |
|---------------------------------------------------------------------------------|
Race: Vampire Gold: 0                                    Floor 1
HP: 5
Atk: 25
Def: 25
Action: Vampire deals 25 to Dwarf (75 HP). You are allegric to dwarves (-5HP). Halfling deals 20 to Vampire. Dwarf deals
 20 to Vampire.
```

- vampire lost 5HP when interacting with Dwarf

- (E)lf (140 hp, 30 A, 10 D, 2 turns to attack [except drow])

```
Race: Troll Gold: 0                                    Floor 1
HP: 65
Atk: 25
Def: 15
Action: Troll moves south. Elf atk x2 and deals 60 to Troll.
```

- Troll started with 120 HP, lost 60 from the Elf double attack but since Trolls gain 5 HP each turn, troll has 65 HP

- (O)rcs (180 hp, 30 A, 25 D, 50% more damage to goblins)

```
Action: Goblin moves north-east.
ea
|------------------------------------------------------------------------------
|
|   |-------------------------|         |----------------------|
|   |.......\.G................|         |.........G.............|
|   |.........L.L....EG..P......+########+.........D.............|-------|
|   |.................D........|    #    |...............H.........P..H...|--|
|   |.........H......P..G.......|    #    |...........................P..O.G|--|
|   |---------+---------------|    #    |----+---------------------|.............|
|          #                    #############                |...............|
|          #                    #    |-----+-----|           |...............|
|          #                    #    |GG.........P|           |...............|
|          ###################### |D....@......|    ######+.............|
|          #                    #    |.G..MO.....L|    #    |..............|
|          #                    #    |-----+------|    #    |-------+-----|
|   |--------+----------|      #         #          #            #
|   |....................LH|      #         #          #      |----+------|
|   |.....P...............|      ######################### |........H...|
|   |........P.........L.|      #         #                |...O.......|
|   |...............L....|      #    |------+---------------------|..O........|
|   |..G.........D........|      #    |..L.......P.............L..........O....|
|   |...........G........+##########+.........................
|   |....................|         |...P..P........................
|   |--------------------|         |------------------------------
|
|------------------------------------------------------------------------------
Race: Goblin Gold: 0                                              Floor 1
HP: 65
Atk: 15
Def: 20
Action: Goblin moves east. Orc deals 45 (1.5x more) to Goblin.
```

- Orc deals 45 damage to goblin since it is (1.5x more)

- (M)erchant (30 hp, 70 A, 5 D, starts neutral [will not attack player first until player attacks/slays first merchant, then attacks within 1 block])

```
|------------------------------------------------------------------------|
|                                                                        |
| |-------------------------|          |------------------------|        |
| |H....P......G...W.M@......|          |...........M............|        |
| |........P....DG...........+########+.......................|-------|   |
| |..M......P................|     #    |...........................|--| |
| |.........................|     #    |.P.....................DG.GP.......|--| |
| |---------+---------------|     #    |----+------------------|................| |
|          #                    #############          |.......W........| |
|          #                    #    |-----+------|     |................| |
|          #                    #    |G.....P.....|     |................| |
|          ##################        |..WHG....W..|   ######+................| |
|          #                    #    |P...O..G..LL|   #   |................| |
|          #                    #    |----+------|   #   |-------+------| |
|     |---------+----------|    #        #           #          #       |
|     |...................|    #        #           #    |----+------| |
|     |.............P..G.GG|    ######################    |...........W| |
|     |............L......|    #        #                |..\.........| |
|     |..................|    #    |------+-----------------|.......E...| |
|     |.......P..........|    #    |.............................H.H..| |
|     |.................P..+##########+.............................E..H....| |
|     |...M..............|         |................................| |
|     |------------------|         |------------------------------| |
|                                                                        |
|------------------------------------------------------------------------|
Race: Troll Gold: 0                                          Floor 1
HP: 115
Atk: 25
Def: 15
Action: Troll moves north.
a we
```

```
|------------------------------------------------------------------------|
|                                                                        |
| |-------------------------|          |------------------------|        |
| |.H..P......G....M@......|          |........................|        |
| |...M....P...DG.W.........+########+...........M............|-------|   |
| |.........P................|     #    |...........................|--| |
| |.........................|     #    |.P.....................DG.GP.......|--| |
| |---------+---------------|     #    |----+------------------|................| |
|          #                    #############          |................| |
|          #                    #    |-----+------|     |.......W........| |
|          #                    #    |G.....P.....|     |................| |
|          ##################        |....G...W...|   ######+................| |
|          #                    #    |PW.HO..G.L.L|   #   |................| |
|          #                    #    |----+------|   #   |-------+------| |
|     |--------+-----------|    #        #           #          #       |
|     |...................|    #        #           #    |----+------| |
|     |.............P..G.GG|    ######################    |...........| |
|     |..................|    #        #                |..\.......W| |
|     |...........L......|    #    |------+-----------------|....H......| |
|     |.......P..........|    #    |.............................E...E..| |
|     |....M............P..+##########+.............................H....| |
|     |.................|         |..............................H....| |
|     |------------------|         |------------------------------| |
|                                                                        |
|------------------------------------------------------------------------|
Race: Troll Gold: 0                                          Floor 1
HP: 50
Atk: 25
Def: 15
Action: Troll deals 25 to Merchant (5 HP). Merchant deals 70 to Troll.
```

- Merchant is neutral before the player attacks it, then becomes hostile after the player attacks west.

```
 |------------------------------------------------------------------|
 |                                                                  |
 | |-------------------|        |----------------------|            |
 | |.HM..P......G...W.G@......|  |.....................|            |
 | |........P....DG...........+########+.........M............|-------|      |
 | |.........P...............|     #   |.....................|--|     |
 | |.........................|     #   |.P...................DG.GP......|--|  |
 | |---------+---------------|     #   |----+---------------|..............| |
 |        #                  #############            |..............| |
 |        #                  #   |-----+------|        |..............| |
 |        #                  #   |G.....P.....|        |........W.....| |
 |        ##################  #   |..W.G.......|   ######+..............| |
 |        #                  #   |P..HO..GW.LL|   #   |..............| |
 |        #                  #   |-----+------|   #   |--------+------| |
 | |---------+-----------|   #        #        #        #          |
 | |.....................|   #        #        #     |----+------| |
 | |..............P..G.GG|   #########################     |...........| |
 | |.....................|   #        #        |..\..H.....| |
 | |...........L.........|   #   |------+-------------------|..........W.| |
 | |.......P.............|   #   |..............................HE..| |
 | |................P...+##########+.....................E......| |
 | |....M................|   |.............................H....| |
 | |---------------------|   |-----------------------------------| |
 |                                                                  |
 |------------------------------------------------------------------|
Race: Troll Gold: 0                                         Floor 1
HP: 55
Atk: 25
Def: 15
Action: Troll deals 5 to Merchant (0 HP).
[we
 |------------------------------------------------------------------|
 |                                                                  |
 | |-------------------|        |----------------------|            |
 | |..M..P......G...W.@......|  |.....................|            |
 | |.H.....P....DG...........+########+.........................|-------|   |
 | |.........P...............|     #   |..........M...................|--|  |
 | |.........................|     #   |.P...................DG.GP......|--| |
 | |---------+---------------|     #   |----+---------------|..............| |
 |        #                  #############            |..............| |
 |        #                  #   |-----+------|        |..............| |
 |        #                  #   |GW....P.....|        |........W.....| |
 |        ##################  #   |....G...W...|   ######+..............| |
 |        #                  #   |P..HO..G.L.L|   #   |..............| |
 |        #                  #   |-----+------|   #   |--------+------| |
 | |---------+-----------|   #        #        #        #          |
 | |.....................|   #        #        #     |----+------| |
 | |..............P..G.GG|   #########################     |....H......| |
 | |.............L.......|   #        #        |..\.........| |
 | |.....................|   #   |------+-------------------|..........W| |
 | |.......P.............|   #   |.................................E..| |
 | |....M................P..+##########+.................................H..| |
 | |.....................|   |...........................E...H....| |
 | |---------------------|   |-----------------------------------| |
 |                                                                  |
 |------------------------------------------------------------------|
Race: Troll Gold: 4                                         Floor 1
HP: 60
Atk: 25
Def: 15
Action: You picked up a merchant gold pile!!
```

- After killing a merchant, player can pick up the merchant gold (+4 gold)

- Half(L)ing (100hp, 15 A, 20 D, 50% chance cause player miss attack)

```
Action: Troll moves west. Halfling deals 20 to Troll.
a nw
|-------------------------------------------------------------------------------|
|                                                                               |
|  |-------------------------|     |-------------------------|                  |
|  |....P.............G.......|     |................H..........|                |
|  |....................+#########+...............P.........|-------|          |
|  |.........O..L.............|     #     |.H......D..............\.....P.|--|   |
|  |H............E............|     #     |...........G............GG.........|--|  |
|  |----------+--------------|     #     |----+--------------|................|  |
|         #                    #############     |W.............|  |
|         #                    #     |-----+------|     |....L......G..|  |
|         #                    #     |...GP....H..|     |..............|  |
|         ##################### |.......E.G..|     ######+..............|  |
|         #                    #     |....H.......|     #     |..............|  |
|         #                    #     |-----+------|     #     |........+------|  |
|  |---------+-----------|     #          #          #     |          #     |
|  |............G..G.....|     #          #          #     |----+------|  |
|  |....................|     ########################     |.....G..P..|  |
|  |.......O............|     #          #              |W.....O..E.|  |
|  |..........E.........|     #     |------+-------------------|.P........P|  |
|  |....................|     #     |...W.....P........................|  |
|  |....................+##########+PL........H....................|  |
|  |P...................|     |..@.............................M|  |
|  |--------------------|     |-------------------------------------|  |
|                                                                               |
|-------------------------------------------------------------------------------|
Race: Troll Gold: 0                                              Floor 1
HP: 65
Atk: 25
Def: 15
Action: Troll missed attack on Halfling. Halfling deals 20 to Troll.
```

- Halfling causes PC to miss attack (50% chance)

- (D)ragon (150 hp, 20 A, 20 D, guards treasure hoard, 1 block) [spawns with treasure hoard], stationary

```
Action: Troll moves west.
ea
|--------------------------------------------------------------------------|
|                                                                          |
|  |-----------------------|    |------------------------|                 |
|  |...H........H.......M.....|   |......................|                 |
|  |.....P..............G.L....+#########+.................|-------|        |
|  |.....W.........P.H..........|   #   |.................\..............P.HG|--| |
|  |........W....L..G........|   #   |.........................G..........G|--| |
|  |--------------+---------------|   #   |----+----------------|...............| |
|            #                 #############   |...............| |
|            #                 #   |-----+------|      |.....H........| |
|            #                 #   |...H....PW..|      |..............| |
|            ##################   |.G........OP|  ######+..........E..| |
|            #                 #   |.PG....P.M..|  #     |..............| |
|            #                 #   |-----+------|  #     |--------+------| |
|   |---------+---------|      #        #         #              #        |
|   |.......@G...........|      #        #         #      |----+------|    |
|   |........D...........|      ##########################|...........|    |
|   |...........L........|      #        #                |...........|    |
|   |...................|      #   |------+-------------------|.....P.....| |
|   |..............O.....|      #   |...........G...........|.....P.....| |
|   |H...................+##########+....................L..P........| |
|   |...G......L.........|      |....................................| |
|   |-------------------|      |------------------------------------| |
|                                                                          |
|--------------------------------------------------------------------------|
Race: Troll Gold: 0                                              Floor 1
HP: 105
Atk: 25
Def: 15
Action: Troll moves east. Dragon deals 20 to Troll.
```

- Dragon is attacking PC because PC is in a one block radius of dragon hoard, PC cannot collect dragon hoard when dragon is not dead

```
| |................GP......P..|      |...........................|
| |...G...DG.........M\....P.+########+..................0.....|————————|
| |.......@M................|      #   |.....................H...W..|——|
| |..........................|      #   |...G..............0..........0...|——|
| |————————————+————————————|      #   |————+——————————————————|............|
| |————————————+————————————|      ############|.........E...|
|        #              #                 #   |————+————|        |........H.....|
|        #              #   |.G.P...HO.PP|          |..............|
|        ###################|......E.....|   ######+|..............|
|        #              #   |..L..P.G...P|   #   |......L.......|
|        #              #   |————+————|   #   |————+————|
|  |————————+————————|   #        #        #        #
|  |...................|   #        #        #   |————+————|
|  |...G...............|   #####################|...........|
|  |...............L....|   #        #        |.....P.W.P|
|  |.............G....|   #   |——————+——————|..........|
|  |.........G.....G..|   #   |.......................0.....E..........|
|  |..........E.....+#########+...................0.....E..........|
|  |.....E.............|   |.................................|
|  |————————————————|   |————————————————————————|
|
|————————————————————————————————————————————————————————————
Race: Troll Gold: 0                                          Floor
HP: 120
Atk: 25
Def: 15
Action: Troll moves north.
no
|————————————————————————————————————————————————————————————
|
| |————————————————————|      |————————————————————|
| |...............GPM.....P..|      |..........................|
| |...G...D@..........\....P.+########+..................|————————|
| |.........M.................|   #   |..................0.............|——|
| |..........................|   #   |...G.............0.....H....W0...|——|
| |————————+————————|   #   |————+——————————————————|..........E...|
|        #              ############|..............|
|        #              #   |————+————|        |.........H.....|
|        #              #   |.G.P.....PP|          |..............|
|        ###################|......EH.0..|   ######+|..............|
|        #              #   |..L..P.G...P|   #   |.......L.......|
|        #              #   |————+————|   #   |————+————|
|  |————————+————————|   #        #        #        #
|  |...................|   #        #        #   |————+————|
|  |...G...............|   #####################|........W..|
|  |...................|   #        #        |.....P...P|
|  |.............GL....|   #   |——————+——————|..........|
|  |.........G..E.G..|   #   |...................E.............|
|  |....E.............+#########+................0..................|
|  |...................|   |.................................|
|  |————————————————|   |————————————————————————|
|
|————————————————————————————————————————————————————————————
Race: Troll Gold: 0                                          Floor
```

- PC walks on top of dragon hoard but cannot collect the treasure

Each round the enemies should move in a random 1 block radius unless they walk into a walk, door, potion, gold or in combat

Commands:

• no,so,ea,we,ne,nw,se,sw: moves the player character one block in the appropriate cardinal direction.
   - Note the attached pictures from above, where players moves in given direction
• u direction: uses the potion indicated by the direction (e.g. no, so, ea).

```
Action: Troll moves west. an unknown potion appears.
we
|-----------------------------------------------------------------------|
|                                                                       |
|  |----------------------|        |-------------------------|         |
|  |...M.P.....G...........|        |.........................|         |
|  |........P...DG.......W...+########+.........................|------|  |
|  |..........P@.............|    #    |.........................|--|  |
|  |...H....................|    #    |.P..............M......DG.GP......|--| |
|  |---------+--------------|    #    |---+-------------|................| |
|         #              ############|................| |
|         #              #    |-----+------|          |................| |
|         #              #    |G..H..P....L|          |................| |
|         ##################    |....G.OW....|  ######+..............W.| |
|         #              #    |P.W....GL...|  #    |...............| |
|         #              #    |----+------|  #    |-------+------| |
|   |---------+----------|    #       #       #           #       |
|   |.....................|    #       #       #    |---+------| |
|   |..........L...P..G.GG|    ######################    |.......W...| |
|   |.....................|    #       #              |..\..e......| |
|   |.....................|    #    |------+------------------|...E......| |
|   |......MP.............|    #    |.........................|.H....| |
|   |...................P..+##########+.........................|.H..| |
|   |.....................|        |.........................|.EH.| |
|   |---------------------|        |-------------------------| |
|                                                                       |
|-----------------------------------------------------------------------|
Race: Troll Gold: 4                                              Floor 1
HP: 50
Atk: 25
Def: 15
Action: Invalid move in direction: we
[u we
|-----------------------------------------------------------------------|
|                                                                       |
|  |----------------------|        |-------------------------|         |
|  |....MP......G........W...|        |.........................|         |
|  |........P...DG...........+########+.........................|------|  |
|  |..........@.............|    #    |.........................|--|  |
|  |...H....................|    #    |.P..............M......DG.GP......|--| |
|  |---------+--------------|    #    |---+-------------|................| |
|         #              ############|................| |
|         #              #    |-----+------|          |................| |
|         #              #    |G.....P....L|          |................| |
|         ##################    |..H.G...W...|  ######+..............W| |
|         #              #    |P..W..OGL...|  #    |...............| |
|         #              #    |----+------|  #    |-------+------| |
|   |---------+----------|    #       #       #           #       |
|   |.....................|    #       #       #    |---+------| |
|   |.............P..G.GG|    ######################    |...........| |
|   |..........L.........|    #       #              |..\..E..W..| |
|   |.....................|    #    |------+------------------|...........| |
|   |......MP.............|    #    |.........................|.H...| |
|   |...................P..+##########+.........................|.H..| |
|   |.....................|        |.........................|.EH.| |
|   |---------------------|        |-------------------------| |
|                                                                       |
|-----------------------------------------------------------------------|
Race: Troll Gold: 4                                              Floor 1
HP: 55
Atk: 20
Def: 15
Action: You used a wound attack potion :(
q
```

   - Player uses a potion on their west side

• a direction: attacks the enemy in the specified direction, if the monster is in the immediately specified block (e.g. must be one block north of the @).
   - Note the picture for Merchant

• s, d, v, g, t: specifies the race the player wishes to be when starting a game.

```
Welcome to CC3k!

DLC on? y/n
n

q - Quit

Select a race for your character:
s - Shade
d - Drow
v - Vampire
g - Goblin
t - Troll
t
 |----------------------------------------------------------------------|
 |                                                                      |
 |  |--------------------|      |----------------------|                |
 |  |..GD..G.LGP........W......|     |........................|         |
 |  |O.....P..........G.....EH.+########+.........L.............|       |
 |  |.O........G...P.....P...|    #    |.............................W...LP\|--| |
 |  |.P....W......P....L.......|    #    |.................................|--| |
 |  |----------+-------------|    #    |----+---------------|..............| |
 |            #                 ############|                 |.............| |
 |            #              #    |----+------|              |.............| |
 |            #              #    |...P........|              |.P...........| |
 |            ##################  |......G.....|    ######+    |.............| |
 |            #              #    |........G...|    #        |.............| |
 |            #              #    |----+------|    #        |-------+------| |
 |  |---------+-----------|    #          #        #              #      |
 |  |......H.............|    #          #        #        |----+------| |
 |  |.H..................|    #####################       |.L.........| |
 |  |....................|    #          #                |L........G.| |
 |  |....................|    #    |------+----------------|........D@| |
 |  |.G......L...........|    #    |.............................O.........| |
 |  |...........L........+##########+............................G....P| |
 |  |H.................O|            |...............................| |
 |  |--------------------|            |--------------------------------| |
 |                                                                      |
 |----------------------------------------------------------------------|
Race: Troll Gold: 0                                          Floor 1
HP: 120
Atk: 25
Def: 15
Action: Player character has spawned.
```

-    Player chose to be a troll

• f: stops enemies from moving until this key is pressed again.

```
---------------------------------------------------------------------
| ----------------------|    |---------------------|                 |
| |..H..............M.....|   |.....................|                 |
| |.....PW......H..H..G.L...+########+.................|-------|      |
| |.........W.....P...........|   #  |............\.............|...PH.G|--|   |
| |...............L..G........|   #  |.................G...........G|--|   |
| |----------+-----------|   #   |---+----------------|..............|  |
|         #          ############    #         |..............|  |
|         #                #   |----+-----|     |.............|  |
|         #                #   |.........P...|    |........H......|  |
|         ###################   .G.......WOP|   ######+...........E...|  |
|         #                #   |.PGH...PM...|    #  |............|  |
|         #                #   |----+------|    #  |---------+-----|  |
|  |---------+----------|    #        #      #       #   |
|  |........G...L........|    #        #      #   |----+------|  |
|  |........D...........|    #######################|  |........|  |
|  |......@..............|    #        #      |.............|  |
|  |H...............O....|    #  |-----+--------------|...P...|  |
|  |...........L.........|    #  |..............G.............|...L..P...|  |
|  |.................+##########+...................................P......|  |
|  |...G.................|    |.......................................|  |
|  |--------------------|    |------------------------------------|  |
|                                                                     |
|---------------------------------------------------------------------|
Race: Troll Gold: 0                                          Floor 1
HP: 115
Atk: 25
Def: 15
Action: You have paused enemy movement.
ea
```

• r: restarts the game. All stats, inventory, and gold are reset. A new race should be selected.

```
Last action before leaving: Troll deals 5 to Orc (0 HP). You obtained a small pile of gold!

You restarted the game.

Welcome to CC3k!

DLC on? y/n
n

q - Quit

Select a race for your character:
s - Shade
d - Drow
v - Vampire
g - Goblin
t - Troll
v
|-----------------------------------------------------------------|
|                                                                 |
| |----------------------|     |--------------------|             |
| |.....................L.|     |....................|            |
| |.....G..L........P........+########+.....................|-------|  |
| |...\.............O.........|   #  |......................P..G....|--|  |
| |......PP..................|   #  |.....................H.M.......M|--|  |
| |----------+--------------|   #  |----+-----------------|..........|  |
|         #          ############    #         |..............|  |
|         #                #   |----+------|     |.............|  |
|         #                #   |.W..LM...L..|     |.............|  |
|         ###################   |..P.....PP..|   ######+...........P.|  |
|         #                #   |..GM..GHG.W.|   #   |.............|  |
|         #                #   |----+------|    #   |--------+-----|  |
|  |--------+----------|    #        #      #        #     |
|  |................P..|    #        #      #   |---+------|  |
|  |...................|    #######################|...G......|  |
|  |.H..G..............|    #        #      |...H......|  |
|  |................M.|    #  |-----+--------------|......G....|  |
|  |........L..........|    #  |.................P........|  |
|  |G.......L........@..+##########+.............................|  |
|  |........G......L....|    |.................................O....|  |
|  |-------------------|    |------------------------------------|  |
|                                                                 |
|-----------------------------------------------------------------|
Race: Vampire Gold: 0                                        Floor 1
HP: 50
Atk: 25
Def: 25
Action: Player character has spawned.
```

  - Restarts the game, everything is reset.

• q: allows the player to admit defeat and exit the game.

```
|
|--------------------------------------------------------------
Race: Shade Gold: 0
HP: 125
Atk: 25
Def: 25
Action: Player character has spawned.
q

Last action before leaving: Player character has spawned.

You quit the game.
```

- Typing q and quitting the game

Potions:

```
u ea
|-----------------------------------------------------------------------------|
|                                                                             |
|  |-------------------------|       |----------------------|                 |
|  |....................L.....|      |......................|                 |
|  |..E......W....G............+########+.......................|-------|      |
|  |...L...............G.......|     #     |.......................\.W....|--|  |
|  |.4W.......................|      #     |......................E.........|--| |
|  |----------+--------------|       #     |----+---------------|..............L.| |
|            #                #############           |...................|  |
|            #                #   |----+------|        |.W..............|   |
|            #                #   |P.OHHH......|        |..................| |
|            ##################   |....P.G..G.P|  ######+.......E.......| |
|            #                #   |...P..@....L|   #    |.....P.........| |
|            #                #   |----+------|    #    |--------+------| |
|   |--------+----------|      #        #         #              #        |
|   |..................|       #        #         #      |----+------|    |
|   |...G..............|       ######################    |.............| |
|   |..............H...H|      #        #               |.......G..L.| |
|   |..................|       #   |------+----------------|.G.P...G...| |
|   |..................H|      #   |.........................P.| |
|   |.......O...........+###########+.............................| |
|   |................G.G|       |................................P...............| |
|   |------------------|        |------------------------------------------| |
|                                                                             |
|-----------------------------------------------------------------------------|
Race: Shade Gold: 0                                              Floor 1
HP: 125
Atk: 20
Def: 25
Action: You used a wound attack potion :(
```

- All other wound attack potion are now revealed on the map (4)

```
Atk: 20
Def: 25
Action: Shade moves west.
we
 |-----------------------------------------------------------|
 |  |----------------------|    |---------------------|      |
 |  |........L..............|   |.....................|      |
 |  |.....W........G..........+########+.............E...|-------|  |
 |  |..@..........W...G......|    #   |.................\......|--|  |
 |  |.4..E............L......|    #   |.......................|--|  |
 |  |-----------+-----------|    #   |----+----------------|.......E........|  |
 |       #                  #############               |..........W...|  |
 |       #               #   |----+-----|               |...........L..|  |
 |       #               #   |PH..H......|               |..............|  |
 |       #################   |H...PLG..G.P|  ######+.................|  |
 |       #               #   |..OP.......|       #   |.......P...W...|  |
 |       #               #   |----+------|       #   |------+-----|  |
 |  |--------+----------|    #        #         #          #      |  |
 |  |...................|    #        #         #    |----+------|  |
 |  |...G.........H.....H.|  ########################  |...L......|  |
 |  |..................H|   #        #          |......G....|  |
 |  |..................|   #    |-----+-----------------|.G.P...G...|  |
 |  |.................O|   #    |......................................P.|  |
 |  |................+##########+.......................|  |
 |  |...............G.G|      |.....................P....................|  |
 |  |------------------|      |--------------------------------------|  |
 |                                                                    |
 |--------------------------------------------------------------------|
Race: Shade Gold: 0                                    Floor 1
HP: 25
Atk: 20
Def: 25
Action: Shade moves west. WA potion appears
```

- Now when you approach a 4 potion it says WA in action

Floor:

- Human: 2/9
- Dwarf: 3/18
- Halfling: 5/18
- Elf: 1/9
- Orc: 1/9
- Merchant: 1/9

- generating enemies depending on distribution similar code for gold and potion

- generation happens in the following order: player character location, stairway location, potions, gold, enemies

```
ea
|-----------------------------------------------------------------------------|
|                                                                             |
|  |----------------------------|    |---------------------------|           |
|  |.....G..................\...||    |....G....................|            |
|  |...G.......................+########+......................|-------|     |
|  |.......H............P...||    #    |......................L..PM..|--|    |
|  |............PG..........||    #    |....W....L............WH..G.L....|--| |
|  |---------+-------------||    #    |----+-------------|...............| |
|         #               ############|...............| |
|         #             #  |-----+------|   |...............| |
|         #             #  |P..P..G.....|   |...............| |
|  ###################### |...P.H.D.P..|   ######+...............| |
|         #             #  |L..H.OH.GL..| # |........E......| |
|         #             #  |-----+------| #  |-------+------| |
|  |--------+----------|    #        #    #       #      |
|  |.....G..............|    #        #    #  |---+------| |
|  |.....D...G..........|    ######################### |...E.......| |
|  |....................|    #        #           |..WL........| |
|  |....................|    #  |------+--------------|.....P..@..| |
|  |..........P.P.......|    #  |....................| |
|  |.........WW........+##########+..................| |
|  |....................|    |.....G....................| |
|  |--------------------|    |--------------------------| |
|                                                                             |
|-----------------------------------------------------------------------------|
Race: Troll Gold: 6                                    Floor 2
HP: 120
Atk: 25
Def: 15
Action: Congrats you made it to floor 2
```

- Taking stairs to second floor

Combat:

- example of how combat is calculated in orc.cc file (Damage(Def ender) = ceiling((100/(100 + Def (Def ender))) *Atk(Attacker))

```
a se
|----------------------------------------------------------------------------|
|  |-----------------------------|   |---------------------------|           |
|  |................D.......|   |..G................M..|                     |
|  |..........\...G........+########+.....................|-------|           |
|  |......@...........L.|   #   |..........P.........L......G.|--|           |
|  |........G...........|   #   |.........HO..................GG..|--|       |
|  |-----------+--------|   #   |----+---------------|.............|         |
|          #          #############  |.......DG....L.|                       |
|          #                #   |----+------|  |......L........|             |
|          #                #   |W........WP.|  |..............|             |
|          ##################   |.L.P...G....|  ######+...............P.|    |
|          #                #   |...P.L...M..|  #  |.............W...|       |
|          #                #   |----+------|  #  |-------+------|           |
|  |--------+----------|   #        #       #       #                        |
|  |.......P...O........|   #        #       #   |----+------|                |
|  |...........W.......|   #####################  |P........G.|              |
|  |.........P..G...|   #        #           |.P.........|                   |
|  |..........P....|   #   |------+---------------|.M........|                |
|  |................|   #   |.................G..........L......|            |
|  |...............+##########+............D............O......|            |
|  |................|      |............................|                    |
|  |----------------|      |----------------------------|                    |
|----------------------------------------------------------------------------|
Race: Troll Gold: 2                                    Floor 1
HP: 120
Atk: 25
Def: 15
Action: No enemies in that direction.
```

- What happens when you attack nothing

Ending the Game and Scoring:

```
no
|----------------------------------------------------------------------------|
|                                                                            |
|   |--------------------|        |--------------------|                     |
|   |.......P............W|        |....................|                     |
|   |....................+########+........G...........|-------|             |
|   |........M.........G....|      #  |....................P......|--|        |
|   |P.....PE.........P.........|    #  |.....................P....G|--|  |    |
|   |---------+---------------|    #  |----+---------------|....L..........|  |
|            #                ############            |.....E.........|  |
|            #                #  |-----+------|        |..............|  |
|            #                #  |........W...H|        |.........P....|  |
|            ####################  |W.....PG....|        ######+.......G......|  |
|            #                #  |.G.L.\W.G.OG|    #    |..............|  |
|            #                #  |----@------|      #    |--------+------|  |
|   |---------+-----------|    #        #          #              #    |
|   |..H..................E|    #        #          #    |---+------|  |
|   |..........G..G......|    #######################    |........E..|  |
|   |.........L.........|    #        #              |.........H..|  |
|   |..................|    #  |------+------------------|.P.H......|  |
|   |..........L...H...|    #  |...................................|  |
|   |..................+##########+..................P.............|  |
|   |................M......|        |............................|  |
|   |--------------------|        |----------------------------|  |
|                                                                            |
|----------------------------------------------------------------------------|
Race: Troll Gold: 7                                              Floor 5
HP: 105
Atk: 25
Def: 15
Action: Troll moves north. Dwarf deals 20 to Troll.
no

Last action before leaving: Troll moves north.

You won! Congrats!

Score: 7
Do you want to replay? 'r' to replay
```

- Example of what shows up when you reach the stairs on the fifth floor
- Score only shows when you lose or win, not when you restart or quit

For DLC:

RAII idiom, smart pointers

We used RAII idiom and smart pointer :) ~ so no memory leaks

```
|  |....................|     #    |------+------------------|.O..........| |
|  |....................|     #    |................M.........................| |
|  |...P....P......P.....+##########+....................................H.| |
|  |.........W...M.....G.|         |.............................................| |
|  |--------------------|         |----------------------------------| |
|                                                                        |
|  -------------------------------------------------------------------------|
Race: Shade Gold: 4                                          Floor 1
HP: 125
Atk: 25
Def: 25
Action: Invalid move in direction: we
q

Last action before leaving: Invalid move in direction: we

You quit the game.
==8072==
==8072== HEAP SUMMARY:
==8072==     in use at exit: 0 bytes in 0 blocks
==8072==   total heap usage: 66 allocs, 66 frees, 92,789 bytes allocated
==8072==
==8072== All heap blocks were freed -- no leaks are possible
==8072==
==8072== For lists of detected and suppressed errors, rerun with: -s
==8072== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
e44lin@ubuntu2004-010:~/cs246/246project/cc3k$
```
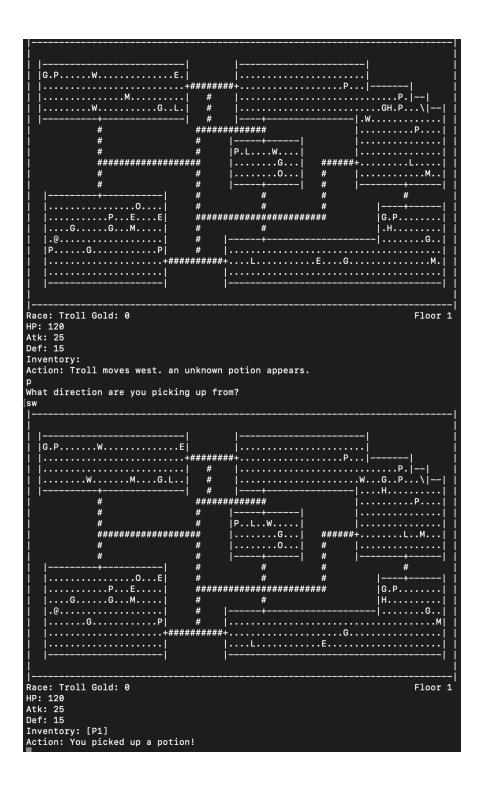
Inventory

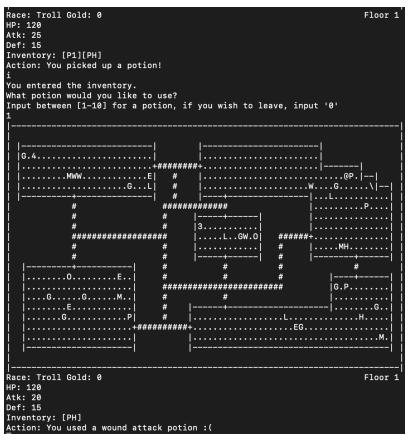Inventory command input description:
- p - pick up potion, then specify direction
- i - enter inventory

To add a potion to inventory,
Input p for pick up, then specify a direction.
To use the potion, enter inventory by inputting i, then a number between [1,10] where the potion number is counting from left to right. (Ex. If your inventory is [P1] [WA], to use WA, input 2).

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|                                                                        |
|  |------------------------|      |------------------------|            |
|  |G.P.....W..............E.|      |......................|            |
|  |....................+########+...................P...|-------|      |
|  |..............M.........|      #      |.....................P.|--|   |
|  |........W.........G..L.|      #      |.....................GH.P...\|--| |
|  |---------+------------|      #      |---+---------------|.W............| |
|            #                #############              |.........P....| |
|            #                #      |----+------|        |..............| |
|            #                #      |P.L...W....|        |..............| |
|            ##################      |........G..|  ######+.........L.....| |
|            #                #      |........O..|  #      |..........M..| |
|            #                #      |----+------|  #      |-------+------| |
|  |--------+----------|      #          #        #                #       |
|  |...............O....|      #          #        #        |---+------|    |
|  |..........P...E....E|      #          #        #        |G.P........|  |
|  |....G......G...M....|      #################      |.H.........|  |
|  |.@.................|      #          #            |........G.|  |
|  |P......G..........P|      #      |------+------------------|........M.| |
|  |..................+#########+....L...........E...G..............M.| |
|  |..................|      |.............................| |
|  |-------------------|      |--------------------------| |
|                                                                        |
 ------------------------------------------------------------------------|
Race: Troll Gold: 0                                        Floor 1
HP: 120
Atk: 25
Def: 15
Inventory:
Action: Troll moves west. an unknown potion appears.
p
What direction are you picking up from?
sw
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|                                                                        |
|  |------------------------|      |------------------------|            |
|  |G.P.......W..............E|      |......................|            |
|  |..........................+########+..................P...|-------|  |
|  |.........................|      #      |........................P.|--| |
|  |........W.......M...G.L.|      #      |....................W...G.P..\|--| |
|  |---------+------------|      #      |---+---------------|....H..........| |
|            #                #############              |.........P....| |
|            #                #      |----+------|        |..............| |
|            #                #      |P..L..W.....|        |..............| |
|            ##################      |.......G...|  ######+.........L..M...| |
|            #                #      |.........O..|  #      |..............| |
|            #                #      |----+------|  #      |-------+------| |
|  |--------+----------|      #          #        #                #       |
|  |...............O..E|      #          #        #        |---+------|    |
|  |..........P...E.....|      #################      |G.P........|  |
|  |....G......G...M.....|      #          #            |H.........|  |
|  |.@.................|      #      |------+------------------|........G.| |
|  |.......G..........P|      #      |...............................M| |
|  |..................+#########+....................G...............| |
|  |..................|      |....L............E...................| |
|  |-------------------|      |--------------------------| |
|                                                                        |
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Race: Troll Gold: 0                                        Floor 1
HP: 120
Atk: 25
Def: 15
Inventory: [P1]
Action: You picked up a potion!
```

```
Race: Troll Gold: 0                                              Floor 1
HP: 120
Atk: 25
Def: 15
Inventory: [P1][PH]
Action: You picked up a potion!
i
You entered the inventory.
What potion would you like to use?
Input between [1-10] for a potion, if you wish to leave, input '0'
1
 |----------------------------------------------------------------------|
 |                                                                      |
 |  |------------------------|          |------------------------|      |
 |  |G.4.....................|          |........................|      |
 |  |........................+########+........................|-------|     |
 |  |.........MWW...........E|    #     |...........................@P.|--|   |
 |  |...................G...L|    #     |...................W...G......\|--|  |
 |  |-----------+------------|    #     |----+----------------|...L........| |
 |        #               ############    #       |..........P....| |
 |        #               #     |----+------|      |...............| |
 |        #               #     |3..........|      |...............| |
 |        ##################     |.....L..GW.O|   ######+...............| |
 |        #               #     |...........|    #      |.....MH.......| |
 |        #               #     |----+------|    #      |--------+------| |
 |  |---------+-----------|     #        #        #              #       |
 |  |........O.........E..|     #        #        #      |----+------|   |
 |  |...................|      ######################      |G.P........| |
 |  |....G......G.....M..|     #        #                  |..........| |
 |  |........E..........|      #     |------+---------------------|.......G..| |
 |  |.....G...........P|       #     |.................L...........H.....| |
 |  |...................+##########+................EG.............| |
 |  |...................|           |..............................M.| |
 |  |-------------------|           |-----------------------------| |
 |                                                                      |
 |----------------------------------------------------------------------|
Race: Troll Gold: 0                                              Floor 1
HP: 120
Atk: 20
Def: 15
Inventory: [PH]
Action: You used a wound attack potion :(
```

- Player used a PH potion before so the potion shows up as PH in their inventory and all
  PH potions show up as '3' on the board which is assigned to poison health based on the
  translation given in the CC3k file in assignments

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 |----------------------------------------------------------------------|
 |                                                                      |
 |  |------------------------|          |------------------------|      |
 |  |G.4...M.......W..L.......|          |.....................M|      |
 |  |.........................+########+........................|-------|     |
 |  |...................E...|    #     |...........................|--|   |
 |  |....W.............G....|    #     |...................LWG......\|--|  |
 |  |-----------+------------|    #     |----+----------------|............| |
 |        #               ############    #       |..........P....| |
 |        #               #     |----+------|      |.........H.....| |
 |        #               #     |3...L.......|      |...............| |
 |        ##################     |.@......GO..|   ######+...............| |
 |        #               #     |.........W..|    #      |...............| |
 |        #               #     |----+------|    #      |--------+------| |
 |  |---------+-----------|     #        #        #              #       |
 |  |....O...............|      #        #        #      |----+------|   |
 |  |...................|      ######################      |G.P........| |
 |  |....G.....MG.........|     #        #                  |..........M| |
 |  |.............E......|      #     |------+---------------------|.......G..| |
 |  |.......G..........E2|      #     |..............................| |
 |  |...................+##########+................E..G...........H...| |
 |  |...................|           |..................L...........| |
 |  |-------------------|           |-----------------------------| |
 |                                                                      |
 |----------------------------------------------------------------------|
Race: Troll Gold: 0                                              Floor 1
HP: 90
Atk: 20
Def: 20
Inventory:
Action: Troll moves west. PH potion appears
```
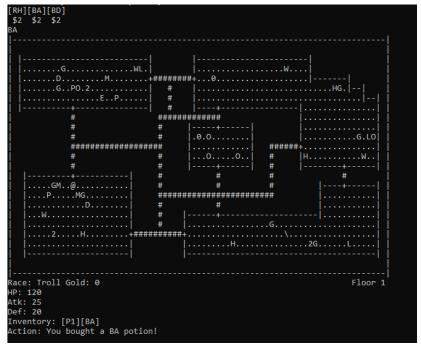
- When the player approaches a known potion, the action shows the name of the potion
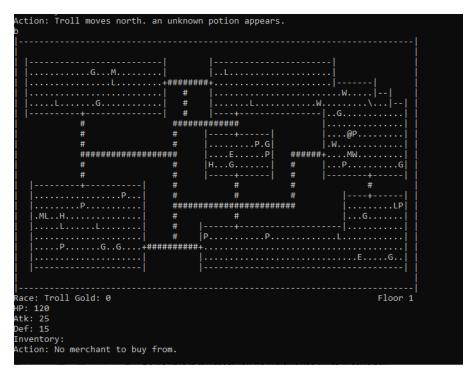
Merchant Shop

Command description:
- b - buy potion from merchant, then choose direction to buy from (there could be multiple merchants)

- Player can buy the positive potions from the merchant when the merchant isn't hostile

- The potion bought from the merchant is a known potion that shows it's name in the inventory

```
Action: Troll moves north. an unknown potion appears.
b
|------------------------------------------------------------------------|
|   |----------------------|       |----------------------|              |
|   |..........G...M.........|      |..L.................|               |
|   |..............L.........+########+...................|-------|      |
|   |........................|   #   |.................W.....|--|        |
|   |.....L......G...........|   #   |.......L..........W.........\...|--||
|   |---------+--------------|   #   |----+------------------|..G.......||
|        #                       #   #######+..........|..............||
|        #                       #   |-----+------|     |....@P........||
|        #                       #   |........P.G|      |.W............||
|        ##################      #   |.....E.....P|  ######+....MW......||
|        #                       #   |H...G.......|    #   |...P.......G||
|        #                       #   |-----+------|    #   |--------+----||
|   |--------+----------|        #        #      #      #         #       |
|   |...............P...|        #        #      #      |----+-----||     |
|   |.......P..........|   ######################      |.........LP||     |
|   |.ML..H.............|   #        #                  |...G.......||    |
|   |.....L......L.......|   #    |------+-------------------|........||   |
|   |...................|   #    |P..........P...........L...........||   |
|   |.....P.......G..G....+##########+..............................||    |
|   |...................|        |.........................E.....G..||    |
|   |---------------------|       |---------------------------------||    |
|                                                                         |
|-------------------------------------------------------------------------|
Race: Troll Gold: 0                                       Floor 1
HP: 120
Atk: 25
Def: 15
Inventory:
Action: No merchant to buy from.
```

- What happens when there is no merchant to buy from

```
Action: Troll deals 25 to Merchant (5 HP).
b se
What direction do you want to buy from?
|------------------------------------------------------------------------------|
|   |----------------------|       |----------------------|                    |
|   |H.........P...E..........|     |..............DG.......|                   |
|   |..........P..............HL+########+.................|-------|           |
|   |.......................|   #    |.....................DG...|--|           |
|   |.................P........|   #    |.........................H.|--|        |
|   |---------+--------------|   #    |----+------------------|..............||  |
|        #                      ##############              |..............|| |
|        #                      #   |-----+------|          |P.............|| |
|        #                      #   |...L.....\..|          |..............|| |
|        ###################    #   |W..G.....P..|   ######+.......L........|| |
|        #                      #   |............|     #   |..............|| |
|        #                      #   |-----+------|     #   |--------+-----|| |
|   |--------+----------|        #        #       #     #             #      |
|   |.......P........P...|       #        #       #     |----+------||        |
|   |......H..........M...|      ########################|.....E.....||       |
|   |.......P.......P...|        #        #              |P..........||       |
|   |...................|        #    |------+-----------------|..........||   |
|   |..............O.....|        #    |E.O.............P......L.........L.||  |
|   |...........L.......+##########+.......L.......@..............||         |
|   |..G.......G.........|         |.............MG..........H.......G..||     |
|   |---------------------|         |---------------------------------||       |
|                                                                              |
|------------------------------------------------------------------------------|
Race: Troll Gold: 0                                       Floor 1
HP: 120
Atk: 25
Def: 15
Inventory:
Action: The merchant is currently pissed off.
```

- What happens when you buy from an hostile merchant