Demo document for CC3K

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Quick start instructions

Run `./cc3k` to start the game. You will receive a greeting message and be prompted to choose a starting race, as such:

Once you choose a starting race, the game commences and you can input any of the commands given in the Controls section of this document to continue playing the game. This is an example of an initial game state:

```
|-----------------------------------------------------------------------------|
| |----------------------|      |-----------------------|                     |
| |.........PGW..........|      |....M.........G....P.|                        |
| |...........M........+########+..\....L..........W....|--------|             |
| |.........L...W...G....|    #   |..........P..............P.....|--|         |
| |..P.G................|      #   |................................|--|       |
| |---------------+------------|   #   |----+-------------------|..P......G....||
|        #               #   ############   |....................||           |
|        #               #   |-----+-----|  |.....................G||          |
|        #               #   |...........|  |..L................||            |
|        ##################   |...........|  ######+..........G....||          |
|        #               #   |.......L....|  #  |..H.P...............||        |
|        #               #   |-----+------|  #  |----------+------|||          |
| |--------+-----------|     #       #       #             #      |           |
| |.W..................|     #       #       #      |----+------|||           |
| |..O........G.........|    ########################|G..........||           |
| |....@...............|     #       #                |............||          |
| |...E.................|    #   |-----+----------------|............||       |
| |..........E....W.|    #   |...................................||          |
| |...............P....+##########+.....................H...O.........||      |
| |..............L......|       |.P......G............W......P......L...||     |
| |--------------------|        |---------------------------------------|     |
|                                                                             |
|-----------------------------------------------------------------------------|
Race: Shade Gold: 0                                              Floor: 1
HP: 125
Atk: 25
Def: 25
Action:  Player character has spawned.
```

Controls

- **no,so,ea,we,ne,nw,se,sw:** moves the player character one block in the appropriate cardinal direction.
- **(bonus) no,so,ea,we,ne,nw,se,sw [num]:** move the player character [num] blocks in the desired direction, where [num] is expected to be an integer.
- **u direction:** uses the potion indicated by the direction (e.g. no, so, ea).
- **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 @).
- **s, d, v, g, t:** specifies the race the player wishes to be when starting a game.
- **f:** stops enemies from moving until this key is pressed again.
- **r:** restarts the game. All stats, inventory, and gold are reset. A new race should be selected.
- **q:** allows the player to admit defeat and exit the game.
- **(bonus) b direction**: allows the player to buy a potion from a Merchant (if one is in range). Requires 3 gold to buy. Requires -dlc flag to run.
- **(bonus) n:** Choose the special dragonslayer class, which deals immense damage to dragons and is able to pick up a dragon hoard before the dragon is killed.

Command line arguments

You can pass additional command line arguments to augment the game and enable additional features. Note that the arguments can be combined together for additional replayability!

Read in a custom layout

Run with a filename passed in to load a custom layout for each of the five floors. Note: Exactly five floors are expected. See `cc3kfloor.txt` for an example of a valid file.

    ./cc3k cc3kfloor.txt

Set a custom seed

To set a custom seed, specify `-seed` followed by a number, e.g.

    ./cc3k -seed 42

(Extra credit features) Enable gameplay DLC

Run `cc3k` with `-dlc` to enable extra features.
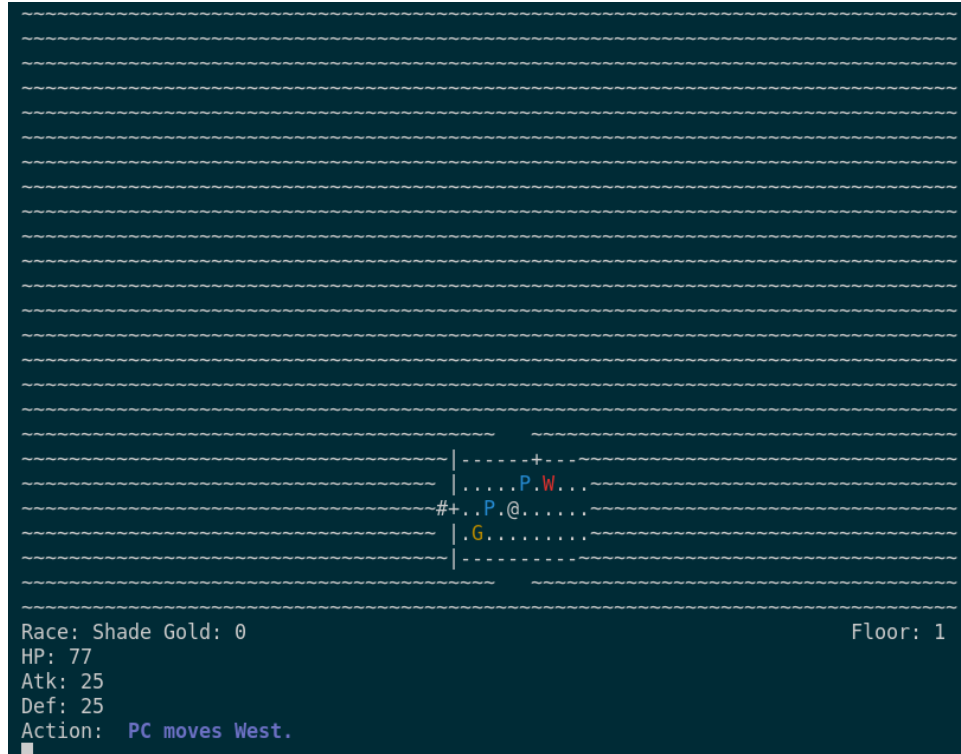
    ./cc3k -dlc

Bonus gameplay features added:

- XP/level up system
- Buying potions from Merchants
- New enemy type Pathfinder that implements breadth-first search for intelligent pathfinding

(Extra credit feature) Enable fog

Run `cc3k` with `-fog` to enable fog, which limits the player's field of vision and increases the game's difficulty.

    ./cc3k -fog

Example:

(Extra credit feature) Enable graphics

Run `cc3k` with `-graphics` to enable graphics. Note: Make sure X11 forwarding is enabled if testing on the Linux student server. If testing locally, Linux is required and libxpm-dev must be installed (may not be installed by default even if libx11 is installed).

```
./cc3k -graphics
```

An example is shown below (note that the -dlc flag was also run to demonstrate the pixel art for a new enemy type Pathfinder):
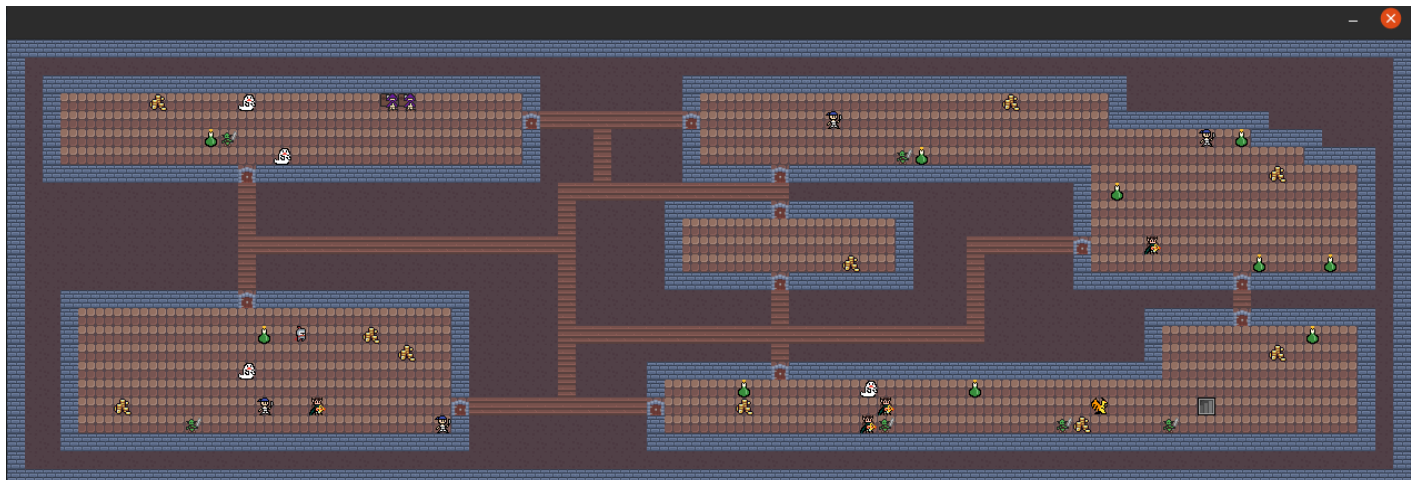
The graphics correspond to the text board below:

```
|----------------------------------------------------------------------|
|                                                                      |
|  |-------------------------|   |--------------------------|          |
|  |.....G...!.......MM......|   |.....................G....|          |
|  |.................+########+.........H................|------|       |
|  |.......PL................|   #   |....................H.P|--|       |
|  |.........!...............|   #   |.............LP.........|--|      |
|  |-------+-----------------|   #   |----+------------|........G....| |
|         #                ############                |.P.............| |
|         #                       #   |-----+-----|    |..............| |
|         #                       #   |...........|    |..............| |
|  #########################      #   |...........|  ######+...E........| |
|         #                       #   |.........G..|  #   |...........P...P.| |
|         #                       #   |-----+-----|  #   |----------+------| |
|  |---------+---------|          #        #         #              #       |
|  |.................|            #        #         #   |----+------| |
|  |........P.@..G....|  #######################     #   |..........P..| |
|  |...............G..|  #                #          #   |......G....| |
|  |.......!..........|  #   |------+-----------------|  |..........| |
|  |..................|  #   |....P.......!.....P.........| |
|  |.G......H..E.......+##########+....G.......E..........D....\........| |
|  |.......L..........H|   |..............EL.........LG...L..........| |
|  |------------------|   |----------------------------------------| |
|                                                                      |
|----------------------------------------------------------------------|
Race: Shade Gold: 0                                          Floor: 1
HP: 125
Atk: 25
Def: 25
XP: 0    Lvl: 0
Action:  PC moves South.
```

Example test cases for gameplay

The following example*.in/out files are included in the submission zip and demonstrate various aspects of gameplay.

example1.in/out : Base game, traversing all 5 floors (win)

Command line arguments: `./cc3k -seed 1 < example1.in`

This test case demonstrates a winning game by traversing all 5 floors. The "f" command which freezes all enemies was enabled as it is very difficult to win the base game without being killed by enemy attacks. It also demonstrates the player attacking various enemy types, picking up gold and potions. At the end, the score is shown and it is the amount of gold, increased by 50% since the player class was a Shade.

example2.in/out : Base game, combat and dying from enemy attacks (lose)

Command line arguments: `./cc3k -seed 1 < example2.in`

This test case demonstrates combat between the enemy and the player, and enemy movement. It shows attacking various enemy types (human, orc, halfling, dragon), and also demonstrates slaying the dragon to "unlock" the gold hoard. It shows the player losing the game from death by enemy attacks. The score is not shown, following the specification.

example3.in/out : Base game, custom layout provided (win)

Command line arguments: `./cc3k -seed 1 cc3kfloor.txt < example3.in`

This test case demonstrates traversing through all five floors with a custom layout of player location, stairway, enemies, potions, and gold passed in as a command line argument.

example4.in/out : DLC features

Command line arguments: `./cc3k -seed 1 -dlc < example4.in`

This test case demonstrates the extra DLC features that were implemented. It demonstrates the new Pathfinder enemy that follows the player, the new XP / level-up system, and buying from merchants.

example5.in/out : DLC, fog

Command line arguments: `./cc3k -seed 1 -dlc -fog < example5.in`

This test case briefly demonstrates how the fog feature alters the player's field of view.