PacMan-Harry

Manual

Input

Before game starts

```
Please input the Map sequence...

Which Map do you wanna play in the 1st round (1/2)? █
```

Diagram 1 - First Input

Valid Input for First Map: **1** or **2**

```
Which Map do you wanna play in the 2nd round (1/2)? █
```

Diagram 2 - Second Input

Valid Input for Second Map: **1** or **2**

```
Please input the Map sequence...

Which Map do you wanna play in the 1st round (1/2)? 1

Which Map do you wanna play in the 2nd round (1/2)? 2

The map sequence is: 1 --> 2
```

Diagram 3 - Map Sequence

For instance, if the player input **1** for the first map and **2** for the second map, a "**The map sequence is: 1 --> 2**" string will be printed on the next line.

During the game

Valid Input:

w   – Changes Pacman's direction to UP

s   – Changes Pacman's direction to DOWN

a   – Changes Pacman's direction to LEFT

d   – Changes Pacman's direction to RIGHT

p1 – Shoots Portal 1 in the direction where Pacman is facing

p2 – Shoots Portal 2 in the direction where Pacman is facing

cc – CheatCode

   i.   **infinite pope** – **infinite po**wer **pe**llet. Pacman could eat any Ghosts at any time
   ii. **infinite life** – Pacman will have infinite lives

iii.   **infinite port** – **infinite port**al. Pacman will have infinite amounts of portals.

IMPORTANT: ENTER key has to be pressed after any input if you want the game to read in the input.

Invalid inputs, which are not listed above, will be ignored. Pacman will continue to move in the direction as before unless specified.
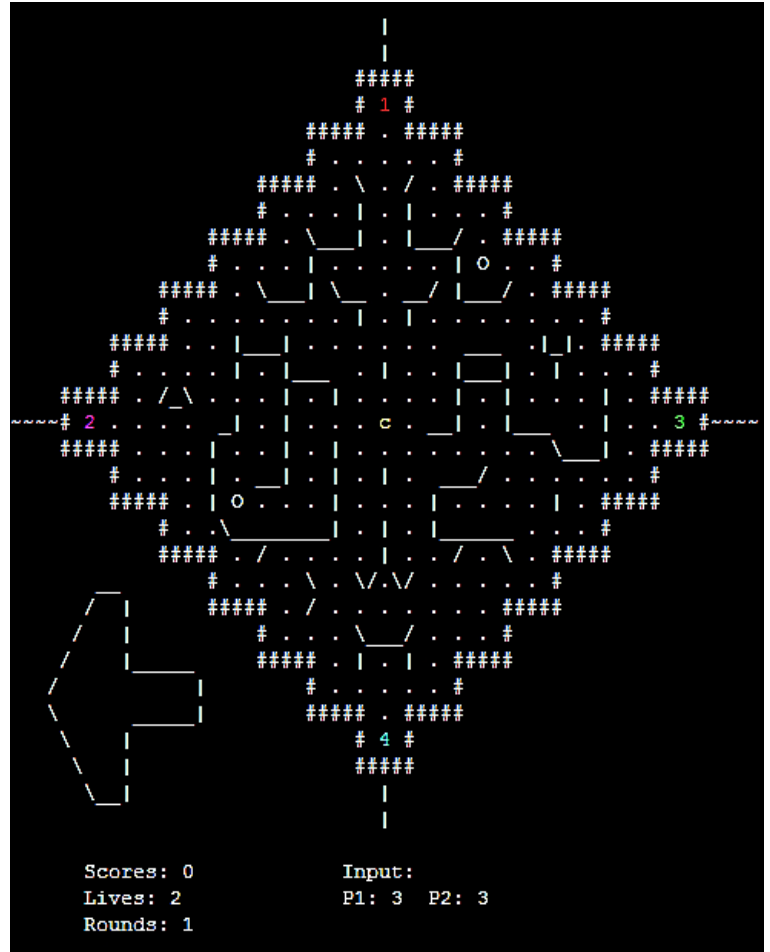
Map

Diagram 4 - Map 1

Diagram 5 - Map 2 (normal mode)

Displays in Both Maps

'**.**'   –   Pac-dots

'**O**'   –   Power Pellet

'**c**'   –   Pacman in normal mode

'**C**'   –   Pacman after eating Power Pellet

'**1**'   –   Ghost 1 (*Lazy*)

'**2**'   –   Ghost 2 (*Detecty*)

'**3**'   –   Ghost 3 (*Freezy*)

'**4**'   –   Ghost 4 (*Smarty*)

'**#**'   –   Wall Bricks

'**|**'   –   Maze Blocks

'**_**'   –   Maze Blocks

'**/**'   –   Maze Blocks

'****'   –   Maze Blocks

'**+**'   –   Portal 1/Portal 2

Map 1 (Diagram 4)

Notice that the maze blocks in this map (the blocks above and below the "PACMAN" heading block) are designed with my name "Harry".

In this map, there are six power pellets (each represented by letter "O") as this is a fairly huge maze. The letter "C" in the "PACMAN" heading block is the cage that contains the Ghosts. When the game starts, Ghost 1 will move first, following by Ghost 2, Ghost 4, and lastly Ghost 3.

Map 2 (Diagram 5)

Map 2 is a fairly small maze, so there are only two power pellets (each represented by letter "O"). The cages for Ghost 1, Ghost 2, Ghost 3 and Ghost 4 in this map are at the north, west, east and south of this maze respectively (shown in diagram 5).

There are two modes in this map:

Normal mode: Nothing special about the normal mode.

Flip mode: The map will flip horizontally every **20** seconds. During the flip mode, ***the LEFT and RIGHT direction are both reversed***. The "a" key, which is the left key in normal mode, will cause Pacman to move to the right instead. The "d" key, which is the right key in normal mode, will cause Pacman to move to the left instead.

NOTE*: An arrow is drawn at the bottom of Map 2 in order to ease the player in knowing when the map has been flipped. A left arrow, appears on the bottom-left, indicates the map is still in normal mode. A right arrow, appears on the bottom-right, indicates the map has been flipped.*
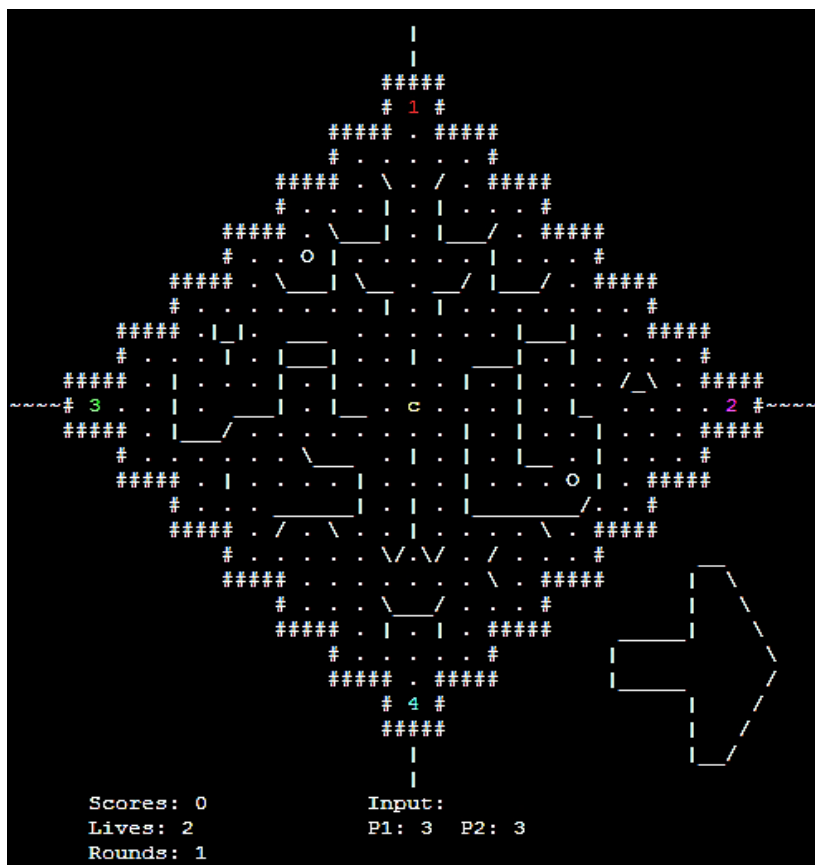

Diagram 6 - Map 2 (flip mode)

<u>Bottom of both Maps:</u>

Scores – Pacman's scores

Lives – Pacman's lives

Rounds – The current round

Input – The input inserted by the player

P1 – The amount of **portal 1** that is still available for Pacman to use

P2 – The amount of **portal 2** that is still available for Pacman to use.

NOTE*: When the Ghosts are in Chase Mode, a "**Ghost Chase Mode: ON!!!**" string will be printed on the last row at the bottom of the Map to ease the player in knowing that the Ghosts are currently pursuing him.*

Characters

Pacman

- ➢ Consists of three lives.
- ➢ Represented by lowercase char '**c**' when he is not energized (not eaten the Power Pellet) yet.
- ➢ If Pacman eats a Power Pellet, his symbol will change into an uppercase char '**C**'.
  - ❗ The Power Pellet effect lasts for *30 seconds* in Map 1.
  - ❗ The Power Pellet effect lasts for *15 seconds* in Map 2.
  - ❗ All of the Ghosts will be in *random mode* (*Frightened mode*) right after Pacman ate the Power Pellet.
- ➢ Gain 100 points if he eats a pac-dot or Power Pellet; Gain 1000 points if he eats a Ghost.
- ➢ Has the ability to create Portals for teleportation between two locations.
  - ❗ Both Portals, Portal 1 and Portal 2, have to be created in order for the teleportation of Pacman to happen.
  - ❗ If only one Portal is created, Pacman will not be teleported.
  - ❗ Pacman could create Portal 1 (**P1**) for three times and Portal 2 (**P2**) for three times as well.
- ➢ The following cheat codes are available for Pacman:
  - i. **infinite pope** – **infinite po**wer **pe**llet. Pacman could eat any Ghosts at any time
  - ii. **infinite life** – Pacman will have infinite lives
  - iii. **infinite port** – **infinite port**al. Pacman will have infinite amounts of portals

Ghosts

Chase mode – The mode when all of the Ghosts start chasing after Pacman. The Ghosts use **A* algorithm** in finding the current location of Pacman.

Random mode (a.k.a ***Frighten mode***) – The mode when all of the Ghosts are frightened and started to randomly wander around the maze. Normally, this mode only happens right after the Pacman has eaten a power pellet.

Scatter mode – The mode when the Ghosts scatter around their surveillance blocks in maze (shown in Diagram 8 and Diagram 9) when they are neither in *Chase mode n*or *Random mode.*

** Every time when the game starts (regardless of which Map), all of the Ghosts would firstly travel to their specific locations in the maze. Right after they have reached the specific location, they will undergo ***Scatter mode.***

Special Ability of each Ghost

Ghost 1 (*Lazy*):

Lazy is the only Ghost who doesn't bother to chase Pacman at all during ***Chase mode.*** While the rest of the Ghosts are pursuing the Pacman, it will just wander around his surveillance block in the maze. That is the reason why he is named "Lazy".

However, if Pacman eats any power pellet and starts chasing after the Ghosts, *Lazy* is the only Ghost who knows how to cleverly avoid from approaching face-to-face into Pacman.

Ghost 2 (*Detecty*):

Detecty is a Ghost who is alerted every time when Pacman enters into a specific dead end (shown in Diagram 8 and Diagram 9) within his surveilling block. He will hunt for Pacman as long as Pacman is still in the dead end.

Ghost 3 (*Freezy*):

During ***Chase mode,*** *Freezy* is a Ghost who could slow down the Pacman's movement by two moves*.*

In order to freeze Pacman, *Freezy* has to first travel to a position which MUST BE the same y-axis as Pacman. After that, he will shoot a lazer (in a straight line) onto Pacman. When

the lazer hits on Pacman, Pacman will be slowed down. As long as the lazer hits on Pacman, Pacman will not move in normal speed.

If other Ghost(s) unexpectedly blocks the lazer, the lazer which is hitting on Pacman will be temporarily stopped. No lazer hitting on Pacman means Pacman will no longer be slowed down. If the Ghost(s) who blocked the lazer moves away, *Freezy* would continue shooting lazer onto Pacman.
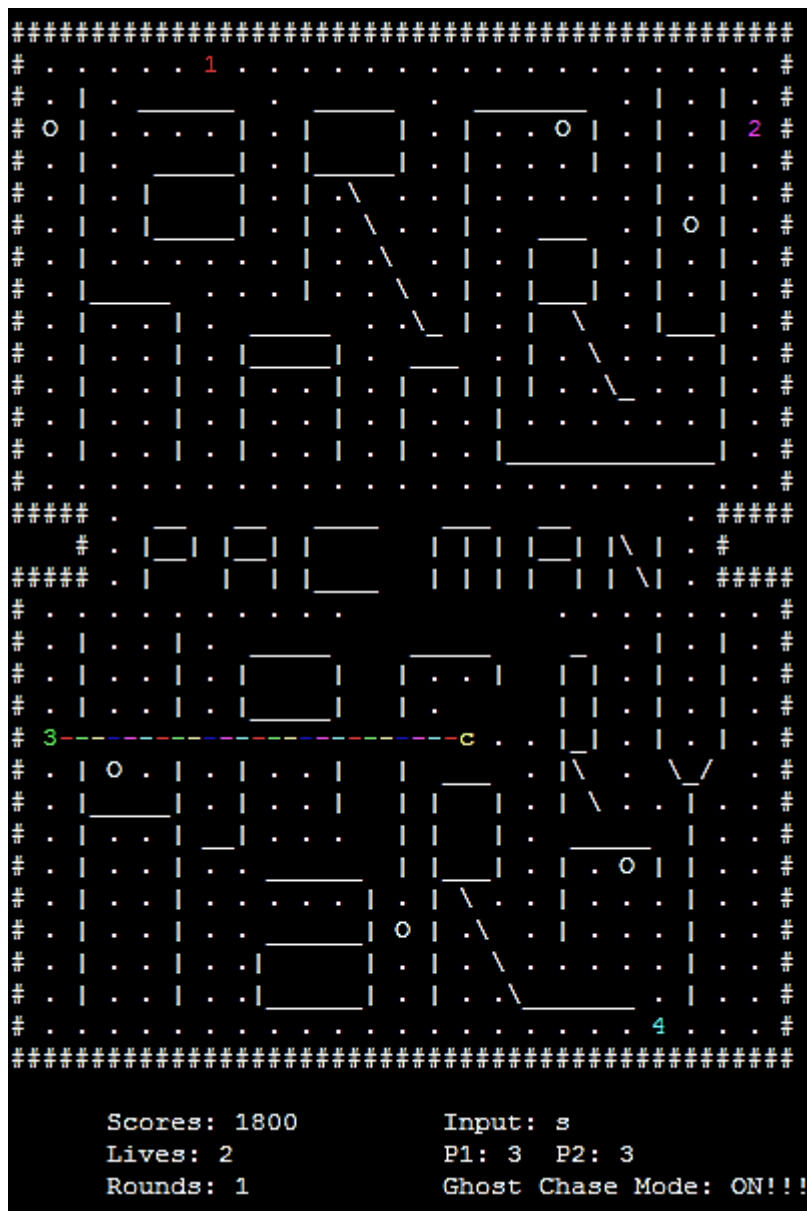

Diagram 7 - Ghost 3's Lazer

Ghost 4 (*Smarty*)*:*

Smarty is a Ghost who is alerted every time when Pacman creates a Portal. It will approach the Portal using the shortest distance (A* algorithm) and destroy that Portal to prevent Pacman from teleporting through it. If two Portals are created in the maze, *Smarty* will approach the Portal Gate which is the closest to him and destroy it.

Smarty has the ability to trap Pacman inside the Portal. If *Smarty* closes one of the Portal gates while Pacman is still inside the Portal, Pacman will be trapped in the Portal forever (Pacman needs two portal gates in order to teleport between two locations).
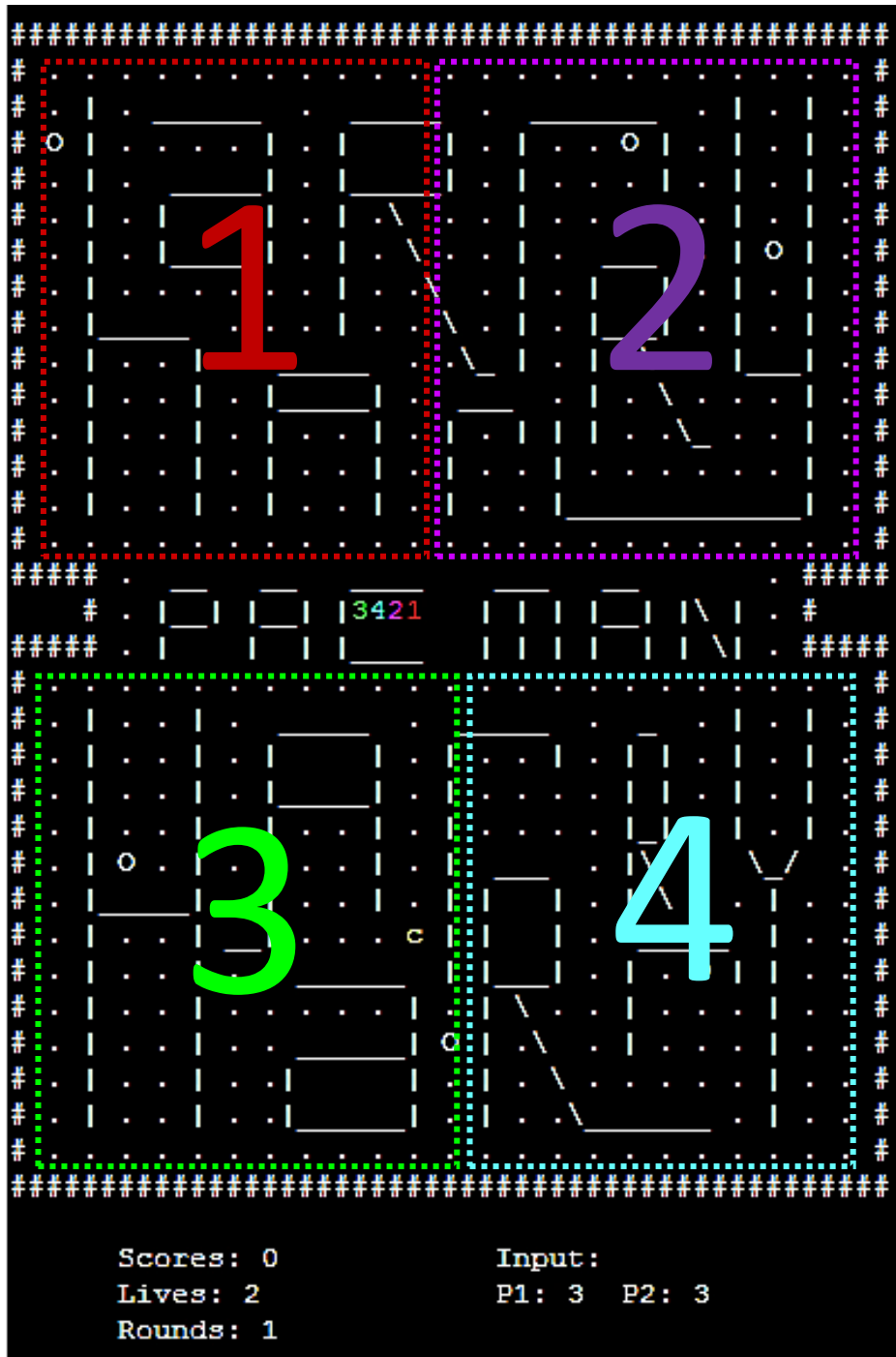
Surveillance Block

Red dotted-line box
Ghost 1's surveillance block
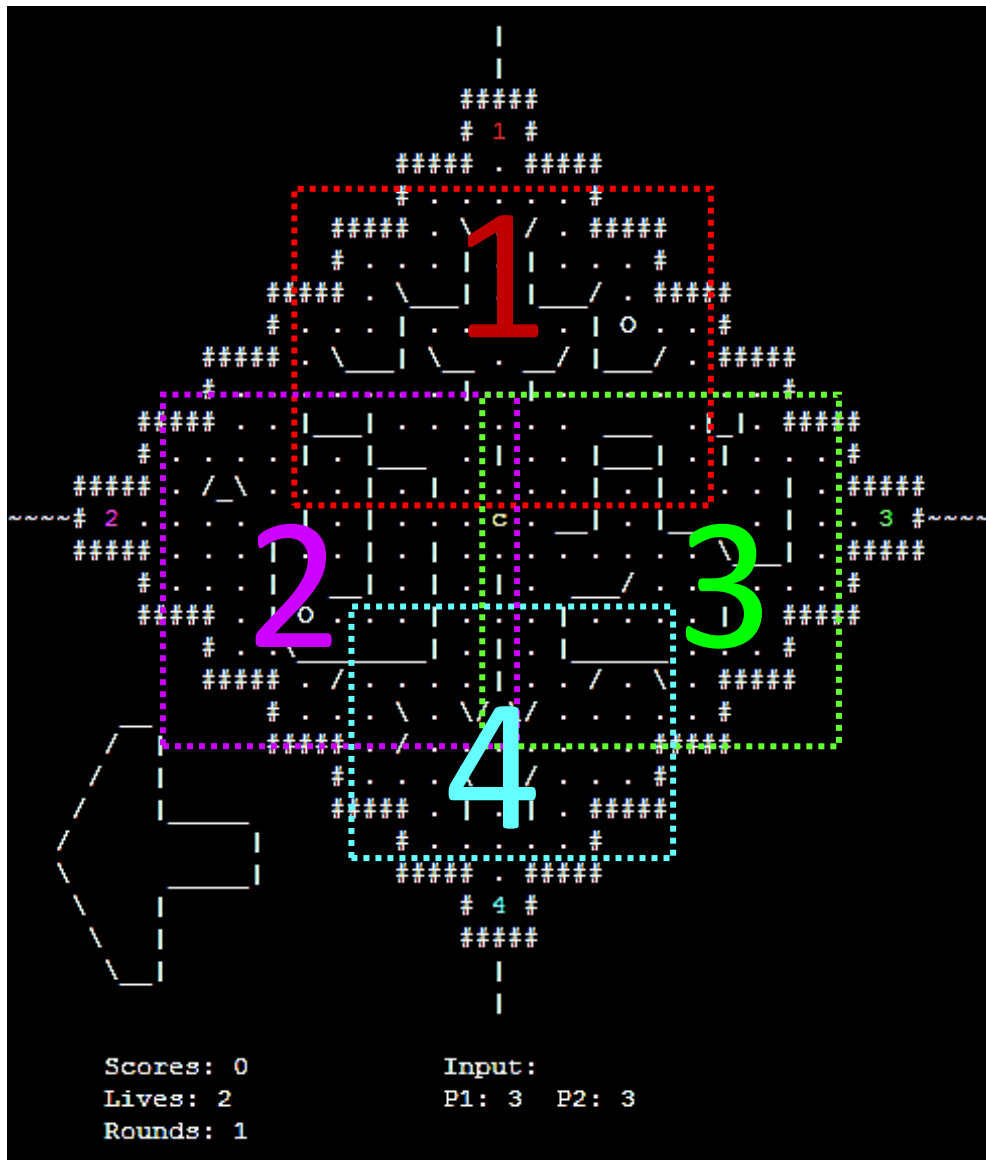
Purple dotted-line box
Ghost 2's surveillance block

Green dotted-line box
Ghost 3's surveillance block

Cyan dotted-line box
Ghost 4's surveillance block

Diagram 8 – Ghosts' surveillance blocks in Map 1

Diagram 9 – Ghosts' surveillance blocks in Map 2

<u>Red dotted-line box</u>
Ghost 1's surveillance block

<u>Purple dotted-line box</u>
Ghost 2's surveillance block

<u>Green dotted-line box</u>
Ghost 3's surveillance block

<u>Cyan dotted-line box</u>
Ghost 4's surveillance block