



304pacman

binary name: 304pacman
repository name: 304pacman_\$ACADEMIC_YEAR
repository rights: ramassage-tek
language: everything working on "the dump"
compilation: when necessary, via Makefile, including re, clean and fclean rules



- Your repository must contain the totality of your source files, but no useless files (binary, temp files, obj files,...).
- All the bonus files (including a potential specific Makefile) should be in a directory named *bonus*.
- Error messages have to be written on the error output, and the program should then exit with the 84 error code (0 if there is no error).

Pathfinding is an extremely common problem in video game programming. It's why we are asking you to create one for the ghosts in Pacman, with the help of the Dijkstra algorithm.

You will illustrate the algorithm and note its distance from the ghost in each visited square.



If the shortest path isn't the only one, we will execute searches and study the adjacencies in the following order: North, East, South, West.

USAGE

```
Terminal
~/B-MAT-500> ./304pacman file c1 c2
file      file describing the board, using the following characters:
           '0' for an empty square,
           '1' for a wall,
           'F' for the ghost's position,
           'P' for Pacman's position.
c1         character to display for a wall
c2         character to display for an empty space.
```



Unlike the original game, the maps aren't circular.



SUGGESTED BONUSES

- Add a graphical display
- Implement A*
- Add a map generator
- Add other types of squares (muddy zones, secret passages etc.)
- Dynamically move Pacman or the ghost
- Control Pacman with the keyboard and create a complete game
- Add ghosts and develop a cooperative algorithm

EXAMPLES

```
Terminal
~/B-MAT-500> cat map1
1111111111
0000000000
0000000000
0000000000
00000F0000
0000000000
00000P0000
0000000000
0000000000
1111111111
```

```
Terminal
~/B-MAT-500> ./304pacman map1 '+' ' '
+++++++

  2
212
1F12
 12
  P

+++++++
```



The integers are displayed modulo 10 so that the display doesn't go haywire.



```
Terminal
~/B-MAT-500> cat map2
1111111111111111
1000000100000001
101011010110101
100P000100000001
101010111010101
1010100100000001
101011010110111
111010000010111
100000000010F01
101010000010111
111010111110111
1000001100000001
101110110101101
100100010001001
110001110101011
1001000100000001
101110110111101
1010100000000001
1111111111111111
```

```
Terminal
~/B-MAT-500> ./304pacman map2 '@' ' '
@@@@@@@@@@@@@@@@
@      @109890@
@ @  @0800@0709@
@  P767@987678@
@ @  @500@70507@
@  @8@43@765456@
@  @7@02@80@300@
@@@@6@21090@200@
@76543210101F1@
@8@6@43212@200@
@@@@7@5000@300@
@   876@0765456@
@  @007@0806007@
@  @ 8  @987@98@
@@   @000@8000@
@  @   @109012@
@  @007@0200003@
@ @  @654345654@
@@@@@@@@@@@@@@@@
```