

Exercise 2

In this exercise you will implement the following additions to your game:

A Fruit

A fruit is a single char “creature”, the char shall be a digit between 5 to 9 selected randomly, that appears at random points in time on screen and travels around randomly at a slow pace. If it meets a ghost it disappears. If the pacman eats the fruit it gets the points as the value of the digit (5 to 9).

The fruit disappears after some time.

There can be **multiple** Fruits on screen at a certain time, according to your choice.

Fruits cannot cross in the invisible tunnels!

Smarter Ghosts

Game shall have 3 possible levels (either in the main menu or after starting a game):

(a) BEST (b) GOOD and (c) NOVICE

BEST - Ghost try to chase the pacman

GOOD - Ghost try to chase the pacman, but occasionally (randomly, once in ~20 moves) they just change to a random direction and stay with it for 5 moves before being smart again

NOVICE - Ghost just move on screen with a direction selected randomly every 20 moves

Loading Screens from files

The game would look for files in the working directory, with the names *pacman_*.screen* these files would be loaded in lexicographical order (i.e. *pacman_a.screen* before *pacman_b.screen* or *pacman_01.screen* before *pacman_02.screen* etc.).

You need to submit 3 screens with your exercise!

If there are no files, a proper message would be presented when trying to start a new game.

The menu should have a new option to allow running a specific screen, by name.

The screen file should be a text file representing the screen, with:

@ - for the position of the pacman (1 and only)

\$ - for the initial position of the ghosts (allow any number between 0 to 4)

- for walls

% - for “empty” positions that should not have a breadcrumb

Remarks:

1. The exercise examiner may change your input screens and load a screen with, say, 4 ghosts, so your code should support 0-4 ghosts.
2. Everywhere that there is a space character in the file, it represents a breadcrumb. The pacman finishes a screen only when all the breadcrumbs in the screen are eaten. Note that if the pacman eats all breadcrumbs in the screen plus some additional fruits, it may accumulate more points than the simply the number of breadcrumbs on the screen.

Note that, same as in Exercise 1, the last row of the screen should be used to present the number of points and “remaining lives” information.

Pacman still has 3 lives, for all screens (moving to next screen doesn't gain lives).

Note

You should change your original code, to use new materials that we learned - where appropriate.

You must use **inheritance**, at least in one place in the code.

