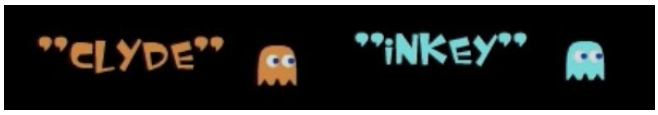
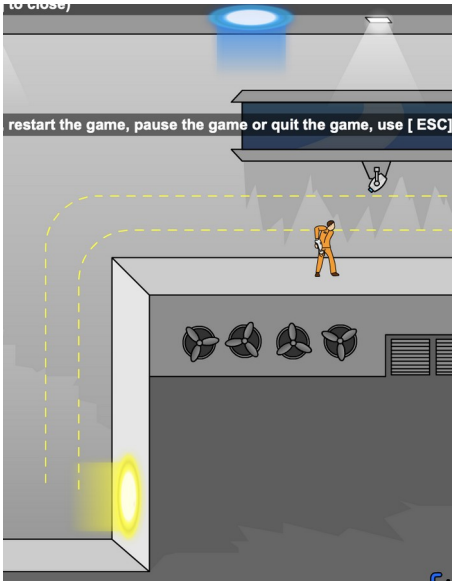
CPSC 386: Game Design and Production – Spring 2020 Project One,

PacMan Portal, due Wednesday, 4 Mar 2020

In this assignment, you will create the PacMan Portal game,
based on the classic PacMan game (https://www.webpacman.com), and the classic Portal 2 game from Valve (https://www.joy.land/portal.html).

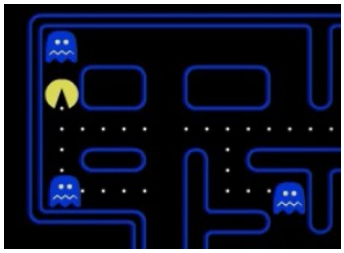
The image resources you will need (ship, ship animation destruction, bunker, different types of aliens, alien animation destruction, and ufo destruction) will all have to be created using an Image editing tool such as Inkscape or Gimp. The audio resources you will need can be captured using an audio editor such as Audacity or a similar program from an online version of PacMan, or be downloaded.





Portal 2D (flash version)

PacMan (flash version)



1. The game has a startup screen that shows the name of the game, shows the animations of the ghosts chasing PacMan, PacMan chasing the ghosts and eating them, and the ghosts being individually introduced.
2. The startup page has a menu for Start game and high scores. The high scores are stored on disk, and are displayed when the High Scores menu is selected, or after each game. The menu is animated when the mouse hovers over it.
3. Implemented the PacMan maze as shown in the game, and has: a startup pen for the ghosts, a tunnel from the far right to the far left, Power pills in each of the four corners, power points uniformly spread through the maze, and a fruit value that appears randomly.
4. **Allow PacMan to create temporary Portals in the walls of the maze, similar to the 3d game Portal, or the movie Dr. Strange. These portals only allow PacMan to pass through at the lower game levels. At the higher levels, the ghosts can also pass through.**
5. Implemented four types of enemy ghosts, Blinky, Pinky, Inkey, and Clyde, that ***cooperatively*** chase PacMan and try to eat him. Also implemented their AIs. If PacMan eats a Power pill, they change (for a short time) to blue versions, and run away from him. PacMan can eat them in this state, for 200, 400, 800, and 1600 pts. each, if he eats all four of them before they change back. When they are about to change back, they flash white and blue (slowly), to warn him. If the ghosts are eaten by PacMan, their eyes remain, and fly back to their starting pen, where they are immediately resurrected, even if other ghosts are still in their blue or white/blue state.
6. Each ghost has its own personality: Blinky (red) is the most aggressive, and moves faster as the number of points decreases. Pinky and Inkey and Clyde move at the same speed, but Clyde is not very aggressive. Pinky circles the maze counterclockwise. Inkey and Clyde circle clockwise. They are thrown off by rapid left/right or up/down arrow keys, but quickly home in on PacMan if he moves in a straight line.
7. Implemented our hero, PacMan, who runs trough the maze trying to eat as many points, power pills, and fruits as he can without getting eaten by the ghosts. He can eat ghosts (for a short time) if he eats a Power pill, when they change to their blue, running away selves.
8. Created the images of the ghosts, including their blue and white alter-egos, the PacMan, Maze, Startup screen text images, ghost point values, fruit and fruit values with an Image editor, such as Inkscape or Gimp.

9. Created and implemented the animations (Startup animations of ghosts chasing PacMan and PacMan chasing and eating the ghosts, and the introductions of each of the four ghosts, PacMan eating, Ghosts moving, PacMan being eaten, Ghosts being eaten) with an image editor. *Note*: the ghosts have a simple, two-frame animation, alternating between three and four legs, and their eyes look in their direction of motion. *Also note*: PacMan has a simple, 4- frame animation (run forwards and backwards) for eating, and a 16-frame animation when he is destroyed (his mouth becomes larger and larger, then he disappears and a circle of increasing diameter is seen.

10. Implemented multiple levels, of increasing difficulty (faster, more aggressive ghosts, who can also go through portals), once PacMan has successfully eaten all power points and power pills in a level.

11. Used a sound editor such as Audacity to record the music (Start screen, Level up, Ghost running away, Game over), PacMan eating sounds (eating points, eating Power pills, eating ghosts), and Ghosts eating PacMan sounds.

12. Ensure that every python source file shows a green checkmark in Pycharm (passes PEP 8).

13. Push the contents of your project to a new GitHub repository using a git client (e.g., the git command-line client, GitHub Desktop, or GitHub for Atom). Do not submit files using drag-and- drop onto the repository web page, and do not push this assignment to the same repository as your previous homework assignments.

Submission

Turn in the code for this project by uploading all of the Python source files you created, the images directory, and the sounds directory to a single public repository on GitHub. While you may discuss this homework assignment with other students. Work you submit must have been completed on your own. To complete your submission, print the following sheet, fill out the spaces below, and submit it to the professor in class by the deadline. Failure to follow the instructions exactly will incur a 10% penalty on the grade for this assignment.

CPSC 349 Homework Submission 4, due 4 Mar 2020

Your name:

Repository *(print)*: https://github.com/
_____/_____

Verify each of the following items and place a checkmark in the correct column. Each item incorrectly marked will incur a 5% penalty on the grade for this assignment

Finished	Not finished	
☐	☐	Made a startup screen with the name of the game, animations of the ghosts and PacMan, and introduces the ghosts. Has menu to start game.
☐	☐	Implemented the maze, as laid out in the image above or in the PacMan game.
☐	☐	**Allow PacMan to create temporary Portals in the walls of the maze.**
☐	☐	Implemented the portal behavior that allows PacMan to transport; portals close.
☐	☐	Implemented four types of enemy ghosts, Blinky, Pinky, Inkey, and Clyde, that are animated as they run through the maze.
☐	☐	Implemented our hero, PacMan, who runs through the maze trying to eat as many points, power pills, and fruits as he can without getting eaten by the ghosts.
☐	☐	Created the images of the ghosts, PacMan, Maze, ghost point values, fruits with an Image editor, such as Inkscape or Gimp, and implemented them.
☐	☐	Current score of PacMan shows at the top. Game over shows at end of game.
☐	☐	Implemented the eyes of the ghosts that run away back to their house and immediately change back into their respective ghost.
☐	☐	Implemented the AI's of the four ghosts: chase / shopping / run away.
☐	☐	Used Audacity to record the music and game sounds, and implemented them.
☐	☐	Pycharm IDE shows green checkmarks for every Python source file.
☐	☐	Created the animations using an image editor, and implemented them.
☐	☐	The Project directory has been pushed to the above GitHub repository