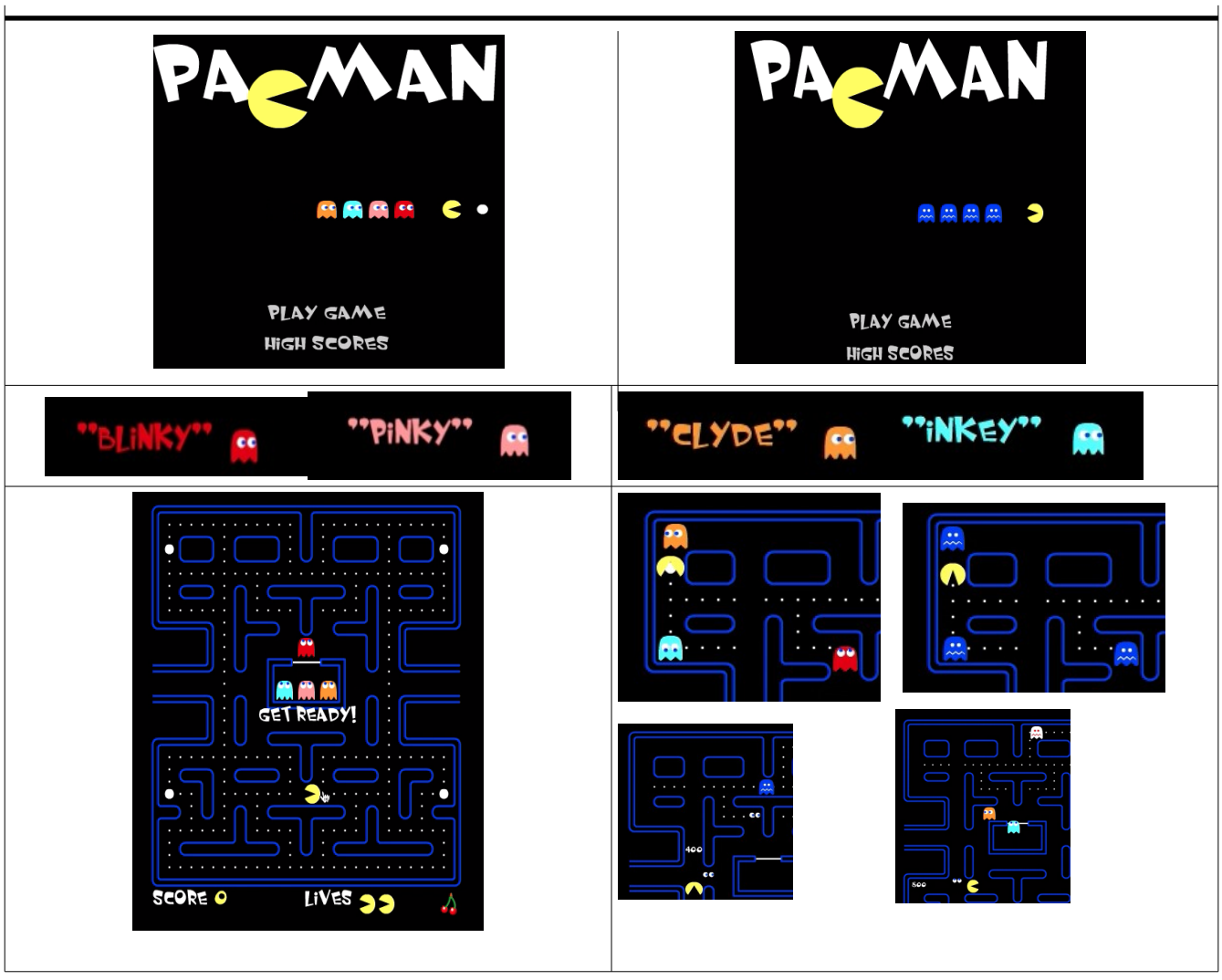
CPSC 386: Intro to Game Design
Spring 2023
choice A: **Pacman Portal**

In this assignment, you will create EITHER the Pacman Portal game, based on the classic Pacman game, and the classic Portal (3d) game OR the Super Mario game. This document describes the Pacman Portal game. You may work in groups of two students for this game.

The image resources you will need will all have to be created using an Image editing tool such as Inkscape or Gimp, or you can get online. The audio resources you will need can be captured using an audio editor such as Audacity from an online version of Pacman.



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 maze, as laid out in the image above or in the Pacman game, and which 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 <u>Portals</u> 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 resurrected. They are immediately resurrected, even if the 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.

## Submission

Turn in the code for this project by uploading all of the Python source files you created, the completed rubric indicating the requirements you completed (or did not complete), the images directory, and the sounds directory to Canvas. EACH student must submit the COMPLETE project to Canvas for the group to get credit. The name of both students MUST be on all submissions.

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 386 **Pacman Portal** OR Super Mario Project

**Your name and the names of all team members**

Raxel Ortiz and Esteban Zapata

Verify each of the following items and place a checkmark in the correct column, indicating each item you or your group completed (or did not complete). Each item incorrectly marked will incur a 5% penalty on the grade for this assignment. Each team member must submit the same form when submitting to Canvas.

| Completed | Not Completed | **Pacman Portal** |
|---|---|---|
| ☒ | ❑ | Made a startup screen with the name of the game, animations of the ghosts and Pacman, and introduces the ghosts. |
| ☒ | ❑ | Implemented the startup page menu for Start game and high scores. |
| ☒ | ❑ | 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 four types of enemy ghosts, Blinky, Pinky, Inkey, and Clyde, that ***cooperatively*** chase Pacman and try to eat him. Also implemented their AIs. |
| ☒ | ❑ | 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. |
| ☒ | ❑ | Created the animations using an image editor, and implemented them. |
| ❑ | ☒ | Implemented multiple levels, of increasing difficulty, once Pacman has successfully eaten all power points and power pills in a level. |
| ☒ | ❑ | Implemented power pills that cause ghosts to run away when Pacman eats them |
| ☒ | ❑ | Ghosts change to chase, corner, run-away, flicker, and eyes-only mode |
| ☒ | ❑ | Maze should use sprites/collisions or a graph of nodes on a bitmap background |
| ☒ | ❑ | Used Audacity to record the music and game sounds, and implemented them. |

**Comments on your submission**

Used a sprite sheet to handle images and animations. Natural maze teleporter doesn't work. Ghosts don't respawn and uncompleted AIs.