

Team BroccoliTree  
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APCS2 pd4

## PACMAN

### Background info:

Our final project will be a modified PACMAN game. The goal of the game is to get higher scores instead of eating all the dots and getting to higher levels. After the players eats the dots, the dots will reappear after a few seconds. There will be four ghosts that randomly go around the maze. When the ghosts collide with the player, the player will lose a life. Every time the player gets 1000 points, a mini-game (“stack the tower”) will pop up. The points gain from the tower game will be added to the current player’s score, and the player will continue on the game until they have no more lives.

### Structure:

We will use queue to store the dots that were eaten by their x and y position values (enqueue) and make the dots reappear again after few seconds (dequeue their position and make them appear on the 2D matrix maze).

The mini game “stack the tower” will use stack structure in that the next falling rectangle is the same size as the rectangle on top of the stack.

We will also use 2D matrix to create the maze/board (including all the characters and dots).

### Classes:

- PacMan
  - Main class that runs the game
  - Displays the board
  - Stores the score of top ten players
- Character
  - Instance variables: name, color, speed, position, direction, alive or dead
- Player (extends Character)
  - Fixed speed & color
  - Instance variable: number of lives left, score
  - Movement control by the player
- Ghost (extends Character)
  - Random movement
  - May increase speed with the player gets to a high score (for now: every 1000 points)

- Goes to jail after they are eaten and release again after few seconds (can use a queue as well)
- Dot
  - Instance variables: its x and y position values, and status (eaten or not eaten), points
  - Can either be a normal dot, power pellet, or cherry
    - Power Pellet
      - Temporarily gives the player the power to eat the ghosts
    - Cherry
      - Each worth 100 points
- Maze
  - Uses 2D matrix to create the board
  - Restrictions of the walls and the cell that contains the ghosts
  - No exit
- Tower
  - A mini-game that occurs each time the player gets 1000 points

#### Processing usage:

Graphics for displaying the progression of the game.

Learn how to detect collision

Draw the maze, pacman, ghosts, and dots

#### Extra features:

- Permanent scoreboard
- Multiplayer??
- large dots called Power Pellets that temporarily give the player the ability to eat the ghosts
- A.I. ghosts that follow the player