# **Pac-Man Game**

A modern C++ implementation of the classic Pac-Man arcade game using SFML graphics library.

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## **Overview**

This game is a recreation of the classic Pac-Man arcade game with additional features including multiple ghost types with unique abilities, super mode for Pac-Man, and a scoring system with persistent high scores.

## **Features**

* Main menu system with Start, Instructions, and Exit options
* Interactive countdown before game start
* Multiple unique ghost types with different behaviors
* Super mode when eating power pellets
* Score tracking and high score system
* Lives system with visual indicators
* Game over screen with customized messages based on performance
* Background music and sound effects

## **Game Elements**

* **Pac-Man**: The player character who must eat all the dots while avoiding ghosts
* **Regular Dots**: Worth 10 points each
* **Super Food/Power Pellets**: Worth 50 points, activates super mode
* **Ghosts**: Enemies that chase Pac-Man; each ghost has unique abilities
* **Maze**: The environment with walls and pathways

## **Ghost Types**

The game features several ghost types, each with unique abilities:

|  |  |
| --- | --- |
| **Ghost Type** | **Ability Description** |
| TELEPORTER | Can teleport around the maze randomly |
| RANDOM | Moves in unpredictable patterns |
| RAGE | Has bursts of high speed |
| AMBUSHER | Camps near super food to ambush Pac-Man |
| HERMES | Moves very quickly throughout the maze |
| PHANTOM | Has an extended hit radius |
| TIME STOP | Can temporarily freeze Pac-Man |
| RING | Can become invisible periodically |

## **Prerequisites**

* C++ compiler with C++11 support or higher
* SFML 2.5.0 or higher
* CMake 3.10 or higher (optional, for building)

## **Installation**

### **Option 1: Using CMake (recommended)**

1. Clone the repository or download the source code
2. Install SFML libraries for your system
3. Create a build directory and navigate to it: mkdir build && cd build
4. Run CMake: cmake ..
5. Build the project: make
6. Run the game: ./pacman

### **Option 2: Manual Compilation**

1. Ensure SFML is installed on your system
2. Compile the main file with all dependencies: g++ -o pacman main.cpp Ghost.cpp Maze.cpp Pacman.cpp -lsfml-graphics -lsfml-window -lsfml-system -lsfml-audio
3. Sfml 2.5.1 used
4. Run the game: ./pacman

## **Controls**

* **Menu Navigation**:
  + Up/Down Arrow Keys: Navigate menu items
  + Enter: Select menu item
* **Game Controls**:
  + Arrow Keys: Move Pac-Man up, down, left, right
  + Enter: Return to menu (after game over)

## **Gameplay**

1. Start the game from the main menu
2. Navigate Pac-Man through the maze using arrow keys
3. Eat all dots while avoiding ghosts
4. Collect super food to enter super mode and be able to eat ghosts
5. When all dots are eaten, you win the game
6. If a ghost catches you, you lose a life
7. Game ends when all lives are lost

## **File Structure**

├── main.cpp # Main game logic  
├── Pacman.h # Pac-Man character implementation  
├── Ghost.h # Ghost base class and implementations  
├── Maze.h # Maze implementation

├── Animation.h # Sprite Animation implementation

├── sounds/ # Game sound effects  
│ ├── chomp.wav # Dot eating sound  
│ ├── death.wav # Death sound  
│ ├── super.wav # Super mode sound  
│ └── menu.wav # Menu music  
├── sprites/ # Game sprites  
│ ├── PACMANLEFT.png # Pac-Man facing left  
│ ├── PACMANRIGHT.png # Pac-Man facing right  
│ ├── PACMANUP.png # Pac-Man facing up  
│ ├── PACMANDOWN.png # Pac-Man facing down  
│ └── “GHOSTNAME”.png # Ghost sprites  
└── ArcadeClassic.ttf # Game font

## **Creating Custom Levels**

The maze is defined in the Maze.cpp file. To create custom levels:

1. Modify the maze array in the Maze constructor
2. Use these characters to define the maze:
   1. #: Wall
   2. .: Regular dot
   3. o: Super food
   4. P: Pac-Man starting position
   5. 0-7: Ghost starting positions
   6. (space): Empty walkable space

## **Troubleshooting**

### **Common Issues**

1. **Missing Font Error**: Make sure "ArcadeClassic.ttf" is in the same directory as the executable

Error: Could not load font ArcadeClassic.ttf

Solution: Download and place the ArcadeClassic.ttf font in the game directory

1. **Missing Sprite Files**: Ensure all sprite files are in the correct locations Solution: Check the sprites directory and make sure all required PNG files exist
2. **SFML Library Not Found**: If you get linker errors Solution: Make sure SFML is properly installed and linked in your build system

## **Credits**

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