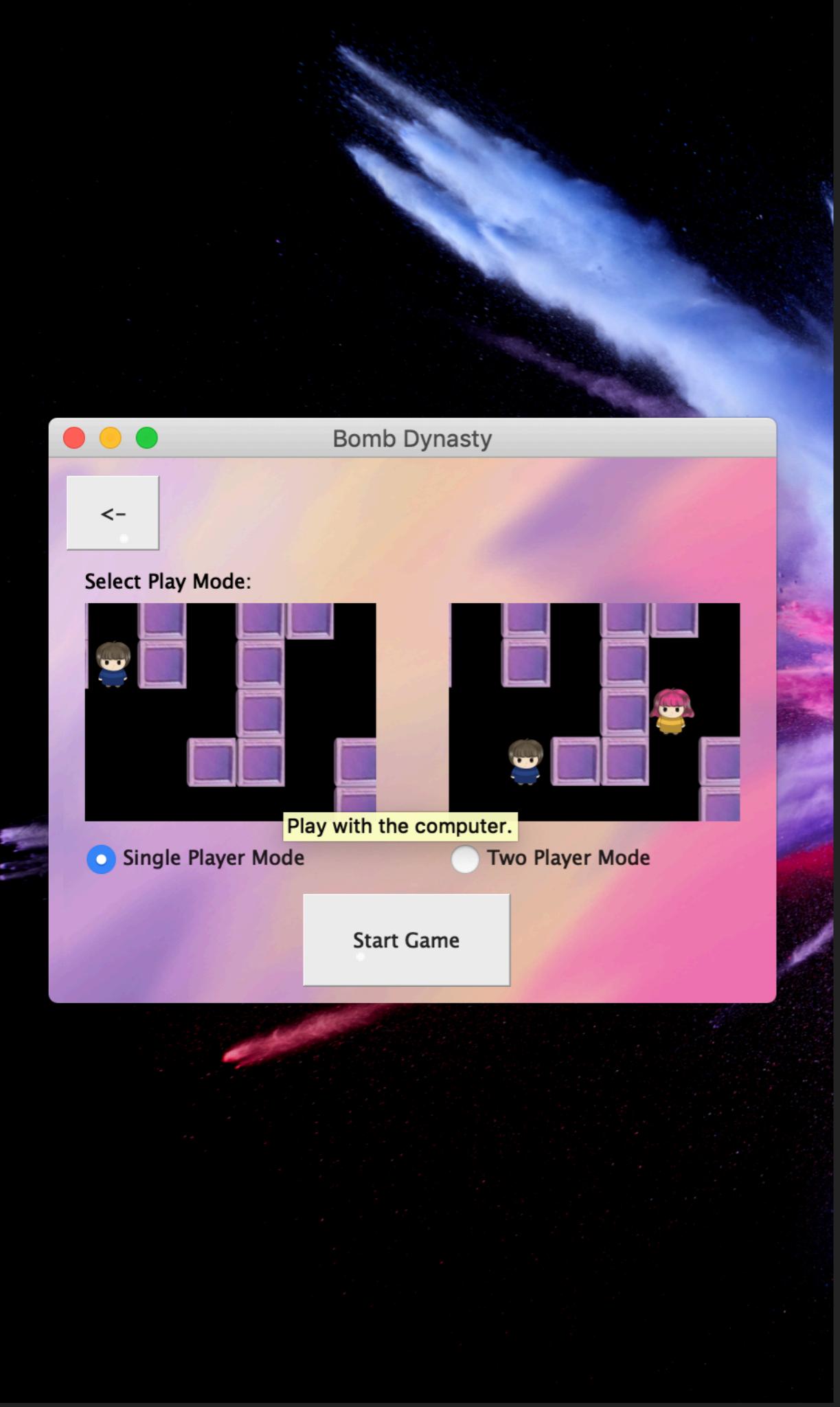


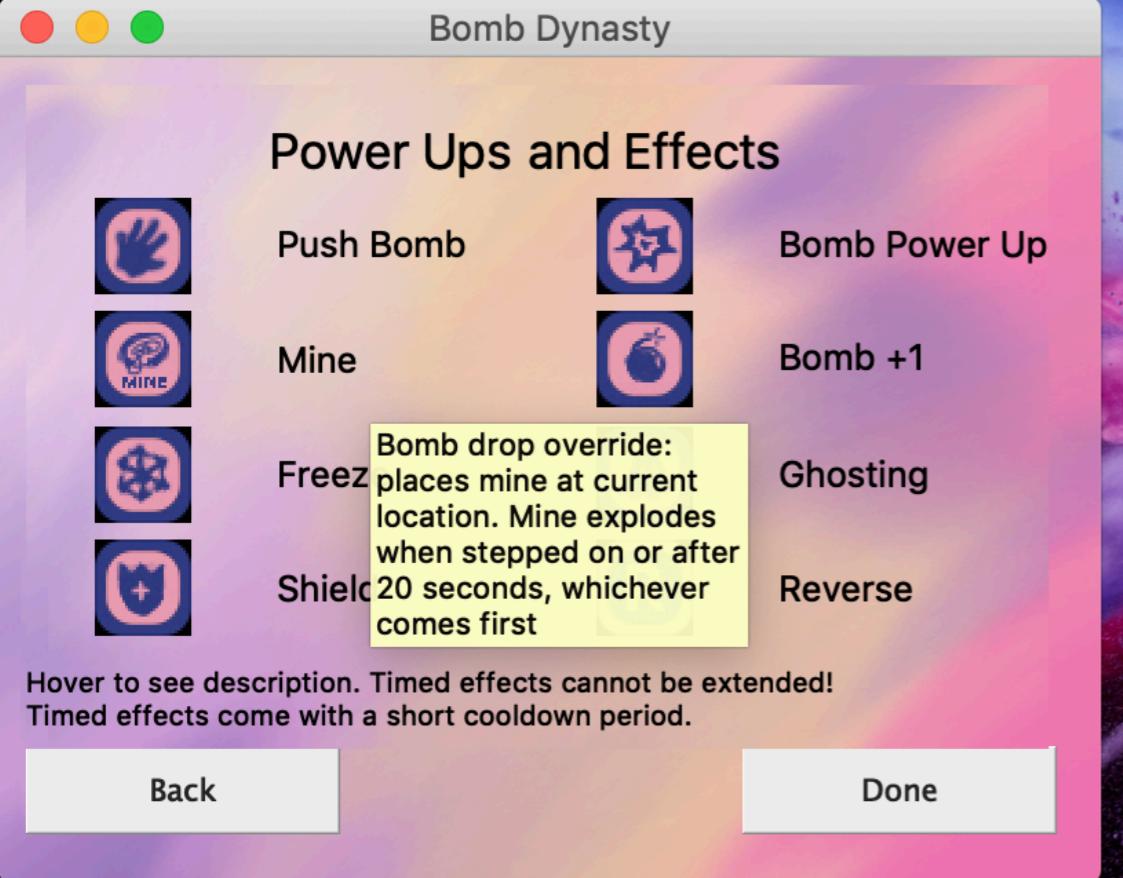
BOMB DYNASTY



XINGJIA WANG & CINDY WANG



DOUBLE THE FUN
**TWO DIFFERENT
PLAY MODES**



UPGRADED GAME MECHANIC

For a unique gaming experience

Press Esc to return to game...

Quit Game

How To Play



Player 1

Arrow keys to move around
Enter key to place bomb



Player 2 (two-player mode)

W, A, S, D to move around
Space key to place bomb

Background music volume:

Sound Effects volume:

USER-FRIENDLY INTERFACE

Power Ups and Effects



Push Bomb



Bomb Power Up



Mine



Bomb +1



Freeze



Ghosting



Shield



Reverse



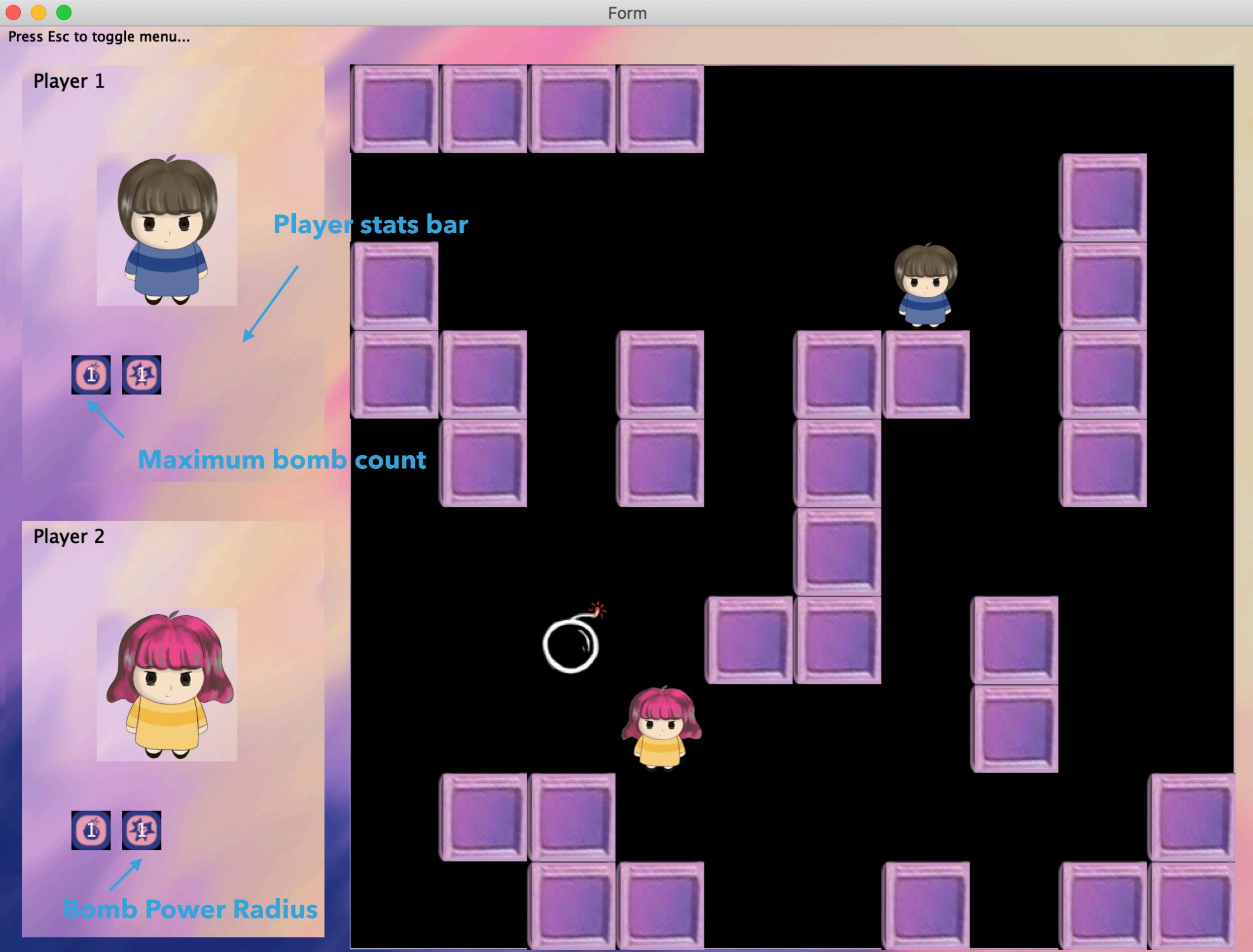
How To Play

Enter Game

Settings

GAMEPLAY







Form

Press Esc to toggle menu...

Player 1



Player 2

**Bomb explosion**

Press Esc to toggle menu...

Player 1



Player 2



YOU WIN!

RETURN TO MENU



QUEEN

How To Play



Player 1

Arrow keys to move around
Enter key to place bomb



Player 2 (two-player mode)

W, A, S, D to move around
Space key to place bomb

Background music volume:

Sound Effects volume:

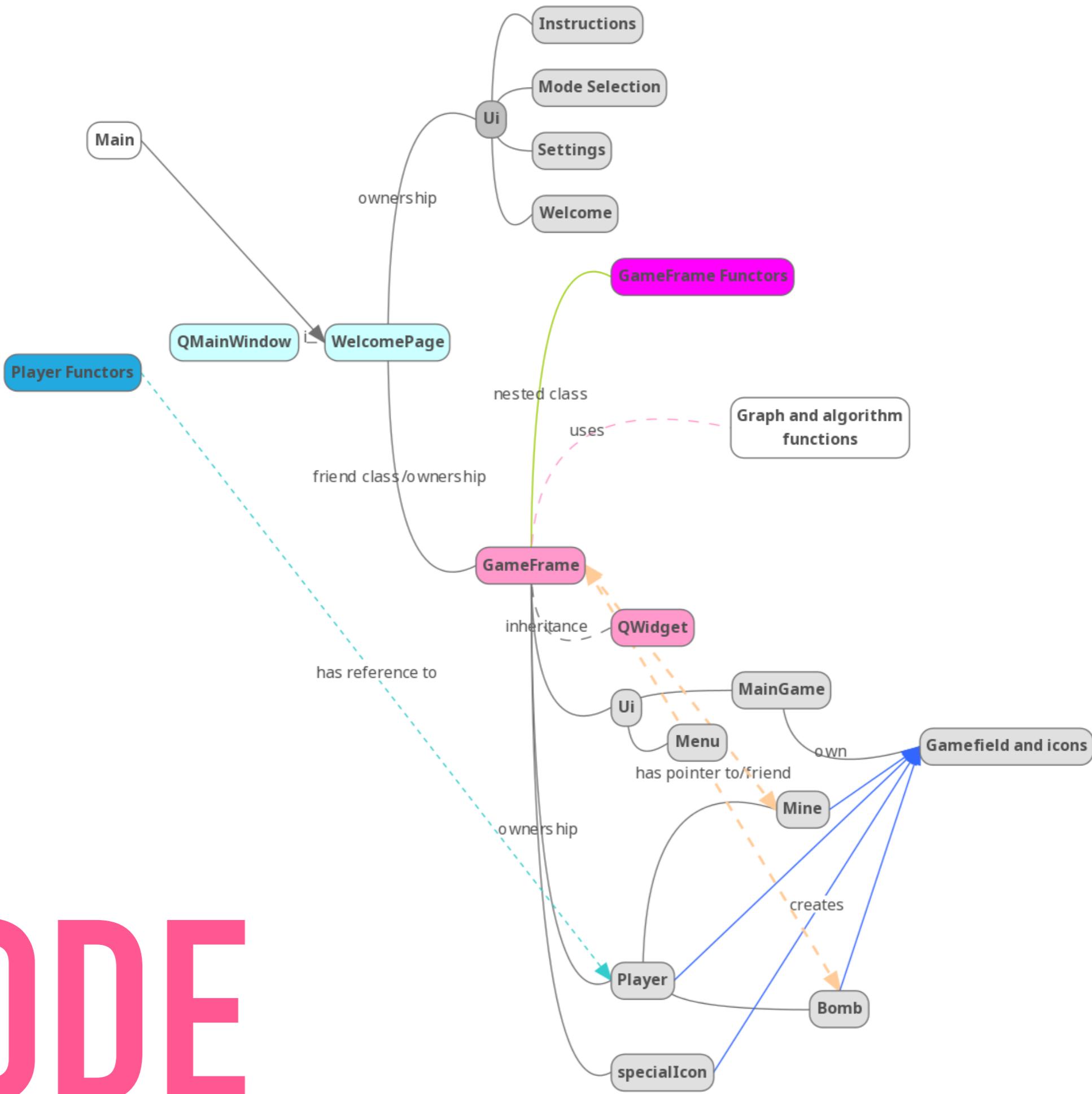
POWER-UPS

- ▶  Increases maximum bombs active on screen by one (max 3)
- ▶  Increases bomb explosion radius by 1 (max 5)
- ▶  Freeze a nearby player for 2 seconds
- ▶  Gain ability to pass through walls and place bombs inside walls for 10 seconds. Bombs placed inside wall are invisible!
- ▶  Place a mine on your next bomb attack (replaces bomb). Mines explode when stepped on, but expire after 20 seconds if not.

POWER-UPS

- ▶  Gain ability to push bombs in your way for 10 seconds.
Push range is limited!
- ▶  Reverses your direction keys for 10 seconds.
- ▶  Gain a shield for 10 seconds. Bombs cannot hurt you
when your shield is active, but be careful, mines still can!

CODE



DESCRIPTION OF CLASSES

- ▶ WelcomePage
 - ▶ Inherits from QMainWindow
 - ▶ Uses stacked widgets in UI to navigate through settings, instructions, and game mode selection
 - ▶ Upon start game, creates a GameFrame2 object with correct mode
- ▶ GameFrame2 object
 - ▶ Inherits from QWidget
 - ▶ Owns Player, specialIcon, and miscellaneous objects related to general game play
 - ▶ Uses stacked widgets in UI to display game field, menu, and winning screens
 - ▶ Has nested classes of functors specific to game field handling
 - ▶ Takes care of all key press events
 - ▶ Uses graph and algorithm functions to control movement of AI player (in single player mode)
 - ▶ Keeps track of all the timers and locations of obstacles in the game
 - ▶ Each new game frame is a new GameFrame2 object

DESCRIPTION OF CLASSES

- ▶ Player
 - ▶ Has a player ID
 - ▶ Each player keeps track of its own active bombs and mines
 - ▶ Uses functors for to player-specific power up status handling
 - ▶ Keeps track of its own icon in the game field
- ▶ specialIcon
 - ▶ Has an icon ID specifying the type of power up it carries
 - ▶ Keeps track of its own icon in the game field
- ▶ Bomb and mine
 - ▶ Keeps track of its own icon in the game field
 - ▶ Keeps track of its status

CODING THE COMPUTER PLAYER

- ▶ We used Dijkstra's Algorithm on unweighted graph to find shortest distance to a node
 - ▶ Distances are determined by "edges" (walkable paths)
- ▶ Computer Player's thought process:
 - ▶ Retreat to a corner if near a bomb
 - ▶ Otherwise follow the player
 - ▶ If near the player, go in a random direction and drop a bomb

