

UML Class Diagram Description

The Food class will extend the Sprite class. `setPoints()` will be overridden to allow resetting of points after undo.

The Player class will extend the Sprite class. `addPoints()`, `die()`, `isAlive()` will be overridden to allow undo functionality.

The Sprite class and Tile class have a parent-child relationship.

In addition, both the Player class and PointManager class have a relation with the Game class. `consumePointsonBoard()` and `addPointsToBoard()` will be overridden.

The PacmanInteraction class will need to be modified so that it is able to keep track of the Pacman's history of movements so that undo knows what position it should revert to. The state enum needs to be updated to allow for the Pacman to be in an undo state.

The ButtonPanel class needs to be updated to add a JButton `undoButton` for the user interface, which itself will need to be initialized, as well as along with the other buttons. Here it will need to implement the actual undo functionality as a method, similar to the start and end methods here.

The BoardView class needs to be modified so that the `nextAnimation()` function will be able to keep track of the Pacman's animation.