Pac-Man Game

Team: Chaos

Team Lead: Yuyu Qian
Tech Lead: Renhao Lei
Doc Lead: Jian Chen
Developer: Yudai Chen
Yang Lyu
Xuejuan Yang

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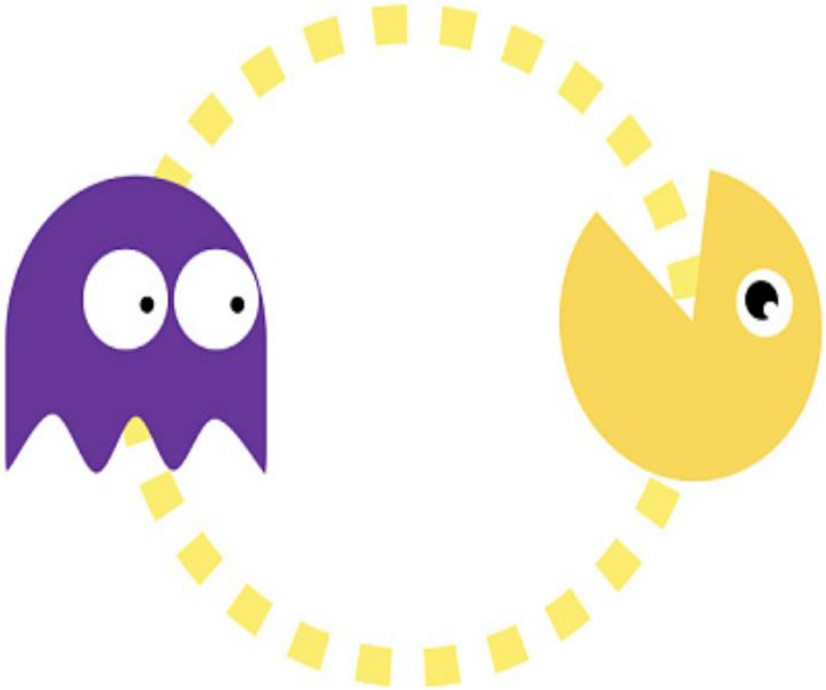
Introduction



- Movement
- States Changes
- Strategy And Personalities
- Personalities in Detail
- User Extensibility
- Conclusion and Demo

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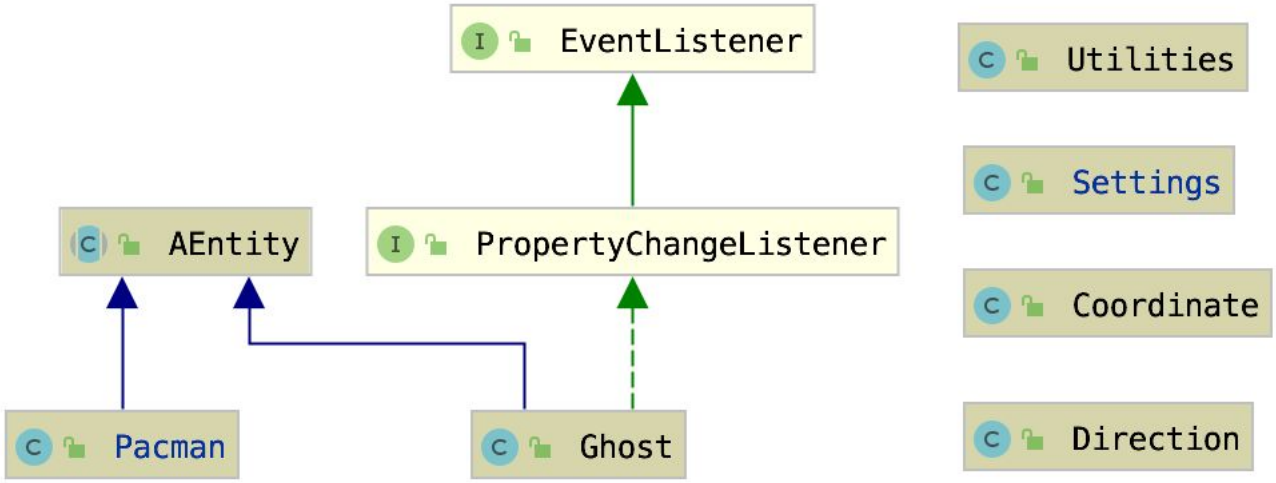
Movement



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Movement

- int coord: logical address(get map element)
- int loc: physical address(coordinate on canvas)
- Conversion formula: coord = (loc – 10) / 20

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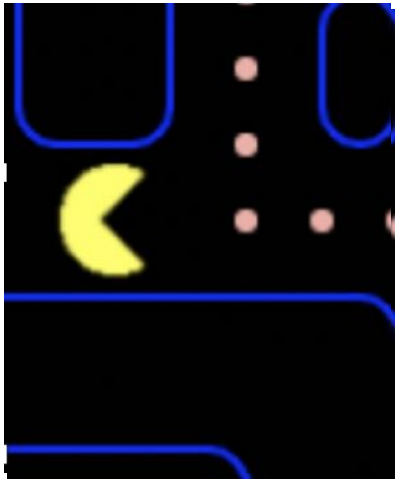
Movement



- Physical Address : 50
- Logical Address : (50-10)/20=2
- Logical Address of Dot : 3

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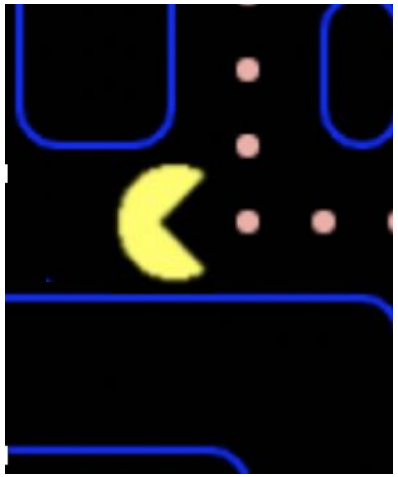
Movement



- Physical Address : 60
- Logical Address : (int) 2.5 = 2
- Logical Address of Dot : 3

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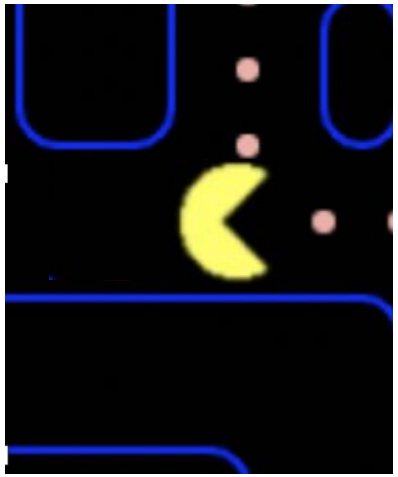
Movement



- Physical Address : 70
- Logical Address : (70-10)/20=3
- Logical Address of Dot : 3

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Movement

- Dot: 10
- Energizer: 50
- Fruit: 100
- Ghost: 200 400 800 1600

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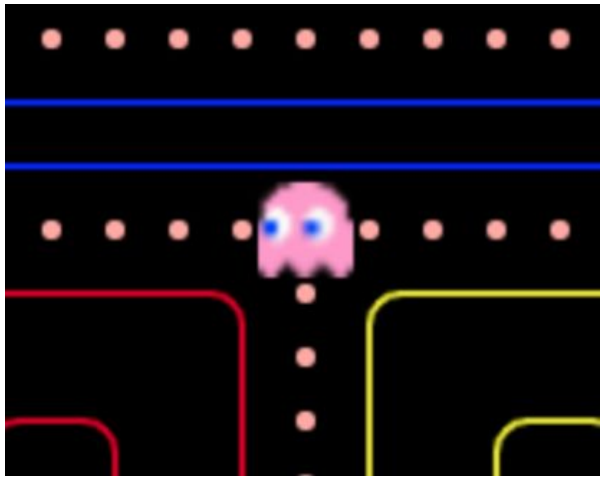
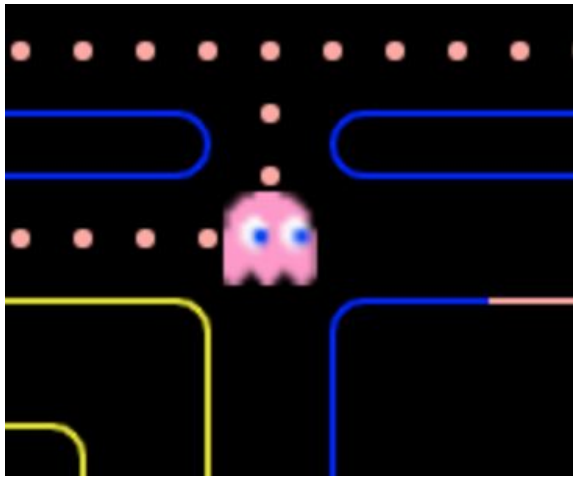
Movement





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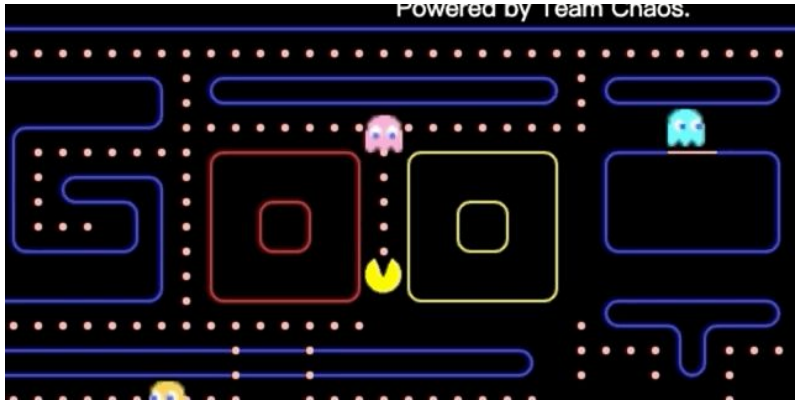
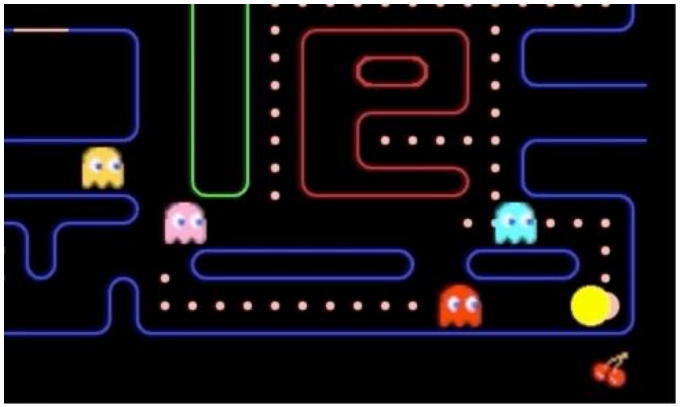
Movement





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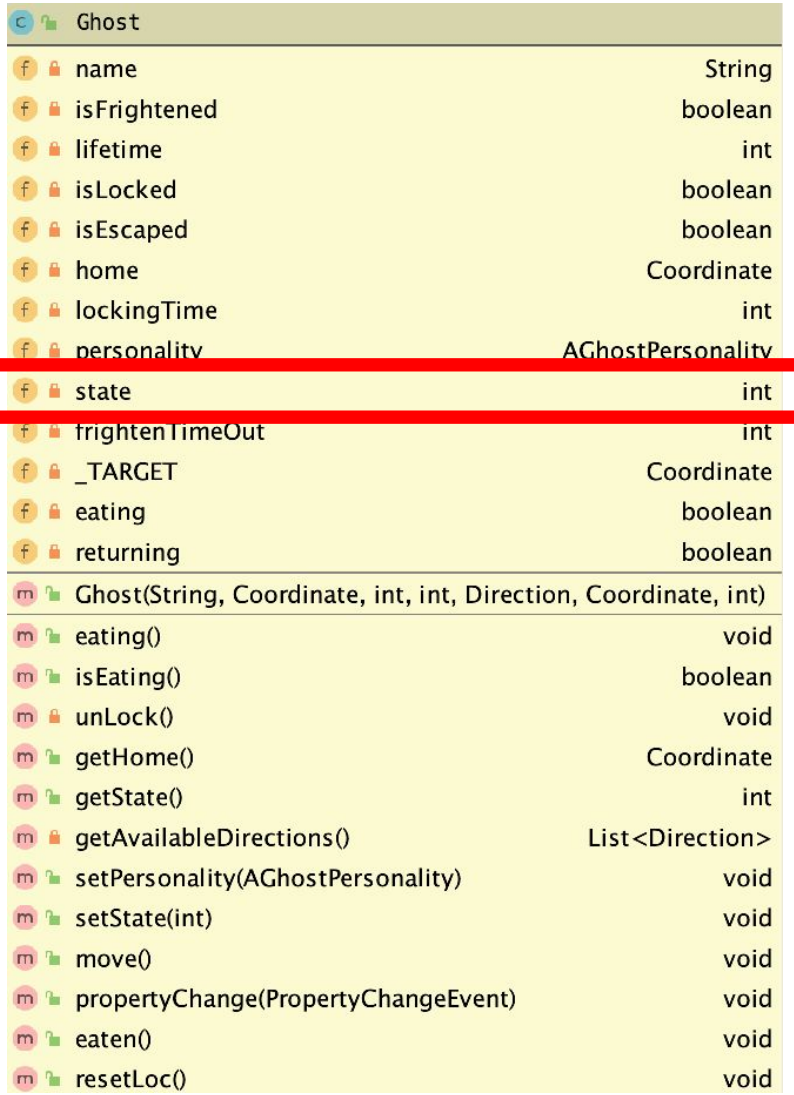
Ghosts' state

Every ghost has its own state:

- Ready
- Scatter
- Chase
- Frighten
- Eaten

Changed by two subjects:

1. Timer
2. Events



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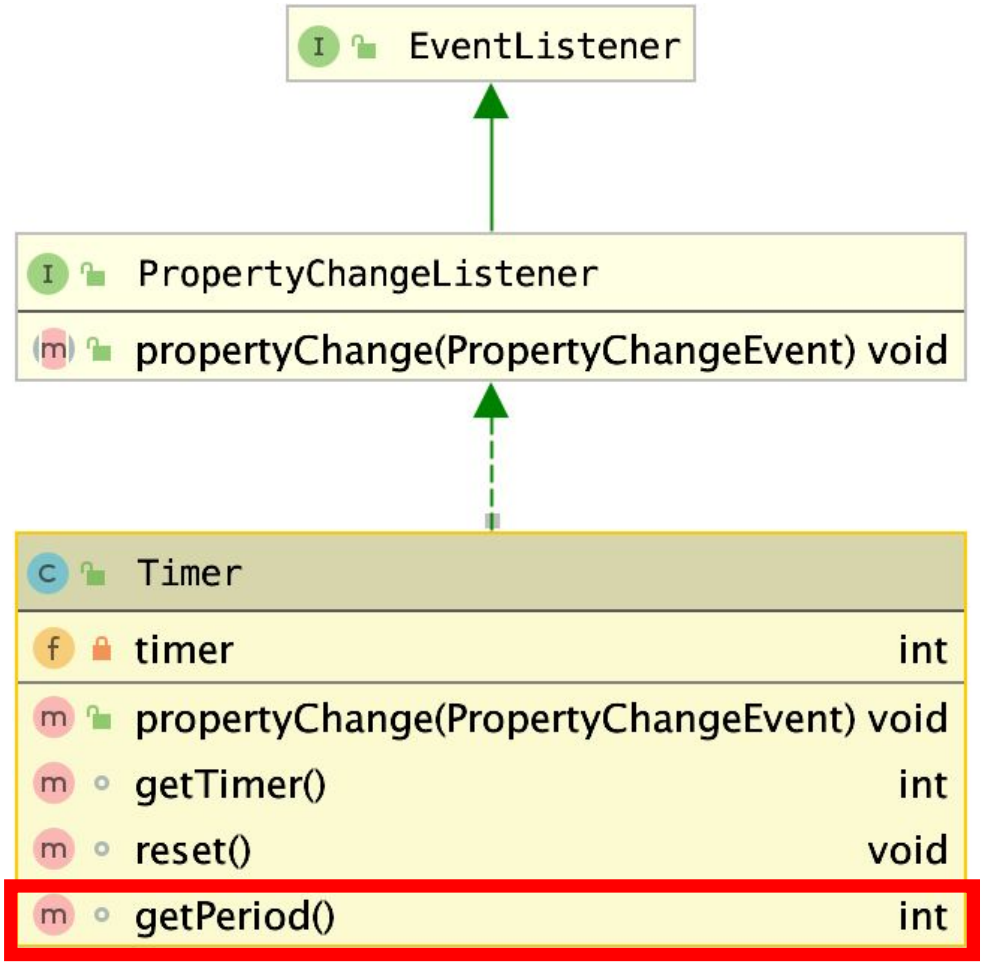
Ghosts' state

Timer

1. Timer increments by one at every update
2. Timer determines the game period and ghosts' state
3. Timer gets reset when the game level changes or Pacman dies



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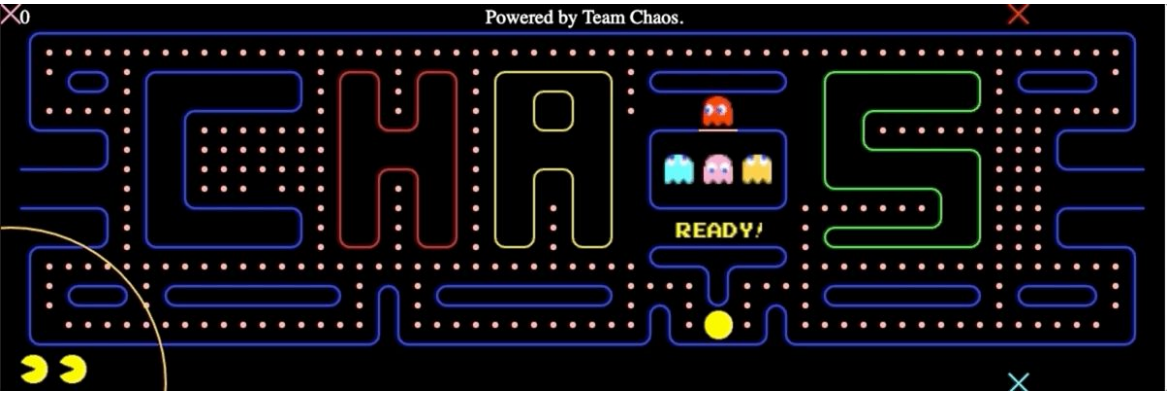
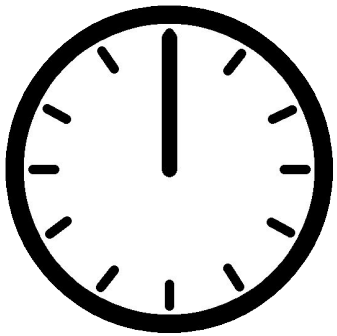
Ghosts' state

States changed by Timer:

- Ready



Game	
maze	int[][]
foodMap	int[][]
mapid	int
timer	Timer
period	int
pacman	Pacman
pcs	PropertyChangeSupport
ghosts	Ghost[]
timerPause	boolean
timerPauseTimeOut	int
gamePause	boolean
gamePauseTimeOut	int
dying	boolean
dyingTimeOut	int
currentGhostCredit	int
life	int
totalDots	int
remainingDots	int
level	int
Game()	
reset(int, int)	void
loadMap(int)	void
update()	void
pacmanMove(String)	boolean
propertyChange(PropertyChangeEvent)	void



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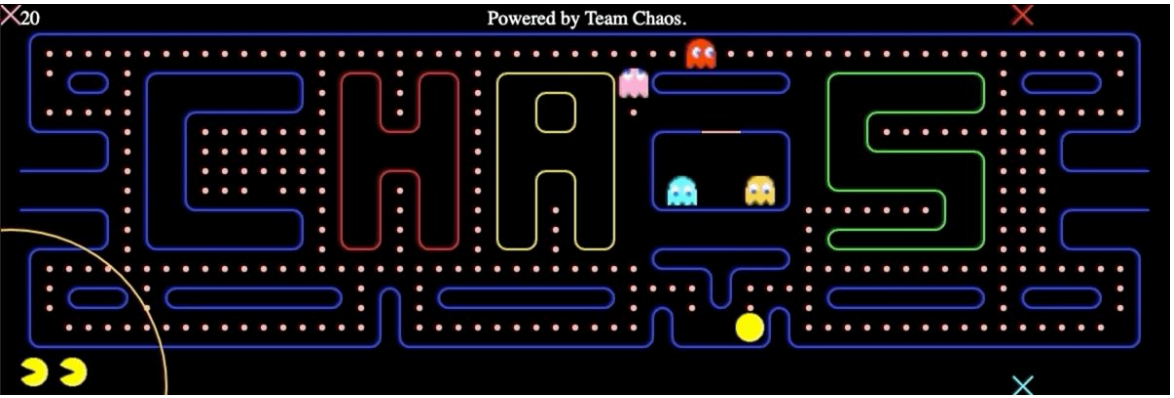
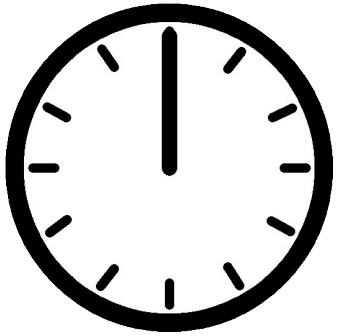
Ghosts' state

States changed by Timer:

- Scatter





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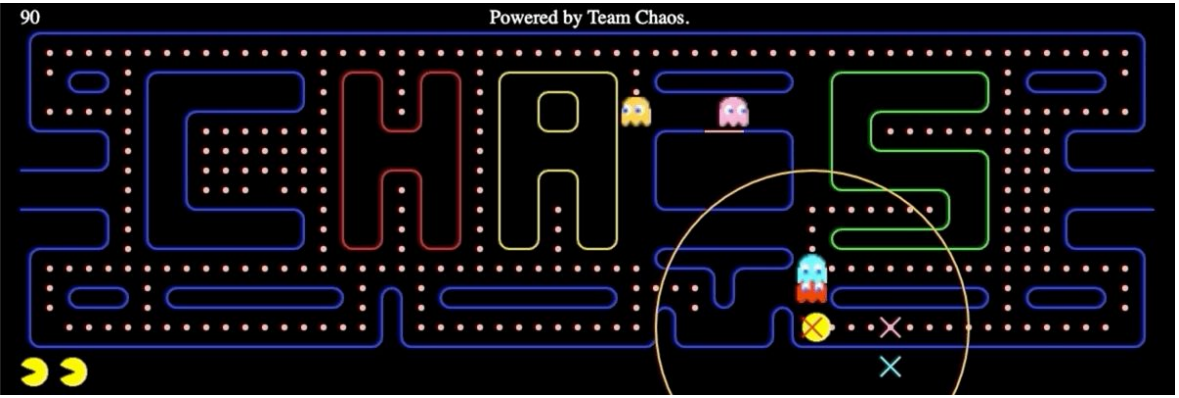
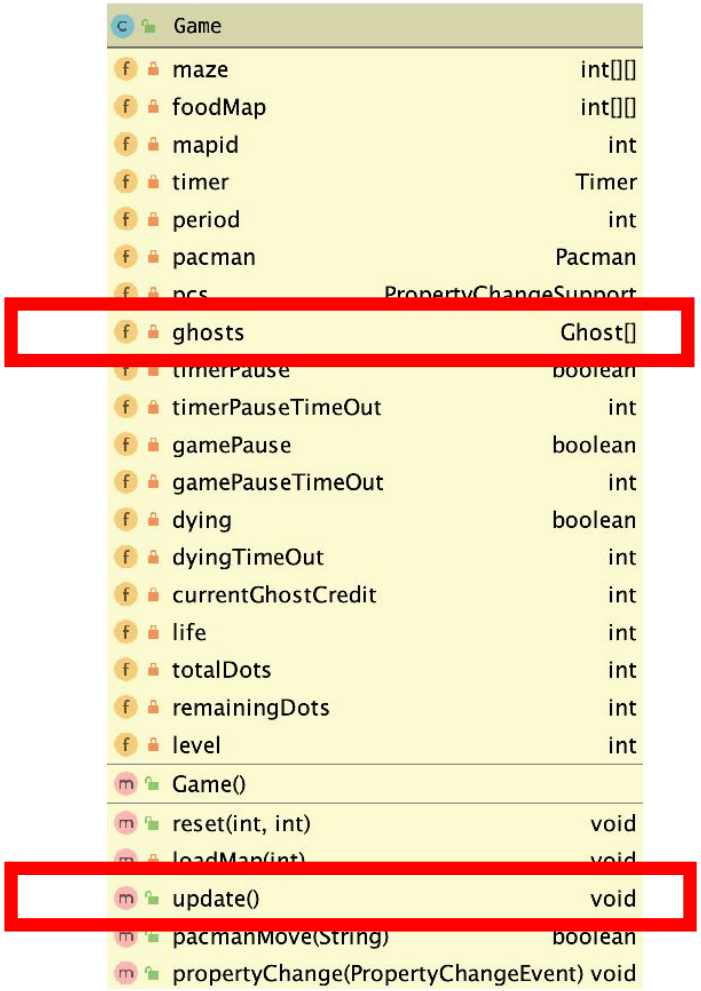
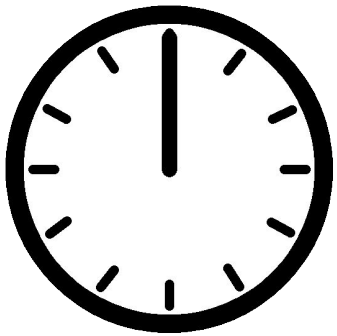
Ghosts' state

States changed by Timer:

- Chase







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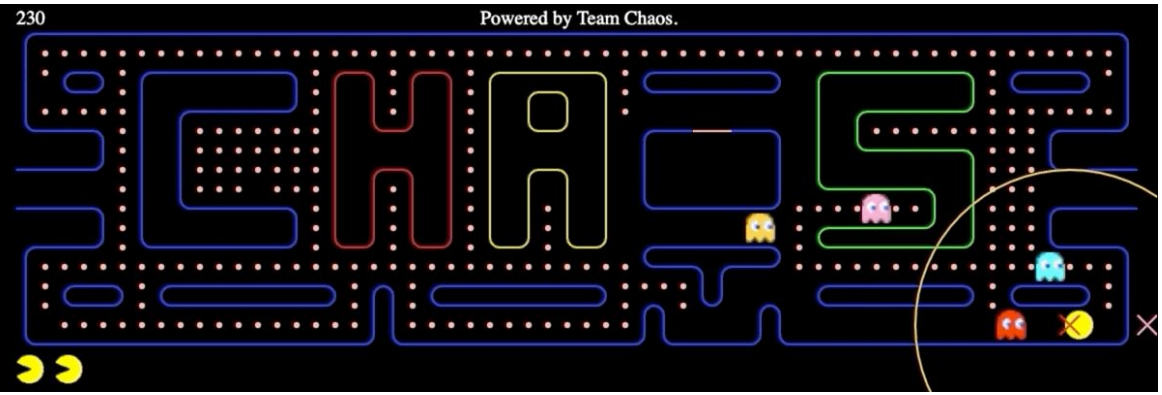
Ghosts' state

States changed by Event:

- Frighten



Pacman	
credit	int
eatenDots	int
playerAction	Direction
pcs	PropertyChangeSupport
Pacman(Game, Coordinate, int, int)	
move()	void
getEatenDots()	int
earnCredit()	void
addCredit(int)	void
setPlayerAction(Direction)	void
getItemOnPlayerAction()	int
addListeners(PropertyChangeListener[])	void
resetLoc()	void

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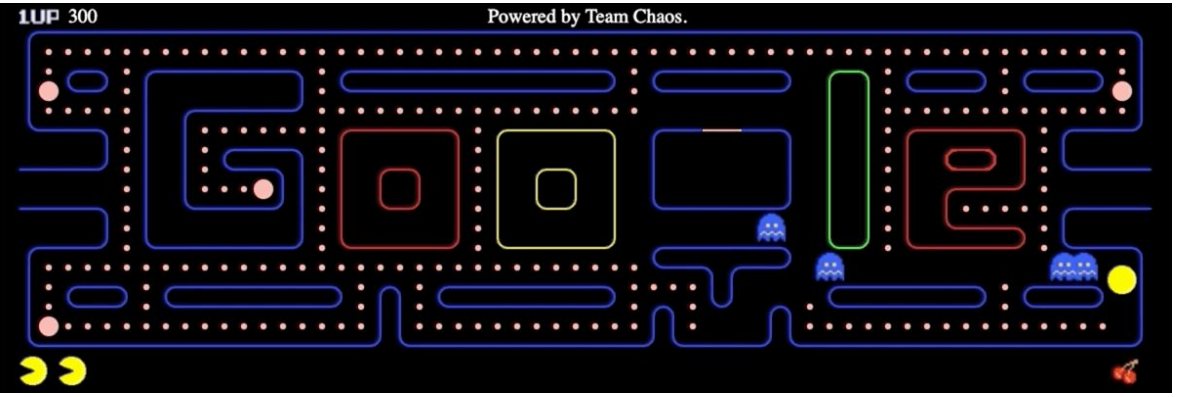
Ghosts' state

States changed by Event:

- Eaten



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loadMap(int)	void
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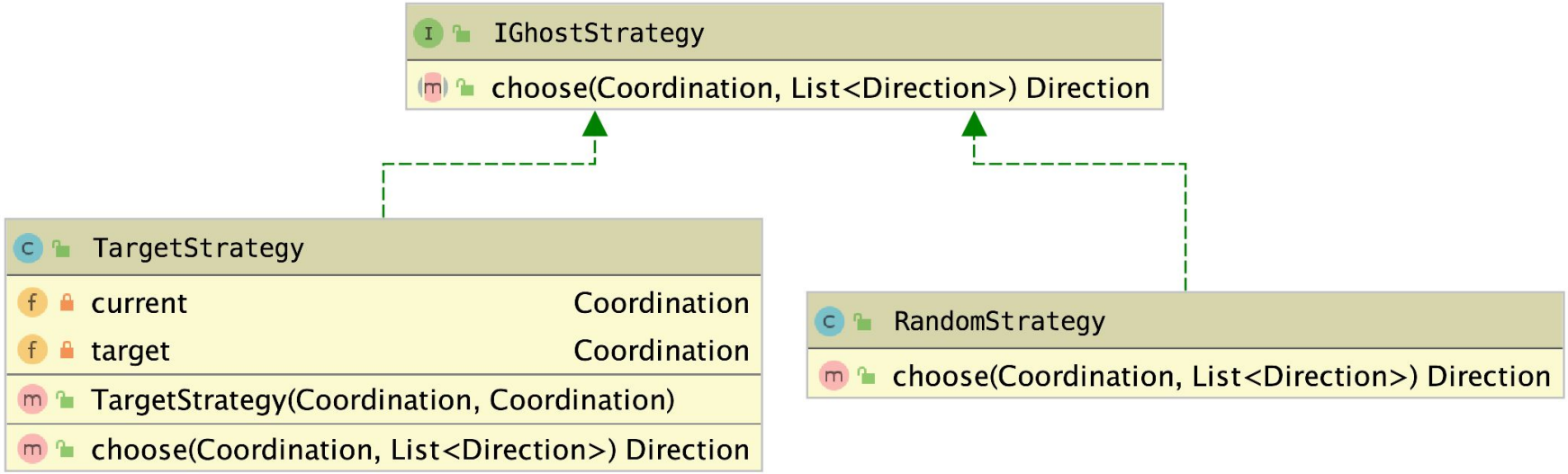
Strategy



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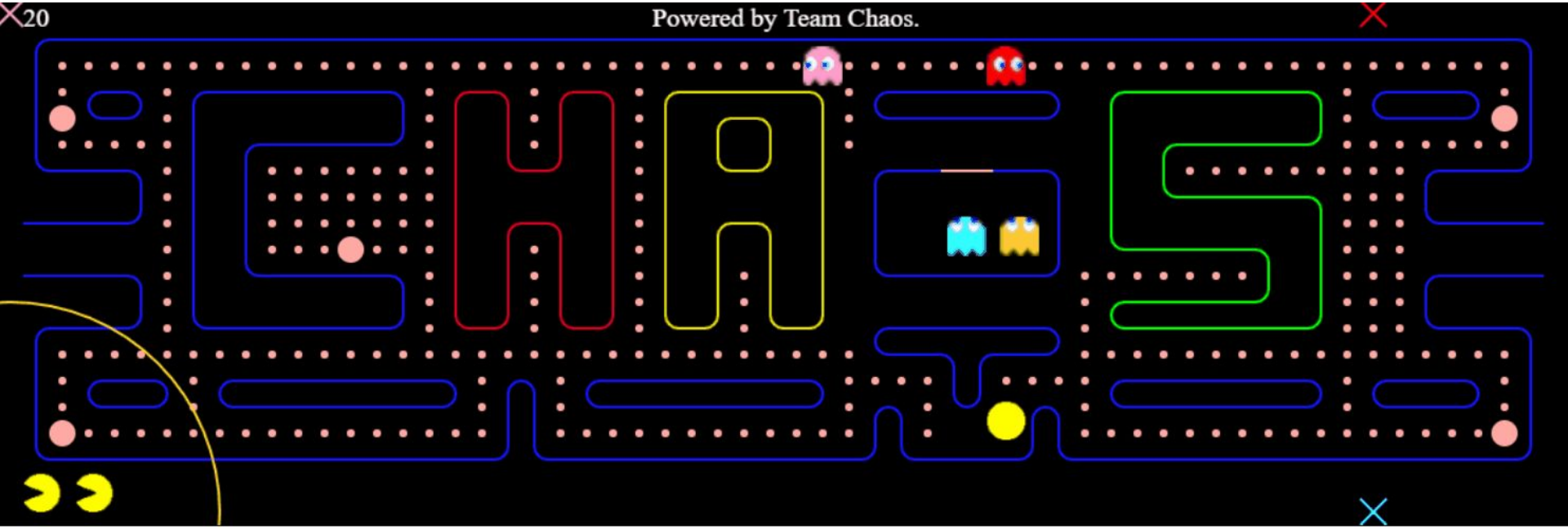
Strategy



Pause | Resume | Restart | Display Target

Chaos ▾ Select

Click here to change the map.

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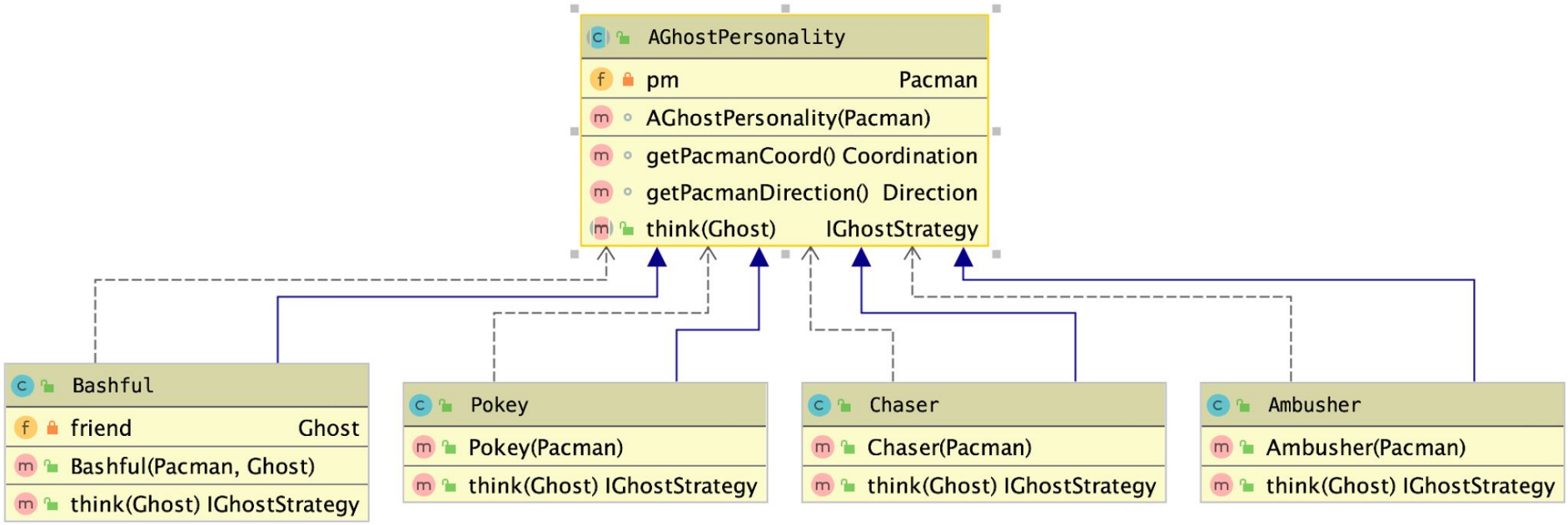
Personality



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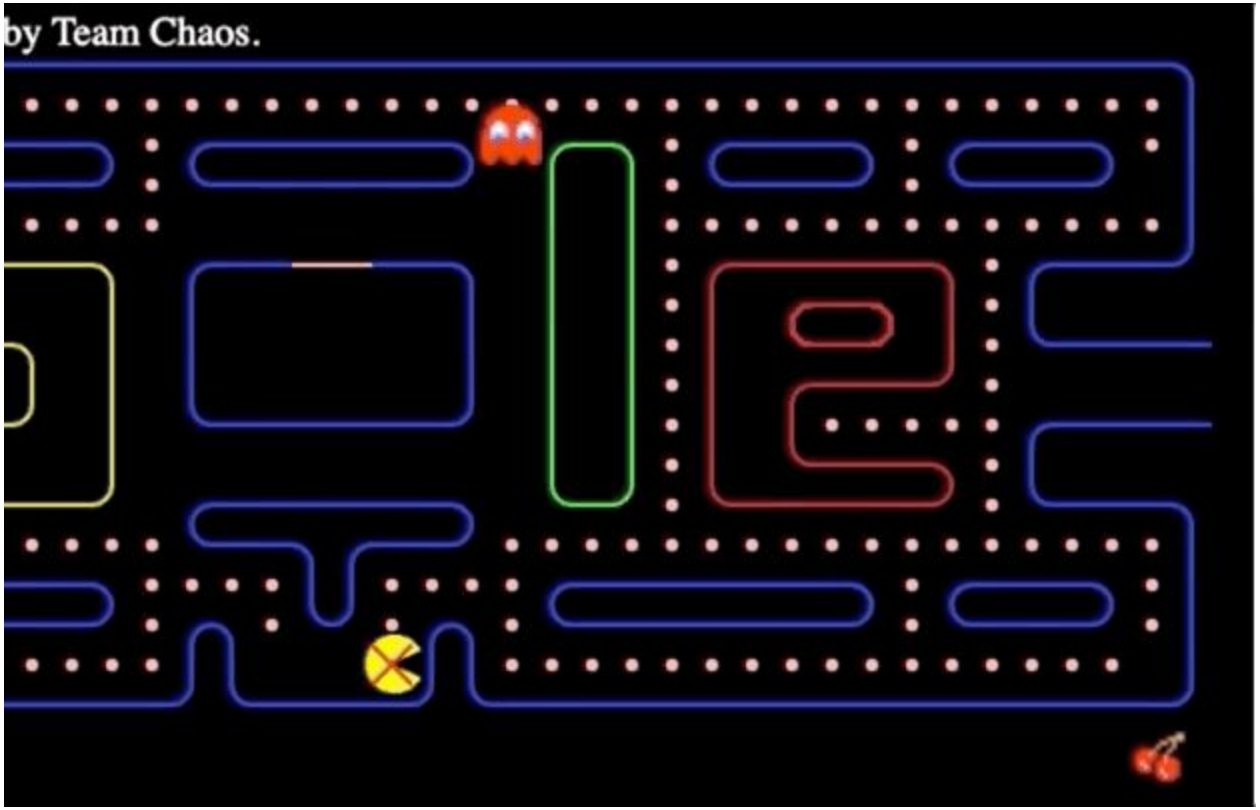
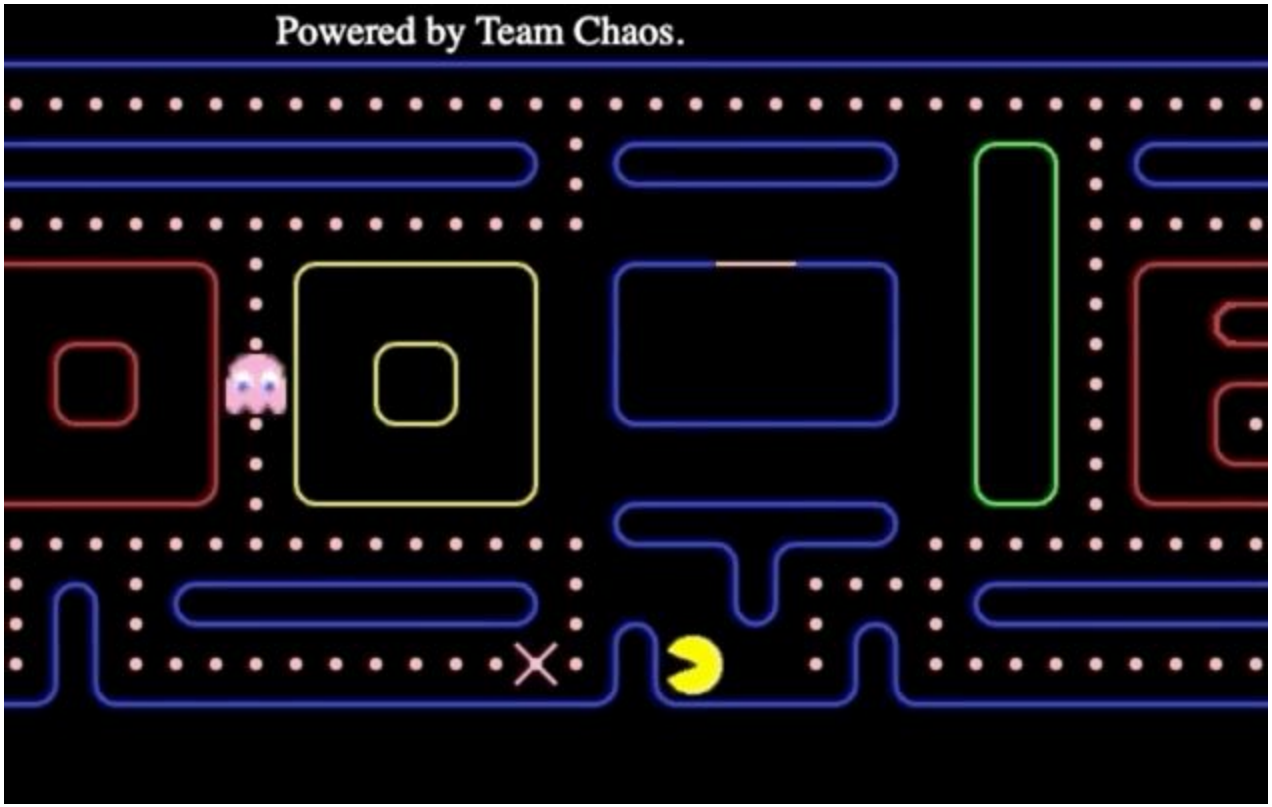
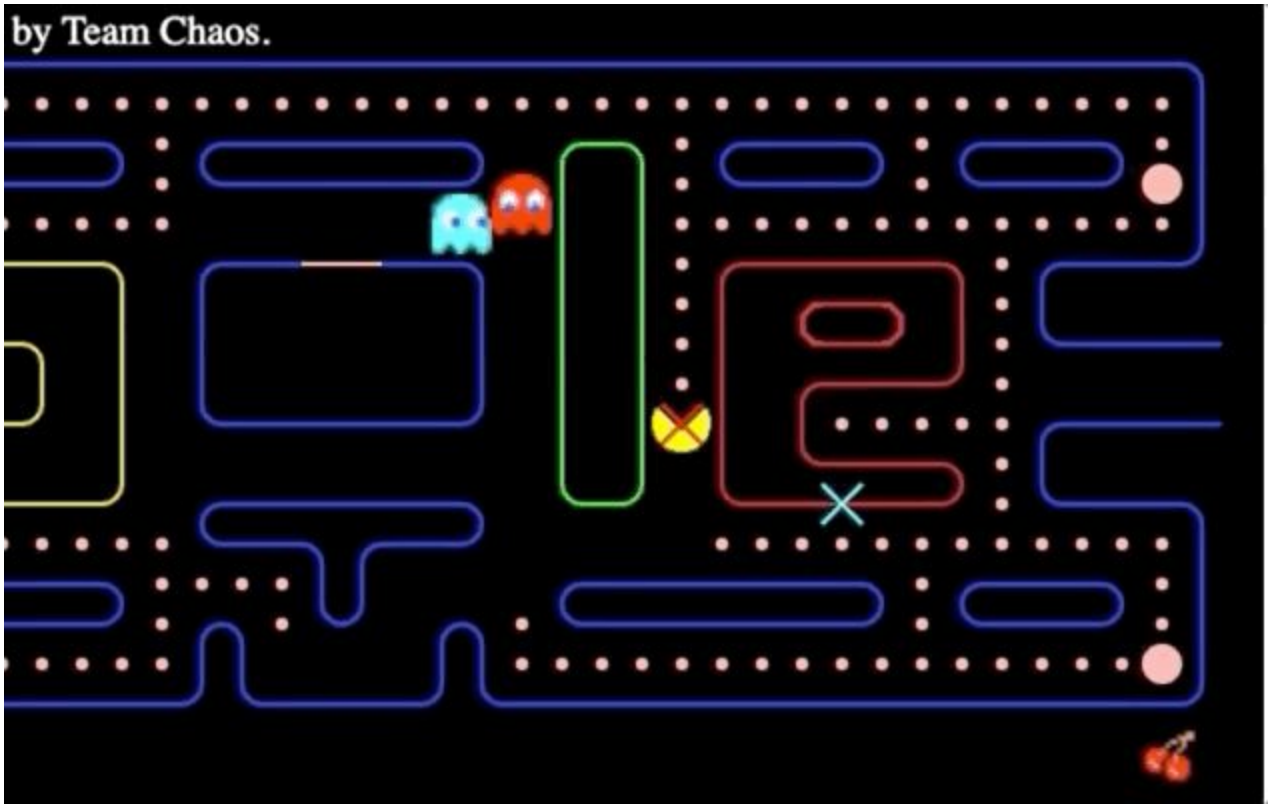
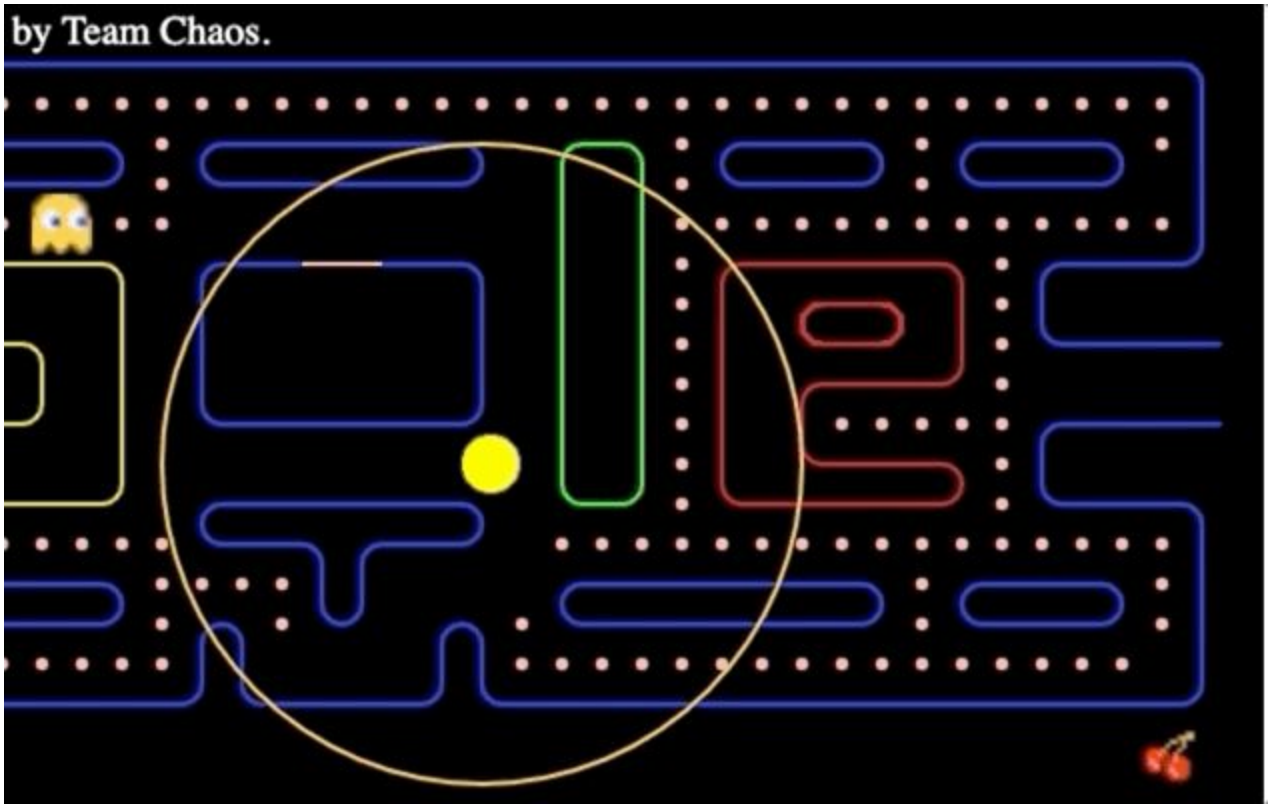

by Team Chaos.

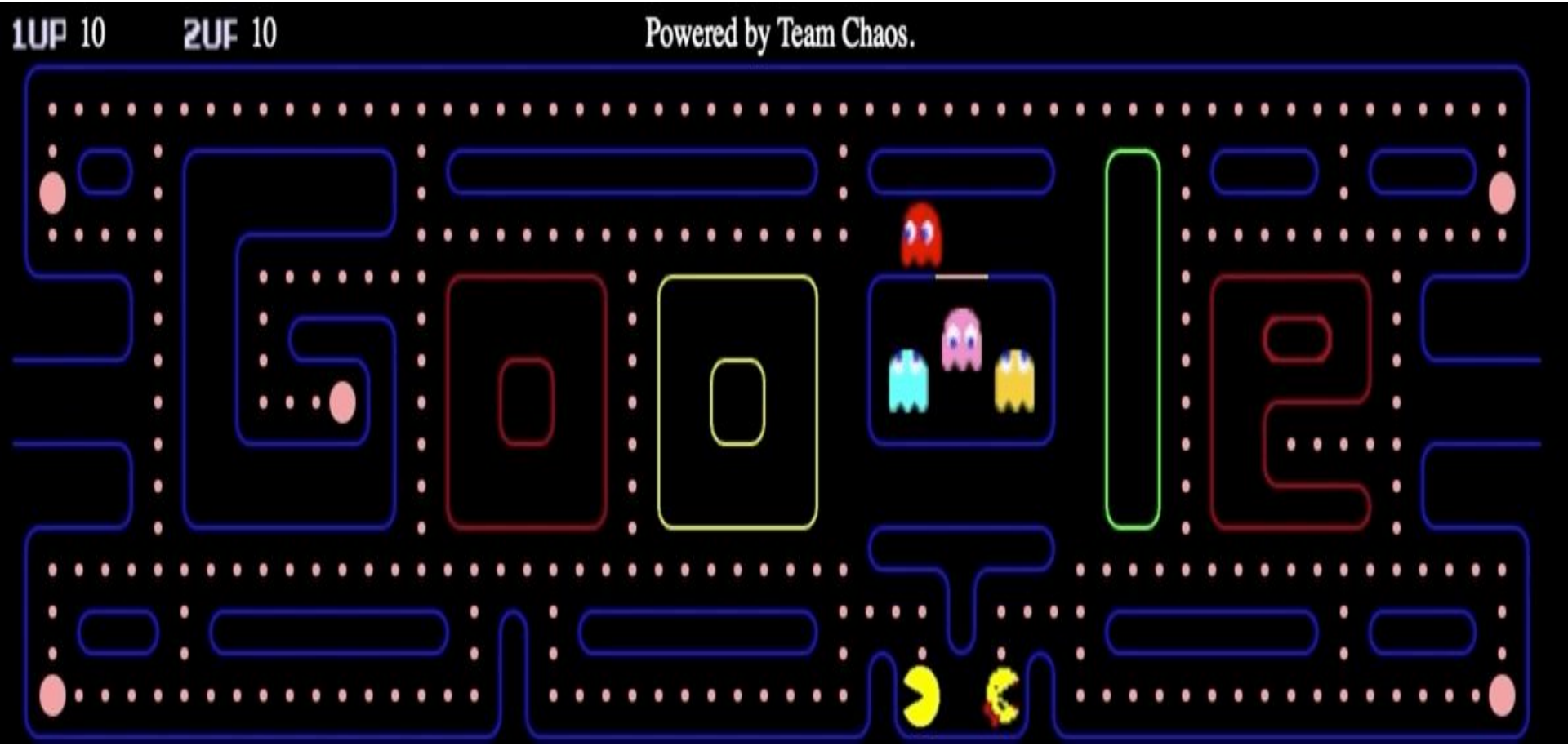

Powered by Team Chaos.


by Team Chaos.


by Team Chaos.

User Extensibility

- Add one more player.



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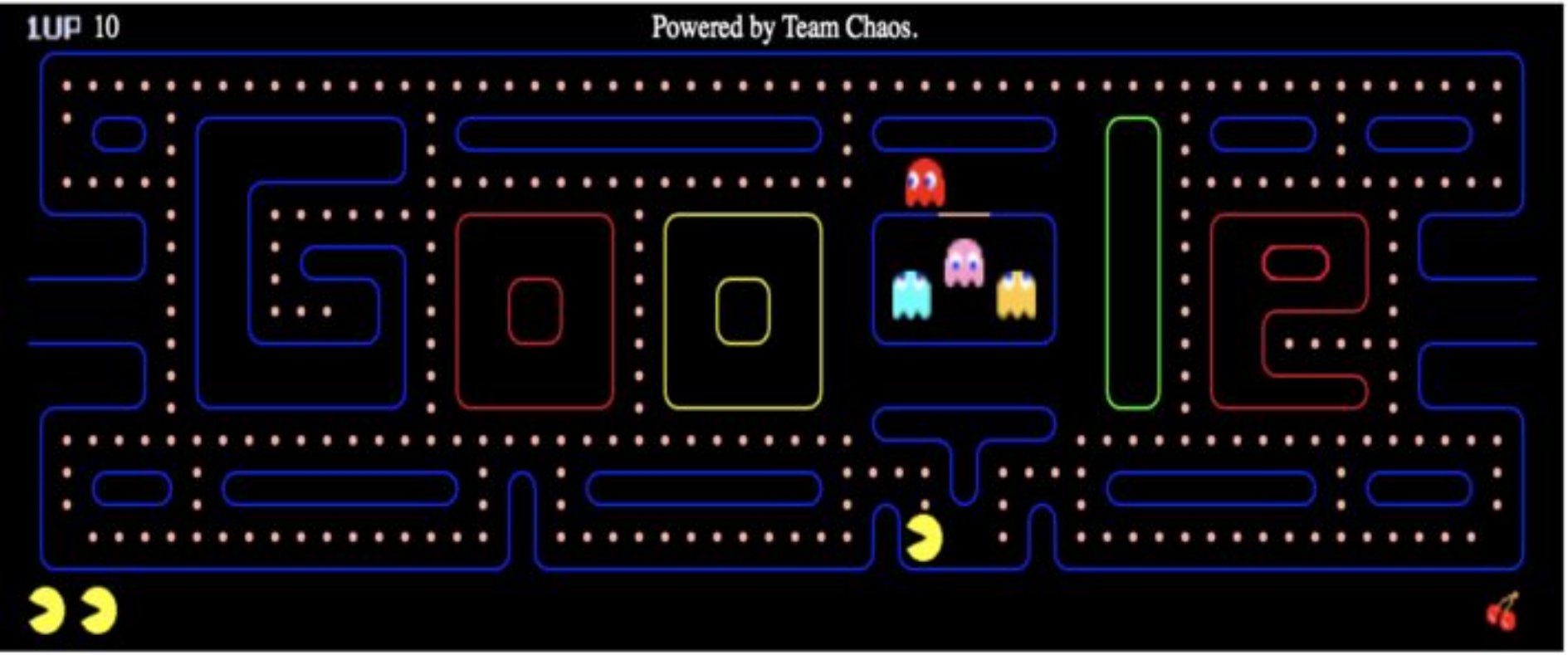
Google Logo Map

- Select different maps.



Google Select

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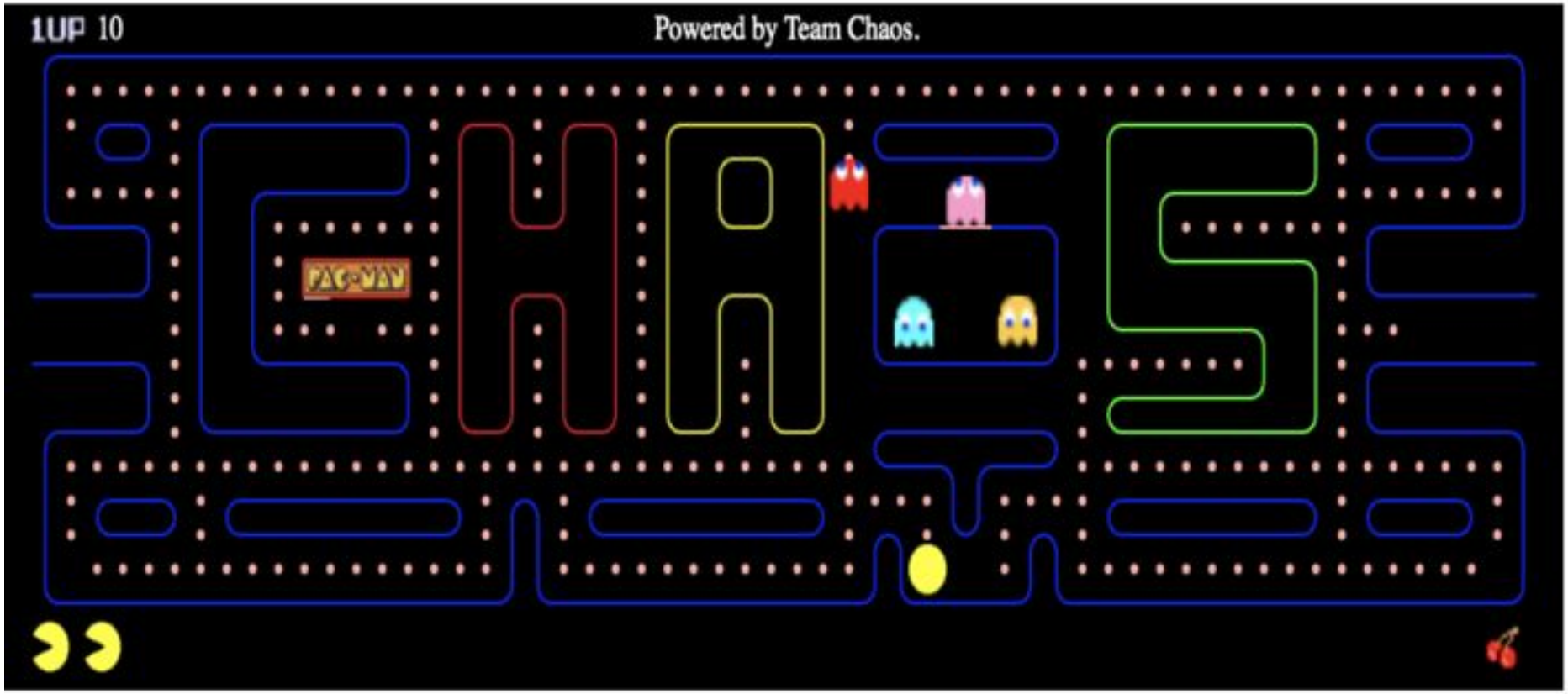
Chaos Logo Map

- Select different maps.



Chaos Select

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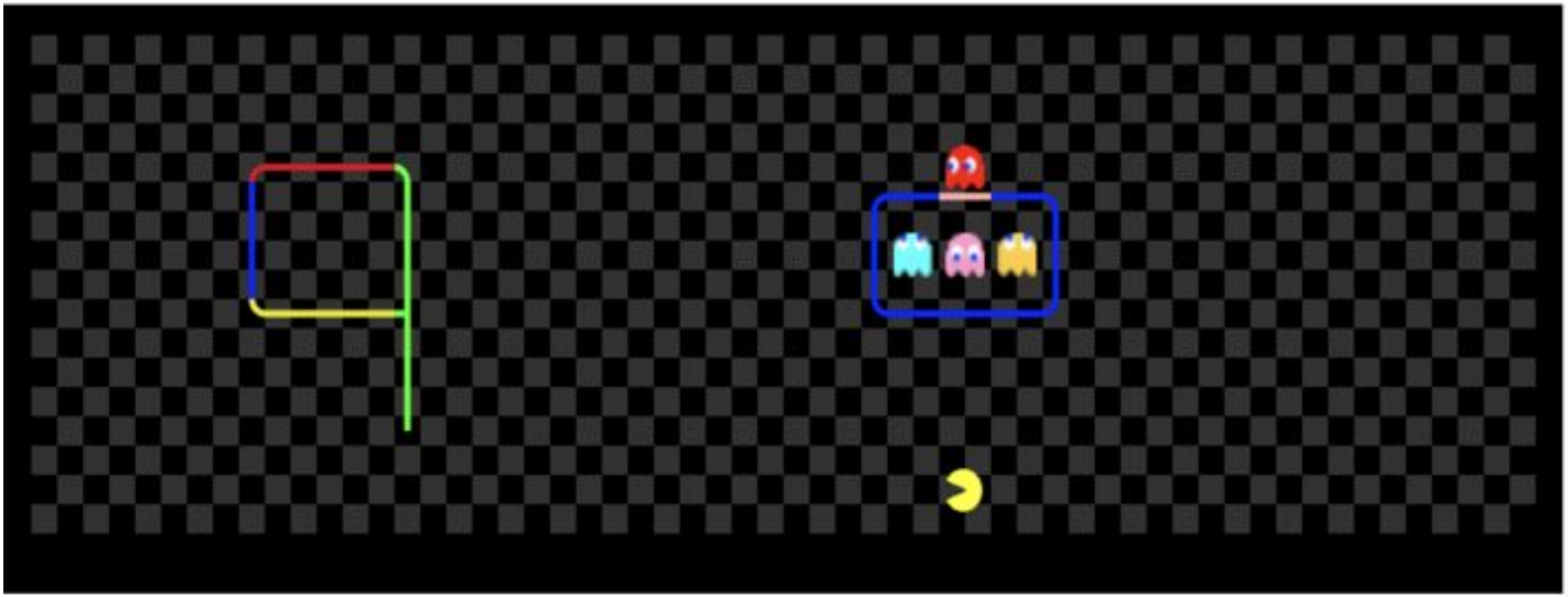
Map edit/design



Eraser | Blue Pen | Red Pen | Yellow Pen | Green Pen | Reset

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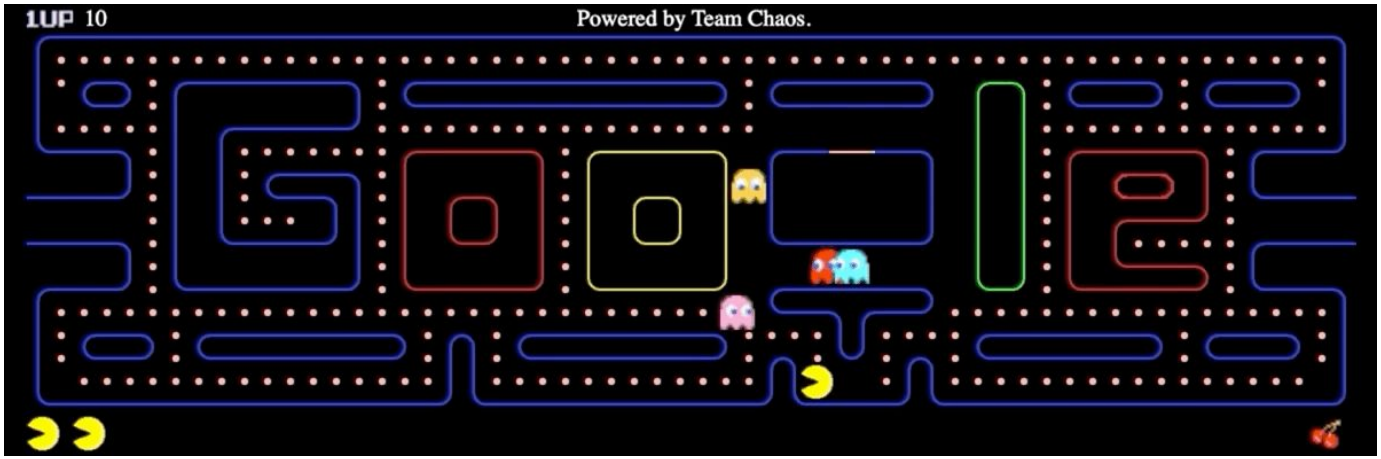
Game Levels

- Game over



- Next Level

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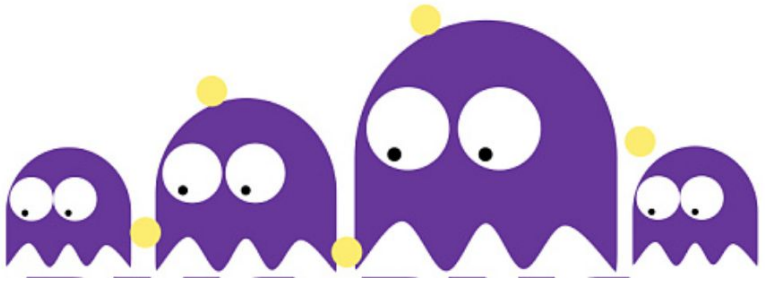
Conclusion



- Design Patterns
  - Decorator
  - Strategy
  - Observer
  - Template
- Pac-Man Game Requirements
  - ✓ Ghosts will use some strategy to move toward/away from Pac-Man. They won't all use the same strategy
  - ✓ Periodically, a piece of fruit will appear that will be worth 100 points.
  - ✓ Pac-Man does not move when colliding with a wall
  - ✓ Pac-Man should be able to exit one side of the game board and enter in on the other side
  - ✓ When Pac-Man eats the piece of fruit, the fruit disappears
  - ✓ When Pac-Man eats small dots, the dots disappear. Each small dot is 10 points.
  - ✓ When Pac-Man eats large dots, the ghosts turn dark blue and then start flashing (blue and white colors) for a small period of time. Each large dot is 50 points.
  - ✓ If Pac-Man collides with a dark blue or flashing ghost, the ghosts become two eyes and travel quickly to the square box in the middle of the screen. For a single large dot, the first ghost Pac-Man collides with is worth 200, the second is worth 400, the third is worth 800, and the fourth is worth 1600.
  - ✓ if Pac-Man collides with a non dark blue or non-flashing ghost, Pac-Man loses 1 life
  - ✓ Pac-man starts with 3 lives.
  - ✓ The game ends if Pac-Man loses all 3 lives. There should be a "Game Over" message shown on the game.
  - ✓ Pac-Man advances to the next level if Pac-Man eats all the dots before losing 3 lives. Each level should become more difficult.
  - ✓ Keep track of Pac-man's score for the game. The score doesn't need to be saved when starting a new game.
  - ✓ The Pac-Man game should be extensible in some way that can be selected by a user.

Questions?

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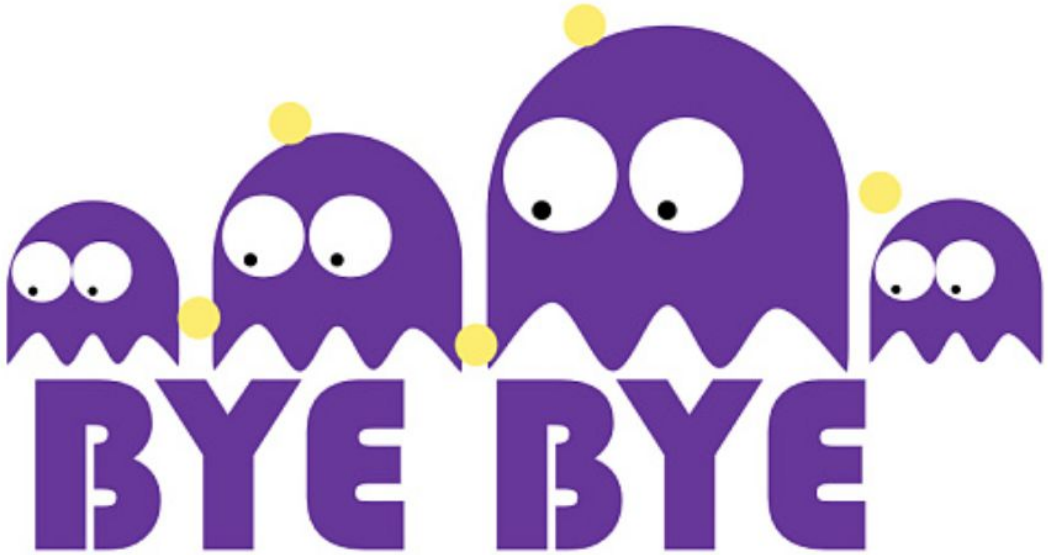
Thank you!



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