



Pac-Man Final Design



Team Team

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Soham Pajwani, Xiangnan Chen, Yi Zhang



Meet our Team Team Team Members

Team Lead

- *Lee Hsun Hsieh*

Tech Lead

- *Xiangnan Chen*

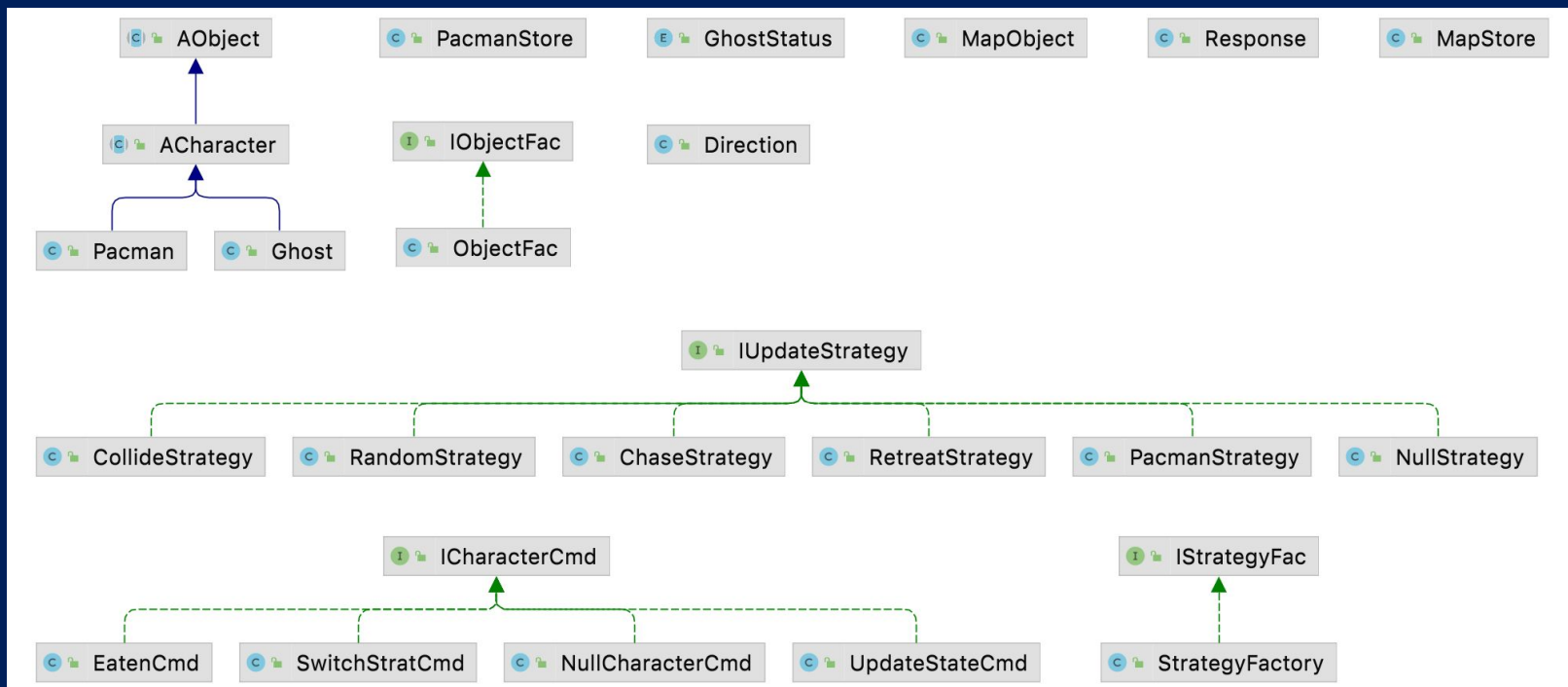
Documentation Lead

- *Yi Zhang*

Developers

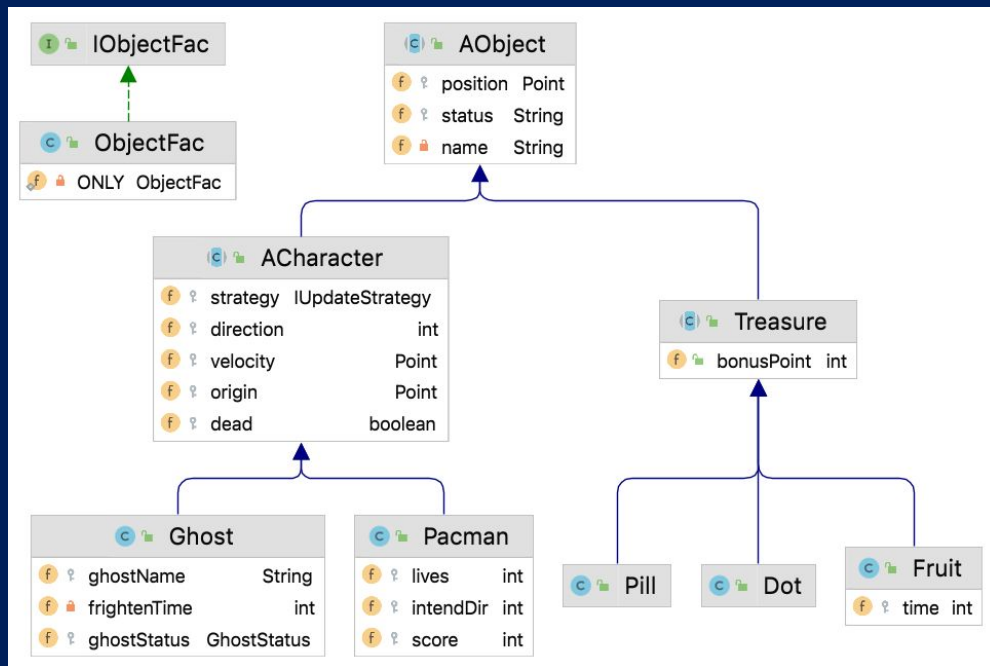
- *Soham Pajwani - Frontend*
- *Shuai He - Backend*
- *Jiaxin Wu - Backend*

UML Diagram



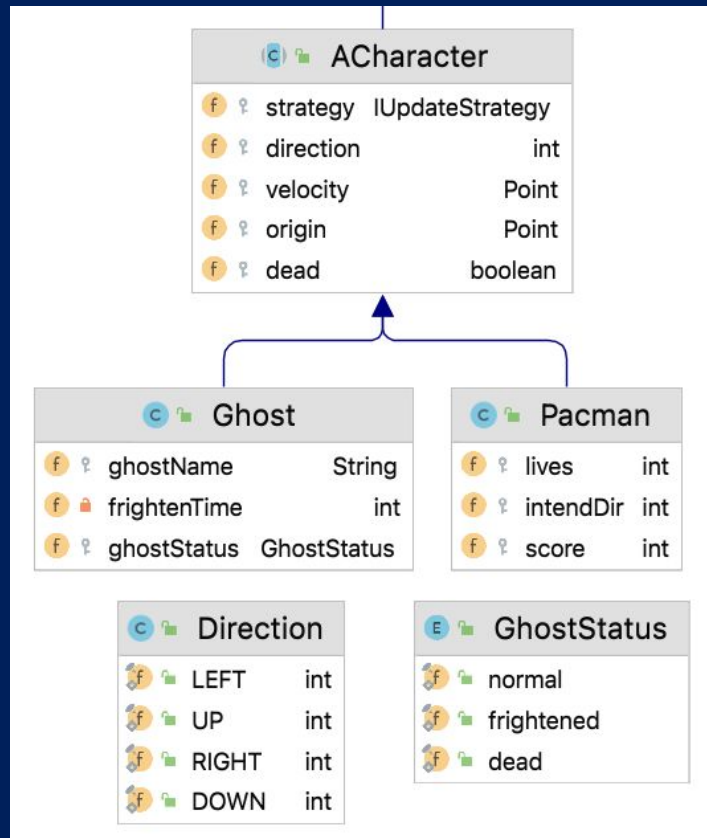
AObject

- AObject
 - Abstract class of character and treasure
 - Position
 - Status
- ObjectFac (Singleton)
 - A factory that creates object
 - Pacman
 - Ghost
 - Pill
 - Fruit
 - Dot



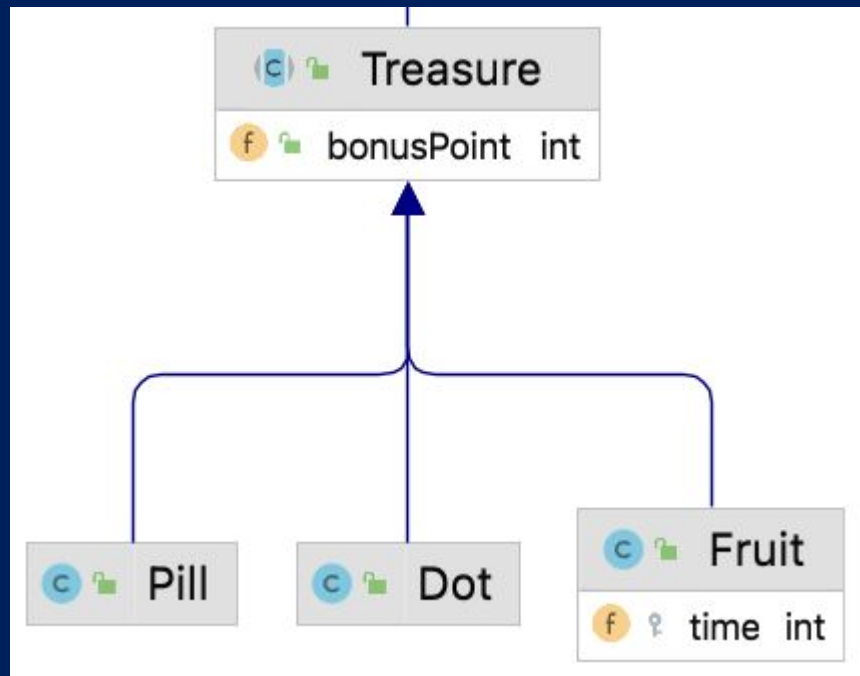
Character

- Abstract class Character
 - Inherit from AObject
 - Direction
 - Velocity
- Concrete classes (union design pattern)
 - Pacman
 - Lives
 - Ghost
 - Name
- Direction class
 - named field



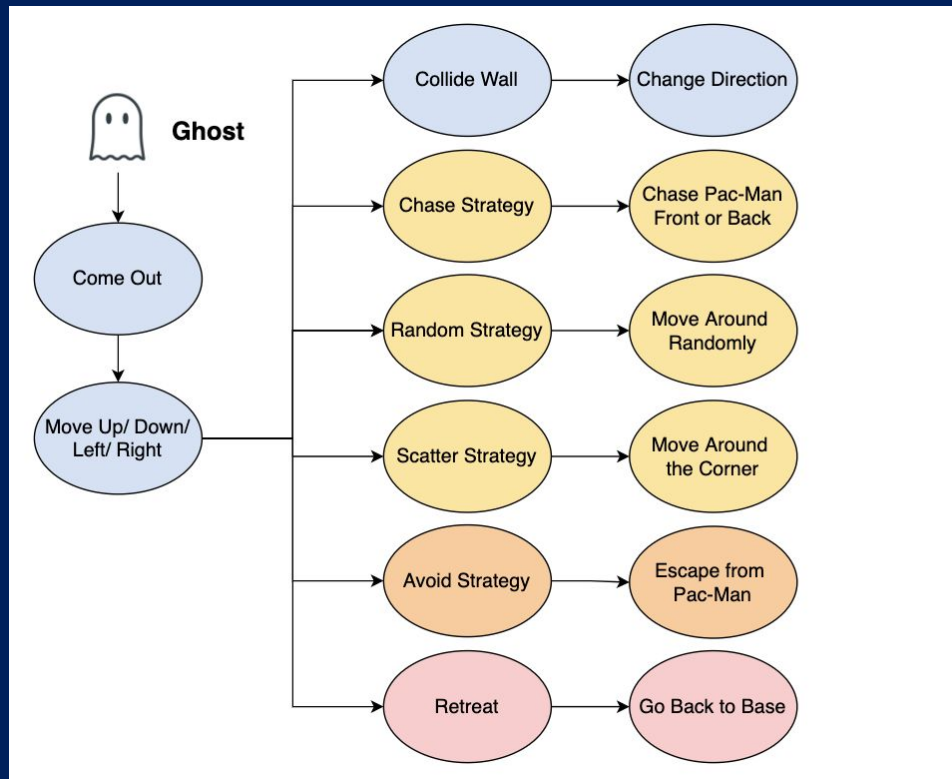
Treasure

- Abstract class Treasure
 - Inherit from AObject
 - bonusPoint
- Concrete classes
 - Dot
 - Fruit
 - Time
 - Pill



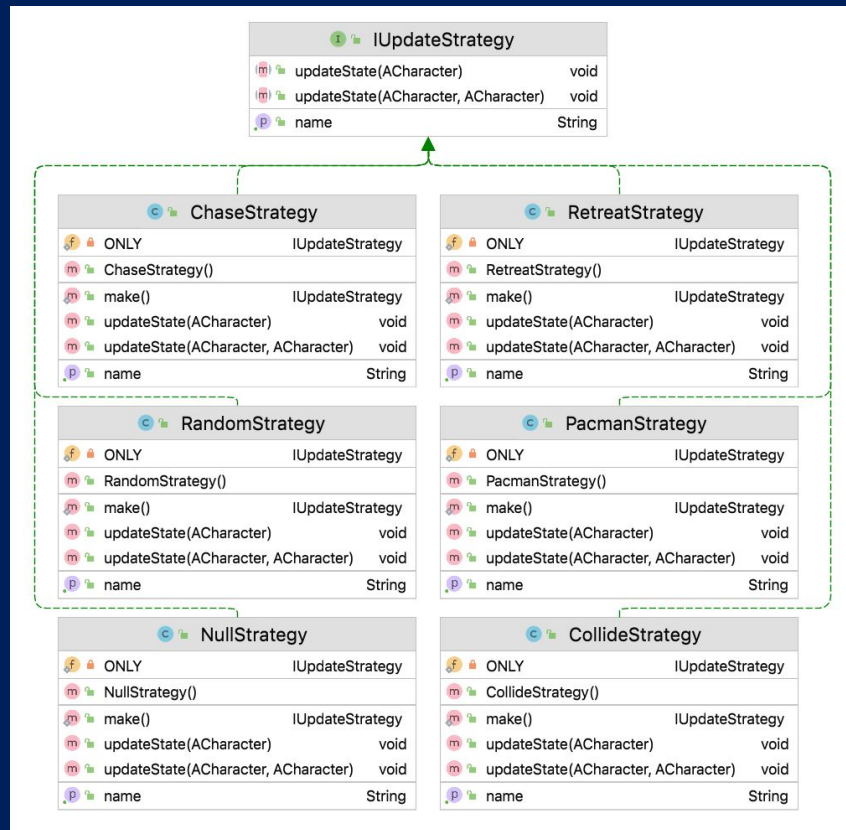
Strategy

- Interface IUpdateStrategy
- Concrete classes
 - PacmanStrategy
 - CollideStrategy(Treasure)
 - moveStrategy(Ghost)
 - Chase
 - Random
 - Scatter
 - Avoid
 - Retreat



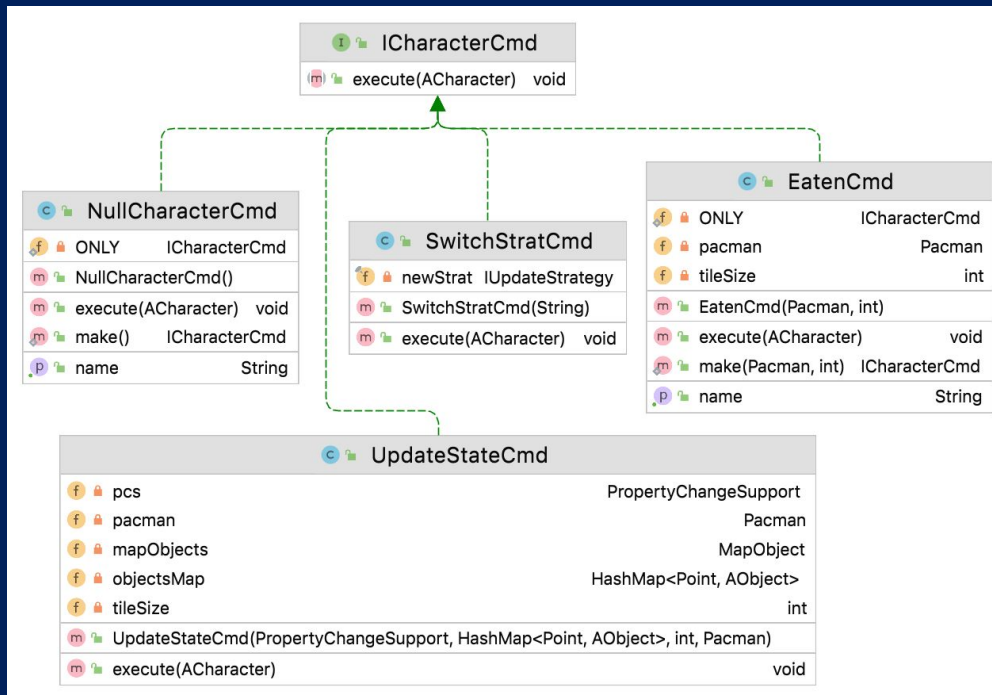
Ghost Movements

- Strategy Factory (factory design pattern, singleton design pattern)
 - Create Strategy



Command

- Interface ICharacterCmd
- Interface InteractionCmd
- Concrete classes
 - Update Command (Character)
 - Switch Strategy Command (Character)
 - Interaction Command (Object to Object)
 - Collide
 - Eaten
 - Beaten
- InteractionCmd Factory (factory design pattern, singleton design pattern)
 - Create Interaction Command



REST API Design

Method	End Point	Parameters	Returns	Description
POST	/init	{ "level": uint, "numberOfGhost": uint, "ghostSpeed": uint }	{ "map": arr[m][n] }	Initialize the game and generate a game board based on users' choices.
POST	/update		{ "map": (i,j), "score": uint, "isGameOver": boolean, "lives": uint, characters:[Pacman, Ghost1, Ghost2,...], treasures:[fruit, t treasure] }	Update the game board.
GET	/reset			Reset the game board.
GET	/highestScore		{ "highest score": highest score }	Get the highest score of the user.
POST	/keypress	{ "keypress": num }	None	Send keypresses to the backend.
POST	/levelInfo		None	Send level to customize difficulties of the game

Game Demo

<https://pacman-final-team-team.herokuapp.com>

Thank you!
Questions?