Assignment One Report

  
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# Control

W key: Move front.

S Key: Move back.

A Key: Move left.

D Key: Move right.

Z Key: Save current position.

X Key: Load object to saved position.

C Key: Undo function.

Q Key: Create Object.

E Key: Create Object.

Space Key: Change objects’ color.

Left-mouse key: Spawn ball.

# Table of contents for each outlined section with references to each team member’s contributions

Zhijun Yang: Command Design Pattern, Factory Design Pattern, DLL, Scene.

Junneng He: One Optional Design Pattern, Command Design Pattern UML, Report.

# Describe the math, algorithms and logic behind the implementation.

## Math:

According to the position of object, we made function for move speed as 1.0f. When player plays the game, object will move to what direction player selects by 1.0f of speed. Factory Design pattern just create an object and create an empty object as launcher inside the main object, when player presses Q or E, the object will be created on launcher’s position, objects have two types, sphere and capsule, according to what key player pressed to create.

## Algorithms:

Command design pattern: Creating controller function to call each function. When move function is called, it will save all commands and do a negative direction function for undo function. When undo function is called, the saved command list will change, last one will change to previous command, and object will go back last command.

Factory design pattern: create a factory class called object, and two child class inherit main class. Each created object will response in console and show what object is created.

One Optional Design pattern:

## Logic:

Player press button to call function. Move functions for move left, right, back, and front by 1.0f of speed, and command list will save these commands for undo function. When undo function is called, object will read previous command and go back to previous position that object moved, and the command list will remove last one command. Factory pattern creates a main class and when player create object, it responses what object will create in scene.

# Reference for code.

Command Design Pattern Reference: <https://www.habrador.com/tutorials/programming-patterns/1-command-pattern/>

According to this code to do command Design pattern, it creates command function and controller to call these functions, it creates a list for saving each command

for undo function, if undo function is called, the list will

remove last one command and go back and read previous

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