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**CS681 Homework 5****Yong Zhuang**

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**Problem 1**

Define the Command interface as a functional interface

**Solution**

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**Algorithm 1** public interface Command

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```
public void execute(SpaceShip ship);
```

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**Problem 2**

Explain how to implement InputHandler with lambda expressions

**Solution**

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**Algorithm 2** public class UserClient

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```
public static void main(String[] args)
{
    SpaceShip ship = new SpaceShip();
    InputHandler ih = new InputHandler(ship);
    while true do
        ih.handleInput();
        if isBroken(ship) then
            break; // game over.
        end if
    end while
}
```

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**Algorithm 3** public class InputHandler

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```
private Command rightKey;
private Command leftKey;
private Command spaceKey;
public SpaceShip ship;
public InputHandler(SpaceShip ship,Command right,Command left,Command space)
{
    this.ship=ship;
    this.rightKey=right;
    this.leftKey=left;
    this.spaceKey=space;
}
public InputHandler(SpaceShip ship)
{
    this(ship,(SpaceShip s)->s.move("right"),,
    (SpaceShip s)->s.move("left"),,
    (SpaceShip s)->s.fireBullet());
}
public void setRightKey(Command right)
{
    this.rightKey=right;
}
public void setLeftKey(Command left)
{
    this.leftKey=left;
}
public void setSpaceKey(Command space)
{
    this.spaceKey=space;
}
public void handleInput()
{
    if isPressed(Key.RIGHT) then
        this.rightKey.execute(this.ship);
    else
        if isPressed(Key.LEFT) then
            this.leftKey.execute(this.ship);
        else
            if isPressed(Key.SPACE) then
                this.spaceKey.execute(this.ship);
            end if
        end if
    end if
}
```

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