설계패턴 4주차 실습

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LAB 1) – Prototype Pattern

import copy

import random

class Character:

    @staticmethod

    def generate\_unique\_id():

        new\_id = random.randint(1, 100)

        while new\_id in Character.generated\_ids:

            new\_id = random.randint(1, 100)

        Character.generated\_ids.add(new\_id)

        return new\_id

    generated\_ids = set()

    def \_\_init\_\_(self):

        self.health = 500

        self.defense = 100

        self.mana = 500

        self.magic = 100

        self.agility = 100

        self.range = 100

        self.skill = None

        self.name = None

        self.ID = self.generate\_unique\_id()

    def clone(self):

        cloned = copy.deepcopy(self)

        cloned.ID = self.generate\_unique\_id()

        return cloned

class Warrior(Character):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.health = 1000

        self.defense = 500

        self.skill = "검 스윙"

class Wizard(Character):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.mana = 1000

        self.magic = 500

        self.skill = "파이어 볼"

class Archer(Character):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.agility = 500

        self.range = 300

        self.skill = "정밀 사격"

warrior = Warrior()

warrior\_1 = warrior.clone()

warrior\_1.name = "나는전사"

warrior\_1.agility = 50

warrior\_2 = warrior.clone()

warrior\_2.name = "나도전사"

wizard = Wizard()

wizard\_1 = wizard.clone()

wizard\_1.name = "나는 마법사"

wizard\_1.health = 550

wizard\_2 = wizard.clone()

wizard\_2.name = "나도 마법사"

archer = Archer()

archer\_1 = archer.clone()

archer\_1.name = "나는 궁수"

archer\_1.mana = 50

archer\_2 = archer.clone()

archer\_2.name = "나도 궁수"

print("warrior 1 ", warrior\_1.\_\_dict\_\_)

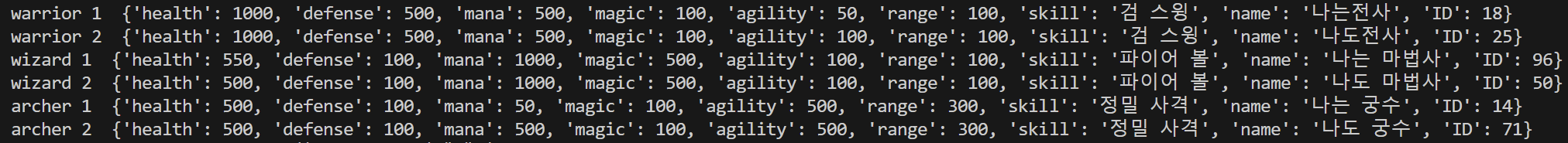
print("warrior 2 ", warrior\_2.\_\_dict\_\_)

print("wizard 1 ", wizard\_1.\_\_dict\_\_)

print("wizard 2 ", wizard\_2.\_\_dict\_\_)

print("archer 1 ", archer\_1.\_\_dict\_\_)

print("archer 2 ", archer\_2.\_\_dict\_\_)



LAB 2) – Builder Pattern

class Character:

    def \_\_init\_\_(self):

        self.ID = None

        self.name = None

        self.health = 500

        self.defense = 100

        self.mana = 500

        self.magic = 100

        self.agility = 100

        self.range = 100

        self.skill = None

class CharacterBuilder:

    def \_\_init\_\_(self):

        self.character = Character()

    def set\_name(self, name):

        self.character.name = name

        return self

    def set\_health(self, health):

        self.character.health = health

        return self

    def set\_defense(self, defense):

        self.character.defense = defense

        return self

    def set\_mana(self, mana):

        self.character.mana = mana

        return self

    def set\_magic(self, magic):

        self.character.magic = magic

        return self

    def set\_agility(self, agility):

        self.character.agility = agility

        return self

    def set\_range(self, range):

        self.character.range = range

        return self

    def set\_skill(self, skill):

        self.character.skill = skill

        return self

    def generate\_ID(self):

        self.character.ID = random.randint(1, 100)

        return self

    def build(self):

        if not self.character.name:

            raise ValueError("Name must be set")

        if not self.character.ID:

            self.generate\_ID()

        return self.character

class WarriorBuilder(CharacterBuilder):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.character.skill = "검 스윙"

        self.character.health = 1000

        self.character.defense = 500

class WizardBuilder(CharacterBuilder):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.character.skill = "파이어볼"

        self.character.mana = 1000

        self.character.magic = 500

class ArcherBuilder(CharacterBuilder):

    def \_\_init\_\_(self):

        super().\_\_init\_\_()

        self.character.skill = "정밀 사격"

        self.character.agility = 500

        self.character.range = 300

warrior\_builder = WarriorBuilder()

warrior\_1 = warrior\_builder.set\_name("나는 전사").build()

warrior\_builder\_2 = WarriorBuilder()

warrior\_2 = warrior\_builder\_2.set\_name("나도 전사").build()

wizard\_builder = WizardBuilder()

wizard\_1 = wizard\_builder.set\_name("나는 마법사").build()

wizard\_builder\_2 = WizardBuilder()

wizard\_2 = wizard\_builder\_2.set\_name("나도 마법사").build()

archer\_builder = ArcherBuilder()

archer\_1 = archer\_builder.set\_name("나는 궁수").build()

archer\_builder\_2 = ArcherBuilder()

archer\_2 = archer\_builder\_2.set\_name("나도 궁수").build()

print("warrior 1", warrior\_1.\_\_dict\_\_)

print("warrior 2", warrior\_2.\_\_dict\_\_)

print("wizard 1", wizard\_1.\_\_dict\_\_)

print("wizard 2", wizard\_2.\_\_dict\_\_)

print("archer 1", archer\_1.\_\_dict\_\_)

print("archer 2", archer\_2.\_\_dict\_\_)

