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import random

class Monster:

    # class variables/attributes
    time = "day"
    bonus = -1

    def __init__(self, ID, HP, power):
        # instance variables/attributes
        self.id = ID
        self.hp = HP
        self.power = power
        self.level = 1

        # optional (depends on actual game design):
        # new instances' power can be updated given the value of the bonus
        self.update_power()

    # instance method
    def update_power(self):
        self.power = self.power + self.bonus

    # instance method
    def change_level(self, hero_level, difficulty):
        if difficulty == "easy":
            diffnum = -2
        elif difficulty == "normal":
            diffnum = 0
        else:
            diffnum = 2
        self.level = hero_level + diffnum

    # instance method
    def intro(self):
        print(f"Monster {self.id}, {self.hp} hp, {self.power} power, and level {self.level}.")

    # class method
    def change_time(cls, time):
        if time == "day":
            cls.time = "day"
            cls.bonus = -1
        else:
            cls.time = "night"
            cls.bonus = 2

mons = []
for i in range(10):
    ID = 101 + i
    hp = random.randint(1, 9)
    power = random.randint(3, 7)
    mons.append(Monster(ID, hp, power))

print(" ----- first monster introduction: ")
mons[0].intro()

print(" ----- random monster introduction: ")

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random_monster = random.randint(0, len(mons) - 1)
mons[random_monster].intro()

print(" ----- all monsters introductions: ")
for i in mons:
    i.intro()

#for i in range(len(mons)):
#    mons[i].intro()

print(" ----- chaning time to 'night': ")
Monster.change_time(Monster, "night")

for i in mons:
    i.update_power()
    i.intro()

hero_level = 50
difficulty = "hard"
print(" ----- meeting a hero, level 50, on 'hard' difficulty")

for i in mons:
    i.change_level(hero_level, difficulty)

for i in mons:
    i.intro()

# cs 101B notes polymorphism
print("_" * 80)
print(" POLYMORPHISM: different .intro() methods but same name ")
print()

class Hero:

    def __init__(self, hp):
        self.hp = hp

    def intro(self):
        print(f"Hello! Hero arrived!")

class Monster:

    def __init__(self):
        self.level = 1

    def intro(self):
        print("Danger. Monster is close!")

h = Hero(5)
m = Monster()

characters = [h, m]

for i in characters:
    i.intro()

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