Divide and Conquer Assignment Report

2019311801 이균서

Execution Environment

OS

Distributor ID: Ubuntu
Description: Ubuntu 22.04.3 LTS
Release: 22.04
Codename: jammy

Python3 Runtime and Pipfile (pipenv)

Runtime Version: Python 3.11.6
package manager and virtual environment: pipenv

package dependencies가 없는 것을 확실히 하기 위해 pipenv를 사용했습니다.

하기 `Pipfile`에 명시된 대로, denpendencies는 없습니다.

```
[[source]]
url = "https://pypi.org/simple"
verify_ssl = true
name = "pypi"

[packages]

[dev-packages]

[requires]
python_version = "3.11"
python_full_version = "3.11.6"
```

즉, 추가로 설치한 패키지는 없습니다.

Program Source Code

```
import sys, csv, random
from itertools import combinations, permutations, product,
combinations_with_replacement
input = sys.stdin.readline
print = sys.stdout.write
sex_dict = {"남": 0, "여": 1}
user_sex_str = input().rstrip()
user_sex = sex_dict[user_sex_str]
user_goal_str = input().rstrip()
goal_dict = {"체중감량": 0, "근육증가": 1, "건강유지": 2}
user_goal = goal_dict[user_goal_str]
try:
    fin = open("data.csv", "r", encoding="utf-8")
except FileNotFoundError:
    print("data.csv not found!\n")
    sys.exit(0)
csv_fin = csv.reader(fin)
유산소 = []
근력_운동 = []
for i, line in enumerate(csv_fin):
    if i == 0:
        continue
    if line[0] == "유산소":
        유산소.append(line)
    elif line[0] == "근력 운동":
        근력_운동.append(line)
print(f"일주일 {user_goal_str} 루틴을 추천합니다.({user_sex_str}성)\n\n")
if user_goal == 0:
    # 유산소 3번, 근력_운동 1번
    유산소_근력_운동_조합 = random.choice(list(combinations_with_replacement(유산
소, 3))) + random.choice(list((combinations(근력_운동, 1))))
    유산소_근력_운동_조합_순열 = list(permutations(유산소_근력_운동_조합))
    to_be_printed = random.choice(유산소_근력_운동_조합_순열)
    for i, exercise in enumerate(to_be_printed):
        print(f"DAY{i+1}({exercise[0]})\n")
        print(f"{exercise[2] if user_sex == 0 else exercise[3]}\n\n")
elif user_goal == 1:
    # 유산소 1번, 근력_운동 3번
    iteration_trigger = True
    while iteration_trigger:
        근력_운동_조합_다른_부위 = random.choice(list(combinations(근력_운동, 3)))
        # if the combination of 근력_운동_조합_다른_부위 contains same body part,
then re-choose
        if len(set([i[1] for i in 근력_운동_조합_다른_부위])) == 3:
            iteration_trigger = False
            continue
```

```
    유산소_근력_운동_조합 = random.choice(list(combinations_with_replacement(유산소, 1))) + 근력_운동_조합_다른_부위
    유산소_근력_운동_조합_순열 = list(permutations(유산소_근력_운동_조합))
    to_be_printed = random.choice(유산소_근력_운동_조합_순열)
    for i, exercise in enumerate(to_be_printed):
        print(f"DAY{i+1}({exercise[0]})\n")
        print(f"{exercise[2] if user_sex == 0 else exercise[3]}\n\n")
elif user_goal == 2:
    # 유산소 2번, 근력_운동 2번
    iteration_trigger = True
    while iteration_trigger:
        근력_운동_조합_다른_부위 = random.choice(list(combinations(근력_운동, 2)))
        # if the combination of 근력_운동_조합_다른_부위 contains same body part, then re-choose
        if len(set([i[1] for i in 근력_운동_조합_다른_부위])) == 2:
            iteration_trigger = False
            continue

    유산소_근력_운동_조합 = random.choice(list(combinations_with_replacement(유산소, 1))) + 근력_운동_조합_다른_부위
    유산소_근력_운동_조합_순열 = list(permutations(유산소_근력_운동_조합))
    to_be_printed = random.choice(유산소_근력_운동_조합_순열)
    for i, exercise in enumerate(to_be_printed):
        print(f"DAY{i+1}({exercise[0]})\n")
        print(f"{exercise[2] if user_sex == 0 else exercise[3]}\n\n")

fin.close()
```

Inputs

```
남
체중감량
```

```
남
근육증가
```

```
남
건강유지
```

여
체중감량

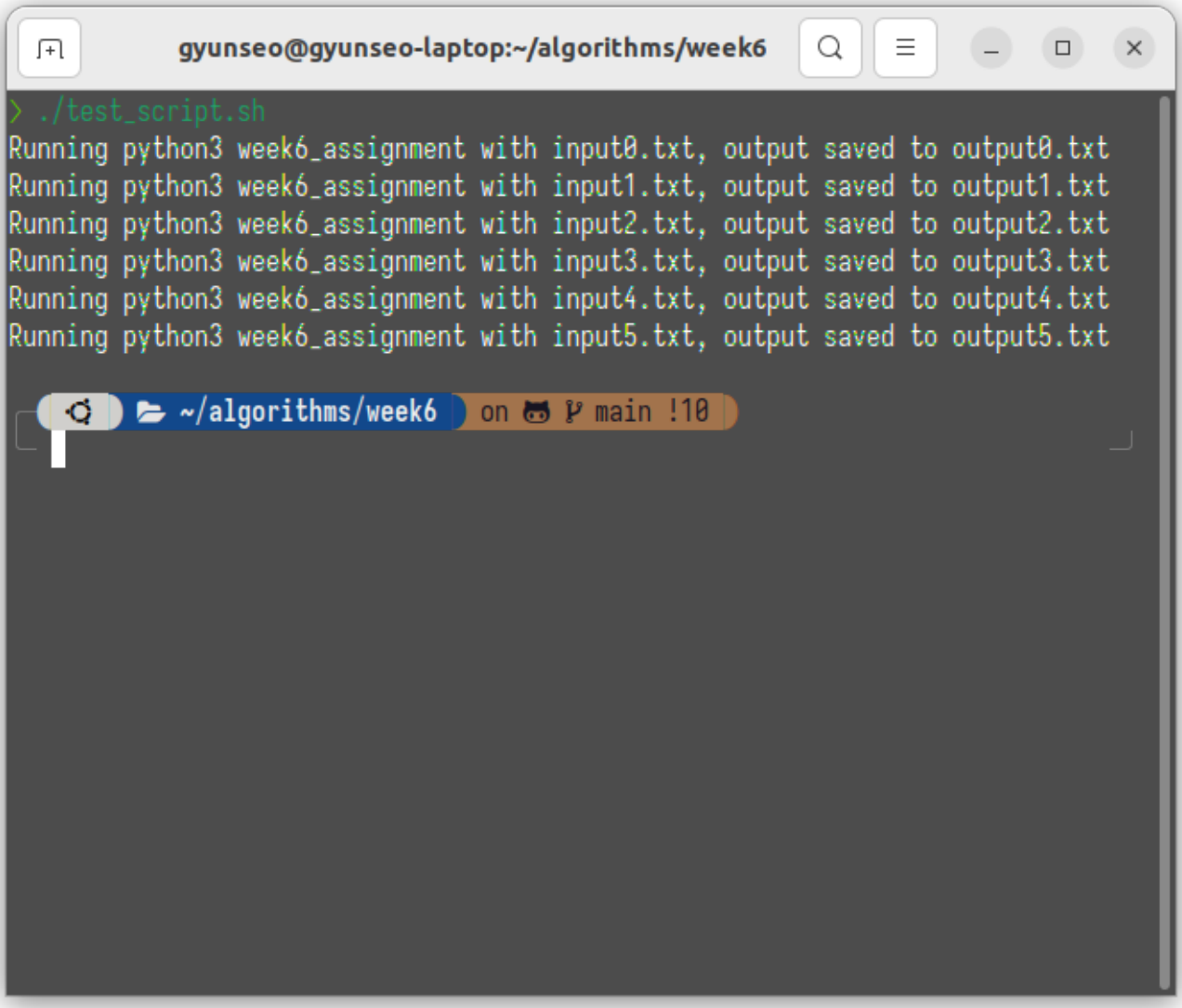
여
근육증가

여
건강유지

How to Run

```
pip install pipenv
pipenv install
chmod 777 test_scipt.sh
./test_script.sh
```

Program Execution Result



`output{i}.txt` 에서 확인 가능합니다.