



기말 과제

과 목	기계학습및프로그래밍
담당 교수	이 훈 표
학 번	201720970
학 과	소프트웨어·미디어·산업공학부
이 름	권 대 한

* 작성 코드는 압축 파일 내 모두 첨부하였습니다.

<10 주차 x, y 좌표에 따른 인접 곡선 결과>

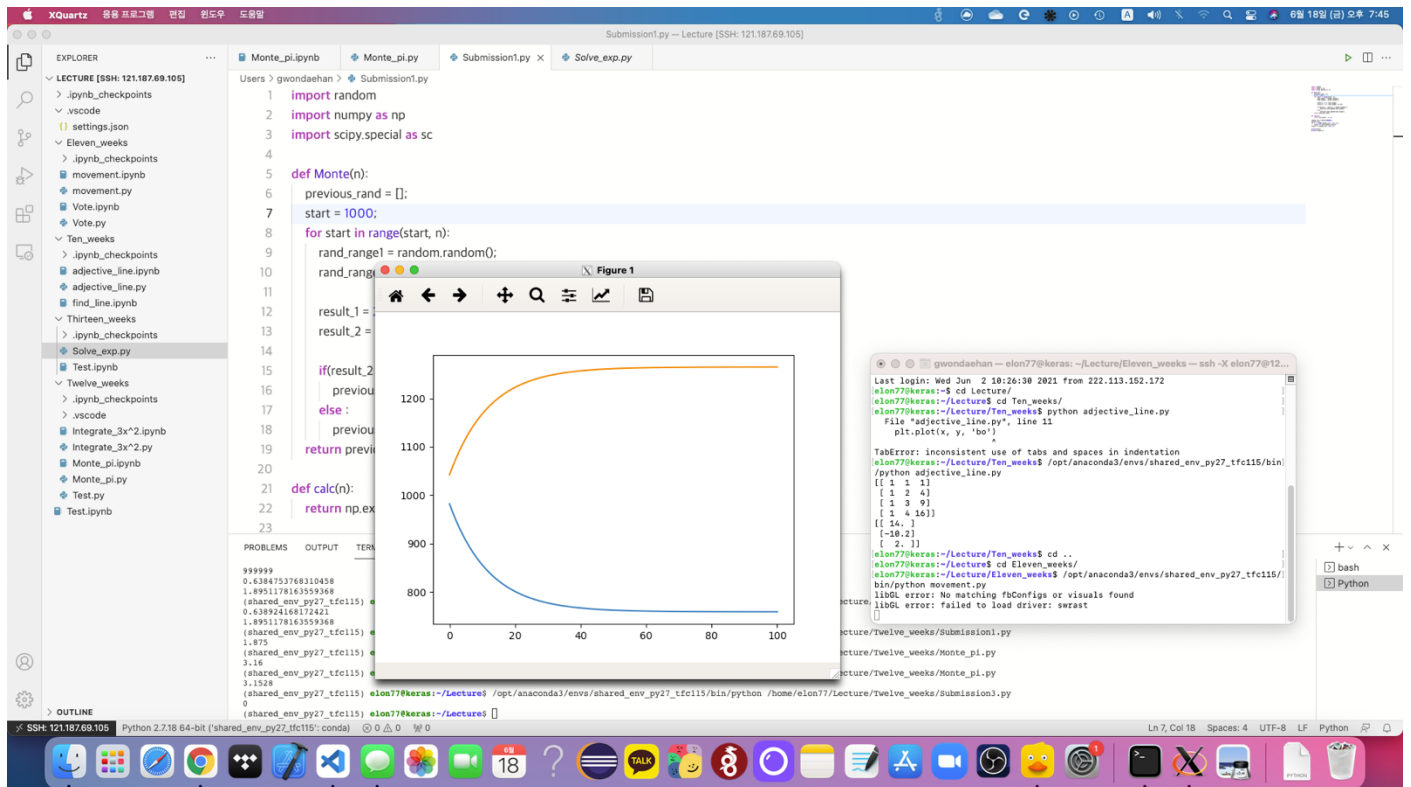
```
gwondaehan — elon77@keras: ~/Lecture/Ten_weeks — ssh -X elon77@121.1...
To see these additional updates run: apt list --upgradable

New release '20.04.2 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

*** System restart required ***
Last login: Wed Jun  2 10:26:30 2021 from 222.113.152.172
[elon77@keras:~$ cd Lecture/
[elon77@keras:~/Lecture$ cd Ten_weeks/
[elon77@keras:~/Lecture/Ten_weeks$ python adjective_line.py
  File "adjective_line.py", line 11
    plt.plot(x, y, 'bo')
              ^
TabError: inconsistent use of tabs and spaces in indentation
[elon77@keras:~/Lecture/Ten_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/bin]
/python adjective_line.py
[[ 1  1  1]
 [ 1  2  4]
 [ 1  3  9]
 [ 1  4 16]]
[[ 14. ]
 [-10.2]
 [  2. ]]
elon77@keras:~/Lecture/Ten_weeks$
```

<유동 인구 예상 문제 결과>

<plot, ssh-XWindow 에서의 그래프 출력 결과>



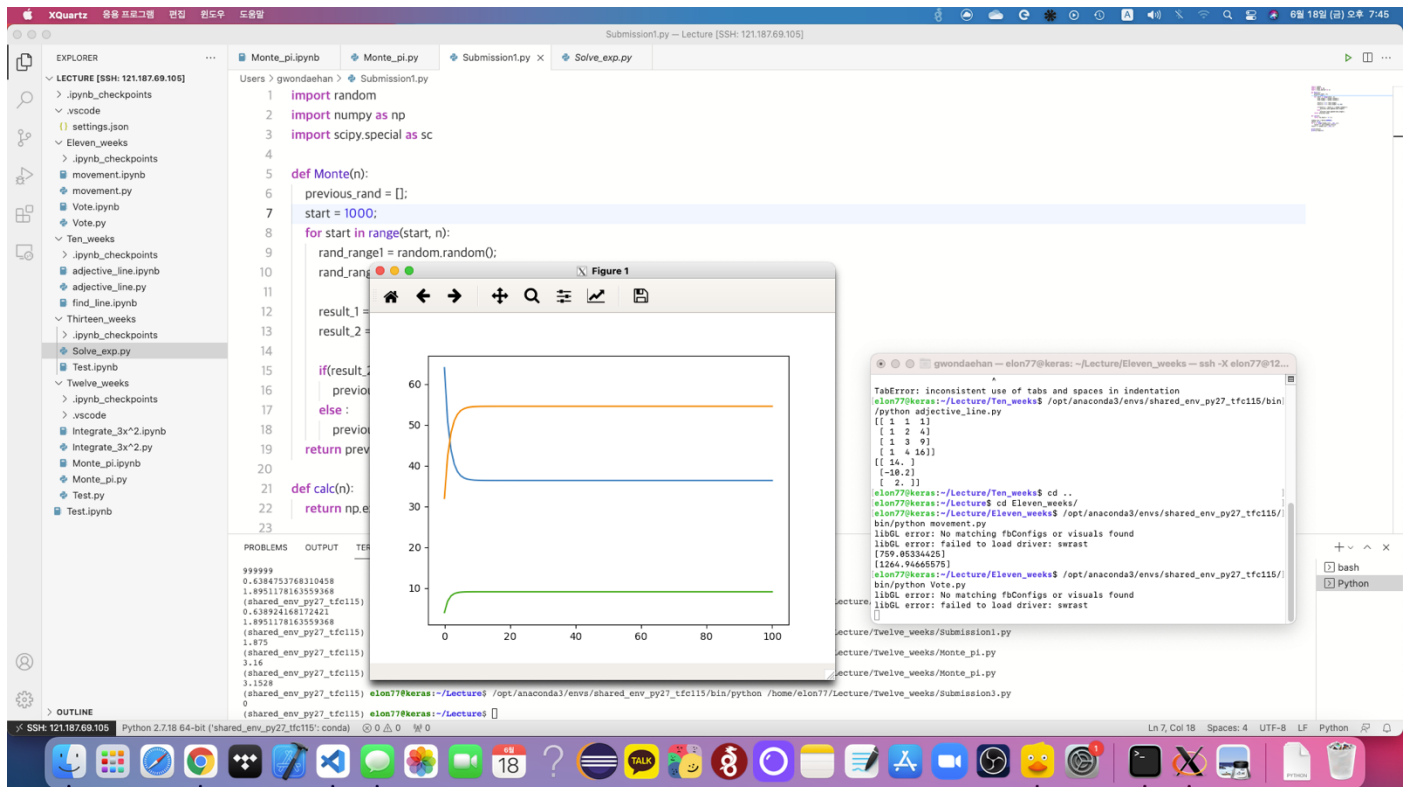
<예상되는 각 인구수 계산 결과>

```
gwndaehan — elon77@keras: ~/Lecture/Eleven_weeks — ssh -X elon77@12...

[elon77@keras:~/Lecture$ cd Ten_weeks/
[elon77@keras:~/Lecture/Ten_weeks$ python adjective_line.py
File "adjective_line.py", line 11
    plt.plot(x, y, 'bo')
    ^
TabError: inconsistent use of tabs and spaces in indentation
[elon77@keras:~/Lecture/Ten_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/bin/
/python adjective_line.py
[[ 1  1  1]
 [ 1  2  4]
 [ 1  3  9]
 [ 1  4 16]]
[[ 14. ]
 [-10.2]
 [ 2.  ]]
[elon77@keras:~/Lecture/Ten_weeks$ cd ..
[elon77@keras:~/Lecture$ cd Eleven_weeks/
[elon77@keras:~/Lecture/Eleven_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/
bin/python movement.py
libGL error: No matching fbConfigs or visuals found
libGL error: failed to load driver: swrast
[759.05334425]
[1264.94665575]
elon77@keras:~/Lecture/Eleven_weeks$
```

<기존 투표 결과를 기반한 L,M,N 당의 투표결과 예측>

<plot, ssh-XWindow 에서의 그래프 출력 결과>



<L, M, N 당의 예상되는 투표 결과>

```
gwndaehan — elon77@keras: ~/Lecture/Eleven_weeks — ssh -X elon77@12...  
/python adjecitive_line.py  
[[ 1 1 1]  
 [ 1 2 4]  
 [ 1 3 9]  
 [ 1 4 16]  
 [[ 14. ],  
 [-10.2],  
 [ 2. ]]  
[elon77@keras:~/Lecture/Ten_weeks$ cd ..  
[elon77@keras:~/Lecture$ cd Eleven_weeks/  
[elon77@keras:~/Lecture/Eleven_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/  
bin/python movement.py  
libGL error: No matching fbConfigs or visuals found  
libGL error: failed to load driver: swrast  
[759.05334425]  
[1264.94665575]  
[elon77@keras:~/Lecture/Eleven_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/  
bin/python Vote.py  
libGL error: No matching fbConfigs or visuals found  
libGL error: failed to load driver: swrast  
[[36.36363636]  
 [54.54545455]  
 [ 9.09090909]]  
elon77@keras:~/Lecture/Eleven_weeks$
```

<몬테카를로 기법, 랜덤 넘버 기반으로 pi 값 구하기>

```
gwndaehan — elon77@keras: ~/Lecture/Twelve_weeks — ssh -X elon77@1...
5/bin/python Solve_exp.py
0.6381880060829422
1.8951178163559368
[elon77@keras:~/Lecture/Thirteen_weeks$ cd ..
]
[elon77@keras:~/Lecture$ cd Twelve_weeks/
]
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Integrate_3x^2.py
1.875
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Monte_pi.py
3.1488
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Monte_pi.py
3.128
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Monte_pi.py
3.12
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Monte_pi.py
3.0992
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Monte_pi.py
3.1448
[elon77@keras:~/Lecture/Twelve_weeks$ ]
```

<적분 메소드 선언, 작동 결과>

```
gwndaehan — elon77@keras: ~/Lecture/Twelve_weeks — ssh -X elon77@1...
bin/python movement.py
libGL error: No matching fbConfigs or visuals found
libGL error: failed to load driver: swrast
[759.05334425]
[1264.94665575]
[elon77@keras:~/Lecture/Eleven_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Vote.py
libGL error: No matching fbConfigs or visuals found
libGL error: failed to load driver: swrast
[[36.36363636]
[54.54545455]
[ 9.09090909]]
[elon77@keras:~/Lecture/Eleven_weeks$ cd ..
]
[elon77@keras:~/Lecture$ cd Thirteen_weeks/
]
[elon77@keras:~/Lecture/Thirteen_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
5/bin/python Solve_exp.py
0.6381880060829422
1.8951178163559368
[elon77@keras:~/Lecture/Thirteen_weeks$ cd ..
]
[elon77@keras:~/Lecture$ cd Twelve_weeks/
]
[elon77@keras:~/Lecture/Twelve_weeks$ /opt/anaconda3/envs/shared_env_py27_tfc115/]
bin/python Integrate_3x^2.py
1.875
[elon77@keras:~/Lecture/Twelve_weeks$ ]
```

<몬테카를로 기법을 사용한 exp 값 구하기>

```
gwondaehan — elon77@keras: ~ — ssh -X elon77@121.187.69.105 -p 25 — 8...
[elon77@121.187.69.105's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-143-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

9 updates can be applied immediately.
8 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

New release '20.04.2 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

*** System restart required ***
Last login: Fri Jun 18 19:42:19 2021 from 121.187.161.238
[elon77@keras:~$ /opt/anaconda3/envs/shared_env_py27_tfc115/bin/python /home/elon]
77/Lecture/Thirteen_weeks/
.ipynb_checkpoints/ Solve_exp.py
[elon77@keras:~$ /opt/anaconda3/envs/shared_env_py27_tfc115/bin/python /home/elon]
77/Lecture/Thirteen_weeks/Solve_exp.py
1.9498082972992354
1.8951178163559368
elon77@keras:~$ █
```

exp(1)과 비교했을 때 조금의 오차가 발생된 것을 알 수 있다.