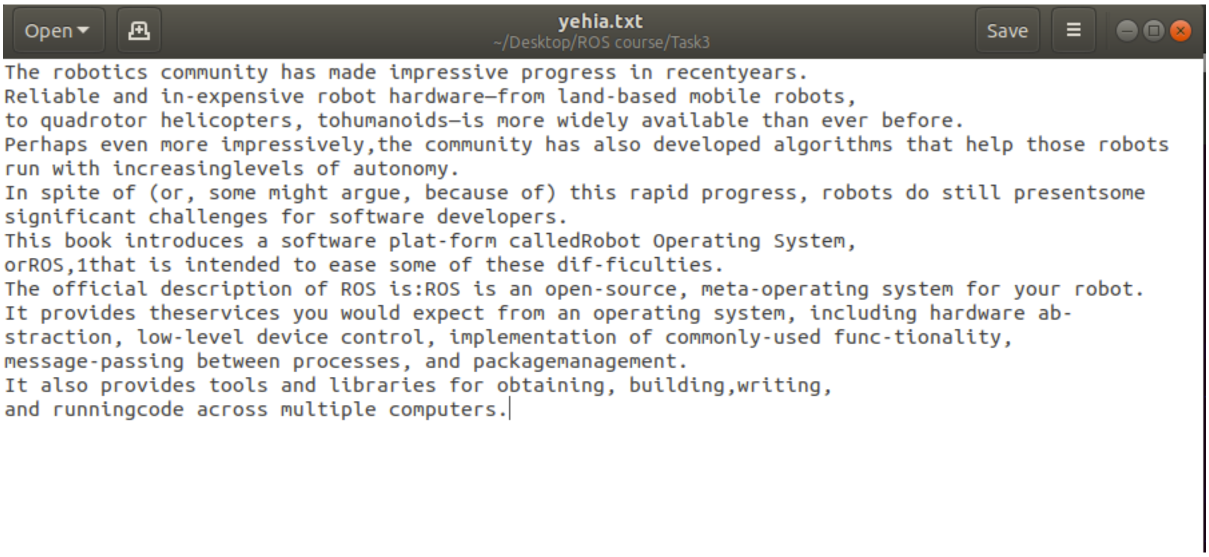
Task 3

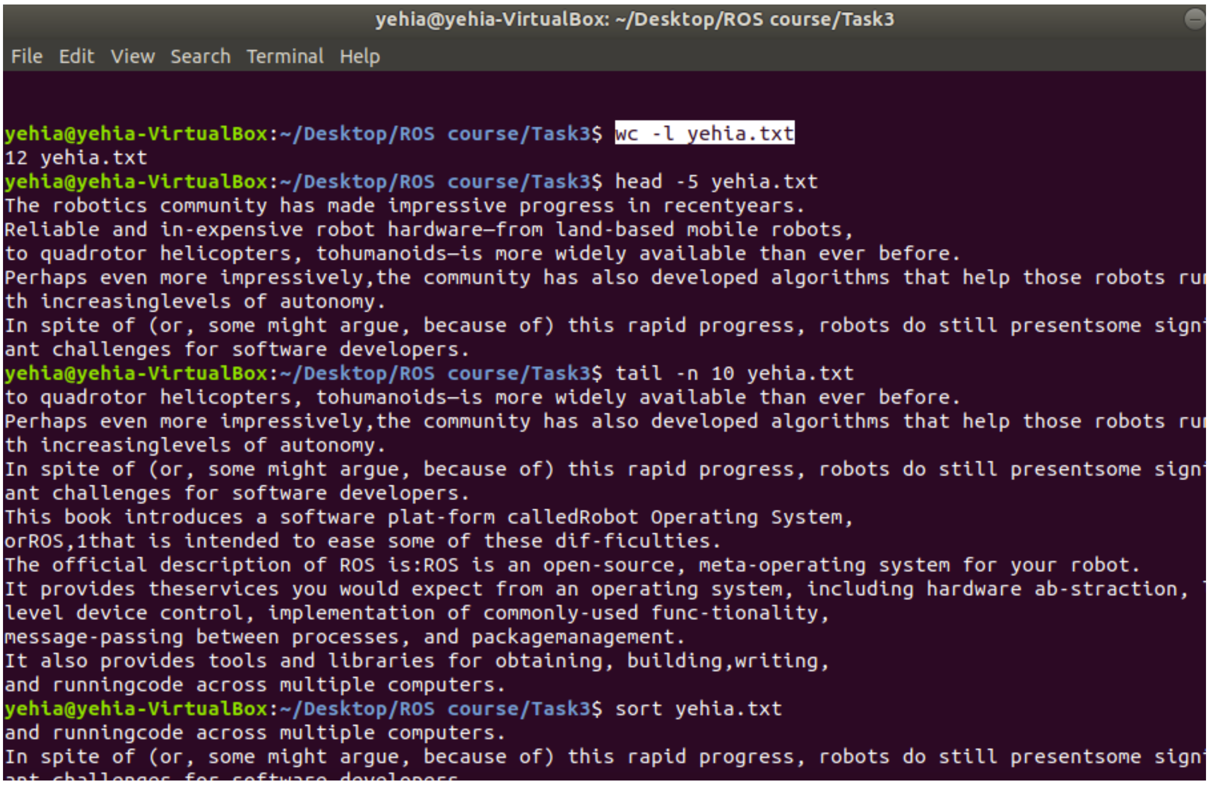
#3.1

1) Create text file:



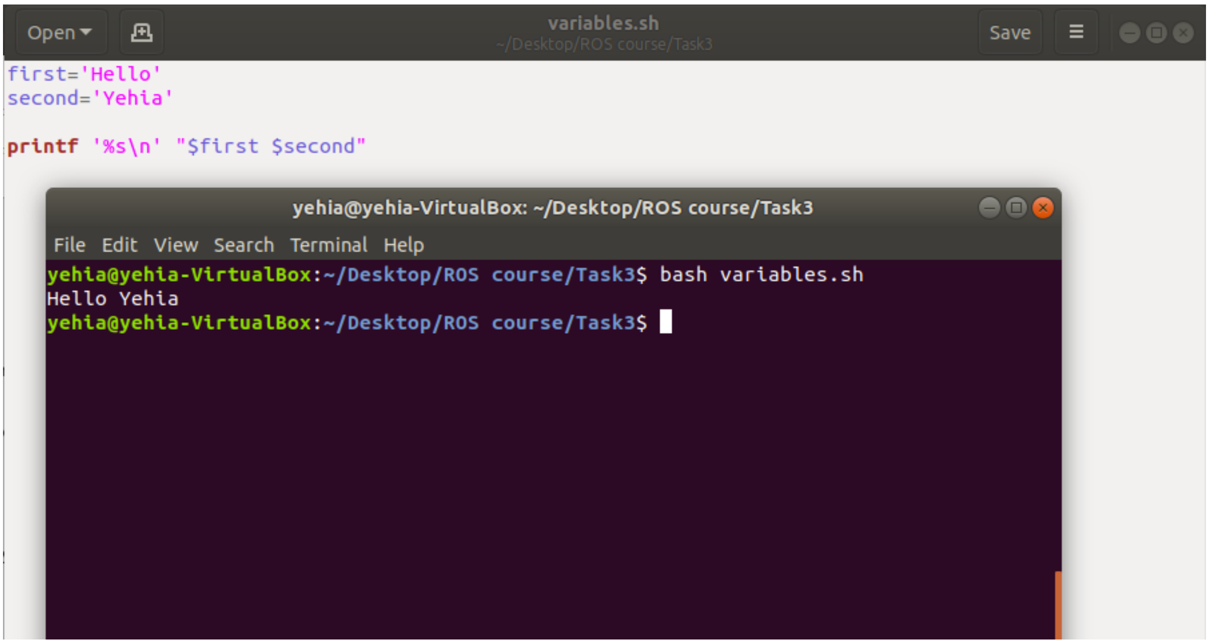
```
The robotics community has made impressive progress in recentyears.
Reliable and in-expensive robot hardware—from land-based mobile robots,
to quadrotor helicopters, tohumanoids—is more widely available than ever before.
Perhaps even more impressively,the community has also developed algorithms that help those robots
run with increasinglevels of autonomy.
In spite of (or, some might argue, because of) this rapid progress, robots do still presentsome
significant challenges for software developers.
This book introduces a software plat-form calledRobot Operating System,
orROS,1that is intended to ease some of these dif-ficulties.
The official description of ROS is:ROS is an open-source, meta-operating system for your robot.
It provides theservices you would expect from an operating system, including hardware ab-
straction, low-level device control, implementation of commonly-used func-tionality,
message-passing between processes, and packagemanagement.
It also provides tools and libraries for obtaining, building,writing,
and runningcode across multiple computers.
```

2) Operations on file:


yehia@yehia-VirtualBox: ~/Desktop/ROS course/Task3
File Edit View Search Terminal Help

```
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ wc -l yehia.txt
12 yehia.txt
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ head -5 yehia.txt
The robotics community has made impressive progress in recentyears.
Reliable and in-expensive robot hardware—from land-based mobile robots,
to quadrotor helicopters, tohumanoids—is more widely available than ever before.
Perhaps even more impressively,the community has also developed algorithms that help those robots ru
th increasinglevels of autonomy.
In spite of (or, some might argue, because of) this rapid progress, robots do still presentsome sign
ant challenges for software developers.
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ tail -n 10 yehia.txt
to quadrotor helicopters, tohumanoids—is more widely available than ever before.
Perhaps even more impressively,the community has also developed algorithms that help those robots ru
th increasinglevels of autonomy.
In spite of (or, some might argue, because of) this rapid progress, robots do still presentsome sign
ant challenges for software developers.
This book introduces a software plat-form calledRobot Operating System,
orROS,1that is intended to ease some of these dif-ficulties.
The official description of ROS is:ROS is an open-source, meta-operating system for your robot.
It provides theservices you would expect from an operating system, including hardware ab-straction,
level device control, implementation of commonly-used func-tionality,
message-passing between processes, and packagemanagement.
It also provides tools and libraries for obtaining, building,writing,
and runningcode across multiple computers.
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ sort yehia.txt
and runningcode across multiple computers.
In spite of (or, some might argue, because of) this rapid progress, robots do still presentsome sign
ant challenges for software developers.
```

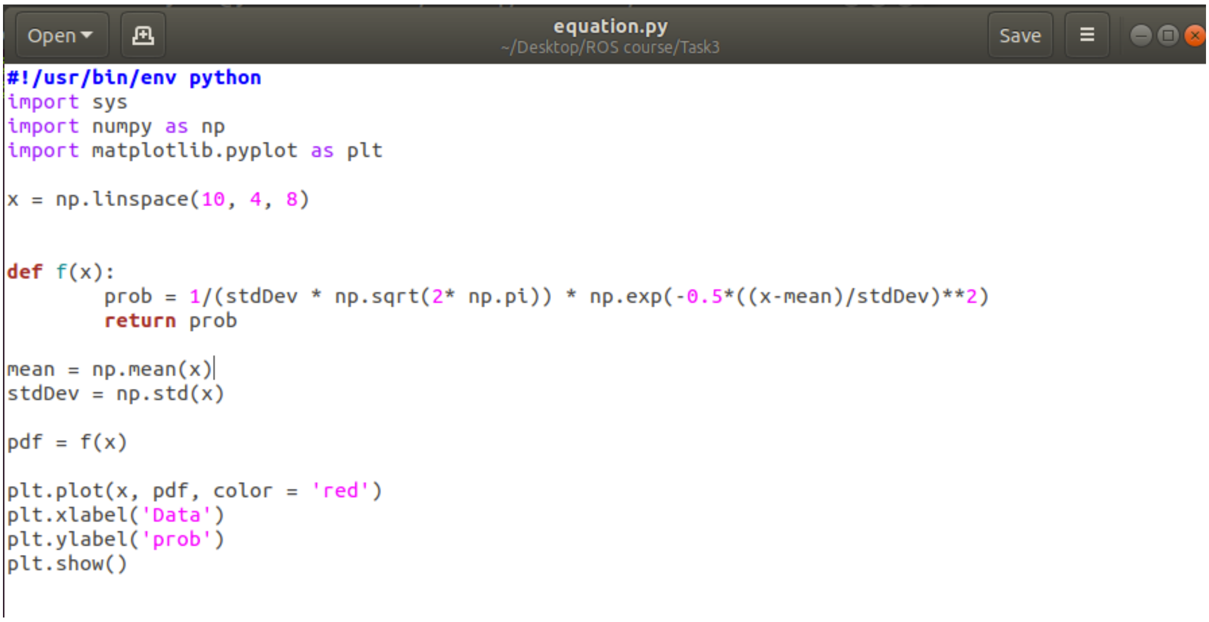
#3.2


Open
variables.sh
~/Desktop/ROS course/Task3
Save
yehia@yehia-VirtualBox: ~/Desktop/ROS course/Task3
File Edit View Search Terminal Help

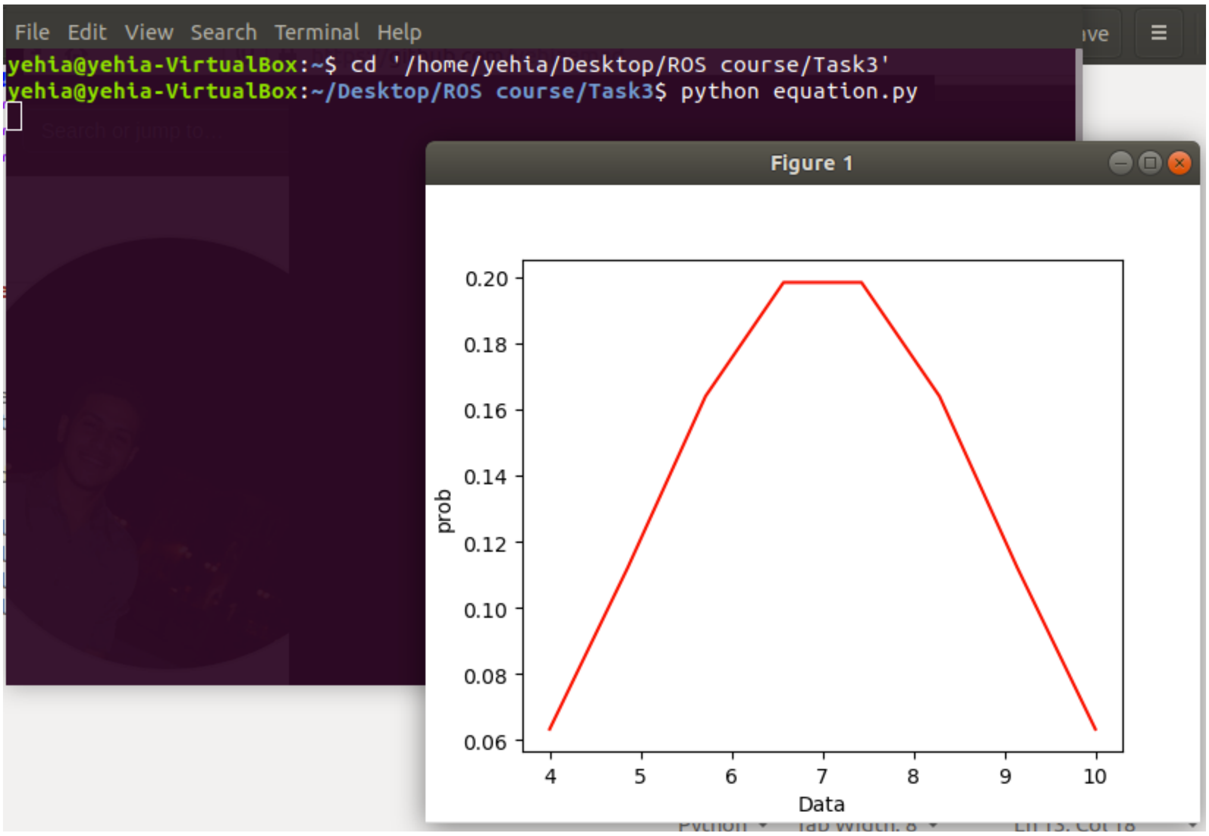
```
first='Hello'
second='Yehia'

printf '%s\n' "$first $second"
```

```
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ bash variables.sh
Hello Yehia
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ 
```

#3.3



```python
#!/usr/bin/env python
import sys
import numpy as np
import matplotlib.pyplot as plt

x = np.linspace(10, 4, 8)


def f(x):
        prob = 1/(stdDev * np.sqrt(2* np.pi)) * np.exp(-0.5*((x-mean)/stdDev)**2)
        return prob

mean = np.mean(x)
stdDev = np.std(x)

pdf = f(x)

plt.plot(x, pdf, color = 'red')
plt.xlabel('Data')
plt.ylabel('prob')
plt.show()
```



```
yehia@yehia-VirtualBox:~$ cd '/home/yehia/Desktop/ROS course/Task3'
yehia@yehia-VirtualBox:~/Desktop/ROS course/Task3$ python equation.py
```