

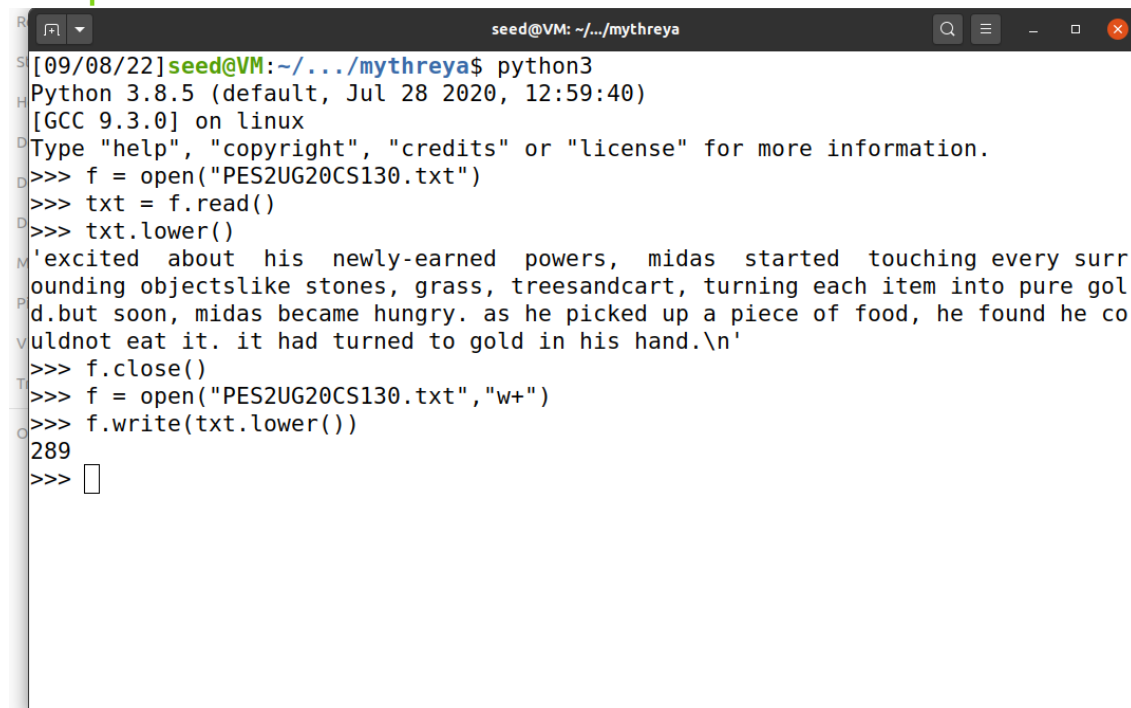
## H M Mythreya

### PES2UG20CS130

### Crypto Lab – 2

1) Create and display a file SRN.txt with following contents:  
EXCITED ABOUT HIS NEWLY-EARNED POWERS, MIDAS STARTED TOUCHING  
every surrounding objects like stones, grass, trees and cart,  
TURNING EACH ITEM INTO PURE GOLD. BUT SOON, MIDAS BECAME HUNGRY.  
AS HE PICKED UP A PIECE OF FOOD, HE FOUND HE COULD NOT EAT IT. IT  
HAD TURNED TO GOLD IN HIS HAND.

### Output



```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3
Python 3.8.5 (default, Jul 28 2020, 12:59:40)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> f = open("PES2UG20CS130.txt")
>>> txt = f.read()
>>> txt.lower()
'excited about his newly-earned powers, midas started touching every surrounding objectslike stones, grass, treesandcart, turning each item into pure gold.but soon, midas became hungry. as he picked up a piece of food, he found he couldnot eat it. it had turned to gold in his hand.\n'
>>> f.close()
>>> f = open("PES2UG20CS130.txt","w+")
>>> f.write(txt.lower())
289
>>> 
```

I

In file SRN.txt, convert uppercase letters to lowercase and find the frequencies of following words:

- a. he
- b. h
- c. ed
- d. oo
- e. a
- f. as

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3
Python 3.8.5 (default, Jul 28 2020, 12:59:40)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> f = open("PES2UG20CS130.txt")
>>> t = f.read()
>>> t.count("he")
3
>>> t.count("h")
10
>>> t.count("ed")
5
>>> t.count("oo")
2
>>> t.count("a")
15
>>> t.count("as")
4
>>>
```

Highlight the words given in question 2

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ grep he PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep h PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep ed PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep oo PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep a PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
```

```
seed@VM: ~/.../mythreya
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep ed PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep oo PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$ grep a PES2UG20CS130.txt
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.
[09/08/22]seed@VM:~/.../mythreya$
```

Generate the substitution cipher key.

mqowngrhstabiflvzxypkucdje

Generate the cipher text using the key generated in question 3.

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3 encrypt.py > encrypt.txt
[09/08/22]seed@VM:~/.../mythreya$ cat encrypt.txt
ndospnw mqlkp hsy fncbj-nmxfnw vlcxy, iswmy ypmxpnw plkohsfr nunxj ykxxl
kfwsfr lqtnopybsan yplfny, rxmyy, pxnymfwomxp, pkxfsfr nmoh spni sfpl vkxn rlbw
.qkp yllf, iswmy qnomin hkfrxj. my hn vsoanw kv m vsnon lg gllw, hn glkfw hn olk
bwflp nmp sp. sp hmw pkxfnw pl rlbw sf hsy hmfw.
[09/08/22]seed@VM:~/.../mythreya$
```

Decrypt the cipher text back to plain text.

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3 decrypt.py
Enter the key:mqowngrhstabiflvzxypkucdje
excited about his newly-earned powers, midas started touching every surro
unding objectslike stones, grass, treesandcart, turning each item into pure gold
.but soon, midas became hungry. as he picked up a piece of food, he found he cou
ldnot eat it. it had turned to gold in his hand.

[09/08/22]seed@VM:~/.../mythreya$
```

Suppose the input file is :

Hungry, Midas groaned, "I'll starve! Perhaps this was not such an excellent wish after all!"...

Comment on the cipher text generated.

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3 encrypt.py > new_output.txt
[09/08/22]seed@VM:~/.../mythreya$ cat new_output.txt
Hkfrxj, Mswmy rxlmfnw, "I'bb ypmxun! Pnxhmvy phsy cmv flp ykoh mf ndonbbnfp csyh
mgpnx mbb!"...

[09/08/22]seed@VM:~/.../mythreya$
```

Decipher:

```
seed@VM: ~/.../mythreya
[09/08/22]seed@VM:~/.../mythreya$ python3 decrypt.py
Enter the key:mqowngrhstabiflvzxypkucdje
Hungry, Midas groaned, "I'll starve! Perhaps this was not such an excellent wish
after all!"...

[09/08/22]seed@VM:~/.../mythreya$
```