



BILKENT UNIVERSITY

ENGINEERING FACULTY

DEPARTMENT OF COMPUTER ENGINEERING

CS 481-Homework#1

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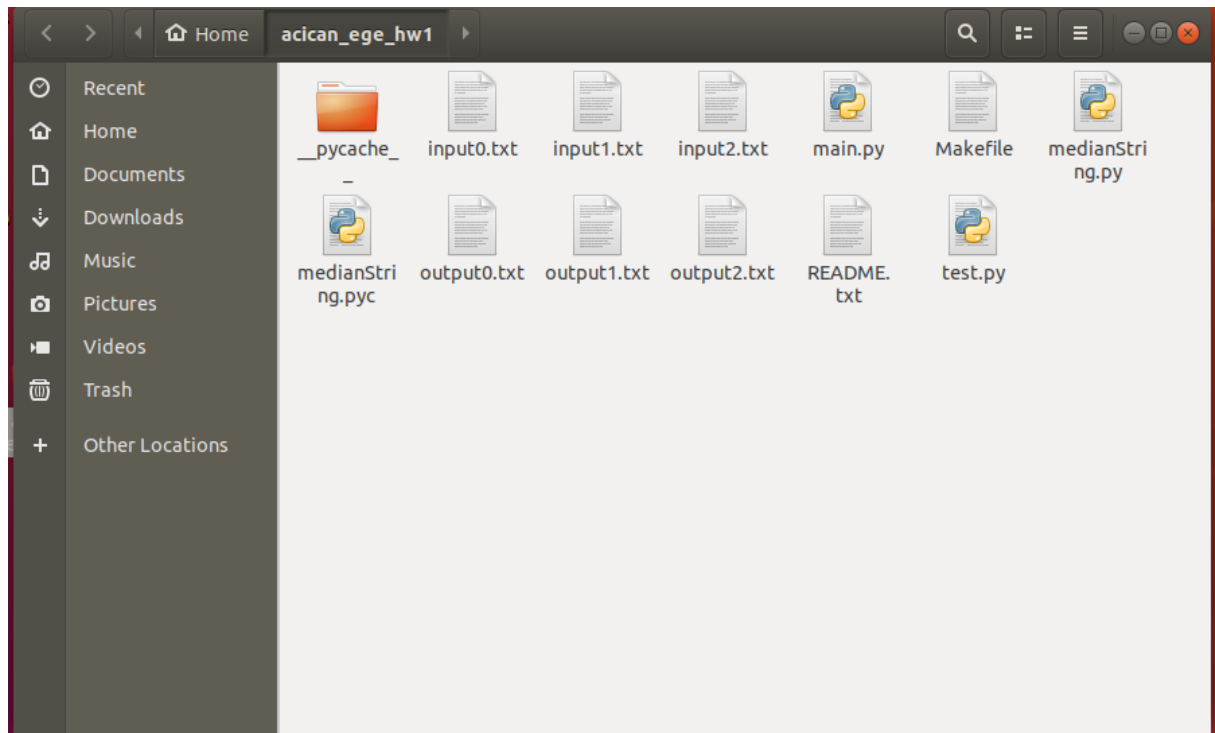


Figure 1:STEP1:Go to the directory where main.py is and text files are located

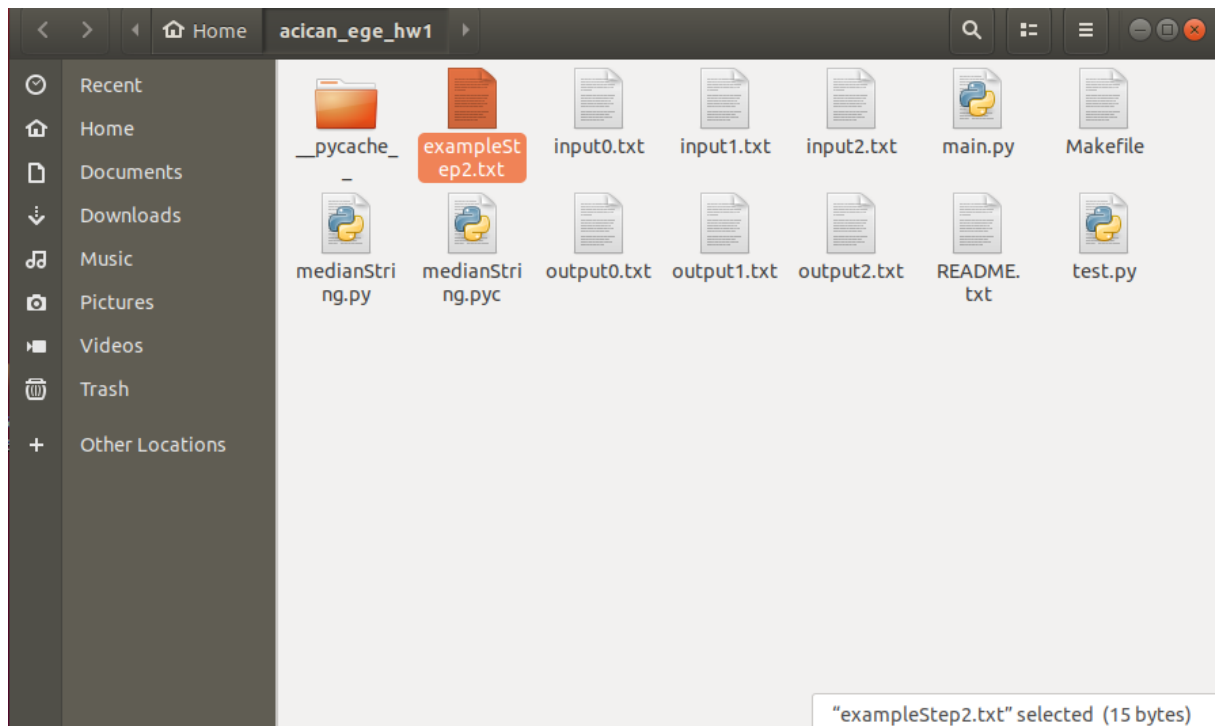
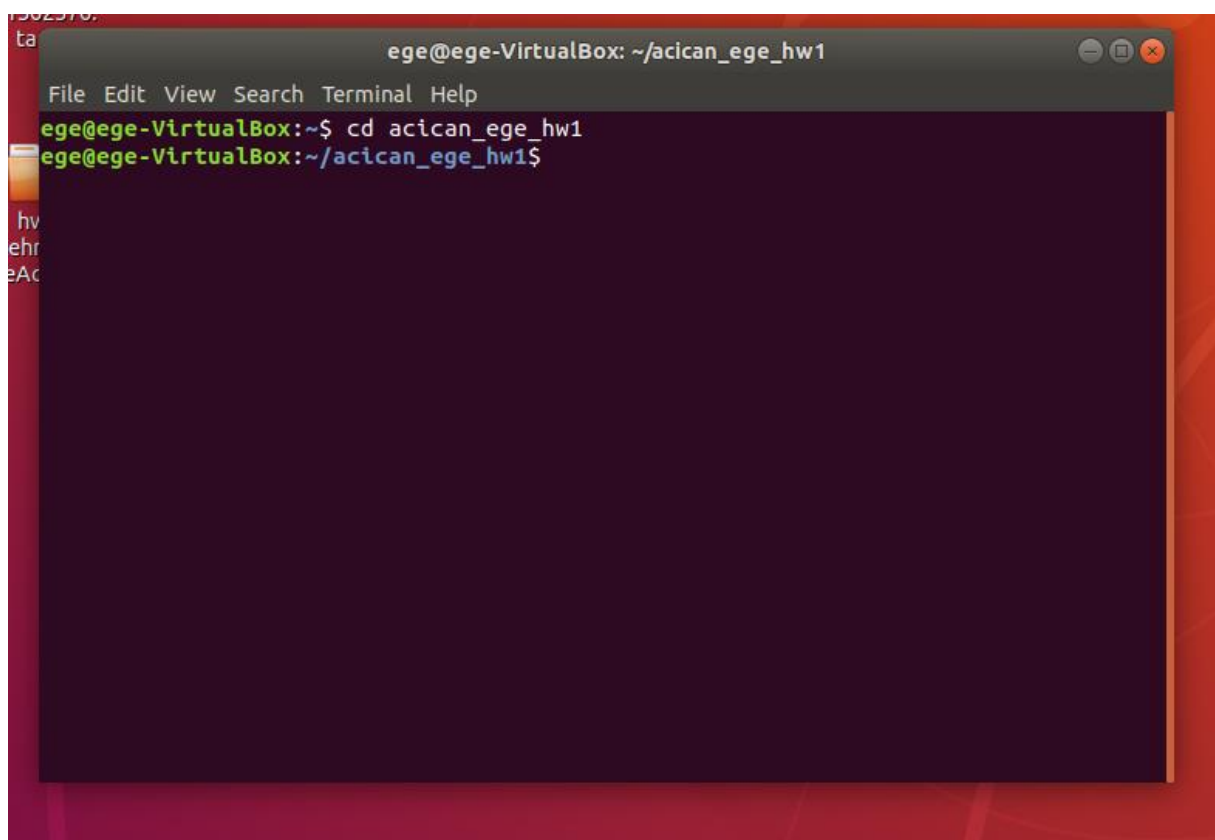


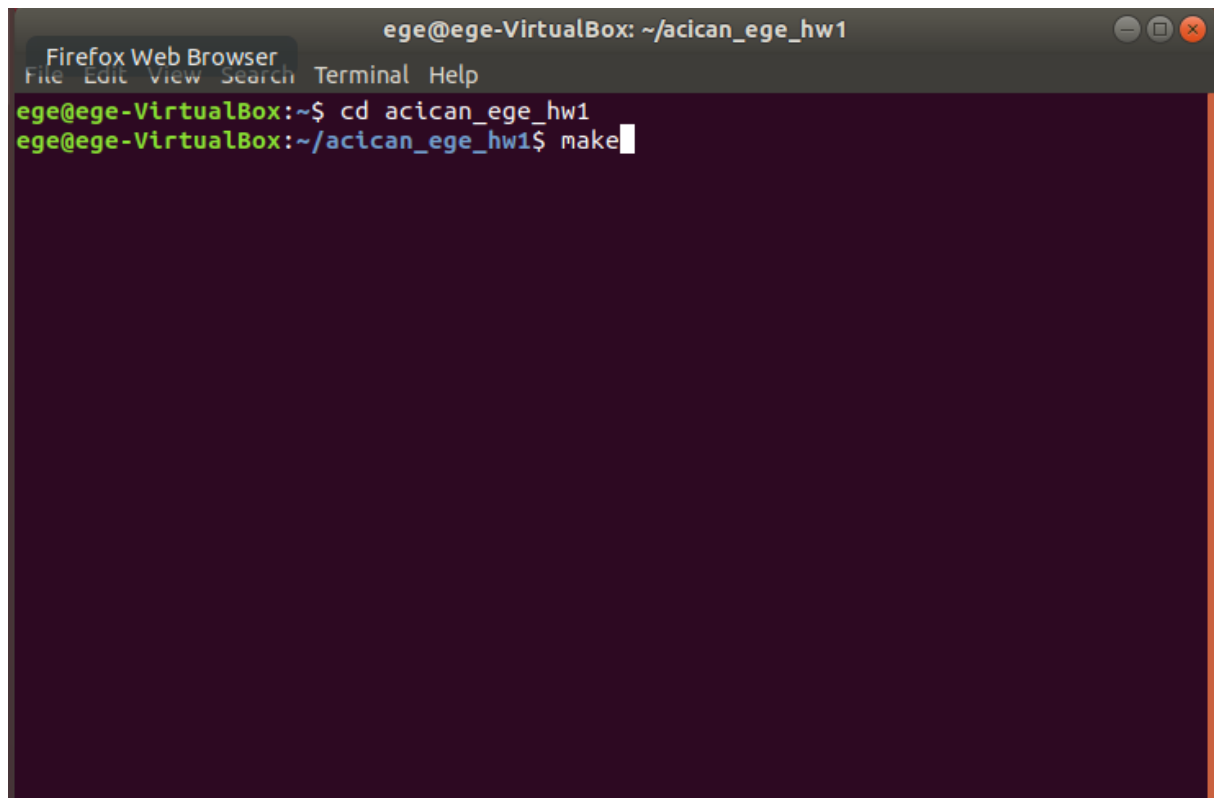
Figure 2: STEP2: Add the desired files to the directory(drag and release)



The image shows a terminal window titled "ege@ege-VirtualBox: ~/acican_ege_hw1". The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal text shows the user navigating to the directory "acican_ege_hw1" using the "cd" command. The prompt changes from "ege@ege-VirtualBox:~\$" to "ege@ege-VirtualBox:~/acican_ege_hw1\$".

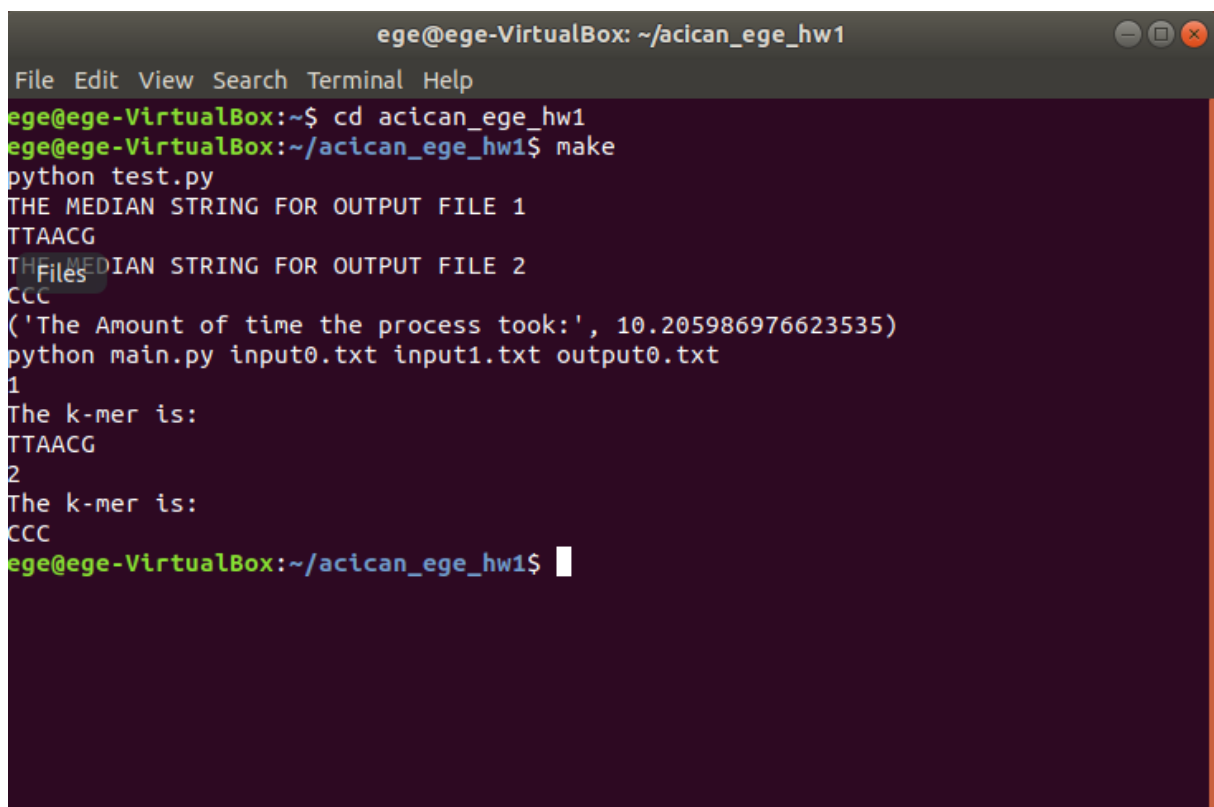
```
ege@ege-VirtualBox: ~/acican_ege_hw1
File Edit View Search Terminal Help
ege@ege-VirtualBox:~$ cd acican_ege_hw1
ege@ege-VirtualBox:~/acican_ege_hw1$
```

Figure 3: STEP3: In the terminal go to the main directory where main.py and test.py is located

A terminal window titled 'ege@ege-VirtualBox: ~/acican_ege_hw1'. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the user navigating to the directory 'acican_ege_hw1' and then typing the 'make' command. The prompt is 'ege@ege-VirtualBox:~/acican_ege_hw1\$' and the command is 'make'.

```
ege@ege-VirtualBox: ~/acican_ege_hw1
File Edit View Search Terminal Help
ege@ege-VirtualBox:~$ cd acican_ege_hw1
ege@ege-VirtualBox:~/acican_ege_hw1$ make
```

Figure 4:STEP4:type 'make'

A terminal window titled 'ege@ege-VirtualBox: ~/acican_ege_hw1'. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the user navigating to the directory 'acican_ege_hw1' and then typing the 'make' command. The output of the 'make' command is shown, including the execution of 'python test.py' and 'python main.py'. The output of 'python test.py' is 'THE MEDIAN STRING FOR OUTPUT FILE 1' followed by 'TTAACG' and 'THE MEDIAN STRING FOR OUTPUT FILE 2' followed by 'CCC'. The output of 'python main.py' is 'The k-mer is: TTAACG' and 'The k-mer is: CCC'. The prompt is 'ege@ege-VirtualBox:~/acican_ege_hw1\$' and the command is 'make'.

```
ege@ege-VirtualBox: ~/acican_ege_hw1
File Edit View Search Terminal Help
ege@ege-VirtualBox:~$ cd acican_ege_hw1
ege@ege-VirtualBox:~/acican_ege_hw1$ make
python test.py
THE MEDIAN STRING FOR OUTPUT FILE 1
TTAACG
THE MEDIAN STRING FOR OUTPUT FILE 2
CCC
('The Amount of time the process took:', 10.205986976623535)
python main.py input0.txt input1.txt output0.txt
1
The k-mer is:
TTAACG
2
The k-mer is:
CCC
ege@ege-VirtualBox:~/acican_ege_hw1$
```

Figure 5:STEP5: Since there is no build stage in python, the makefile automatically runs the codes

First code is test.py which automatically tests the algorithm by using the input0.txt and input1.txt files that are already in the directories and writes the outputs on output0.txt and output1.txt files.



Figure 6:output1.txt

The main.py takes multiple number of input files and at the end writes it to the output file at the final parameter. The 'make' command just works one example. The desired inputfiles can be tested by typing:

```
python main.py <desiredinput1.txt>....<desiredinput2.txt> <outputfile.txt>
```

Examples:

```
ege@ege-VirtualBox:~/acican_ege_hw1$ python main.py input0.txt output0.txt
1
The k-mer is:
TTAACG
ege@ege-VirtualBox:~/acican_ege_hw1$
```

Figure 7:Only input0.txt has been taken as an inputfile parameter

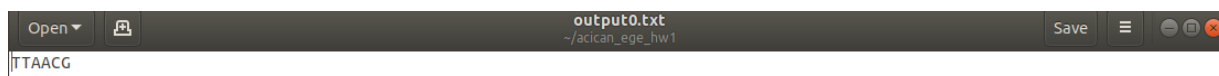


Figure 8:output0.txt after running the code

```
ege@ege-VirtualBox:~/acican_ege_hw1$ python main.py input1.txt input0.txt output0.txt
1
The k-mer is:
CCC
2
The k-mer is:
TTAACG
ege@ege-VirtualBox:~/acican_ege_hw1$
```

Figure 9:another trial

```

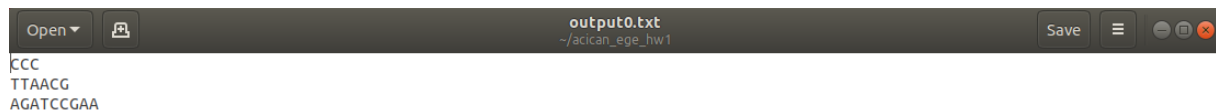
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\EGE\Desktop\acican_mehmetEge_hw1> python main.py input0.txt input1.txt input2.txt output0.txt
output0.txt
1
The k-mer is: TTAACG
2
The k-mer is: CCC
3
The k-mer is: AGATCCGAA
PS C:\Users\EGE\Desktop\acican_mehmetEge_hw1> 

```

Figure 10: tried with input0.txt input1.txt input2.txt



```

output0.txt
~/.acican_ege_hw1
Save
CCC
TTAACG
AGATCCGAA

```

Figure 11: output0.txt after the motifs have been found

IMPORTANT!: When the code gets an input file that tries to find a motif that has a higher length than 7, it takes considerable(!) amount of time to complete the process.

```

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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\EGE\Desktop\acican_mehmetEge_hw1> python main.py input0.txt input1.txt input2.txt output0.txt
output0.txt
1
The k-mer is: TTAACG
2
The k-mer is: CCC
3
The k-mer is: AGATCCGAA
PS C:\Users\EGE\Desktop\acican_mehmetEge_hw1> python main.py input0.txt input1.txt input2.txt output0.txt
output0.txt
1
The k-mer is: TTAACG
2
The k-mer is: CCC
3
The k-mer is: AGATCCGAA
The Amount of time the process took: 188.9829214
PS C:\Users\EGE\Desktop\acican_mehmetEge_hw1> 

```

Figure 12: Tried on windows Shell, works faster in Windows

```

ege@ege-VirtualBox:~/acican_ege_hw1$ python main.py input1.txt input0.txt input2.txt output0.txt
1
The k-mer is:
CCC
2
The k-mer is:
TTAACG
3
The k-mer is:
AGATCCGAA
The time that the process took was:
395.325888872

```

Figure 13: Tried on Linux

NOTE: Makefile automatically takes input0.txt, input1.txt and output0.txt as parameters, you can change automatically taken inputs from the makefile



```
Open ▾  Makefile  
~/acican_ege_hw1 Save      
run :  
$ python test.py  
$ python main.py input0.txt input1.txt output0.txt  
  
clean :  
rm -f *.pyc
```

Figure 14: Makefile, you can manipulate the input files here by typing the desired input files (Make sure they are in the same directory)