CSE 3033
OPERATING SYSTEMS
Programming Assignment # 1

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In this project, we are implementing some problems according to given problems. The programs are;

1.sh, 2.sh, 3.sh, 4.sh, 5.sh, and myprog.sh

First, we need to extract zip file, which is called

150116061_150116053_Project1.zip

After that, we need to execute the program called myprog.sh. To do that, we need to give chmod execution permission to the executable .sh file.

```
[ertugrul@ertugrul-pc CSE3033Project]$ chmod +x myprog.sh
```

In addition to that, we will use ./myprog.sh command to execute the program. After executing program, it will show us the menu.

```
[ertugrul@ertugrul-pc CSE3033Project]$ ./myprog.sh
1) Is word palindrome?
2) Move .c files
3) Create a hollowed square
4) Find the words
5) Delete the empty files
6) Exit
Please select an option:
```

As you can see, you can execute each program from this menu. From 1 to 6, we can select the program, that we want to execute. If we give invalid option to the program as an input, it will give us error, and start from beginning.

```
Please select an option: 7
invalid option
Please select an option:
```

Let us start with the first iteration. Our firs problem is to make a program that will find, if a word given is palindrome or not. Let us give a input as 1 to initialize the program,

```
Please select an option: 1
Enter a word:
Please enter a input.
Please select an option:
```

As you can see, the program has started; on the other hand, because of invalid input program has given to us an error, and it started itself from beginning. Let us give a valid input.

```
Please select an option: 1
Enter a word: "ey edip adanada pide ye"
"ey edip adanada pide ye" is a palindrome
Please select an option: 1
Enter a word: "madam"
"madam" is a palindrome
Please select an option: 1
Enter a word: "elma"
"elma" is not a palindrome
Please select an option:
```

The outputs of the program are looking totally fine.

Ey edip adanada pide ye is a palindrome.

Madam is a palindrome.

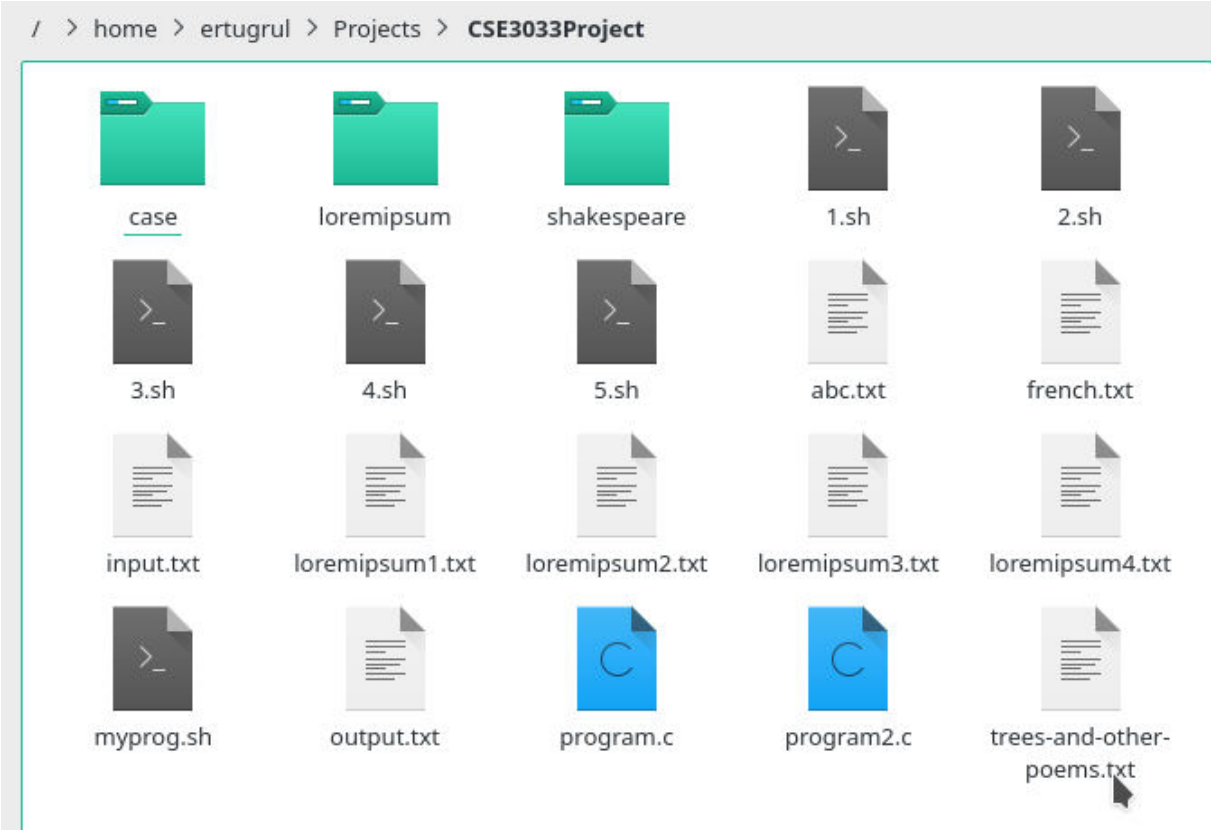
Elma is not a palindrome.

Second problem is a problem, that we are creating a folder as “cprogs”, and put all “c” files in it. The program takes path name, in order to create “cprogs” file under that directory. We can either give a path or not. If we do not give a path name, the program will create “cprogs” file under the current directory and put all “.c” files.

Let us start with giving an 2 to our menu to initialize the program.

```
Please select an option: 2
Enter a pathname(optional):
```

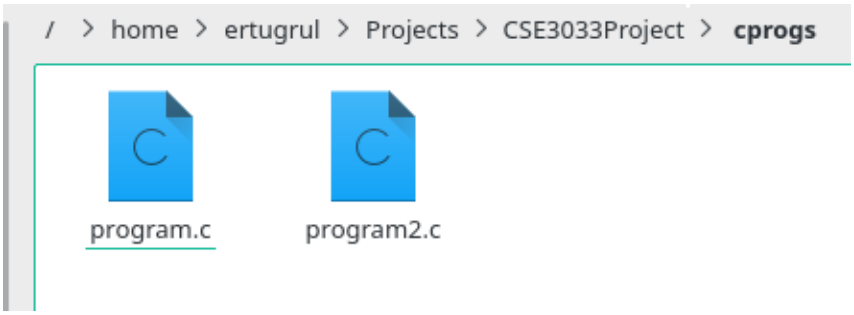
Also, we need to give a path name or not.



This is the current directory. We can see that there is no cprogs folder and all “c” files are located around the current directory.

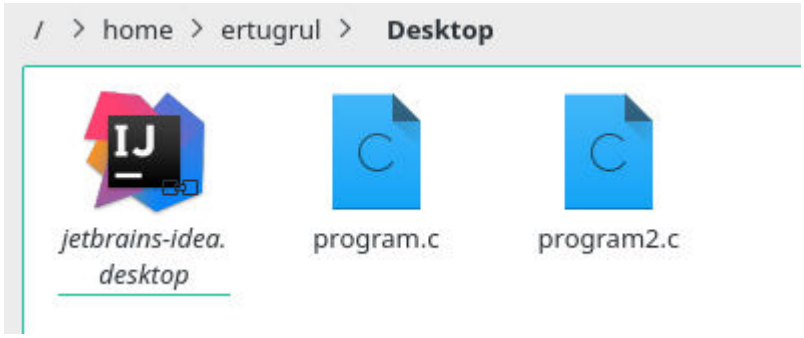
```
Please select an option: 2
Enter a pathname(optional):
A directory named cprogs is created under current working directory.
All the files whose name ends with .c in the current working directory are moved into cprogs directory.
Please select an option:
```

We need to give 2 to initialize the second program. As in screenshot, we did not give any pathname. Therefore, it started working in current directory.



As we can see, the program working fine. The “cprogs” folder has created and all “c” files which are under current directory, moved into “cprogs” folder.

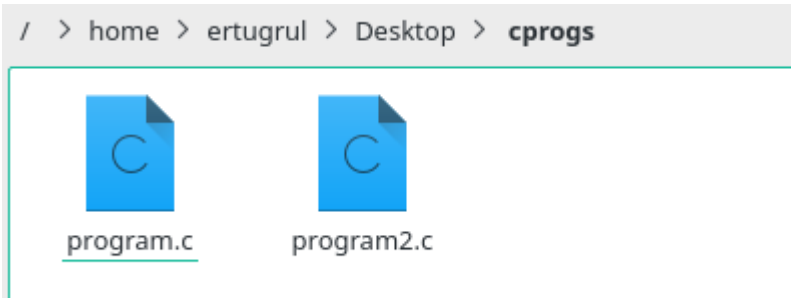
Let us see what would happen, if we give path name to the program.



As shown, desktop has “c’ programs around the directory. To reach that directory, we need to give to program, that directory as an path name.

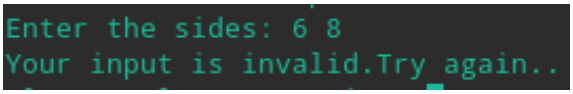
```
Please select an option: 2
Enter a pathname(optional): /home/ertugrul/Desktop
A directory named cprogs is created under current working directory.
All the files whose name ends with .c in /home/ertugrul/Desktop are moved into cprogs directory.
Please select an option:
```

Obviously, “cprogs” folder has created and all the “c” files has moved to the folder called “cprogs”.



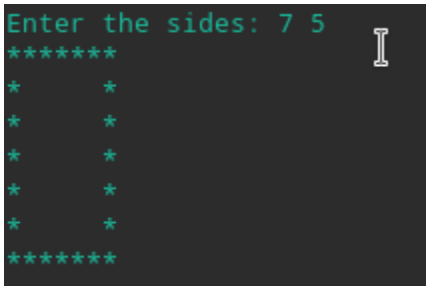
As demonstrated in screenshot, we can see that its all happened.

If we continue with third problem, we will see that, the program creates an n*n matrix with the given two arguments from the user. The difference between the two arguments we are taking from user, must be an even number. Also, first argument must be bigger than second one. If not it will give an error.

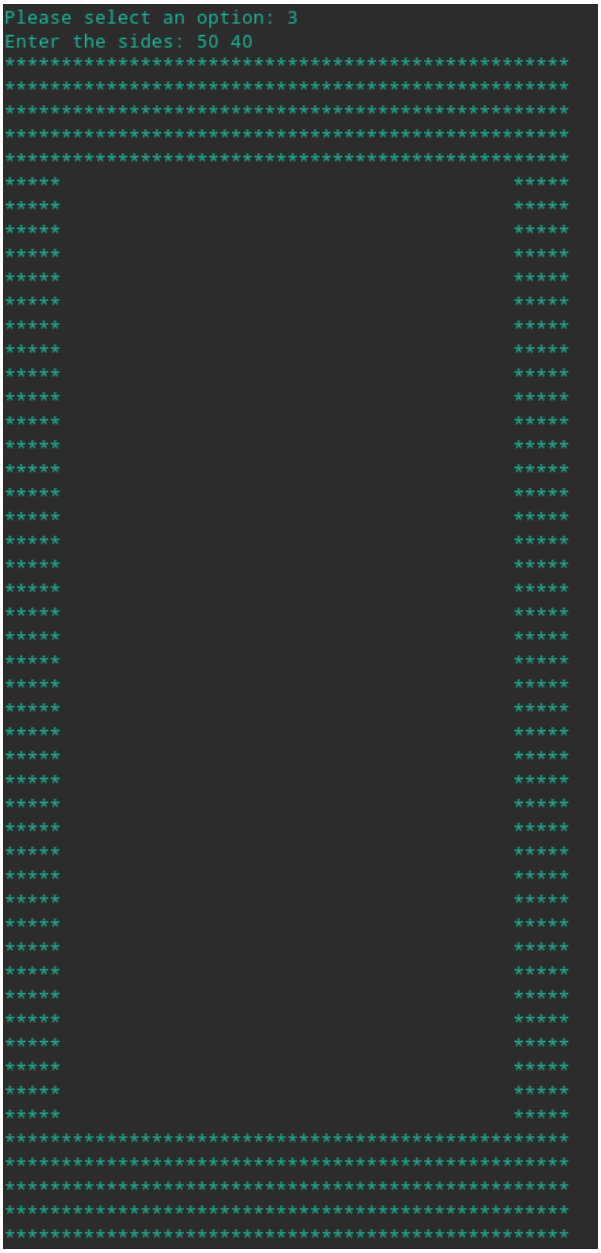


As shown, it gave an error.

Some examples for valid arguments:



As in the examples, the difference between two arguments are even and first argument is bigger than second one.

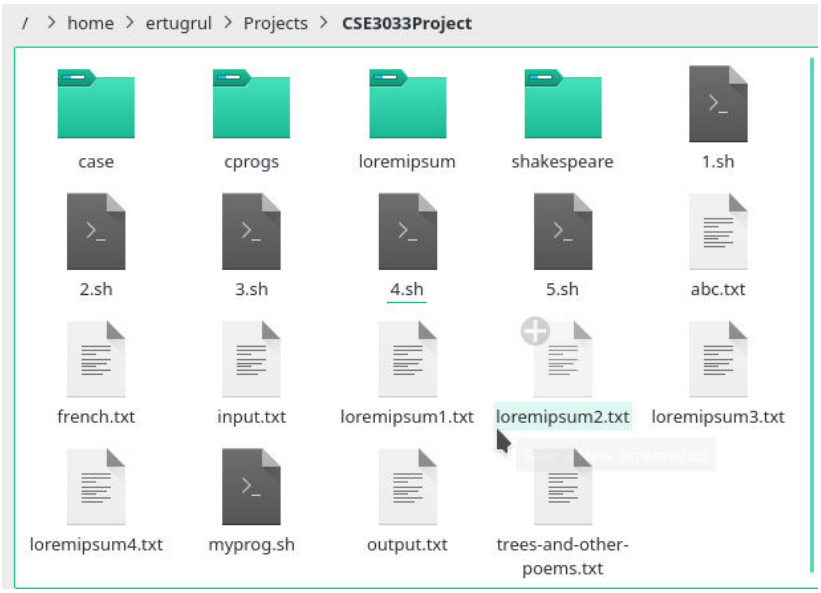


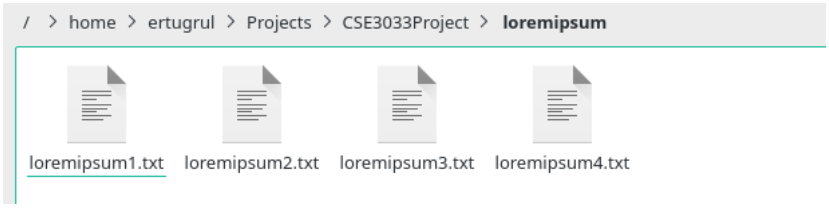
Forth problem of among given problems, is finding the words from a directory. The program asks for two argument. A wild card and a pathname. Pathname is an optional feature. If a user would not give a directory, the program is looking for all “txt” files under current directory. The words that we are asked to find is needed to be found by wildcards. Also, they all need to be changed with uppercase. Wildcards are kind of substrings by used with “*”, “?”. For example;

- “*lor*” – All the words including “lor” substring.

-“con*”- all the words start with “con”.

-“vel??” – All the words start with “vel” and number of letters are 5.





It is easy to see that all directories are there with the input “txt” files.

Let us continue with the program. As in screenshot it asks for wildcard and pathname.

```
Enter the wildcard and pathaname(optional):
Please Give arguments
```

If we do not give any arguments, it will give an error.

To take an output from the program we need to give arguments. Let me give just wildcard as an argument.

```
Please select an option: 4
Enter the wildcard and pathaname(optional): "*lor*"
The word “dolor” inside loremipsum1.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum1.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum1.txt is substituted with “DOLOR”.
The word “lorem.” inside loremipsum1.txt is substituted with “LOREM.”.
The word “lorem” inside loremipsum1.txt is substituted with “LOREM”.
The word “lorem,” inside loremipsum1.txt is substituted with “LOREM,”.
The word “dolor” inside loremipsum1.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum1.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum2.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum2.txt is substituted with “DOLOR”.
The word “lorem,” inside loremipsum3.txt is substituted with “LOREM,”.
The word “dolor,” inside loremipsum3.txt is substituted with “DOLOR,”.
The word “dolor” inside loremipsum3.txt is substituted with “DOLOR”.
The word “dolor,” inside loremipsum3.txt is substituted with “DOLOR,”.
The word “lorem” inside loremipsum3.txt is substituted with “LOREM”.
The word “dolor” inside loremipsum4.txt is substituted with “DOLOR”.
The word “dolor” inside loremipsum4.txt is substituted with “DOLOR”.
The word “lorem” inside loremipsum4.txt is substituted with “LOREM”.
The word “lorem,” inside loremipsum4.txt is substituted with “LOREM,”.
The word “dolor.” inside loremipsum4.txt is substituted with “DOLOR.”.
The word “lorem.” inside loremipsum4.txt is substituted with “LOREM.”.
The word “lorem,” inside loremipsum4.txt is substituted with “LOREM,”.
The word “dolor,” inside loremipsum4.txt is substituted with “DOLOR,”.
The word “lorem” inside loremipsum4.txt is substituted with “LOREM”.
The word “lorem” inside loremipsum4.txt is substituted with “LOREM”.
Please select an option:
```

```
Please select an option: 4
Enter the wildcard and pathaname(optional): "con*"
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “condimentum,” inside loremipsum1.txt is substituted with “CONDIMENTUM,”.
The word “congue” inside loremipsum1.txt is substituted with “CONGUE”.
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “consequat.” inside loremipsum1.txt is substituted with “CONSEQUAT.”.
The word “congue” inside loremipsum1.txt is substituted with “CONGUE”.
The word “condimentum” inside loremipsum1.txt is substituted with “CONDIMENTUM”.
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “consequat” inside loremipsum1.txt is substituted with “CONSEQUAT”.
The word “consequat” inside loremipsum2.txt is substituted with “CONSEQUAT”.
The word “condimentum.” inside loremipsum2.txt is substituted with “CONDIMENTUM.”.
The word “congue” inside loremipsum2.txt is substituted with “CONGUE”.
The word “consequat” inside loremipsum2.txt is substituted with “CONSEQUAT”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “consectetur” inside loremipsum3.txt is substituted with “CONSECTETUR”.
The word “condimentum” inside loremipsum3.txt is substituted with “CONDIMENTUM”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “convallis,” inside loremipsum3.txt is substituted with “CONVALLIS,”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “consequat” inside loremipsum3.txt is substituted with “CONSEQUAT”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “convallis,” inside loremipsum4.txt is substituted with “CONVALLIS,”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “consequat” inside loremipsum4.txt is substituted with “CONSEQUAT”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “consectetur.” inside loremipsum4.txt is substituted with “CONSECTETUR.”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “congue” inside loremipsum4.txt is substituted with “CONGUE”.
Please select an option:
```

```
Please select an option: 4
Enter the wildcard and pathaname(optional): "vel??"
The word “velit” inside loremipsum1.txt is substituted with “VELIT”.
The word “velit” inside loremipsum3.txt is substituted with “VELIT”.
The word “velit” inside loremipsum3.txt is substituted with “VELIT”.
The word “velit” inside loremipsum4.txt is substituted with “VELIT”.
Please select an option:
```

As demonstrated, All the words with wildcards has substituted.

Now, let me give arguments as wildcard and pathname. To reach the directory we need to give whole directory as a pathname.

```
Enter the wildcard and full pathaname(optional): "*lor*" /home/ertugrul/Projects/CSE3033Project/loremipsum
/home/ertugrul/Projects/CSE3033Project/loremipsum
loremipsum loremipsum1.txt loremipsum2.txt loremipsum3.txt loremipsum4.txt
Please select an option:
```

But in our project, if we start with first wildcard does something wrong and instead of giving us the write wildcard (*lor*) it just prints the files under that directory.

```
/home/ertugrul/Projects/CSE3033Project/loremipsum
con*
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “condimentum,” inside loremipsum1.txt is substituted with “CONDIMENTUM,”.
The word “congue” inside loremipsum1.txt is substituted with “CONGUE”.
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “consequat.” inside loremipsum1.txt is substituted with “CONSEQUAT.”.
The word “congue” inside loremipsum1.txt is substituted with “CONGUE”.
The word “condimentum” inside loremipsum1.txt is substituted with “CONDIMENTUM”.
The word “consectetur” inside loremipsum1.txt is substituted with “CONSECTETUR”.
The word “consequat” inside loremipsum1.txt is substituted with “CONSEQUAT”.
The word “consequat” inside loremipsum2.txt is substituted with “CONSEQUAT”.
The word “condimentum.” inside loremipsum2.txt is substituted with “CONDIMENTUM.”.
The word “congue” inside loremipsum2.txt is substituted with “CONGUE”.
The word “consequat” inside loremipsum2.txt is substituted with “CONSEQUAT”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “consectetur” inside loremipsum3.txt is substituted with “CONSECTETUR”.
The word “condimentum” inside loremipsum3.txt is substituted with “CONDIMENTUM”.
The word “convallis” inside loremipsum3.txt is substituted with “CONVALLIS”.
The word “convallis,” inside loremipsum3.txt is substituted with “CONVALLIS,”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “congue” inside loremipsum3.txt is substituted with “CONGUE”.
The word “consequat” inside loremipsum3.txt is substituted with “CONSEQUAT”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “convallis,” inside loremipsum4.txt is substituted with “CONVALLIS,”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “consequat” inside loremipsum4.txt is substituted with “CONSEQUAT”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “consectetur.” inside loremipsum4.txt is substituted with “CONSECTETUR.”.
The word “consectetur” inside loremipsum4.txt is substituted with “CONSECTETUR”.
The word “congue” inside loremipsum4.txt is substituted with “CONGUE”.
```

```
Enter the wildcard and full pathaname(optional): "vel??" /home/ertugrul/Projects/CSE3033Project/loremipsum
/home/ertugrul/Projects/CSE3033Project/loremipsum
vel??
The word “velit” inside loremipsum1.txt is substituted with “VELIT”.
The word “velit” inside loremipsum3.txt is substituted with “VELIT”.
The word “velit” inside loremipsum3.txt is substituted with “VELIT”.
The word “velit” inside loremipsum4.txt is substituted with “VELIT”.
```

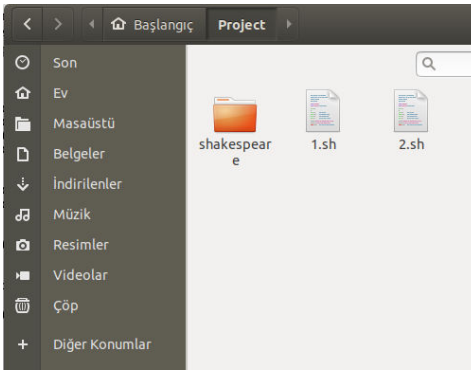
On the other hand, it works totally fine with the rest of the wildcards.

Last of the problem is implementing a program that takes two different arguments from user. One of the argument is directory of workspace, other one is a keyword. If there would be argument as a keyword “-R”, it works under current directory. If there is no argument, it gives an invalid argument error.

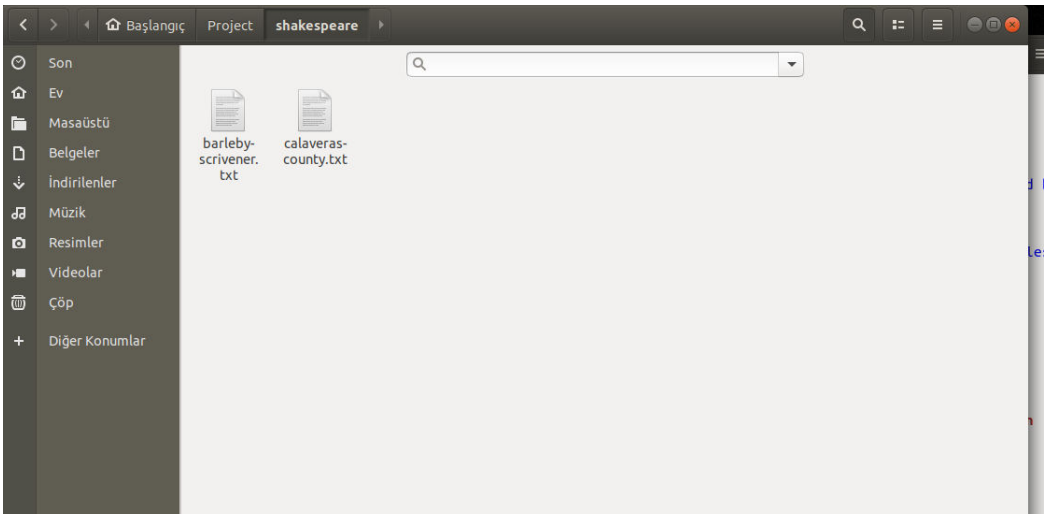
```
Enter the keyword or pathname:
Your input is invalid.Try again..
```

Let me give keyword as an argument first. Before that, you can see the files under current directory and subdirectories.

```
eray@eray-N551VW:~/Project$ ls -l
toplam 28
-rwxr-xr-x 1 eray eray  390 Kas  4 17:05 1.sh
-rwxr-xr-x 1 eray eray 2776 Kas  4 17:30 2.sh
-rwxr-xr-x 1 eray eray  877 Kas  2 20:54 3.sh
-rwxr-xr-x 1 eray eray 1634 Kas  4 20:47 4.sh
-rwxr-xr-x 1 eray eray 1558 Kas  5 21:25 5.sh
-rw-r--r-- 1 eray eray    0 Kas  4 22:54 french.txt
-rwxr-xr-x 1 eray eray 1401 Kas  4 19:40 myprog.sh
drwxr-xr-x 2 eray eray 4096 Kas  5 22:13 shakespeare
-rw-r--r-- 1 eray eray    0 Kas  4 22:54 trees-and-other-poems.txt
eray@eray-N551VW:~/Project$ ls -l shakespeare
toplam 4
-rw-r--r-- 1 eray eray 435 Kas  5 22:13 barleby-scrivener.txt
-rw-r--r-- 1 eray eray   0 Kas  4 22:54 calaveras-county.txt
eray@eray-N551VW:~/Project$
```

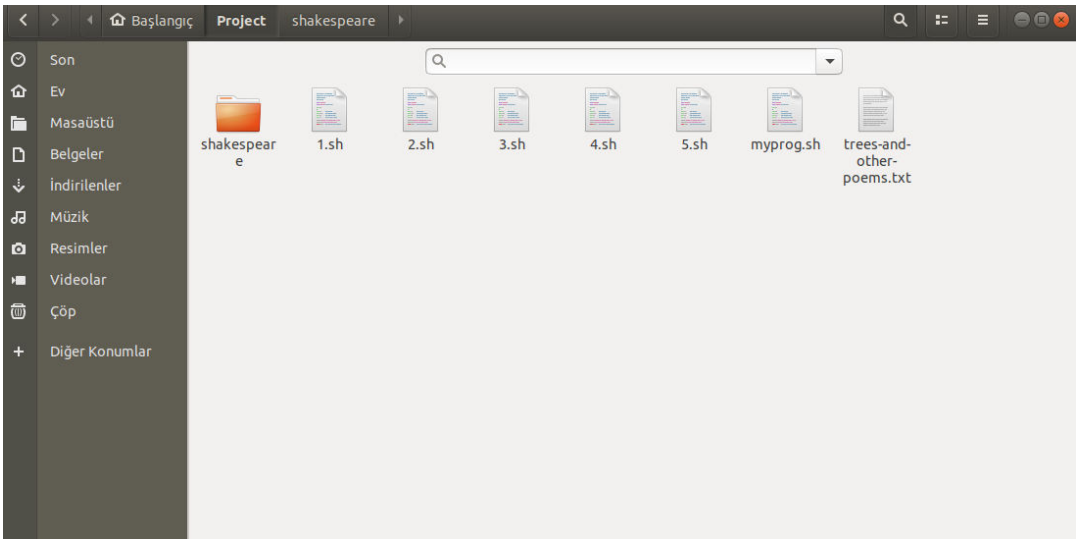


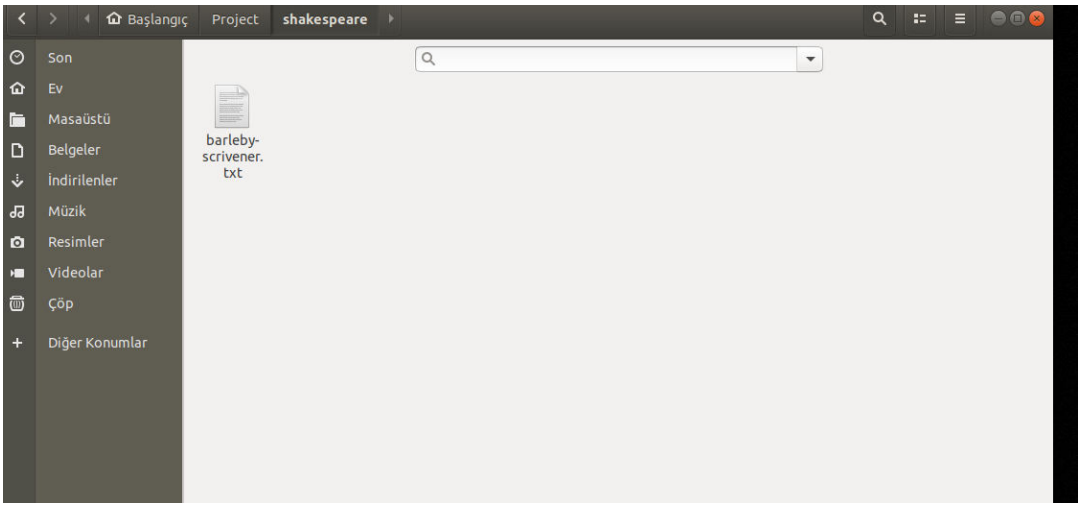
If we give keyword:



```
eray@eray-N551VW:~/Project$ ./myprog.sh
1) Is word palindrome?       4) Find the words
2) Move .c files             5) Delete the empty files
3) Create a hollowed square  6) Exit
Please select an option: 5
Enter the keyword or pathname: -R
Do you want to delete french.txt? (y/n): y
1 file deleted

Do you want to delete calaveras-county.txt? (y/n): y
1 file deleted

Do you want to delete trees-and-other-poems.txt? (y/n): n

Please select an option:
```

Obviously, we are expecting from program to delete empty files under current directory.

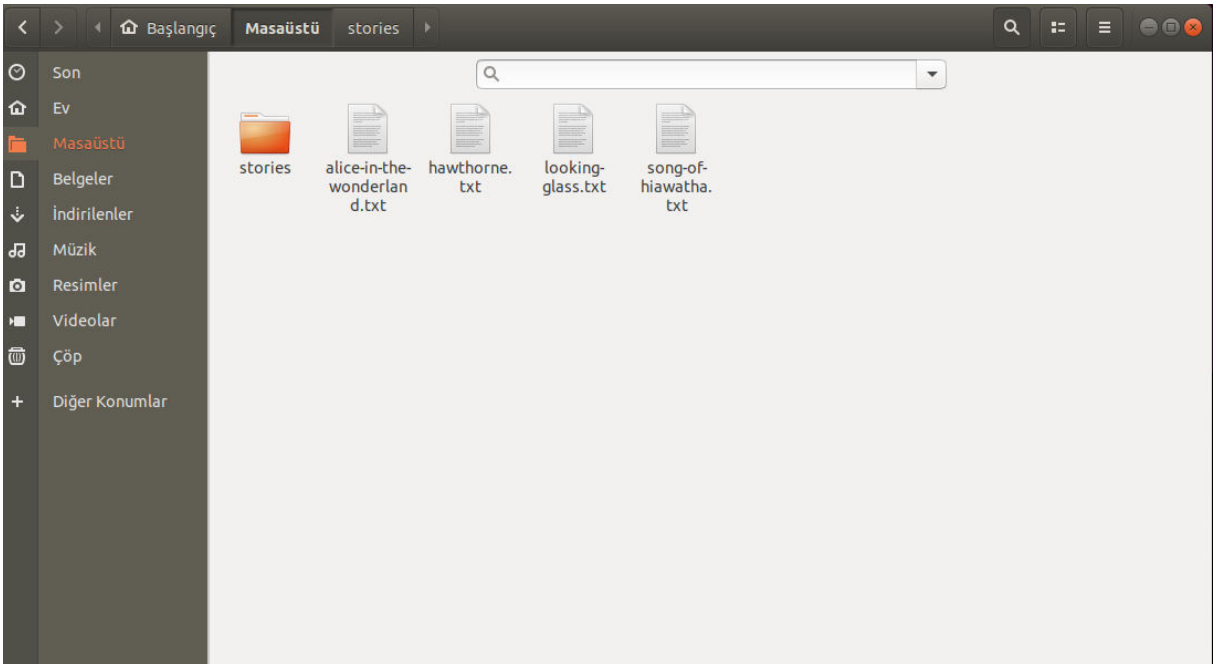




As you can see from the screenshots, empty files under current directory has gone.

Now, let us give a directory to the program. But before that let me check the given directory.

```
eray@eray-N551VW:~/Project$ ls -l /home/eray/Masaüstü
toplam 12
-rw-r--r-- 1 eray eray    0 Kas  5 22:27 alice-in-the-wonderland.txt
-rw-r--r-- 1 eray eray  229 Kas  5 22:17 hawthorne.txt
-rw-r--r-- 1 eray eray  415 Kas  5 22:17 looking-glass.txt
-rw-r--r-- 1 eray eray    0 Kas  5 22:28 song-of-hiawatha.txt
drwxr-xr-x 2 eray eray 4096 Kas  5 22:22 stories
```

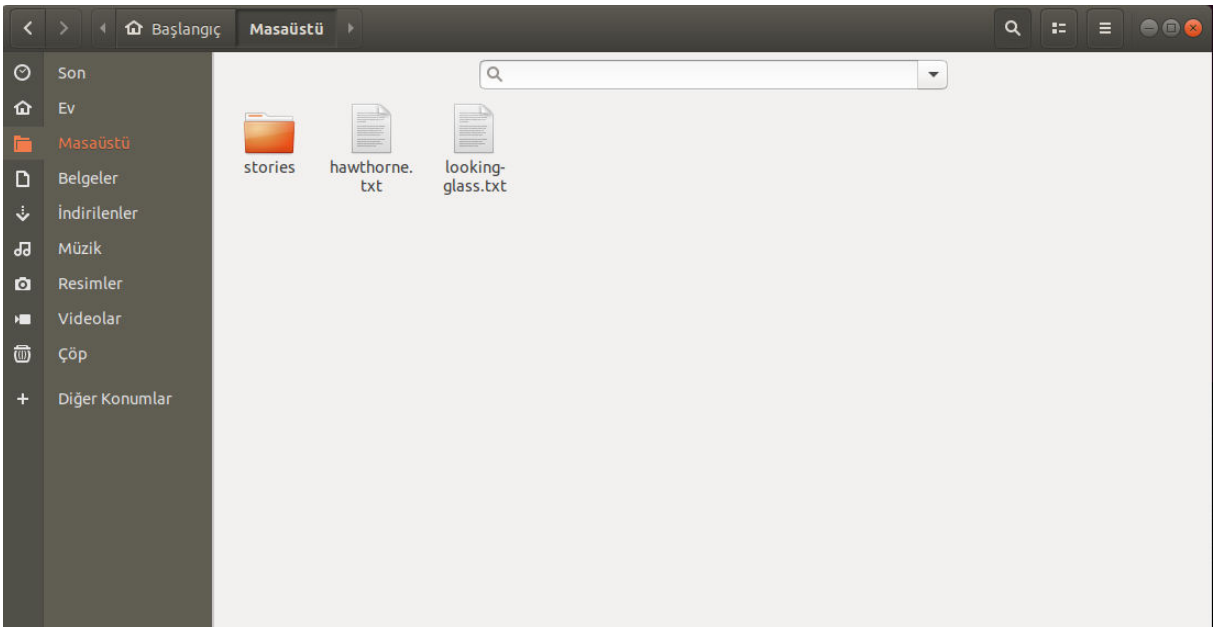


You can see all the files under given directory.

Let us run the program with giving an argument.

```
eray@eray-N551VW:~/Project$ ./myprog.sh
1) Is word palindrome?       4) Find the words
2) Move .c files             5) Delete the empty files
3) Create a hollowed square  6) Exit
Please select an option: 5
Enter the keyword or pathname: /home/eray/Masaüstü
Do you want to delete song-of-hiawatha.txt? (y/n): y
1 file deleted

Do you want to delete alice-in-the-wonderland.txt? (y/n): y
1 file deleted

Please select an option:
```

From this commands, we are expecting from program to delete or not delete empty files. We deleted some of them. Now, let me check the given directory after program executed.



This also, deleted empty files under given directory.

This is the end of our project.