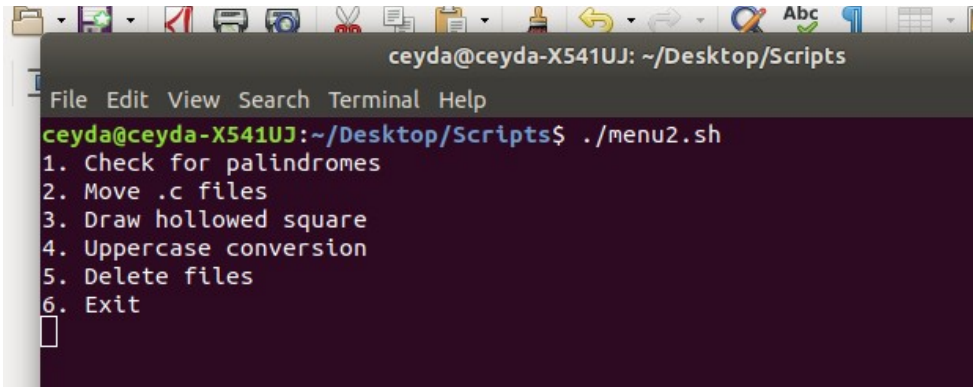


## REPORT OF OPERATING SYSTEM PROJECT 1

- Program will start with menu. It will ask to user to what he/she wants to do.

A screenshot of a terminal window with a dark background. The title bar shows the user 'ceyda' on a machine named 'ceyda-X541UJ' in the directory '~/Desktop/Scripts'. The terminal shows the command './menu2.sh' being executed, which displays a numbered menu with six options: 1. Check for palindromes, 2. Move .c files, 3. Draw hollowed square, 4. Uppercase conversion, 5. Delete files, and 6. Exit. The cursor is positioned at the end of the menu, ready for user input.

```
ceyda@ceyda-X541UJ: ~/Desktop/Scripts
File Edit View Search Terminal Help
ceyda@ceyda-X541UJ:~/Desktop/Scripts$ ./menu2.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
█
```

```
#Menu creation

if [ $# -eq 0 ]
then
    selection=0
    while [ "$selection" -ne 6 ]
    do
        echo "1. Check for palindromes"
        echo "2. Move .c files"
        echo "3. Draw hollowed square"
        echo "4. Uppercase conversion"
        echo "5. Delete files"
        echo "6. Exit"

        read selection

        if [ $selection -eq 1 ]
        then
            echo "Give argument"
            read arg
            Q1 $arg

        elif [ $selection -eq 2 ]
        then
            echo "Give argument"
            read arg
            Q2 $arg

        elif [ $selection -eq 3 ]
        then
            echo "Give argument"
            read arg1 arg2
            Q3 $arg1 $arg2

        elif [ $selection -eq 4 ]
        then
            echo "Give argument"
```

Q1)

```
ceyda@ceyda-X541UJ: ~/Desktop/Scripts
File Edit View Search Terminal Help
$ ceyda@ceyda-X541UJ:~/Desktop/Scripts$ ./menu2.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
1
Give argument
Error - String missing from command line argument
Syntax : ./menu2.sh string
ceyda@ceyda-X541UJ:~/Desktop/Scripts$
```

- First if will control whether there is an argument or not.

```
es Text Editor Sal 19:04
Open *menu2.sh ~/Desktop/Scripts
function Q1() {
    var=$1

    length=${#var} #Get length of the string
    loc=$((echo $(( $length / 2 ))) #take half of string length

    if [ $# -eq 0 ] #if there is no argument give error message
    then
        echo "Error - String missing from command line argument"
        echo "Syntax : $0 string"
    fi
}
```

- Then control that input is an string or not.

```
else
    if [ $var -eq $var 2>/dev/null ]
    then

        echo "Please enter string, not integer!"
    else
    fi
fi
```

```
ceyda@ceyda-X541UJ:~/Desktop/Scripts$ ./menu2.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
12
Give argument
Please enter string, not integer!
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
```

- Else will control the string length is even or not

```

else
    if test $(( $length % 2 )) -gt 0 #Check the string length is even or not
    then
        fstr=${var:0:loc}
        sstr=${var:loc+1}
    else
        fstr=${var:0:loc}
        sstr=${var:loc}
    fi
fi

```

- Then we generated two string from argument with its halves.

```

fi

j=$length #length of string
palnd=1 #control variable for string is palindrome or not

#Traverse string from its middle
for (( i=0; i<$loc; i++ ))
do
    fstr_ascii=$(printf "%d" "${var:i:1}") #first half of string
    sstr_ascii=$(printf "%d" "${var:j-1:1}") #second half of string

```

- Then if strings contain uppercase characters, we changed them with lowercase.

```

if [ $fstr_ascii -ge 65 ]
then
    if [ $fstr_ascii -le 90 ]
    then
        fstr_ascii=$(( $fstr_ascii + 32 ))
    fi
fi

if [ $sstr_ascii -ge 65 ]
then
    if [ $sstr_ascii -le 90 ]
    then
        sstr_ascii=$(( $sstr_ascii + 32 ))
    fi
fi

```

- Then we controlled this two strings equality with for loop character by character.

```

#Check first half and second half are same or not
if [ $fstr_ascii != $sstr_ascii ]
then
    echo "$var is not a palindrome"
    palnd=0
    break
fi
j=$((j-1))
done

if [ $palnd -eq 1 ]
then
    echo "$var is a palindrome"
fi

```

Q2)

- If user runs program without argument we controlled does .c type file exist or not.
- If it exists we created “cprogs” in the current directory and move all .c files into that directory.

```
#!/bin/bash
dir_arg=$1
file=( *.c ) #all .c files under current directory

if [ $# -eq 0 ] #if there is no argument create a directory and move all files into it
then
    if [ -f "$file" ] #check type of arguments
    then
        mkdir cprogs #create directory
        mv *.c cprogs #move all .c files into created directory
        echo "Files moved successfully"
    else
        echo "$file not found."
    fi
fi
```

- If user runs program with path name argument, first we controlled that directory exist or not. Then we controlled .c file exist or not.
- If both exist we created “cprogs” directory under given directory and moved all .c files into that directory.
- If given path name does not exist we printed error message to the screen.

```
else #if pathname is given create a directory under it and move all files into it
    if [ -d "$dir_arg" ]; then #control given directory exist or not
        if [ -f "$file" ]
        then
            mkdir cprogs #create directory
            mv *.c cprogs #move all .c files into created directory
            mv cprogs $dir_arg #move created directory into given path
            echo "Files moved successfully"
        else
            echo "$file not found."
        fi
    else
        echo "This path does not exist."
    fi
fi
```



- Before and after program execution without path name

```
ceyda@ceyda-X541UJ: ~/Desktop/cprogs
File Edit View Search Terminal Help
total 12
-rwxr-xr-x 1 ceyda ceyda 6721 Kas  5 19:58 menu.sh
drwxr-xr-x 3 ceyda ceyda 4096 Kas  5 20:25 Scripts
-rwxr-xr-x 1 ceyda ceyda    0 Kas  3 20:25 x.c
-rwxr-xr-x 1 ceyda ceyda    0 Kas  3 20:25 y.c
-rwxr-xr-x 1 ceyda ceyda    0 Kas  3 20:25 z.c
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
2
Give argument

Files moved successfully
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
6
ceyda@ceyda-X541UJ:~/Desktop$ ls -l
total 16
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 20:28 cprogs
-rwxr-xr-x 1 ceyda ceyda 6721 Kas  5 19:58 menu.sh
drwxr-xr-x 3 ceyda ceyda 4096 Kas  5 20:25 Scripts
ceyda@ceyda-X541UJ:~/Desktop$ cd cprogs/
ceyda@ceyda-X541UJ:~/Desktop/cprogs$ ls -l
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 x.c
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 y.c
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 z.c
ceyda@ceyda-X541UJ:~/Desktop/cprogs$
```

- Before and after program execution with given path name

```
ceyda@ceyda-X541UJ:~/Desktop$ ls -l ./trytomove
total 0
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
2
Give argument
/home/ceyda/Desktop/trytomove
Files moved successfully
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
6
ceyda@ceyda-X541UJ:~/Desktop$ ls -l /home/ceyda/Desktop/trytomove/cprogs
total 24
-rwxr-xr-x 1 ceyda ceyda 6721 Kas  5 19:58 x.c
-rwxr-xr-x 1 ceyda ceyda 6721 Kas  5 19:58 y.c
-rwxr-xr-x 1 ceyda ceyda 6721 Kas  5 19:58 z.c
ceyda@ceyda-X541UJ:~/Desktop$
```

Q3)

- If user runs program without argument or give number of argument is wrong we printed error message.

```
if [ $# -lt 2 -o $# -gt 2 ]    #if there is no argument give error message
then
    echo "Error - You must give 2 integers."
    echo "Syntax : $0 number number"
```

- We controlled difference of first and second parameter is not even program will print error message.
- Then if conditions are available, program will print squares.

```

difference=$(( $arg1-$arg2 )) #take difference of given parameter to control
                                #the first number is greater than second number
if [ $difference -ge 2 ]
then
    remain=$(( $difference%2 )) #check that difference between numbers is even or not
    div=$(( $difference/2 ))    #take half of difference between numbers
    if [ $remain -eq 0 ]
    then
        #create squares
        for (( i=0; i<$arg1; i++ ))
        do
            for(( j=0; j<$arg1; j++ ))
            do
                if [ $i -ge $div -a $i -le $(( $arg1-$div-1 )) ]
                then
                    if [ $j -lt $div -o $j -gt $(( $arg1-$div-1 )) ]
                    then
                        echo -n "*"
                    else
                        echo -n " "
                    fi
                else
                    echo -n "*"
                fi
            done
            echo
        done
    else
        echo "Error - The difference between the two arguments must be an even number."
    fi
else
    echo "Error - First number must be greater than second number"
fi

```

### *Checked situations of ;*

- \* number of parameters is 2, or not
- \* first number is greater than second, or not
- \* difference of parameters is greater than 2, or not
- \* difference of parameters is even, or not

```

0
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
3
Give argument
7 6
Error - The first number must be at least 2 more than the second number.
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
3
Give argument
7 4
Error - The difference between the two arguments must be an even number.
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit

```

```

File Edit View Search Terminal Help
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
3
Give argument

Error - You must give 2 integers.
Syntax : ./menu.sh number number
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
3
Give argument
1 2 5
Error - You must give 2 integers.
Syntax : ./menu.sh number number
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
3
Give argument
5 7
Error - First number must be greater than second number
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit

```



Q5)

- We controlled that whether there are -R parameter and path name argument. And these options generate 4 different situations.

These are:

### 1. No path name, without -R option

```
if [ $# -eq 0 ] #if there is no argument ask user to delete files just under current directory
then
    array=( $( find . -maxdepth 1 -type f -size 0 ) )

    for i in ${array[@]}
    do
        echo -n "Do you want to delete "
        echo -n $filename
        echo "? (y/n): "
        read answer
        if [ $answer == 'y' ]
        then
            rm $filename
            echo "1 file deleted"
        fi
    done
```

```
-rwxr-xr-x 1 ceyda ceyda 6901 Kas  5 21:22 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 Scripts
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 trytomove
ceyda@ceyda-X541UJ:~/Desktop$ ls -l trytomove
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 gg.txt
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
5
Give argument

Do you want to delete f.txt? (y/n):
y
1 file deleted
Do you want to delete g.txt? (y/n):
n
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
6
ceyda@ceyda-X541UJ:~/Desktop$ ls -l
total 16
-rwxr-xr-x 1 ceyda ceyda  0 Kas  3 20:25 g.txt
-rwxr-xr-x 1 ceyda ceyda 6901 Kas  5 21:22 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 Scripts
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 trytomove
ceyda@ceyda-X541UJ:~/Desktop$ ls -l trytomove
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 gg.txt
ceyda@ceyda-X541UJ:~/Desktop$
```

## 2. No path name, with -R option

- Before execute program

```
File Edit View Search Terminal Help
ceyda@ceyda-X541UJ:~/Desktop$ ls -l
total 16
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 e.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 f.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 g.txt
-rwxr-xr-x 1 ceyda ceyda 6739 Kas 5 20:55 menu.sh
drwxr-xr-x 3 ceyda ceyda 4096 Kas 5 20:53 Scripts
drwxr-xr-x 3 ceyda ceyda 4096 Kas 5 21:11 trytomove
ceyda@ceyda-X541UJ:~/Desktop$ ls -l ./Scripts
total 72
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 c.sh
-rw-r--r-- 1 ceyda ceyda 45 Kas 3 19:47 deneme2.txt
-rw-r--r-- 1 ceyda ceyda 70 Kas 3 19:47 deneme.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 d.sh
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 e.txt
drwxr-xr-x 4 ceyda ceyda 4096 Kas 3 23:07 loremipsum
-rw-r--r-- 1 ceyda ceyda 6739 Kas 5 20:53 menu2.sh
-rwxr-xr-x 1 ceyda ceyda 6721 Kas 5 19:58 menu.sh
-rwxr-xr-x 1 ceyda ceyda 441 Kas 1 15:49 opsys_2.sh
-rwxr-xr-x 1 ceyda ceyda 814 Kas 4 02:56 opsys_3.sh
-rwxr-xr-x 1 ceyda ceyda 603 Kas 4 20:59 opsys_4.sh
-rwxr-xr-x 1 ceyda ceyda 1656 Kas 4 02:59 opsys_5.sh
-rwxr-xr-x 1 ceyda ceyda 888 Kas 4 18:11 opsys_project1_1.sh
-rwxr-xr-x 1 ceyda ceyda 888 Eki 30 22:19 script1.sh
-rwxr-xr-x 1 ceyda ceyda 490 Kas 3 00:49 script2.sh
-rwxr-xr-x 1 ceyda ceyda 885 Kas 3 14:28 script3.sh
-rwxr-xr-x 1 ceyda ceyda 1447 Kas 3 20:06 script4.sh
-rwxr-xr-x 1 ceyda ceyda 716 Kas 4 00:06 script5.sh
-rw-r--r-- 1 ceyda ceyda 1664 Kas 4 22:37 script6.sh
ceyda@ceyda-X541UJ:~/Desktop$ ls -l ./trytomove
total 4
drwxr-xr-x 2 ceyda ceyda 4096 Kas 5 21:11 cprogs
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 ee.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 gg.txt
```

- Running program

```
File Edit View Search Terminal Help
ceyda@ceyda-X541UJ:~/Desktop$ ./menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
5
Give argument
-R
Do you want to delete ../e.txt? (y/n):
y
1 file deleted
Do you want to delete ../f.txt? (y/n):
n
Do you want to delete ../g.txt? (y/n):
n
Do you want to delete ../Scripts/c.sh? (y/n):
y
1 file deleted
Do you want to delete ../Scripts/d.sh? (y/n):
n
Do you want to delete ../Scripts/e.txt? (y/n):
n
Do you want to delete ../trytomove/ee.txt? (y/n):
y
1 file deleted
Do you want to delete ../trytomove/ff.txt? (y/n):
n
Do you want to delete ../trytomove/gg.txt? (y/n):
n
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
□
```



- After execute program

```
ceyda@ceyda-X541UJ:~/Desktop$ ls -l
total 16
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 f.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 g.txt
-rwxr-xr-x 1 ceyda ceyda 6901 Kas 5 21:22 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas 5 21:23 Scripts
drwxr-xr-x 2 ceyda ceyda 4096 Kas 5 21:23 trytomove
ceyda@ceyda-X541UJ:~/Desktop$ ls -l ./Scripts
total 68
-rw-r--r-- 1 ceyda ceyda 45 Kas 3 19:47 deneme2.txt
-rw-r--r-- 1 ceyda ceyda 70 Kas 3 19:47 deneme.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 d.sh
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 e.txt
-rw-r--r-- 1 ceyda ceyda 6739 Kas 5 20:53 menu2.sh
-rwxr-xr-x 1 ceyda ceyda 6721 Kas 5 19:58 menu.sh
-rwxr-xr-x 1 ceyda ceyda 441 Kas 1 15:49 opsys_2.sh
-rwxr-xr-x 1 ceyda ceyda 814 Kas 4 02:56 opsys_3.sh
-rwxr-xr-x 1 ceyda ceyda 603 Kas 4 20:59 opsys_4.sh
-rwxr-xr-x 1 ceyda ceyda 1656 Kas 4 02:59 opsys_5.sh
-rwxr-xr-x 1 ceyda ceyda 888 Kas 4 18:11 opsys_project1_1.sh
-rwxr--r-- 1 ceyda ceyda 888 Eki 30 22:19 script1.sh
-rwxr-xr-x 1 ceyda ceyda 490 Kas 3 00:49 script2.sh
-rwxr-xr-x 1 ceyda ceyda 885 Kas 3 14:28 script3.sh
-rwxr-xr-x 1 ceyda ceyda 1447 Kas 3 20:06 script4.sh
-rwxr-xr-x 1 ceyda ceyda 716 Kas 4 00:06 script5.sh
-rw-r--r-- 1 ceyda ceyda 1664 Kas 4 22:37 script6.sh
ceyda@ceyda-X541UJ:~/Desktop$ ls -l ./trytomove
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas 3 20:25 gg.txt
ceyda@ceyda-X541UJ:~/Desktop$
```

### 3. With path name, without -R option

```
done
elif [ $# -eq 1 -a $1 != "-R" ] #if there is 1 argument and it is pathname ask user to delete
then
    #all files under just given directory
    array=( $( find $1 -maxdepth 1 -type f -size 0 ) )
    for i in ${array[@]}
    do
        filename=${i}
        echo -n "Do you want to delete "
        echo -n $filename
        echo "? (y/n): "
        read answer
        if [ $answer == 'y' ]
        then
            rm $filename
            echo "1 file deleted"
        fi
    done
done
```

File Edit View Search Terminal Help

```
ceyda@ceyda-X541UJ:~$ pwd
/home/ceyda
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop
total 16
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 e.txt
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 f.txt
-rwxr-xr-x 1 ceyda ceyda 6881 Kas  5 21:44 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 Scripts
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 trytomove
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop/trytomove/
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 gg.txt
ceyda@ceyda-X541UJ:~$ ./Desktop/menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
5
Give argument
/home/ceyda/Desktop
Do you want to delete /home/ceyda/Desktop/e.txt? (y/n):
y
1 file deleted
Do you want to delete /home/ceyda/Desktop/f.txt? (y/n):
n
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
6
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop
total 16
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 f.txt
-rwxr-xr-x 1 ceyda ceyda 6881 Kas  5 21:44 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 Scripts
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 trytomove
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop/trytomove/
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 gg.txt
ceyda@ceyda-X541UJ:~$
```



#### 4. With path name, with -R option

```
File Edit View Search Terminal Help
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop
total 12
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 e.txt
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 f.txt
-rwxr-xr-x 1 ceyda ceyda 6881 Kas  5 21:44 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:23 trytomove
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop/trytomove/
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 gg.txt
ceyda@ceyda-X541UJ:~$ ./Desktop/menu.sh
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
5
Give argument
-R /home/ceyda/Desktop/
Do you want to delete /home/ceyda/Desktop//e.txt? (y/n):
y
1 file deleted
Do you want to delete /home/ceyda/Desktop//f.txt? (y/n):
n
Do you want to delete /home/ceyda/Desktop//trytomove/ff.txt? (y/n):
n
Do you want to delete /home/ceyda/Desktop//trytomove/gg.txt? (y/n):
y
1 file deleted
1. Check for palindromes
2. Move .c files
3. Draw hollowed square
4. Uppercase conversion
5. Delete files
6. Exit
6
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop
total 12
-rwxr-xr-x 1 ceyda ceyda  0 Kas  5 21:46 f.txt
-rwxr-xr-x 1 ceyda ceyda 6881 Kas  5 21:44 menu.sh
drwxr-xr-x 2 ceyda ceyda 4096 Kas  5 21:52 trytomove
ceyda@ceyda-X541UJ:~$ ls -l /home/ceyda/Desktop/trytomove/
total 0
-rwxr-xr-x 1 ceyda ceyda 0 Kas  3 20:25 ff.txt
ceyda@ceyda-X541UJ:~$
```

- To provide to BFS in directories, we generated “traverse” method.

```
function Q5() {
  arg=$1
  arg2=$2

  function traverse() { #function for traverse directories recursively
    for file in "$1"/* #all files under given path
    do
      if [ ! -d "${file}" ] ; #if current argument is file ask user to delete it or not
      then
        if [ ! -s $file ] #check the file's size is zero or not
        then
          echo -n "Do you want to delete "
          echo -n $file
          echo "? (y/n): "
          read answer
          if [ $answer == 'y' ]
          then
            rm $file #remove file if user choose y answer
          fi
        fi
      else #if current argument is directory call recursive
        traverse "${file}"
      fi
    done
  }
}
```

- We arranged asking order to deleting operation, therefore program will not ask to delete to directory before files because of alphabetic order

```
#arrange order directory and files, thus it will not ask to delete to directory because of alphabetic order

for file in ./
do

  declare -a dirlist
  dirlist=$(ls -d */)
  mkdir zzz
  echo ${dirlist}

  for dir in $dirlist
  do
    mv $dir zzz
  done

done

for file in ./
do
  if [ ! -d "${file}" ] ;
  then
    if [ ! -s $file ]
    then
      echo -n "Do you want to delete "
      echo -n $file
      echo "? (y/n): "
      read answer
      if [ $answer == 'y' ]
      then
        rm $file
      fi
    fi
  fi
fi
```

HÜMEYRA CEYDA POLAT 150117065  
 ZEHRA ZEYNEP PEHLİVAN 150116504