CSE3033 OPERATING SYSTEM

PROJECT REPORT

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PROGRAM 1

STEPS

- The input file is read. Digits in the input file are transferred into the array.
- *ERROR CHECK STEP :* If the numbers are negative or greater than 9, the program will exit. If there are no inputs, the program will also exit.
- New array are generated for controlling the input digits. The array contains valid numbers : 0,1,2...9
- In the end, there are nested for loops to control the if condition. If the valid number matches the input number, it puts the star.

EXAMPLE INPUT	OUTPUT
1 1 2 3 4 7 6 5 5 4 9	0 1 ** 2 * 3 * 4 ** 5 ** 6 * 7 * 8 9 *

PROGRAM 2

STEPS

- The program reads given inputs.
- First of all, I have defined arrays. One of them to putting in the letters of the word received, another array for the number received and the last one for the alphabet.
- I filled in arrays using for to contain the characters of the word and the number received.
- Then the length of the number I got could have been 1 or the length of the received word. I used an if-else construct to check this.
- I compared the word array with the alphabet array index by index. I used the if statement to see if they encountered the same letter.
- For each letter in the string, I had to find another letter in the English alphabet advancing over the alphabet corresponding digit times.
- For this, I collected the index of the common letter with the added number and checked the return to the beginning in the alphabet. In line with this process, I subtracted the length of the alphabet from the total if it returned to the beginning of the alphabet.
- Finally, I put each new letter I found in an array and printed the new word array I obtained.

```
----------------------------------------
 Main Menu
----------------------------------------
1. Create histogram
2. Encryption
3. Delete oldest
4. Convert numbers
5. Organized files
6. Exit
========================
Enter your menu choice [1-6]: 2
Please write a string :
apple
Please write a number :
12345
brspj
Press a key to continue. . .
```

```
----------------------------------------
 Main Menu
----------------------------------------
1. Create histogram
2. Encryption
3. Delete oldest
4. Convert numbers
5. Organized files
6. Exit
========================
Enter your menu choice [1-6]: 2
Please write a string :
zoo
Please write a number :
8
hww
Press a key to continue. . .
```

PROGRAM 3

STEPS

- Firstly, we controlled if there is a folder name as an input. If there is a folder name, the program open that folder. If no, program start to run on current directory.
- Secondly, we found the oldest file in the folder by using this code :

```
oldest=$(find -type f -print0 | xargs -0 stat --format '%Y :%y %n' | sort  | cut -d" " -f5-| head -1 | cut -d"/" -f2
```

- Lastly, we asked if you want to delete this file or not. If yes, file is deleted.

```
echo "Do you want to delete $oldest ? (y/n)"
    read answer
            if [ "$answer" = "y" ] || [ "$answer" = "Y" ];
            then
            rm $oldest
            echo "$oldest is deleted"
                    elif [ $answer = "n" ] || [  $answer = "N" ];
                    then
                    echo "$oldest is not deleted"
                            else
                            echo "wrong input"
            fi
```

```
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ls -l as
total 28
-rwxrwxrwx 1 alperen2075 alperen2075  481 Kas 16 18:10 '1(another-copy).sh'
-rwxrwxrwx 1 alperen2075 alperen2075  481 Kas 16 18:10 '1(copy).sh'
-rwxrwxrwx 1 alperen2075 alperen2075  908 Kas 16 18:59  1.sh
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  asd
drwxrwxr-x 2 alperen2075 alperen2075 4096 Kas 18 11:39  copied
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  fd
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  ghg
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ./3.sh as
Do you want to delete 1(another-copy).sh ? (y/n)
y
1(another-copy).sh is deleted
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ls -l as
total 24
-rwxrwxrwx 1 alperen2075 alperen2075  481 Kas 16 18:10 '1(copy).sh'
-rwxrwxrwx 1 alperen2075 alperen2075  908 Kas 16 18:59  1.sh
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  asd
drwxrwxr-x 2 alperen2075 alperen2075 4096 Kas 18 11:39  copied
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  fd
drwxrwxr-x 3 alperen2075 alperen2075 4096 Kas 18 11:39  ghg
```

```
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ls -l
total 44
-rwxrwxrwx 1 alperen2075 alperen2075 1031 Kas 16 22:00 1.sh
-rw-rw-r-- 1 alperen2075 alperen2075   36 Kas 16 21:07 1.txt
-rwxrwxrwx 1 alperen2075 alperen2075  873 Kas 16 22:03 2.sh
-rwxrwxrwx 1 alperen2075 alperen2075 1144 Kas 17 15:45 3.sh
-rwxrwxrwx 1 alperen2075 alperen2075  874 Kas 18 11:51 4.sh
-rwxrwxrwx 1 alperen2075 alperen2075  417 Kas 18 11:53 4.txt
-rw-rw-r-- 1 alperen2075 alperen2075 1353 Kas 17 15:53 5.sh
-rwxrwxrwx 1 alperen2075 alperen2075 1830 Kas 18 11:42 6.sh
drwxrwxr-x 6 alperen2075 alperen2075 4096 Kas 18 11:39 as
-rw-rw-r-- 1 alperen2075 alperen2075   72 May 17  2020 a.txt
drwxrwxr-x 2 alperen2075 alperen2075 4096 Kas 18 11:39 copied
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ./3.sh
Do you want to delete a.txt ? (y/n)
y
a.txt is deleted
alperen2075@alperen2075-VirtualBox:~/Indirilenler/project$ ls -l
total 40
-rwxrwxrwx 1 alperen2075 alperen2075 1031 Kas 16 22:00 1.sh
-rw-rw-r-- 1 alperen2075 alperen2075   36 Kas 16 21:07 1.txt
-rwxrwxrwx 1 alperen2075 alperen2075  873 Kas 16 22:03 2.sh
-rwxrwxrwx 1 alperen2075 alperen2075 1144 Kas 17 15:45 3.sh
-rwxrwxrwx 1 alperen2075 alperen2075  874 Kas 18 11:51 4.sh
-rwxrwxrwx 1 alperen2075 alperen2075  417 Kas 18 11:53 4.txt
-rw-rw-r-- 1 alperen2075 alperen2075 1353 Kas 17 15:53 5.sh
-rwxrwxrwx 1 alperen2075 alperen2075 1830 Kas 18 11:42 6.sh
drwxrwxr-x 6 alperen2075 alperen2075 4096 Kas 18 11:39 as
drwxrwxr-x 2 alperen2075 alperen2075 4096 Kas 18 11:39 copied
```

PROGRAM 4

STEPS

- Firstly, we read each word in the file. At the same time, we controlled words if include number. If a word include number, we send it in if statement.

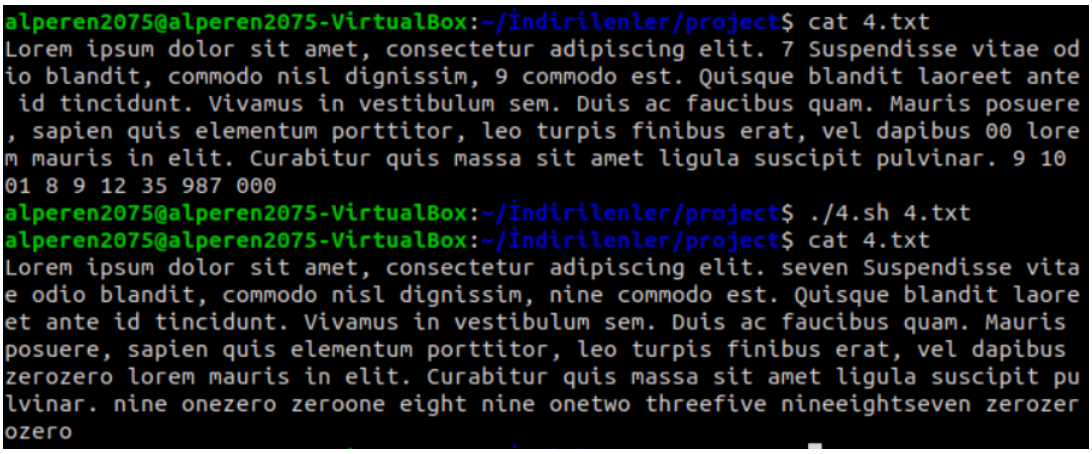
```
re='^[0-9]+$'
    #if words are number
                        if  [[ $word =~ $re ]] ; then
                                last=""
                                for (( j=0 ; j<${#word} ; j++)) {
                                        digit=${word:j:1}
                                        case $digit in
                                                0) num='zero' ;;
                                                1) num='one' ;;
                                        2) num='two' ;;
                                        3) num='three' ;;
                                        4) num='four' ;;
                                        5) num='five' ;;
                                        6) num='six' ;;
                                        7) num='seven' ;;
                                        8) num='eight' ;;
                                        9) num='nine' ;;
                                        esac
                                        last="$last$num"
                                }
                                word="$last"
```

- In if statement, we created a loop to return for each number in word. And we assigned the value to num variable in case statement.
- Lastly, we added all word in an array. After that we writed array on the txt file.

```
#writing to file

        > $file

echo ${arr[@]} >> $file
```



PROGRAM 5

STEPS

- Program reads given input/inputs.
- Firstly, if there are “copied” directories from previous running of the code, the program deletes “copied” directories in order to prevent errors. The program uses “ rm –rf ”
- If there are 2 inputs (-R option and the input which is used wildcard property), program copies the files to ”copied” directory recursively. The program generates “copied” directory in each directory and their subdirectories. In order to generate new copied directory, the program uses “mkdir”.According to given input, we can copy some files. The user can decide this using wildcard.
- If there 1 input (the input which is used wildcard property), copy operations are only done in current directory.

```
$ ls
car.txt     file.txt    myprog5.sh    subdirectory
csales.txt  myprog1.sh  practice.txt
$ ./myprog5.sh -R "c*.txt"
```

```
$ ls
car.txt  csales.txt  myprog1.sh  practice.txt
copied   file.txt    myprog5.sh  subdirectory
$ ls copied
car.txt  csales.txt
$ ls subdirectory
cent.txt  ceremony.txt  copied  exercise.txt  other
$ ls subdirectory/copied
cent.txt  ceremony.txt
$ ls subdirectory/other
copied  cstar.txt  fellow.txt
$ ls subdirectory/other/copied
cstar.txt
```

PROGRAM BONUS

- Firstly, we generated a menu.

1. Create histogram
2. Encryption
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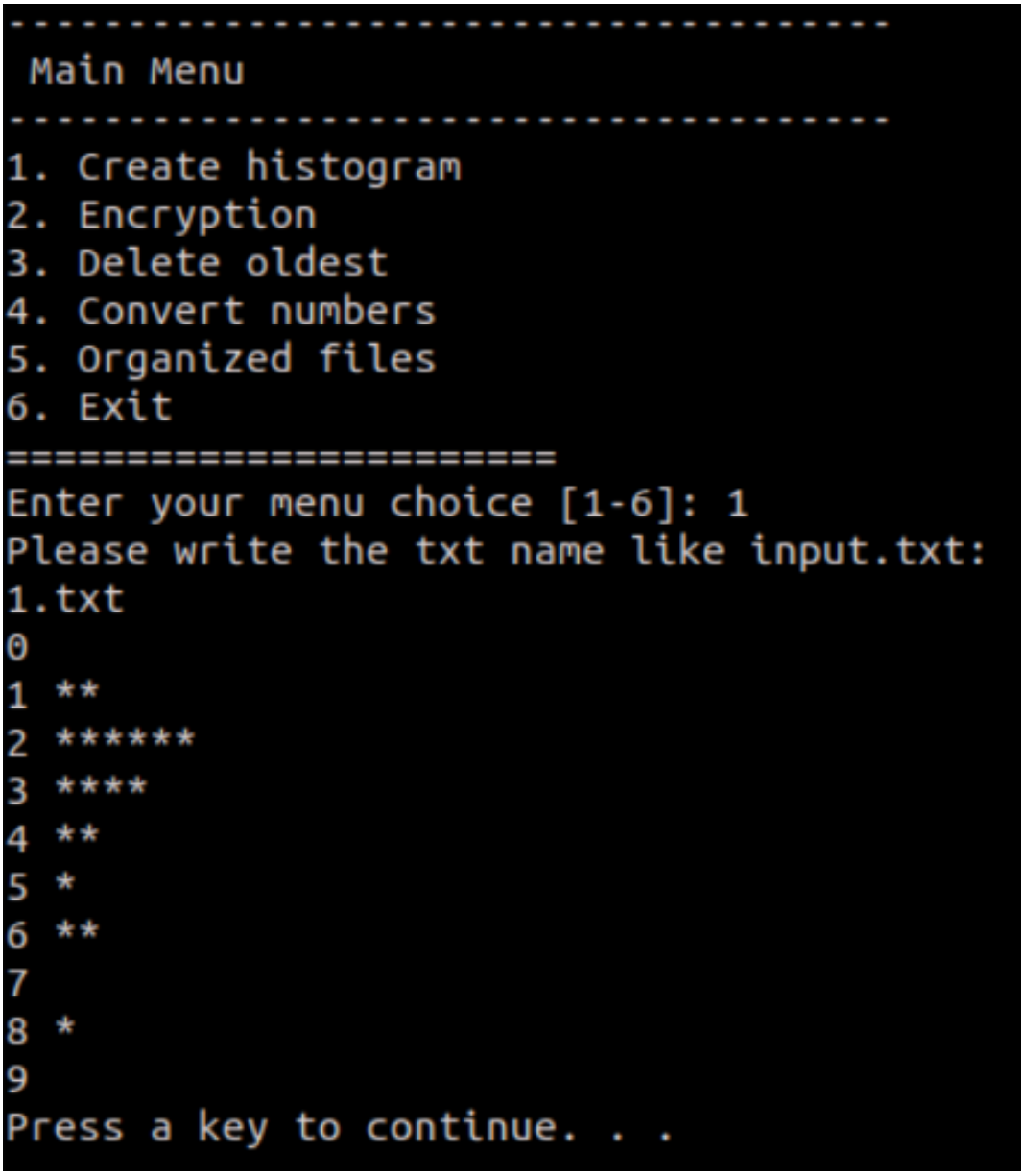
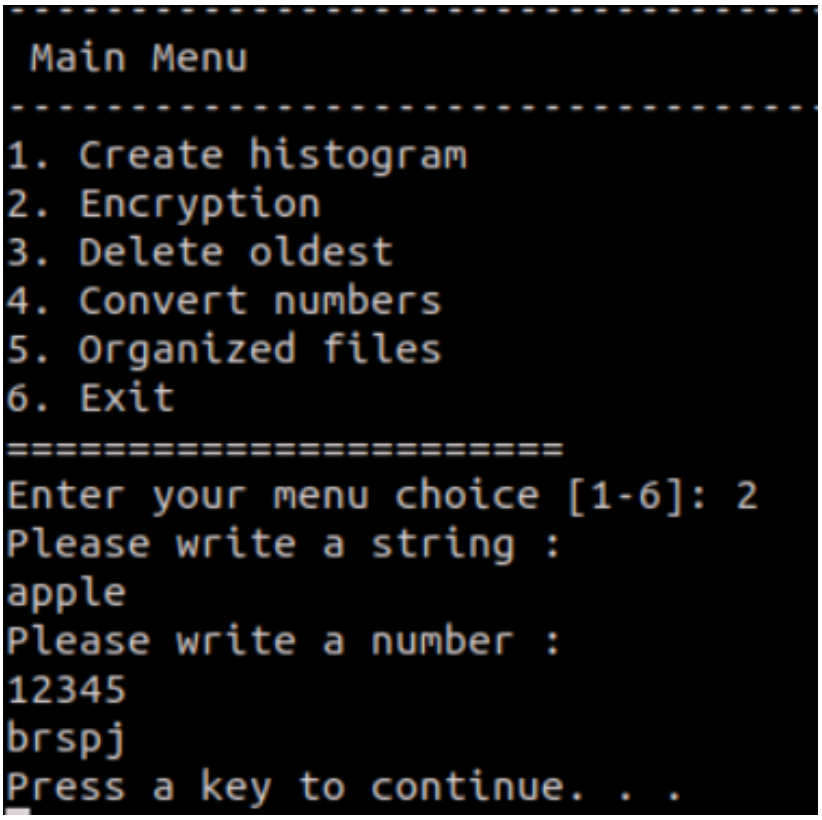
6. Exit

- After that we created a switch case and we took the inputs that programs wanted.

❖ Lastly, we implemented other programs to this program by using bash like :

```
echo "Please write a string :"
read input2
echo "Please write a number :"
read input3
bash ./2.sh $input2 $input3
echo "Press a key to continue. . ."; read ;
```




Main Menu
1. Create histogram
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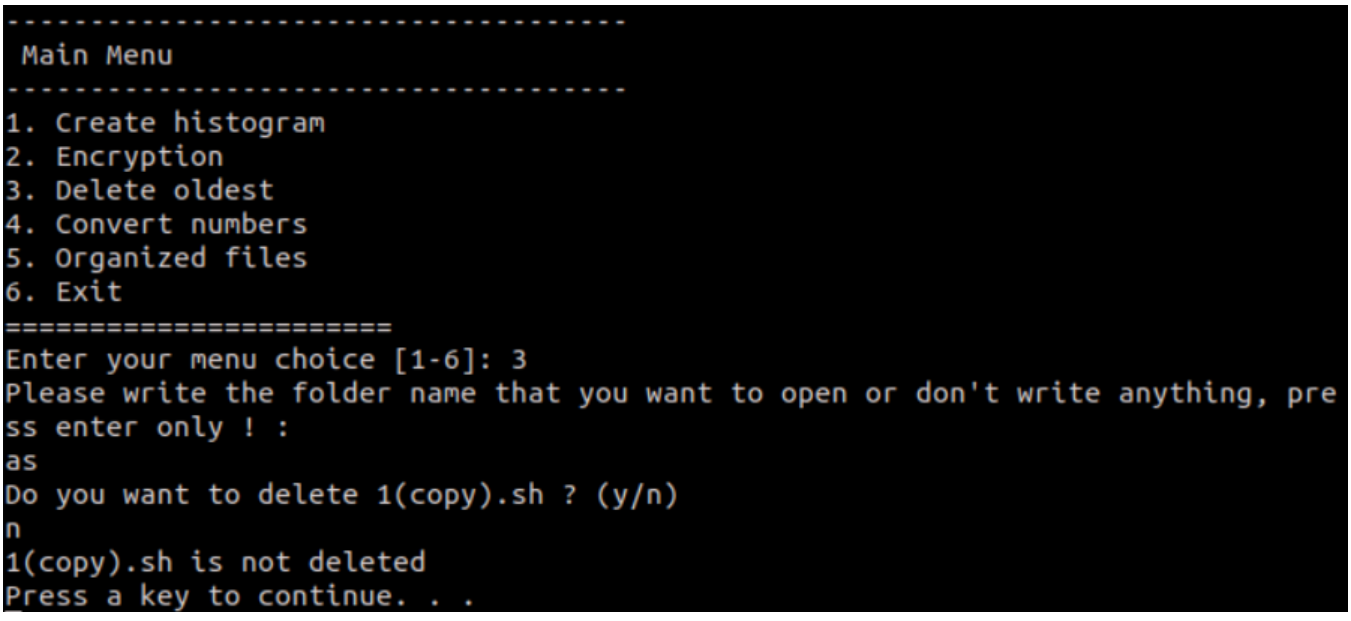
Enter your menu choice [1-6]: 2
Please write a string :
apple
Please write a number :
12345
brspj
Press a key to continue. . .


Main Menu
1. Create histogram
2. Encryption
3. Delete oldest
4. Convert numbers
5. Organized files
6. Exit
Enter your menu choice [1-6]: 3
Please write the folder name that you want to open or don't write anything, pre
ss enter only ! :
as
Do you want to delete 1(copy).sh ? (y/n)
n
1(copy).sh is not deleted
Press a key to continue. . .