Μυριάνθης Αποστολίδης

1η Εργασία στο μάθημα **Λειτουργικά Συστήματα**

Ταύρος, ΧΧ Δεκεμβρίου 2020

Περιεχόμενα

Άσκηση 1

Κώδικας

Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

#I put the command to find my ip address in a
a=$(dig +short myip.opendns.com @resolver1.opendns.com)

#I use curl to go to ipinfo and find my isp
#Then i use grep and sed to get my isp provider
b=$( curl -s ipinfo.io | grep  org | sed 's/.*:////')

# I show my ip to the user be calling a and my isp by calling b
echo "My ip is $a and my ISP is $b"
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_1.sh
My ip is 62.228.79.59 and my ISP is  "AS6866 Cyprus Telecommunications Authority",
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

- Έλεγχος παραμέτρων χρήστη

Δεν χρησιμοποιησα παραμέτρους

Παρατηρήσεις:

Γενικά Σχόλια/Παρατηρήσεις

Σχετικά εύκολη άσκηση με βοήθησε το site

Με δυσκόλεψε / δεν υλοποίησα

Άσκηση 2

Κώδικας

Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

#if command to make sure the user give the right parameters if not it exits
if [ $# -ne 2 ]
then
        echo "You must give 2 parameters the time and the area"
        exit 1
fi

LC_TIME=en_US.utf8      #A command to make the language of the date command in english

time=$1 #Save the time that the user gives

b=$(TZ=$2 date --date='TZ="Europe/Athens" '"$time"'') #Finds the date and time of another timezone
and saves it in b

echo "Time in $2 is $b" #Prints the country and the timezone
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_2.sh 9:30 Europe/Paris
Time in Europe/Paris is Fri 11 Dec 2020 08:30:00 AM CET
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

- Έλεγχος παραμέτρων χρήστη

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_2.sh 9:30 Europe/Moscow
Time in Europe/Moscow is Fri 11 Dec 2020 10:30:00 AM MSK
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_2.sh 9:30 Europe/Moscow hi
You must give 2 parameters the time and the area
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ █
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_2.sh 9:30
You must give 2 parameters the time and the area
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

Εχω βαλει καποιους ελεγχους για τις παραμέτρους που δίνει ο χρήστης δεν μπορεσα να βάλω ελεγχω για το να μπαινει πρωτα η ωρα σαν παραμετρος και μετα το timezone

Γενικά Σχόλια/Παρατηρήσεις

Το site που με βοήθησε για να υλοποιήσω την εντολή οπως την ζητησατε.

https://unix.stackexchange.com/questions/495088/date-invalid-date-trying-

to-set-linux-date-in-specific-format

Με δυσκόλεψε / δεν υλοποίησα

Με δυσκόλεψε να βρώ πως ακριβώς πρέπει να γράψω την εντολή για να τυπώνει τα σωστά αποτελέσματα.

Άσκηση 3

Κώδικας

Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

#if command to make sure the user give the right parameters if not it exits
if [ "$#" -ne 1 ]
then
        echo "Give 1 directory parameter to run the script"
        exit 1
fi

#If statement to check if its a directory
if [ -d "$1" ]
then
#Use the du command to find the disk usage of the directory that the user gives
#I use the redirect to make the errors go to null directory
#I use a pipe to sort the spaces and then the head to show only the first 5 lines
du -sh "$1"/* 2>/dev/null | sort -rh | head -5

else
        echo "The parameter you gave is not a directory"
        exit 1
fi
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_3.sh /usr
3,1G    /usr/lib
874M    /usr/share
263M    /usr/src
192M    /usr/bin
32M     /usr/sbin
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

- Έλεγχος παραμέτρων χρήστη

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_3.sh /var
1,2G    /var/lib
548M    /var/cache
431M    /var/log
4,1M    /var/backups
952K    /var/snap
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_3.sh /usr af
Give 1 directory parameter to run the script
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_3.sh hi
The parameter you gave is not a directory
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

Γενικά Σχόλια/Παρατηρήσεις

Χρησιμοποιήσα αυτή την ιστοσελίδα για να βρω πως να χρησιμοποιήσω την du

https://linuxize.com/post/how-get-size-of-file-directory-linux/#:~:text=By%20default%2C%20the%20du%20command,the%20%2D%2Dapparent%2Dsize%20option.

Χρησιμοποιήσα αυτή την ιστοσελίδα για να βρω πως να αγνοώ τα errors.

https://stackoverflow.com/questions/20951166/is-it-possible-to-remove-error-messages-from-bash

Με δυσκόλεψε / δεν υλοποίησα

Άσκηση 4

Κώδικας

Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

#if command to check if the user gives a parameter and if its a directory
if [ "$#" -ne 1 ] || ! [ -d "$1" ]
then
        echo "You must give one directory"
        exit 1
fi

#The commands to find the files of the directory and if i can read them
#Then i print the files into a txt file
ls -l "$1" | grep ^-r.....r | awk '{print $9}' >> files.txt

#While loop to find the lines and characters of every file and then get the average
while read -r i; do

        lines=$(cat "$1"/"$i"|wc -l)      #Save all the lines of a file
        chars=$(cat "$1"/"$i" | wc -m)    #Save all the characters of a file

        if [ "$lines" == 0 ]              #if to see if the file has any lines
        then
              echo "$i:File has 0 lines cant do division"
        else
        avg_line_size=$(( "$chars" / "$lines" )) #Find the average
        echo "$i $avg_line_size"                 #Print the name of the file and the avg
        fi

done <files.txt
rm files.txt            #remove the txt file i created
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_4.sh /etc
adduser.conf 34
anacrontab 30
apg.conf 28
appstream.conf 26
bash.bashrc 32
bash_completion 45
bindresvport.blacklist 24
brltty.conf 40
ca-certificates.conf 40
ca-certificates.conf.dpkg-old 41
crontab 47
debconf.conf 35
debian_version 13
deluser.conf 30
e2scrub.conf 27
environment 106
ethertypes 40
fprintd.conf 10
fstab 55
fuse.conf 35
gai.conf 39
gamemode.ini 45
group 14
group- 14
hdparm.conf 35
host.conf 30
hostid:File has 0 lines cant do division
hostname 22
hosts 26
hosts.allow 41
hosts.deny 41
```

Παρατηρήσεις:

- Έλεγχος παραμέτρων χρήστη

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_4.sh hi
You must give one directory
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_4.sh /etc hi
You must give one directory
```

Παρατηρήσεις:

Γενικά Σχόλια/Παρατηρήσεις

Με βοήθησε αυτή η ιστοσελίδα για το πως να βρω το μεσο ορο τον χαρακτηρων ανα γραμμη

https://stackoverflow.com/questions/11277396/shell-program-determine-average-word-length-in-a-file

Με βοήθησε αυτη η ιστοσελίδα για το πως να κανω το while loop που ήθελα

https://stackoverflow.com/questions/1521462/looping-through-the-content-of-a-file-in-bash

Με δυσκόλεψε / δεν υλοποίησα

Με δυσκόλεψε να υλοποιήσω το loop μεσα στο file που αποθήκευα τα στοιχεια

Άσκηση 5

Κώδικας
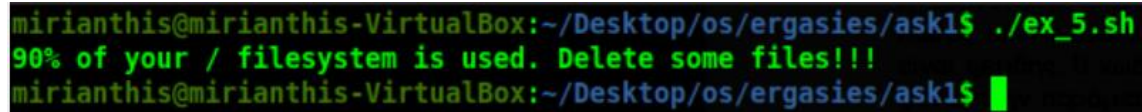
Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

a=$(df / | awk 'FNR==2 {print $5}') #I use df to find the percent that's used from the filesystem
and awk get the percent
if [ "$a" \< "90%" ]     #if command to check if its below 90%
then
        echo """"$a"" of your / filesystem is used. Ok!" #Prints message
else
        echo """"$a"" of your / filesystem is used. Delete some files!!!" #Prints message
fi
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script


```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_5.sh
90% of your / filesystem is used. Delete some files!!!
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

- Έλεγχος παραμέτρων χρήστη

Δεν χρησιμοποιησα παραμέτρους

Παρατηρήσεις:

Γενικά Σχόλια/Παρατηρήσεις

Εύκολη άσκηση με λιγες εντολές

Με δυσκόλεψε / δεν υλοποίησα

Άσκηση 6

Κώδικας

Το shell script που δημιουργήθηκε μαζί με τα σχόλια είναι:

```bash
#!/bin/bash

insert_contact(){                          #Function for insert contact

echo "Give contact name"
read -r name                               #Reads the input the user gives and saves it in name
echo "$name">>contacts.list.               #Saves the name to the contacts.list.

}

search_contact(){                          #Function for search contact

echo -n "Give name or surname or phone of the contact you want "
read -r find                               #Reads the input the user gives and saves it in find
grep -i "$find" "contacts.list." || { echo "No such contact exists" && exit 1; }   #Use grep to
find the find parameter in the contact list
                                           #if it doesn't find it it returns an error message and exits
}

delete_contact(){                          #Function for delete contact

echo "Give surname of the contact"         #Input message
read -r find                               #Saves the input in find
grep "$find" "contacts.list." || { echo "No such contact exists" && exit 1; }  #Use grep to find
the find parameter in the contact list else it exits
echo "Do you want to delete this contact: 1:Yes 2:No"     #Confirmation message
read -r ans                                #Answer to the message
if [ "$ans" -eq 1 ]                        #if statement to delete the contract or exit
then
        grep -v "$find" contacts.list. > tmpfile && mv tmpfile contacts.list. #Use grep to find
the contact to delete

        echo "Contact Deleted"
else
```

```bash
        exit 1
fi
}

modify_contact(){                    #Function for modify contact

echo -n "Give surname of the contact you want "        #Input message
read -r sur                                            #Save the input in sur
grep  "$sur" "contacts.list." || { echo "No such contact exists" && exit 1; }   #Use grep to show
the contact
echo "Do you want to modify the contact? 1:Yes 2:No"    #Confirmation message
read -r ans                                            #Save the answer
if [ "$ans" -eq 1 ]                                    #If statement to modify the contact or exit
then
        echo "What do you want to change 1:Name 2:Surname 3:PhoneNumber1 4:PhoneNumber2"
#Message to see what they want to modify
        read -r find                                   #Save the answer
        a=$(grep  "$sur" "contacts.list." | awk '{print $'"$find"'}') #Use grep to find the line
they want to change and then awk to find the exact word
        if [ "$find" -eq 1 ]              #If statement to see which part of the contact to change
        then
                echo "Give name to replace"
                read -r name
                sed -i 's/'"$a"'/'"$name"'/g' contacts.list.  #Sed command to replace one word
with another

        elif [ "$find" -eq 2 ]
        then
                echo "Give surname to replace"
                read -r name
               sed -i 's/'"$a"'/'"$name"'/g' contacts.list.

        elif [ "$find" -eq 3 ]
        then
                echo "Give number to replace"
                read -r name
                sed -i 's/'"$a"'/'"$name"'/g' contacts.list.

        elif [ "$find" -eq 4 ]
        then
                echo "Give number to replace"
                read -r name
```

```bash
                sed -i 's/'"$a"'/'"$name"'/g' contacts.list.

        else
                exit 1
        fi
else
        exit 1
fi
}

Sort_FirstName(){                       #Function to sort the firstname
sort -k 1 contacts.list.                #Simple sort on the file
}

Sort_LastName(){                        #Function to sort the lastname
sort -k 2 contacts.list.                #Sort the second column on the file

}

input=0
while [ "$input" -ne 7 ]                #While command to loop the menu
do
        echo "1) Insert Contact"        #The menu
        echo "2) Delete Contact"
        echo "3) Modify Contact"
        echo "4) Search Contact"
        echo "5) Sort Contacts by FirstName"
        echo "6) Sort Contacts by LastName"
        echo "7) Quit"
        echo "What do you want to do"
        read -r input

        if [ "$input" -lt 1 ] || [ "$input" -gt 7 ]    #If statement to make sure the user gives
the correct numbers
        then
                echo "You must give number between 1-7"
                exit 1

        elif [ "$input" -eq 1 ]                 #If statements to call the functions
        then
                insert_contact
```

```bash
        elif [ "$input" -eq 2 ]
        then
                delete_contact
        elif [ "$input" -eq 3 ]

        then
                modify_contact
        elif [ "$input" -eq 4 ]
        then
                search_contact
        elif [ "$input" -eq 5 ]
        then
                Sort_FirstName
        elif [ "$input" -eq 6 ]
        then
                Sort_LastName
        else
                exit 1
        fi


done
exit 1
```

Ενδεικτικές εκτελέσεις (screenshots):

- Επιτυχής εκτέλεση script

Παρατηρήσεις:

Για να κανω loop το μενου χρησιμοποιησα while και οχι select που συνιστουσατε.

- Έλεγχος παραμέτρων χρήστη

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
8
You must give number between 1-7
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
1
Give contact name
antreas karakosta 12345 5432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
1
Give contact name
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
5
antreas karakosta 12345 5432
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
6
giannis bizas 32432
antreas karakosta 12345 5432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
```

```
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
5
antreas karakosta 12345 5432
delete test 53264352
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
2
Give surname of the contact
test
delete test 53264352
Do you want to delete this contact: 1:Yes 2:No
1
Contact Deleted
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
5
antreas karakosta 12345 5432
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
4
Give name or surname or phone of the contact you want bizas
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
4
Give name or surname or phone of the contact you want hi
No such contact exists
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

```
                                                                    
What do you want to do
3
Give surname of the contact you want karakosta
antreas karakosta 12345 5432
Do you want to modify the contact? 1:Yes 2:No
1
What do you want to change 1:Name 2:Surname 3:PhoneNumber1 4:PhoneNumber2
4
Give number to replace
1234
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
5
antreas karakosta 12345 1234
giannis bizas 32432
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
■
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
3
Give surname of the contact you want karakosta
antreas karakosta 12345 1234
Do you want to modify the contact? 1:Yes 2:No
1
What do you want to change 1:Name 2:Surname 3:PhoneNumber1 4:PhoneNumber2
1
Give name to replace
giannis
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
5
giannis bizas 32432
giannis karakosta 12345 1234
1) Insert Contact
```

```
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$ ./ex_6.sh
1) Insert Contact
2) Delete Contact
3) Modify Contact
4) Search Contact
5) Sort Contacts by FirstName
6) Sort Contacts by LastName
7) Quit
What do you want to do
7
mirianthis@mirianthis-VirtualBox:~/Desktop/os/ergasies/ask1$
```

Παρατηρήσεις:

Γενικά Σχόλια/Παρατηρήσεις

Δεν ηταν πολυ δυσκολη ασκηση αλλα ηθελα πολυ χρονο για να γινει.

Χρησιμοποιήσα παρα πολλες ιστοσελίδες για να την κανω την ασκηση μερικες ειναι η εξης:

https://www.cyberciti.biz/faq/howto-use-grep-command-in-linux-unix/

https://www.cyberciti.biz/faq/how-to-use-sed-to-find-and-replace-text-in-files-in-linux-unix-shell/

https://www.systutorials.com/how-to-delete-a-specific-line-from-a-text-file-in-command-line-on-linux/#:~:text=Deleting%20a%20Specific%20Line%20From%20a%20Text%20File%20in%20Command%20Line%20in%20Linux,-By%20Eric%20Ma&text=You%20can%20use%20the%20%E2%80%9Cstream,filtering%20and%20transforming%20text%E2%80%9D%20sed.&text=Here%2C%20%2Di%20means%20edit%20the,%3B%20immediately%20start%20next%20cycle%E2%80%9D.

Με δυσκόλεψε / δεν υλοποίησα

Με δυσκολεψε να κανω το modify function.

Συνοπτικός Πίνακας

1η Εργασία		
	Υλοποιήθηκε **(ΝΑΙ/ΟΧΙ/ΜΕΡΙΚΩΣ)**	**Παρατηρήσεις**
1η Άσκηση	ΝΑΙ	
2η Άσκηση	ΝΑΙ	
3η Άσκηση	ΝΑΙ	
4η Άσκηση	ΝΑΙ	
5η Άσκηση	ΝΑΙ	
6η Άσκηση	ΝΑΙ	