1- check if a character is none or capital or small or number

tomato@Tomato: /var/mail

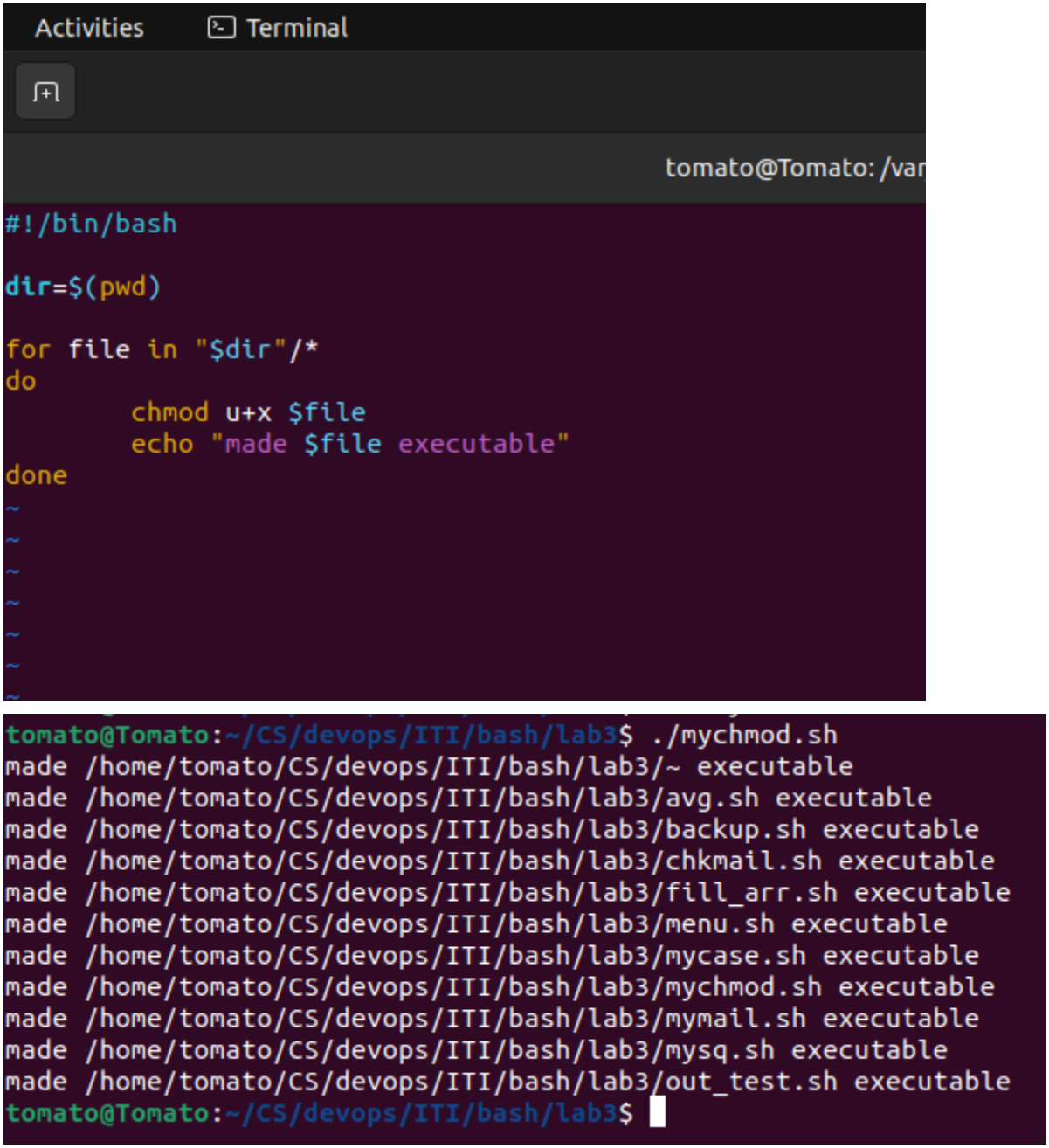
```
#!/bin/bash

echo "enter your name"
shopt -s extglob
#removing the comment will take only one character as an input
#read -n1 name
read name

case $name in
        +([0-9]))
                echo  "number"
                ;;
        +([a-z]))
                echo "small"
                ;;
        +([A-Z]))
                echo  "capital"
                ;;
        +([a-zA-Z0-9]))
                echo "mixed"
                ;;
        *)
                echo "empty"
                ;;
esac
~
~
~
```

```
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
A
capital
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
a
small
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
1
number
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name

empty
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```

2- check strings

```
empty
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
TOMATO
capital
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
tomato
small
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
tomAto
mixed
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name

empty
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mycase.sh
enter your name
012312
number
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```

3- chmod all files in the dir to executable



4-backup your home dir in a specific dir

```
#!/bin/bash

echo keep in mind typing sudo will go to the sudo home dir
echo where do you want your dir?
read dir

if [  -d $dir ]
then
        tar -cf "$dir/backup.tar" $HOME
else
        mkdir $dir
        tar -cf "$dir/backup.tar" $HOME
fi
~
```

5- send mail to all users capable of logging in by greping for bin/bash

```
#!/bin/bash

users=`grep /bin/bash /etc/passwd | cut -d: -f1`

for user in $users
do
        echo $user
        mail -f "$(pwd)/bla.txt" "$user@tomail.org"
done
~
~
~
~
~
```

6- check mail of user’s mail file if it has been modified or not in the past 10 secs

```
#!/bin/bash

user=$(whoami)
# the epoch timestamp in seconds
initial=1649512800
ref="$HOME/.ref_file"

if [ ! -e $ref ]
then
        touch -m $ref
fi

while :
do
        current_date=$(date +%s)
        # the second bracket is done to evaluate this as integer subtraction
        # and the other is to evaluate the value
        difference=$(($current_date - $initial))
        if [ $difference -ge 10 ]
        then
                new=`find "/var/mail" -regex ^[$user]$ -anewer "$HOME/.ref_file"`
                if [ -z $new ]
                then
                        echo "no new messages"
                else
                        for file in $new
                        do
                                cat $file
                        done
                fi
                echo "10 seconds have passed"
                initial=$current_date
                touch -m $ref
        fi
done
~
```

7- what is the output of the script
The script runs once and breaks the while condition right after the first condition
And will print 1 and ends

8- select 1 to ls and 2 to ls -a and 3 to exit

```
#!/bin/bash

select val in 1 2 3
do

        echo "1) ls \n 2) ls -a \n 3)exit \n"

        echo "enter a number between one and 3"
        case $val in
                1)
                        ls
                        ;;
                2)
                        ls -a
                        ;;
                3)
                        exit 0;
        esac
done
~
```

```
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./menu.sh
1) 1
2) 2
3) 3
#? 1
1) ls \n 2) ls -a \n 3)exit \n
enter a number between one and 3
'~'   avg.sh   backup.sh   bla.txt   chkmail.sh   fill_arr.sh   menu.sh   mycase.sh   mychmod.sh   mymail.sh   mysq.sh   out_test.sh
#? 2
1) ls \n 2) ls -a \n 3)exit \n
enter a number between one and 3
 .   ..  '~'   avg.sh   backup.sh   bla.txt   chkmail.sh   fill_arr.sh   menu.sh   mycase.sh   mychmod.sh   mymail.sh   mysq.sh   out_test.sh   .ref_file
#? 3
1) ls \n 2) ls -a \n 3)exit \n
enter a number between one and 3
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```

9- elements of an array fill it and print it

```
#!/bin/bash

echo "how large do you want your array?"

read val

typeset -i arr[$val]


for i in $(seq 1 $val)
do
        arr[$i]=$i
done


echo ${arr[@]}
~
```

```
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./fill_arr.sh
how large do you want your array?
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```

10- write a script to calculate the average of a given input array

```
function calc_avg {
        typeset -i sum

        sum=0
        count=0
        for elem in "$@"
        do
                sum=$(($sum + $elem))
                count=$(($count+1))
        done
        result=$(($sum/$count))

        echo $result

}
echo "enter your values"

read values

calc_avg $values
exit
```

```
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ vim avg.sh
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./avg.sh
enter your values
44 12 123 521
175
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```

11-function to calculate the square of a given number

```
                                                    tomato@Tomato:
#!/bin/bash

function sq {
        if [[ $1 =~ ^[0-9]?$ ]]
        then
                result=$(($1*$1))
                printf "\n$result\n"
                exit $result

        fi
}
echo "enter your number:"
read -n1 val
sq $val
~
~
~
~
~
~
~
```

```
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mysq.sh
enter your number:
atomato@Tomato:~/CS/devops/ITI/bash/lab3$
tomato@Tomato:~/CS/devops/ITI/bash/lab3$ ./mysq.sh
enter your number:
9
81
tomato@Tomato:~/CS/devops/ITI/bash/lab3$
```