15) program to find the vowels in the given string

```
echo enter a string
read str
echo the entered string is $str
len =' cat str | wc -c '
echo length of the string is $len
i=1
acti=0; ecti=0; icti=0; ucti=0; othr=0
while [ $i -le $len]
do
    ch='cat str | cut -c $i'
    case $ch in
        a | A) acti='expr $acti +1';;
        e | E) ecti='expr $ecti +1';;
        i | I) icti='expr $icti +1';;
        o | O) octi='expr $octi +1';;
        u | U) ucti='expr $ucti +1';;
        *) othr='expr $othr +1';;
    esac
    i='expr $i+1'
done
echo Number of a or A = $acti
echo Number of e or E = $ecti
echo Number of i or I = $icti
echo Number of o or O = $octi
echo Number of u or U = $ucti
echo Number of other characters = $othr
```

Output:

enter a string
Zaiba
the entered string is
length of the string is 5
Number of a or A = 2
Number of e or E = 0
Number of i or I = 1
Number of o or O = 0
Number of u or U = 0
Number of other characters = 2

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10) Program to check file permissions and file existence

```
echo enter file name
read fname
if [ -e $fname ]
then
    echo $fname exists
    echo "attributes of $fname are :"
    ls -l $fname
else
    echo $fname does not exist
fi
```

Output:

```
enter filename
zip.sh
zip.sh exists
attributes of zip.sh are:
-rw-r--r-- 1 root root 156 May 06 15:36 zip.sh
```

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17) program to find the sum of digits

```
sum=0
echo "enter a number"
read num
n= $num
while [ $num -gt 0]
do
        rem =`expr $num % 10`
        sum = "expr $sum + $rem"
        num =`expr $num / 10`
done
echo the sum of digits of $n is $sum
```

output:

enter a number

1234

the sum of digits of 1234 is 10

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18) program to list the files in the current directory

```
for file in *
do
    if [ -r $file -a -w $file ]
    then
        echo "$file file is readable and writeable"
    elif [ -w $file ]
    then
        echo "$file file is only writeable"
    elif [ -r $file ]
    then
        echo "$file file is only readable"
    elif [ -d $file ]
    then
        echo "$file is a directory"
    fi
```

Output:

Year.sh file is readable and writeable
zip.sh file is readable and writeable

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10) Program to compress a file

```
echo "enter the file name to be compressed"
read fname
wc -c $fname
gzip $fname
gzip -l $fname.gz
echo "Decompressing the file"
gunzip $fname.gz
wc -c $fname
```

Output:

enter the file name to be compressed

prime.sh

474 prime.sh

compressed	uncompressed	ratio	uncompressed name
256	474	51.7%	prime.sh

Decompressing the file

474 prime.sh

20) program to translate from lower to upper case or upper to lowercase

```
str="bcde"
for i in $str
do
        i='echo $i | tr '[a-z]' '[A-Z]'
        echo $i
done
len='expr length $str'
echo the length of the string is $len
```

Output:

BCDE

the length of the string is 5