Practise Questions Shell Scripting

Ques: To read n and generate a below pattern

              1
              1 2
              1 2 3
              1 2 3 4

Input-   bash 01_pattern.sh

        Enter the value of n:6

Output- The expected pattern is

              1
              1 2
              1 2 3
              1 2 3 4
              1 2 3 4 5
              1 2 3 4 5 6

```
  GNU nano 6.2
#!/bin/bash
echo "Enter the value of n : "
read n
echo "The expected pattern is: "
for((i==1;i<=n;i++))
do
        for((j=1;j<=i;j++))
        do
                echo -n "$j"
        done
        echo""
done
```

```
srishtirupa@linux:~$ nano s1.sh
srishtirupa@linux:~$ chmod 777 s1.sh
srishtirupa@linux:~$ bash s1.sh
Enter the value of n :
5
The expected pattern is:

-n1

-n1
-n2

-n1
-n2
-n3

-n1
-n2
-n3
-n4

-n1
-n2
-n3
-n4
-n5

srishtirupa@linux:~$ nano s1.sh
srishtirupa@linux:~$ bash s1.sh
Enter the value of n :
5
The expected pattern is:

1
12
123
1234
12345
srishtirupa@linux:~$ nano s1.sh
srishtirupa@linux:~$
```

Ques : Description-To read n and generate a below pattern

    1
    2 3
    4 5 6
    7 8 9 10

Input-   bash 02_pattern.sh
         Enter the value of n:4
Output- The expected pattern is

```
        1
        2 3
        4 5 6
        7 8 9 10
```

```
  GNU nano 6.2
#!/bin/bash

echo "Enter the value of n : "

read n

echo "The expected pattern is: "

num=1
row=1
while[ $row -le $n ]
do

        for((i==1;i<=row;i++))
        do
                echo -n "$num"
                num=$((num+1))
        done
        echo""
        row=$((row+1))
done

█
```

```
srishtirupa@linux:~$ nano s2.sh
srishtirupa@linux:~$ bash s2.sh
Enter the value of n:
4
The expected paƩern is:
1
2 3
4 5 6
7 8 9 10
srishtirupa@linux:~$
```

Ques : Description-Script for addition of two real numbers
Input-   bash 03_real_add.sh
        Enter the numbers to addition: 4.28 1.21
Output- The sum of 4.28 and 1.21 is 5.49

```
  GNU nano 6.2
#!/bin/bash
echo "Enter the numbers for  addition : "
read n1 n2
sum=$(echo "$n1 + $n2" |bc)
echo "sum is $sum"
```

```
srishtirupa@linux:~$ touch s3.sh
srishtirupa@linux:~$ chmod 777 s3.sh
srishtirupa@linux:~$ nano s3.sh
srishtirupa@linux:~$ bash s3.sh
Enter the numbers for  addition :
2 3
sum is 5
srishtirupa@linux:~$
```

Ques : Description- Script for arithmetic calculator using command line arguments

Input-   bash 04_calculator.sh 1.2 + 2.6

Output- The sum of 1.2 and 2.6 is 3.8

```
srishtirupa@linux:~$ nano a1.sh
srishtirupa@linux:~$ ./a1.sh
./a1.sh: line 4: -h: command not found

srishtirupa@linux:~$ nano a1.sh
srishtirupa@linux:~$ ./a1.sh
./a1.sh: line 4: var: command not found

srishtirupa@linux:~$ nano a1.sh
srishtirupa@linux:~$ ./a1.sh
tmpfs
tmpfs
tmpfs
tmpfs

srishtirupa@linux:~$ ./a1.sh
```

```bash
#!/bin/bash
if[ $# -ne 3 ];
then
        echo "Usage:$0 n1 operator n2"
        exit 1
fi

n1=$1
operator=$2
n2=$3
case $operator in
        +)
                result=$(echo "$n1 + $n2" |bc)
                ;;
        -)
                result=$(echo "$n1 - $n2" |bc)
                ;;
        \*)
                result=$(echo "$n1 * $n2" |bc)
                ;;
        /)
                result=$(echo "$n1 / $n2" |bc)
                ;;
        *)
                echo "Invalid Operator"
        exit 1
esac
echo "the $operator of $n1 and $n2 is $result"
```

Ques : Description- Script to compare larger integer values from a 'n' number of arguments using command line arguments
Input-   bash 05_largest.sh 1 3 8 6 5 7 9 2
Output- The largest value is 9

```bash
#!/bin/bash
# Check if arguments are provided
if [ $# -eq 0 ]; then
echo "Usage: $0 arg1 arg2 ... argn"
exit 1
fi
# Set the first argument as the current largest value
largest=$1
# Loop through the remaining arguments and compare with the current largest value
for arg in "$@"; do
if [ "$arg" -gt "$largest" ]; then
largest=$arg
fi
done
# Print the largest value
echo "The largest value is $largest"
```

```
srishtirupa@linux:~$ touch s5.sh
srishtirupa@linux:~$ chmod 777 s5.sh
srishtirupa@linux:~$ nano s5.sh
srishtirupa@linux:~$ bash s5.sh 2 3 1 4
s5.sh: line 1: !/bin/bash: No such file or directory
The largest value is 4
srishtirupa@linux:~$ nano s5.sh
srishtirupa@linux:~$ bash s5.sh 2 3 1 4
The largest value is 4
srishtirupa@linux:~$ bash s5.sh 2 3 1 4 46 2 7
The largest value is 46
srishtirupa@linux:~$
```

Ques : Description- Script to print a given number in reverse order.
Input-   bash 06_reverse.sh 639872
Output- The reversed number of entered number is 278936

```bash
#!/bin/bash
# Check if an argument is provided
if [ $# -eq 0 ]; then
echo "Usage: $0 number"
exit 1
fi
# Store the argument in a variable
number=$1
# Reverse the number using a loop
reverse=""
while [ "$number" -gt 0 ]; do
remainder=$(( $number % 10 ))
reverse="$reverse$remainder"
number=$(( $number / 10 ))
done
# Print the reversed number
echo "The reversed number of entered number is $reverse"
```

```
srishtirupa@linux:~$ touch s6.sh
srishtirupa@linux:~$ chmod 777 s6.sh
srishtirupa@linux:~$ nano s6.sh
srishtirupa@linux:~$ bash s6.sh 123
The reversed number of entered number is 321
srishtirupa@linux:~$
```

Ques : Description- Script to delete empty lines from a file

Input- bash 07_delete_empty_lines.sh file.txt

Output- All empty lines of the file file.txt will be deleted

       Before script running, content of the file file.txt :

              Hello, I am Siddaling.

              I am from Belgaum.

              I studied B-Tech in ECE.

      After script running, content of the file file.txt :

              Hello, I am Siddaling.

              I am from Belgaum.

              I studied B-Tech in ECE.

```
#!/bin/bash

if [ $# -eq 0 ]; then
echo "Usage: $0 filename"
exit 1
fi

if [ ! -f "$1" ]; then
echo "Error: $1 is not a regular file or does not exist."
exit 1
fi

sed -i '/^\s*$/d' "$1"

echo "All empty lines of the file $1 will be deleted"

echo "Before script running, content of the file $1 :"
cat "$1"
echo "Afer script running, content of the file $1 :"
cat "$1"
```

```
srishtirupa@linux:~$ touch s7.sh
srishtirupa@linux:~$ chmod 777 s7.sh
srishtirupa@linux:~$ nano s7.sh
srishtirupa@linux:~$ ls
a1.sh          Demo.txt      msg.txt    s3.sh              snap
BigData        demo.txt.gz   Music      s4.sh              T1.txt
class.txt      Desktop       new.txt    s5.sh              Templates
copied13.txt   Documents     Pictures   s6.sh              test12.txt
demo1          Downloads     Public     s7.sh              test13.txt
demo12.txt     igTest        s1.sh      secondDir,hello    test3
demo2.txt.gz   marks.txt     s2.sh      shreya1            Videos
srishtirupa@linux:~$ bash s7.sh class.txt
All empty lines of the file class.txt will be deleted
Before script running, content of the file class.txt :
Sam cs
Daniel cs
John IT
Arya IT
Mike ECE
Afer script running, content of the file class.txt :
Sam cs
Daniel cs
John IT
Arya IT
Mike ECE
```

Ques :Description- Script to perform arithmetic operation on digits of a given number depending upon the operator.

Input-   bash 08_operator_dependent.sh 12354+
Output- The sum is 15

```
srishtirupa@linux:~$ touch s8.sh
srishtirupa@linux:~$ chmod 777 s8.sh
srishtirupa@linux:~$ nano s8.sh
srishtirupa@linux:~$ bash s8.sh 12345+
The + of the digits in 12345 is 15
srishtirupa@linux:~$ bash s8.sh 12345\*
The * of the digits in 12345 is 0
srishtirupa@linux:~$ bash s8.sh 12345*
The * of the digits in 12345 is 0
srishtirupa@linux:~$ bash s8.sh 12345-
The - of the digits in 12345 is -15
srishtirupa@linux:~$ bash s8.sh 12345/
The / of the digits in 12345 is 0
srishtirupa@linux:~$
```

```bash
#!/bin/bash

if [ $# -eq 0 ]; then
echo "Usage: $0 string"
exit 1
fi

number=${1%[-+*/]}
operator=${1:${#number}:1}

if [[ ! $operator =~ [-+*/] ]]; then
echo "Error: Invalid operator."
exit 1
fi
result=0
for ((i=0; i<${#number}; i++)); do
digit=${number:$i:1}
case $operator in
+) result=$((result + digit)) ;;
-) result=$((result - digit)) ;;
\*) result=$((result * digit)) ;;
/) result=$((result / digit)) ;;
esac
done

echo "The $operator of the digits in $number is $result"
```

Ques : Description- script to read 'n' and generate Fibonacci numbers <= n
Input-   bash 09_fibonacci.sh
         Enter limit for fibonacci series: 13
Output- The expected fibonacci series is:
         0, 1, 1, 2, 3, 5, 8, 13,

```bash
#!/bin/bash

read -p "Enter limit for Fibonacci series: " n
a=0
b=1

echo -n "$a"

while [ $b -le $n ]; do
echo -n ", $b"
c=$((a + b))
a=$b
b=$c
done
echo ""
```

```
srishtirupa@linux:~$ touch s9.sh
srishtirupa@linux:~$ chmod 777 s9.sh
srishtirupa@linux:~$ nano s9.sh
srishtirupa@linux:~$ nano s9.sh
srishtirupa@linux:~$ bash s9.sh 13
Enter limit for Fibonacci series: 13
0, 1, 1, 2, 3, 5, 8, 13
srishtirupa@linux:~$ bash s9.sh
Enter limit for Fibonacci series: 78
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55
srishtirupa@linux:~$
```

Ques : Description- Script to print the length of each and every string using arrays

Input- bash 10_string_length.sh hello, I am Siddaling

Output-   The lengths of each string are as below:
                    length of the string(hello,)   -6
                    length of the string(I)   -1
                    length of the string(am) -2
                    length of the string(Siddaling) -9

```bash
#!/bin/bash

read -p "Enter a string: " input_string

string_array=($input_string)

echo "The lengths of each string are as below:"
for word in "${string_array[@]}"; do
echo "Length of the string($word) -${#word}"
done
```

```
srishtirupa@linux:~$ touch s10.sh
srishtirupa@linux:~$ chmod 777 s10.sh
srishtirupa@linux:~$ nano s10.sh
srishtirupa@linux:~$ bash s10.sh
Enter a string: 1233576588
The lengths of each string are as below:
Length of the string(1233576588) -10
srishtirupa@linux:~$ bash s10.sh
Enter a string: 124235 dfshg 56g hfdh
The lengths of each string are as below:
Length of the string(124235) -6
Length of the string(dfshg) -5
Length of the string(56g) -3
Length of the string(hfdh) -4
srishtirupa@linux:~$
```

Ques : Description- script to print chess board , black as 1 , white as 0
Input-   bash 11_chess_board.sh
Output- [Chess board]

```bash
#!/bin/bash

rows=8
cols=8

for (( row=0; row<$rows; row++ )); do
for (( col=0; col<$cols; col++ )); do

if (( ($row+$col) % 2 == 0 )); then
echo -n "1 "
else
echo -n "0 "
fi
done
echo ""
done
```

```
srishtirupa@linux:~$ touch s11.sh
srishtirupa@linux:~$ chmod 777 s11.sh
srishtirupa@linux:~$ nano s11.sh
srishtirupa@linux:~$ bash s11.sh
1 0 1 0 1 0 1 0
0 1 0 1 0 1 0 1
1 0 1 0 1 0 1 0
0 1 0 1 0 1 0 1
1 0 1 0 1 0 1 0
0 1 0 1 0 1 0 1
1 0 1 0 1 0 1 0
0 1 0 1 0 1 0 1
srishtirupa@linux:~$
```