Name – Anup Kore

Topic – Shell Practice Questions

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```bash
#!/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
```

"p1.sh" 15L, 194B   10,2-16   All


```bash
#!/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
```

-- REPLACE --   21,1   All

```bash
#!/bin/bash

echo "Enter the numbers to addition:"

read num1 num2

sum=$(($num1 + $num2))

echo "The sum of $num1 and $num2 is $sum"
```

"p3.sh" 10L, 140B   8,6   All

```bash
#!/bin/bash

if [ $# -ne 3 ];
then
        echo "Usage: $0 num1 operator num2"
        exit 1
fi

num1=$1
operator=$2
num2=$3

case $operator in
        +)
                result=$(echo "$num1 + $num2" );;
        -)
                result=$(echo "$num1 - $num2" );;

        \*)
                result=$(echo "$num1 * $num2" );;

        /)
                result=$(echo "$num1 / $num2" );;

        *)
                echo "Invalid operator"
                exit 1
esac

echo "The $operator of $num1 and $num2 is $result"
```

```
"p4.sh" 30L, 453B                                    23,32-46      All
```

```
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p3.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p3.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p3.sh
Enter the numbers to addi0on:
5
./p3.sh: line 8: bc: command not found
The sum of 5 and  is
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p3.sh
Enter the numbers to addi0on:
5 10
./p3.sh: line 8: bc: command not found
The sum of 5 and 10 is
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p3.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p3.sh
Enter the numbers to addi0on:
5 10
The sum of 5 and 10 is 5 + 10
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p3.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p3.sh
Enter the numbers to addi0on:
5 10
The sum of 5 and 10 is 15
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p4.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p4.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p4.sh
Usage: ./p4.sh num1 operator num2
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p4.sh 12 / 4
./p4.sh: line 23: bc: command not found
The / of 12 and 4 is
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p4.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p4.sh 12 / 4
./p4.sh: line 23: unexpected EOF while looking for matching `` `
./p4.sh: line 31: syntax error: unexpected end of file
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p4.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p4.sh 12 / 4
The / of 12 and 4 is 12 / 4
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
```

```bash
#!/bin/bash

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

number=$1

reverse=""
while [ "$number" -gt 0 ];
  do
        remainder=$(( $number % 10 ))
        reverse="$reverse$remainder"
        number=$(( $number / 10 ))
  done

  echo "The reversed number of entered number is $reverse"
```

"p5.sh" 18L, 309B   12,3   All

```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"
```

"p6.sh" 28L, 547B   28,1   All

```
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p5.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p5.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p5.sh 123
The reversed number of entered number is 321
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p6.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p6.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p6.sh
Usage: ./p6.sh string
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p6.sh Anup
Error: Invalid operator.
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p6.sh 15/
The / of the digits in 15 is 0
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p6.sh 15*
The * of the digits in 15 is 0
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p6.sh 15+
The + of the digits in 15 is 6
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
```



```
#!/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 ""
```

"p7.sh" 19L, 184B   15,2-9   All

```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
```

```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
```

```
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p7.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p7.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p7.sh
Enter limit for Fibonacci series: 10
0, 1, 1, 2, 3, 5, 8
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p8.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p8.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p8.sh
Enter a string: Infobell
The lengths of each string are as below:
Length of the string(Infobell) -8
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p8.sh
Enter a string: Hello Everyone
The lengths of each string are as below:
Length of the string(Hello) -5
Length of the string(Everyone) -8
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p9.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p9.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p9.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
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
```

```bash
#!/bin/bash

echo "How many random passwords would you like to generate?"
read num_passwords


for ((i=1;i<=$num_passwords;i++));
do
        password=$(openssl rand -base64 6 | tr -d "=+/")
        echo "Password $i: $password"
done
```

"p10.sh" 11L, 228B   11,1   All

```bash
#!/bin/bash


usernames=$(awk -F: '{ print $1, length($1) }' /etc/passwd)

longest=$(echo "$usernames" | sort -k2 -rn | head -n1)
shortest=$(echo "$usernames" | sort -k2 -rn | tail -n1)


longest_username=$(echo "$longest" | awk '{ print $1 }')
longest_length=$(echo "$longest" | awk '{ print $2 }')
shortest_username=$(echo "$shortest" | awk '{ print $1 }')
shortest_length=$(echo "$shortest" | awk '{ print $2 }')


echo "The user with longest name is $longest_username with length $longest_length"
echo "The user with shortest name is $shortest_username with length $shortest_length"
```

```
"p11.sh" 17L, 597B                                                    3,0-1        All
```

```bash
#!/bin/bash


while getopts "a:d:" opt;
do
        case ${opt} in
                a )
                        order="ascending"
                        ;;
                d )
                        order="descending"
                        ;;
                \? )
                        echo "Invalid option: -$OPTARG" 1>&2
                        exit 1
                        ;;
                : )
                        echo "Option -$OPTARG requires an argument." 1>&2
                        exit 1
                        ;;
        esac
done

shift $((OPTIND -1))

args=("$@")

if [[ "$order" == "ascending" ]]; then
        sorted_args=($(print '%s\n' "${args[@]}" | sort -n))
elif [[ "$order" == "descending" ]]; then
        sorted_args=($(print '%s\n' "${args[@]}" | sort -nr))
fi

echo "The $order order of the array is: "
echo "${sorted_args[@]}"
```

```
-- REPLACE --                                                        32,23-28      All
```

```
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p10.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p10.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p10.sh
How many random passwords would you like to generate?
5
Password 1: PS6wRC5G
Password 2: WybtOrC0
Password 3: 5lCzHZHY
Password 4: OmQcdP5Q
Password 5: XGc1VL
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p11.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p11.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p11.sh
The user with longest name is systemd-timesync with length 16
The user with shortest name is lp with length 2
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p11.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p12.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ chmod u+x p12.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p12.sh 15 12 65 98 45 16 54
./p12.sh: line 25: shiÒ: command not found
The  order of the array is:
./p12.sh: line 36: unexpected EOF while looking for matching `"'
./p12.sh: line 37: syntax error: unexpected end of file
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p12.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p12.sh 15 12 65 98 45 16 54
The  order of the array is:
./p12.sh: line 36: unexpected EOF while looking for matching `"'
./p12.sh: line 37: syntax error: unexpected end of file
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ vi p12.sh
anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p12.sh 15 12 65 98 45 16 54
The  order of the array is:

anup@DESKTOP-UDNPO65:~/Shell/practice_Questions$ ./p12.sh -a  15 12 65 98 45 16 54
./p12.sh: line 30: prinŋ: command not found
The ascending order of the array is:
```