Lab-4

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Q1. WAP to print all the numbers divisible by 3 in from 10 to 100

```
echo "Enter a"

read a
f=1
while [ $a -gt 1 ]
do
f=`expr $a \* $f`
a=`expr $a - 1`
done
echo $f
```

Q2. WAP to print the factorial of given number

```
echo "Enter a"

read a
f=1
while [ $a -gt 1 ]
do
f=`expr $a \* $f`
a=`expr $a - 1`
done
echo $f
```

Q3. WAP to count the number of digits in a given number.

```
read a

c=0
while [ $a -gt 0 ]
do
c=`expr $c + 1`
a=`expr $a / 10`
done
echo $c
```

Q4. WAP to check whether the given number is palindrome number or not.

```
read a

r=0
```

```
t=$a
while [ $t -gt 0 ]
do
r=`expr $r \* 10`
s=`expr $t % 10`
r=`expr $r + $s`
t=`expr $t / 10`
done
if [ $r -eq $a ]
then
echo "Palindrome"
else
echo "Not Palindrome"
fi
```

Q5. WAP to check whether the given 3digit number is an Armstrong number not.

```
read c

x=$c
sum=0
r=0
n=0
while [ $x -gt 0 ]
do
r=`expr $x % 10`
n=`expr $r \* $r \* $r`
sum=`expr $sum + $n`
x=`expr $x / 10`
done
if [ $sum -eq $c ]
then
echo "It is an Armstrong Number."
else
echo "It is not an Armstrong Number."
fi
```

Q6. WASS to print all the natural numbers between 1 to 100 in different line, the user enter how many elements want to print in a line.

```
echo "How many elements in one line?"

read n
i=1
count=0
```

```
while [ $i -le 100 ]
do
echo -n " $i "
count=`expr $count + 1`
i=`expr $i + 1`
if [ $count -eq $n ]
then
echo ""
count=0
fi
done
```

Q7. WASS to print the given pattern.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
i=1
while [ $i -le 5 ]
do
j=1
while [ $j -le $i ]
do
echo -n $j" "
j=`expr $j + 1`
done
echo ""
i=`expr $i + 1`
done
```

Q8. WASS to print the given pattern.

```
    1
  2 1
3 2 1
4 3 2 1
5 4 3 3 1
```

```
i=1
while [ $i -le 5 ]
do
j=$i
while [ $j -lt 5 ]
do
echo -n " "
j=`expr $j + 1`
done
```

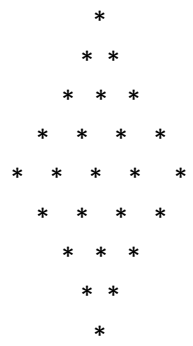
```
j=$i
while [ $j -ge 1 ]
do
echo -n "$j"
j=`expr $j - 1`
done
echo " "
i=`expr $i + 1`
done
```

Q9. WASS to print the given pattern.

```
   1
  1 2 1
 1 2 3 2 1
1 2 3 4 3 2 1
```

```
i=1
while [ $i -le 4 ]
do
j=1
jj=`expr 4 - $i`
while [ $j -le $jj ]
do
echo -n " "
j=`expr $j + 1`
done
k=1
l=`expr 2 \* $i - 1`
kk=`expr 2 \* $i - 1`
while [ $k -le $kk ]
do
if [ $k -le $l ]
then
echo -n $k" "
else
echo -n $l" "
fi
k=`expr $k + 1`
l=`expr $l - 1`
done
echo " "
i=`expr $i + 1`
done
```

Q10. WASS to print the given pattern.



```
blank=8
star=1
i=1
while [ $i -le 9 ]
do
j=1
while [ $j -le $blank ]
do
echo -n " "
j=`expr $j + 1`
done
k=1
while [ $k -le $star ]
do
echo -n "* "
k=`expr $k + 1`
done
if [ $blank -gt $i ]
then
blank=`expr $blank - 1`
star=`expr $star + 2`
fi
if [ $blank -lt $i ]
then
blank=`expr $blank + 1`
star=`expr $star - 2`
fi
echo " "
i=`expr $i + 1`
done
```