

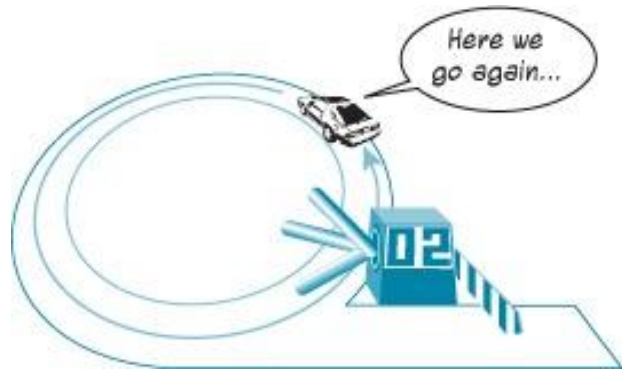


# Day 2 :

- Iterations
- Thura Aung



# For loop



# For loop

**already know** how many times (a sequence) you want to loop through something

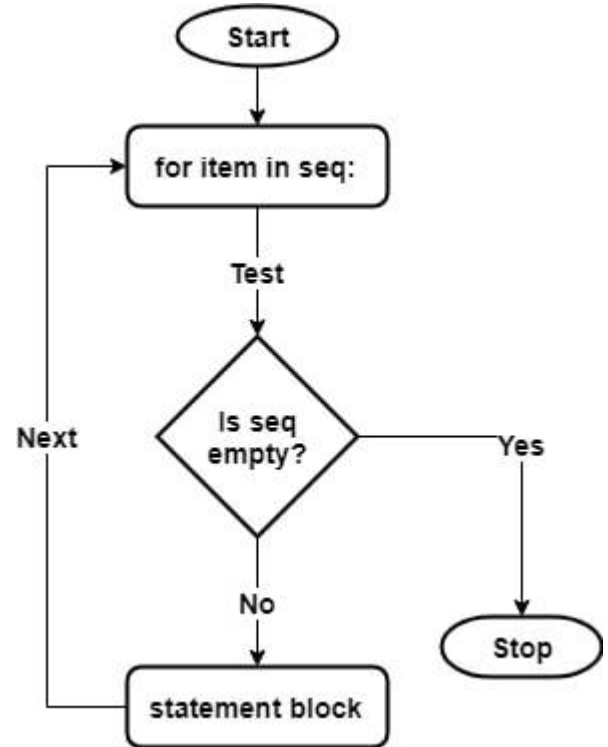
```
for <item> in <sequence>:
```

```
    < expression >
```

```
    < expression >
```

```
print("Out of loop")
```

Tips : range(start,stop,steps,end)

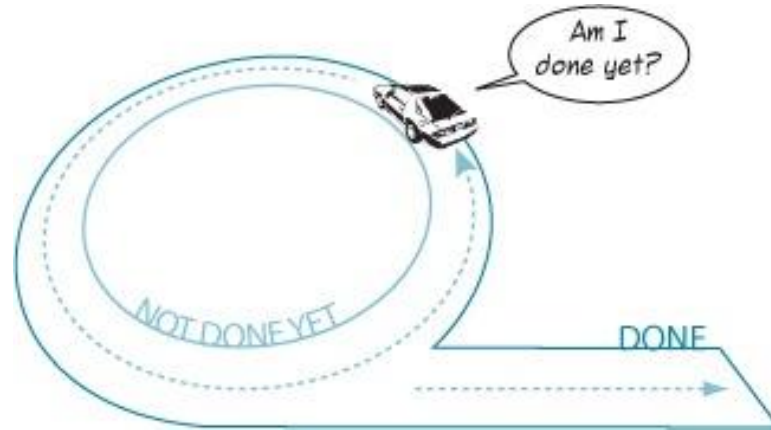




## Print the following Patterns

*	*****	1
**	***	12
***	**	123
****	*	1234

# While loop



# While loop

when we **don't know** how many times we want to loop through a problem beforehand

```
while <condition> :
```

```
    <expression>
```

```
    <expression>
```

```
print("Out of loop")
```

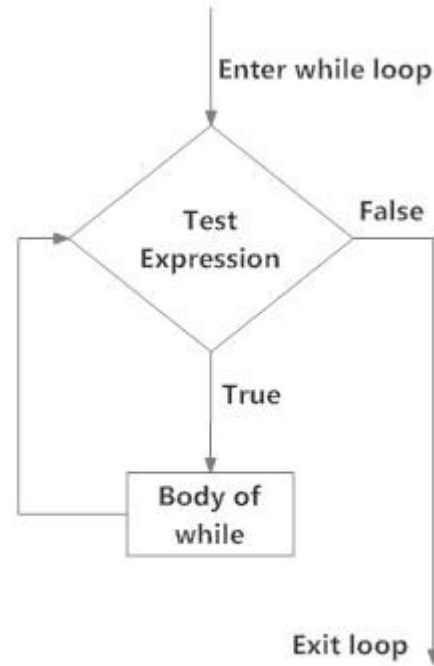


Fig: operation of while loop



# Palindrome

- A string is a palindrome if it is identical forward and backward. For example "anna", "civic", "level" and "hannah" are all examples of palindromic words. Write a program that reads a string from the user and uses a loop to determine whether or not it is a palindrome. Display the result, including a meaningful output message.
- Multiple palindrome

# Greatest common divisor



The greatest common divisor of two positive integers,  $n$  and  $m$ , is the largest number,  $d$ , which divides evenly into both  $n$  and  $m$ . There are several algorithms that can be used to solve this problem, including:

**Initialize  $d$  to the smaller of  $m$  and  $n$ .**

**While  $d$  does not evenly divide  $m$  or  $d$  does not evenly divide  $n$  do.**

**Decrease the value of  $d$  by 1**

**Report  $d$  as the greatest common divisor of  $n$  and  $m$**

Write a program that reads two positive integers from the user and uses this algorithm to determine and report their greatest common divisor.



**Example** - binary number 1111100

128	64	32	16	8	4	2	1
0	1	1	1	1	1	0	0

**Result** -  $(0 \times 128) + (1 \times 64) + (1 \times 32) + (1 \times 16) + (1 \times 8) +$   
 $(1 \times 4) + (0 \times 2) + (0 \times 1) = 124$

Place value	10,000	1,000	100	10	1
Value	0	0	1	2	4

This gives  $(1 \times 100) + (2 \times 10) + (1 \times 4) = 124$

