

# Repetitive Structures

The repetitive structure will allow the computer to move (loop) back to a previous line in the program and repeat certain commands again. There are two types of repetitive structures:

**1) Counted loops** - Used when the programmer knows how many times the loop will be executed (ie. how many times the section of code will be repeated).

Example of a program with a counted loop:

*# A simple program to output "hello" on the monitor 5 times.*

```
for i in range(1, 6): # - The for program command starts the loop.
# - i is a special variable called a counter because it counts the
# number of times the loop is done. It increase by 1 every time the
# loop is executed (done)
# - range is a function which returns a sequence of numbers starting
# from the 1st number and up to (but not including) the 2nd number
# - Don't forget the colon at the end (:)
# - Any integers can be used as starting and ending values.
print ("hello") # - The command inside the loop which will be repeated. Note that the
# programmer can repeat any number of commands.
# - Must be indented using the TAB key to indicate what is to be repeated
print ("Program done") # This command only done once since it is not indented
```

**2) Conditional loops** - Used when the programmer does not know how many times the loop will be executed.

- This structure will continue repeating the commands in the loop until the user wishes to finish

Example of a program with a conditional loop:

*# A simple program to write "hello" on the monitor until the user wishes to exit by typing "Yes"*

```
while True: # The while command starts the loop. True tells the computer to
# continue the loop while a condition is true
# Don't forget the colon at the end (:)
print ("Hello") # The command inside the loop which will be repeated.
# Note that the programmer can repeat any number of commands.
# Must be indented to indicate what is to be repeated
finish = input ("Do you want to finish?") # Asks the user whether they wish to continue

if finish == "Yes": # A simple selection structure to determine if the user wishes to finish
    break # A program command which "breaks" (finishes) a loop
    # Must be indented twice

print ("Program done") # This command only done once since it is not indented
```