

Looping constructs

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1 Loop Constructs

Loop Constructs in a script are used when you want to repeat a command/s a number of times.

There are two main loop constructs in BASH shell:

- for
- while

2 for Construct

The for construct is similar to that in Python:

- It operates on a list of strings
- Can be used with files, directories, users, groups, numerical sequences etc.

Process:

1. When for Construct entered:
 - (a) creates a *variable* (newDir in the previous example)
 - (b) *sets its value to the first string* (dept1)
2. executes all commands between *do* and *done*
3. The next time the loop is run, the variable newDir takes the value of the second string.
4. This process continues until all strings are processed.

Example Task: Create three directories named dept1, dept2 and dept3 using a for Construct.

```
for varname in string1 string2 string3  
do  
command1, command2, etc  
done
```

Figure 1

```
for newDir in dept1 dept2 dept3  
do  
mkdir $newDir  
echo "The directory $newDir is created"  
done
```

Figure 2

3 While Construct

A while construct is a type of loop that completes commands as long as the tested condition is true (exist status code 0).

It is a useful construct to use when you want to read in content from a text file and continue to do so until you reach the end of the file.

System Administrators use this construct a lot. It can be used with files, directories, users, groups, etc.

Syntax is as follows:

Example Task: Use a While loop to read content from a text file:

```
if test-condition
then
    ....commands go here
fi
```

Figure 3

```
#starts a while loop
while IFS= read -r moduleName
do
    mkdir $moduleName #make directory
    cd $moduleName #change into directory

    for makeSubDir in {1..5} #creates a for loop to loop x 5times
    do
        mkdir Week$makeSubDir #$ in code substituted by a number 1...5
    done
done < deptnames
```

Figure 4