ondia

Linux Plus for AWS and DevOps

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While loops

When writing programs in shell, in some cases it is not enough to execute the block of code only once. The loops are used to repeat (iterate) the execution of a block of code.

- while loops have a boolean logic, similar to if statements. As long as the result of the condition returns True, the code block under while loop runs. When the condition returns to False, the loop execution is terminated, and the program control moves further to the next operation

```
while [[ <some test> ]]
do
   <commands>
done
```

```
#!/bin/bash

number=1

while [[ $number -le 10  ]]
do
 echo $number
 ((number++))
done
echo "Now, number is $number"
```

```
$./while-loops.sh
1
2
3
4
5
6
7
8
9
10
Now, number is 11
```

Until loops

```
until [[ <some test> ]]
do
  <commands>
done
```

```
#!/bin/bash

number=1

until  [[ $number -ge 10   ]]
do
 echo $number
  ((number++))
done
echo "Now, number is $number"
```

Output:

```
$./until.sh
1
2
3
4
5
6
7
8
9
Now, number is 10
```

For loops

```
for item in [list]
do
   commands
done
```

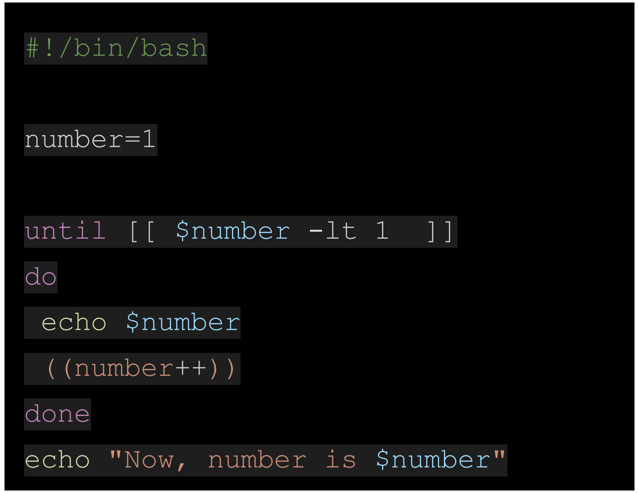
```
#!/bin/sh

echo "Numbers:"

for number in 0 1 2 3 4 5 6 7 8 9
do
  echo $number
done
```

Output:

```
$./for-loop.sh
Numbers:
0
1
2
3
4
5
6
7
8
9
```

Continue and Break Statement

Infinite loop



```
#!/bin/bash

number=1

until [[ $number -lt 1  ]]
do
 echo $number
  ((number++))
done
echo "Now, number is $number"
```

Continue and Break Statement

Break Statement

```
#!/bin/bash

number=1

until [[ $number -lt 1  ]]
do
 echo $number
 ((number++))
 if [[ $number -eq 10 ]]
 then
   break
 fi
done
```

Output:

```
./infinite-loop.sh
1
2
3
4
5
6
7
8
9
```

Continue and Break Statement

Continue Statement

```
#!/bin/bash
number=1
until [[ $number -lt 1  ]]
do
 ((number++))
  tens=$(($number % 10))
  if [[ $tens -eq 0 ]]
 then
    continue
 fi
 echo $number
 if [[ $number -gt 14 ]]
 then
    break
 fi
done
```

Output:

```
$./continue.sh
2
3
4
5
6
7
8
9
11
12
13
14
15
```

Exercise

1. Calculate sum of the numbers between 1 to 100.
2. Print result.

Exercise

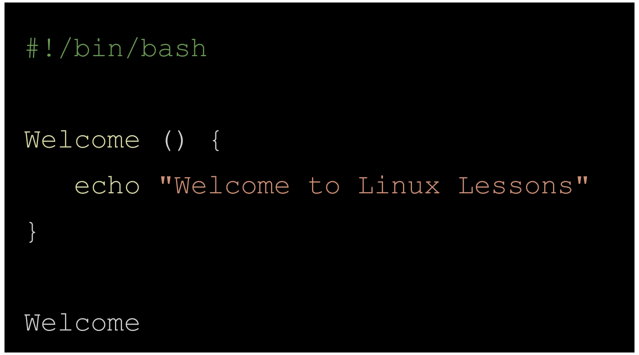
1. Ask user to input multiple names in a single line
2. Print “Hello” message for each name in separate lines.

Exercise

1. create users using parameter
2. Print result.

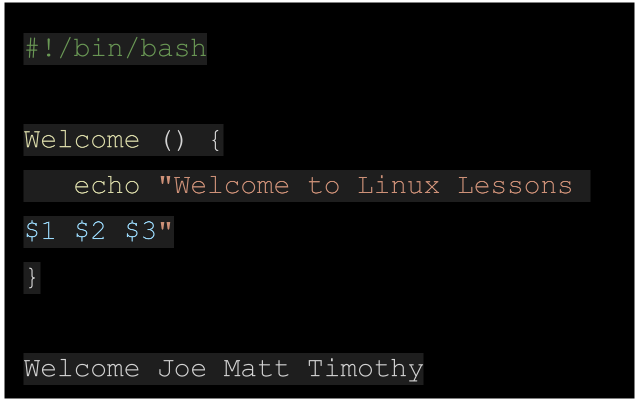
Functions

```
function function_name () {
  commands
}
```



```
#!/bin/bash

Welcome () {
   echo "Welcome to Linux Lessons"
}

Welcome
```

Passing Arguments to Functions



```
#!/bin/bash

Welcome () {
   echo "Welcome to Linux Lessons
$1 $2 $3"
}

Welcome Joe Matt Timothy
```

Output:

```
$./functions.sh
Welcome to Linux Lessons Joe Matt Timothy
```

Nested Functions

```
#!/bin/bash

function_one () {
  echo "This is from the first
function"
  function_two
  function_tree
}

function_two () {
  echo "This is from the second
function"
}

function_one

function_tree () {
  echo "This is from the third
function"
}
```

Output:

```
$./nested.function.sh
This is from the first function
This is from the second function
```

Variables Scope Local variable

```
#!/bin/bash

var1='global 1'
var2='global 2'

var_scope () {
 local var1='function 1'
 var2='function 2'
 echo -e "Inside function:\nvar1: $var1\nvar2: $var2"
}

echo -e "Before calling function:\nvar1: $var1\nvar2: $var2"

var_scope

echo -e "After calling function:\nvar1: $var1\nvar2: $var2"
```

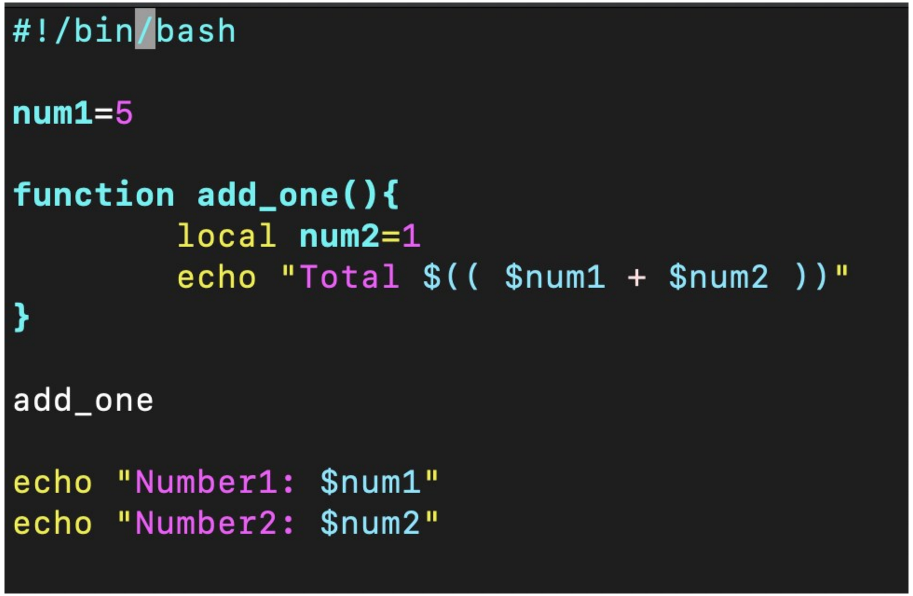
local variable_name=value

Output:

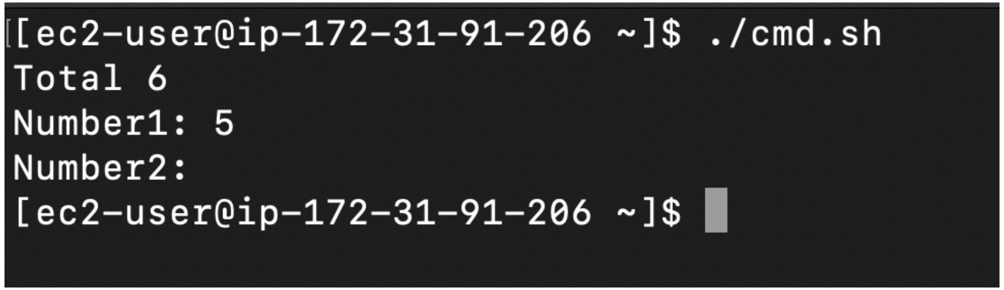
```
Before calling function:
var1: global 1
var2: global 2
Inside function:
var1: function 1
var2: function 2
After calling function:
var1: global 1
var2: function 2
```

Functions Local variable

local variable_name=value



```
#!/bin/bash

num1=5

function add_one(){
        local num2=1
        echo "Total $(( $num1 + $num2 ))"
}

add_one

echo "Number1: $num1"
echo "Number2: $num2"
```



```
[ec2-user@ip-172-31-91-206 ~]$ ./cmd.sh
Total 6
Number1: 5
Number2:
[ec2-user@ip-172-31-91-206 ~]$
```

Exercise

1. Create a function named **print_age** that accepts one argument

    Ask user to input his/her year of birth and store it to **local** **birth_year** variable

    Calculate **age** using current year value from the first argument

    Print **age** with a message

1. Call **print_age** function with **2024**

print_age 2024

THANKS!

Any questions?