

# Understanding variables, loops, conditionals in centos

Topics : [Centos Server](#)

Written on [March 05, 2024](#)

Understanding variables, loops, conditionals, and other fundamental concepts in shell scripting is essential for writing effective scripts to automate tasks on CentOS. Here's an overview of each concept:

## 1. Variables:

- Variables are placeholders used to store data or values.
- Declare variables using the syntax `variable_name=value`.
- Access variables using the `$` prefix (`$variable_name`).
- Examples:

```
name="John"
age=30
echo "Hello, $name! You are $age years old."
```

## 2. Loops:

- Loops allow you to repeat a set of commands multiple times.
- Common types of loops in shell scripting are `for`, `while`, and `until`.
- Examples:

- for loop:

```
for i in {1..5}
do
    echo "Iteration: $i"
done
```

- while loop:

```
count=0
while [ $count -lt 5 ]
do
    echo "Count: $count"
    ((count++))
done
```

### 3. Conditionals:

- Conditionals allow you to execute commands based on the evaluation of a condition.
- Common conditional constructs are `if`, `elif`, and `else`.
- Examples:

```
age=20
if [ $age -ge 18 ]; then
    echo "You are an adult."
else
    echo "You are not yet an adult."
fi
```

### 4. Functions:

- Functions allow you to encapsulate a block of code that performs a specific task.
- Declare functions using the syntax `function_name() { ... }`.
- Call functions by their name.
- Example:

```
greet() {
    echo "Hello, $1!"
}

greet "Alice"
```

### 5. Input/Output:

- Read user input using the `read` command.
- Redirect output using redirection operators (`>`, `>>`, `<`, `|`, etc.).
- Examples:
  - Read user input:

```
echo "Enter your name:"
read name
echo "Hello, $name!"
```

- Redirect output to a file:

```
echo "Hello, world!" > output.txt
```

### 6. Command Substitution:

- Command substitution allows you to capture the output of a command and use it as a value.
- Use backticks (```) or `$()` syntax for command substitution.
- Example:

```
files_count=$(ls | wc -l)
echo "Number of files: $files_count"
```

## 7. Comments:

- Comments provide explanatory notes or annotations in your script.
- Comments start with the # symbol and extend to the end of the line.
- Example:

```
# This is a comment
```

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