

Bash for loop

Bash for loop enables you to iterate through a list of values. In each iteration, you will get one of the values present in the list.

Bash for loop syntax

```
for variable in element1 element2 element3 ... elementN
do
    commands
done
```

Example: How to read values from a list using for loop?

```
for version in Pie Oreo Nougat Marshmallow Lollipop
do
    echo "Android version: $version"
done
```

Output of the above program

```
Pie
Oreo
Nougat
Marshmallow
Lollipop
```

Example: To print a table using Bash for loop

```
read -p "Enter a number to print its table: " number
for i in {1..10}
do
    echo "$number x $i = $((number*i))"
done
```

Output of the above program

```
Enter a number to print its table: 2
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
```

How to read values from a command using Bash for loop?

Use backtick character to execute the command and feed its output to for loop. For example, we have created a file named android-version.txt in which we have mentioned different versions of Android OS. So we will use cat command to display its content and feed its output to for loop.

```
#cat android-version.txt
Pie
Oreo
Nougat
Marshmallow
Lollipop
Kitkat
Jelly Bean
```

```
for version in `cat android-version.txt`
do
    echo $version
done
```

Output of the above program

```
Pie
Oreo
Nougat
Marshmallow
Lollipop
Kitkat
Jelly
Bean
```

As you can see in the above output that Jelly Bean is split into two lines. To mitigate this problem, we have to use `IFS` environment variable. To learn more about IFS, visit [Bash IFS](#).

How to iterate through directory using Bash for loop?

With the help of wildcard character, you can loop through a directory. For this, you have to follow the below syntax-

```
for file in /directory/path/*
do
    commands
done
```

Example of looping through directory using Bash for loop

```
for file in /home/madhav/*
do
    if [ -f $file ]
    then
        echo "$file is a file."
    elif [ -d $file ]
    then
        echo "$file is a directory."
    fi
done
```

Output of the above program

```
/home/madhav/main.sh is a file.
/home/madhav/java is a directory.
/home/madhav/version.txt is a file.
/home/madhav/factorial.py is a file.
/home/madhav/program.c is a file.
```

C-

style Bash for loop

If you are from C or Java programming background then good news for you. Bash provides a version of **for** loop that has syntax similar to C and Java for loop.

C-style Bash for loop Syntax

```
for((initialization part; condition part; increment/decrement))
do
    commands
done
```

Example: Print half-pyramid using C-style for loop

```
rows=5
for((i=1; i<=rows; i++))
do
    for((j=1; j<=i; j++))
    do
        echo -n "* "
    done
    echo
done
```

Output of the above program

```
*
* *
* * *
* * * *
* * * * *
```