

C2110 *UNIX and programming*

Lesson 9

PS / 2020 Distance form of teaching: Rev2

Petr Kulhanek

kulhanek@chemi.muni.cz

National Center for Biomolecular Research, Faculty of Science
Masaryk University, Kamenice 5, CZ-62500 Brno

Summary L8

➤ Bash

for Loop

Initialization follows free rules because the expression is specified in the (()) block.

Condition:

Following comparison operators can be used:

```
for (( I=1 ; I <= 10 ; I++ )) ; do
    echo $I
done
```

! = does not equal
== equals
< smaller
<= less than or equal to
> larger
> = greater than or equal to

Change:

You can use any expression that can be interpreted in the (()) block, e.g.:

- ++ increases value of variable by one
- decreases value of variable by one
- and more ...

Can only be applied to integers in (()).

Variable **I** has the role of **counter**.

It is recommended to change the counter only in the reserved place within for loop notation.

Static Script Analysis

3. Statický analyzátor kódu:

- online
<https://www.shellcheck.net/>
- příkazová řádka

```
tests : bash — Konsole
File Edit View Bookmarks Settings Help
[kulhanek@pes tests]$ shellcheck test.sh

In test.sh line 10:
  echo -n "X
  ^-- SC1009: The mentioned parser error was in this simple command.
     ^-- SC1073: Couldn't parse this double quoted string.

In test.sh line 16:
^-- SC1072: Expected end of double quoted string. Fix any mentioned problems and try again.

[kulhanek@pes tests]$
```

```
test.sh — Kate
File Edit View Projects Bookmarks Sessions Tools Settings Help
test.sh
1 #!/bin/bash
2
3 echo -n "Zadejte pocet: "
4 read N
5
6 J=0
7 while [[ J -le N ]]; do
8   I=0
9   while [[ I -le N ]]; do
10    echo -n "X |
11    ((I++))
12  done
13  echo
14  ((J++))
15 done
16

Line 10, Column 20
Search and Replace
```

Script Debugging

Debugger

test.sh - tests - Visual Studio Code

File Edit Selection View Go Run Terminal Help

Bash-Debug

test.sh x {} launch.json

VARIABLES

Local

\$PWD: /home/kulhanek/DownL...

\$?: 0 # from '[[I -le N ...

test.sh

```
1 #!/bin/bash
2
3 echo -n "Zadejte pocet: "
4 read N
5
6 J=0
7 while [[ J -le N ]]; do
8     I=0
9     while [[ I -le N ]]; do
10         echo -n "X "
11         ((I++))
12     done
13     echo
14     ((J++))
15 done
16
```

Krokování

Aktuální pozice

zarážky (breakpoints)

Hodnoty proměnných (operátor: \$)

WATCH

\$J: '0'

\$I: '5'

\$N: '5'

CALL STACK

BREAKPOINTS

test.sh 11

test.sh 14

TERMINAL PROBLEMS OUTPUT DEBUG CONSOLE

3: Bash Debug Console

```
bash -c "cd \"/home/kulhanek/Downloads/bashdb/tests\"; while [[ ! -p \"/tmp/vscode-bash-debug-fifo-14038\" ]]; do sleep 0.25; done; \"bash\" \"/home/kulhanek/.vscode/extensions/rogalmic.bash-debug-0.3.9/bashdb_dir/bashdb\" --quiet --tty \"/tmp/vscode-bash-debug-fifo-14038\" --tty_in \"/tmp/vscode-bash-debug-fifo-14038_in\" --library \"/home/kulhanek/.vscode/extensions/rogalmic.bash-debug-0.3.9/bashdb_dir\" -- \"/home/kulhanek/Downloads/bashdb/tests/test.sh\" "
```

[kulhanek@pes ~]\$ bash -c "cd \"/home/kulhanek/Downloads/bashdb/tests\"; while [[! -p \"/tmp/vscode-bash-debug-fifo-14038\"]]; do sleep 0.25; done; \"bash\" \"/home/kulhanek/.vscode/extensions/rogalmic.bash-debug-0.3.9/bashdb_dir/bashdb\" --quiet --tty \"/tmp/vscode-bash-debug-fifo-14038\" --tty_in \"/tmp/vscode-bash-debug-fifo-14038_in\" --library \"/home/kulhanek/.vscode/extensions/rogalmic.bash-debug-0.3.9/bashdb_dir\" -- \"/home/kulhanek/Downloads/bashdb/tests/test.sh\" "

/usr/bin/X

Zadejte pocet: 5

X X X X X

Terminál: vstup/výstup

Ln 10, Col 1 Spaces: 4 UTF-8 LF Shell Script

New Substance

- **Gnuplot**
- **Bash**

Content

➤ Gnuplot

- presentation of scientific and technical data
- interactive and non-interactive mode
- plot, splot
- terminals

➤ Bash

- for ... in loop
- loops and redirection