Shell Scripting 2020: Week 3

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17. **Introduction to variables**

```
HISTCMD=The history number, or index in the history list, of the
    current command.  If HISTCMD is unset, it loses its special
    properties, even if it is subsequently reset.
HOME=The home directory of the current user; the default argument for
    the cd builtin command.  The value of this variable is also used
    when performing tilde expansion.
PWD=The current working directory as set by the cd command.
```

18. **Special Shell variables**

Contents of the `task18_echo.sh` file:

```
echo $@
```

Output of the execution:

```
cip ~/Desktop/UNI/ShellScripting2020/Week3  master ./task18_echo.sh

cip ~/Desktop/UNI/ShellScripting2020/Week3  master ./task18_echo.sh It was a dark and stormy night..
It was a dark and stormy night..
cip ~/Desktop/UNI/ShellScripting2020/Week3  master ./task18_echo.sh I see a lot of files: `ls`
I see a lot of files: answers task17_bash_variable_visibility.sh task18_echo.sh task20_remote_invocation.sh week3_shell_scripting_2020.pdf
cip ~/Desktop/UNI/ShellScripting2020/Week3  master
```

19. **The difference between Bash and Bash**

Contents of the `task19_bash_variables.sh` file:

```
myvar="can you see me?"

echo "Variable in shell 1: $myvar"
echo "Shell 1 PID: $$"

echo ""

bash -c 'echo "Variable in shell 2: $myvar" ; echo "Shell 2 PID: $$"'
```

Output of the execution:

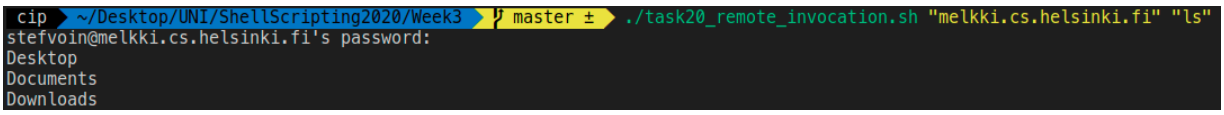
```
cip ~/Desktop/UNI/ShellScripting2020/Week3  master ./task19_bash_variables.sh
Variable in shell 1: can you see me?
Shell 1 PID: 1929699

Variable in shell 2:
Shell 2 PID: 1929700
```

20. **Remote invocation**

    Contents of the `task20_remote_invocation.sh` file:

    ```
    ssh stefvoin@$1 $2
    ```

    Output of the execution:

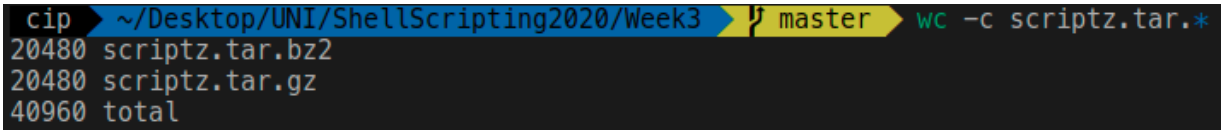


21. **Tar**

    The commands I used for creating the tars:

    ```
    tar cf scriptz.tar.bz2 $(find ../ -type f -name "*.sh" -o -name "*.jpg")
    tar cf scriptz.tar.gz $(find ../ -type f -name "*.sh" -o -name "*.jpg")
    ```

    File sizes in bytes:



    For creating the archives with `bzip2` ...

    ```
    bzip2 -c $(find ../ -type f -name "*.sh") > scriptz_arkive.bz2 | bzip2 -
        c $(find ../ -type f -name "*.jpg") >> scriptz_arkive.bz2
    ```

    ... and gzip:

    ```
    gzip -r -c $(find ../ -type f -name "*.sh") > scriptz_arkive.gz | gzip -
        c $(find ../ -type f -name "*.jpg") >> scriptz_arkive.gz
    ```

22. **Local and network file systems**

    Name of the system: `cip-tp` (`echo $HOST`)
    Operating system: `Ubuntu 20.04.1 LTS` (`lsb_release -a`)
    File system of the host: `ext4` (`df -Th`)

23. **Fetch and extract**

    The command I use to solve this exercise was:

    ```
    wget -O - https://wiki.helsinki.fi/download/attachments/124126879/lost24
        -monitor-temps-and-fans-v2.tar.bz2 | tar -xvjf -
    ```

24. **Doing your business somewhere else**

    The command I use to solve this exercise was:

    ```
    ssh stefvoin@melkki.cs.helsinki.fi "wget -O - https://wiki.helsinki.fi/
        download/attachments/124126879/lost24-monitor-temps-and-fans-v2.tar.
        bz2" | tar -xvjf -
    ```

25. **GREP and CUT**

    Contents of the `task25_unique_temperatures.sh` file:

```
record_date="2011.12.25"
workdir="/home/cip/Desktop/UNI/ShellScripting2020/Week3/lost24/monitor/
   $record_date"

rm -f temps.txt
rm -f temps_tmp.txt

for dir in `find $workdir -type d`
do
    # ls $dir/hp-temps.txt
    grep "PROCESSOR_ZONE *[0-9][0-9]C" $dir/hp-temps.txt -s | cut -b
       32-34 >> temps_tmp.txt
done

sort temps_tmp.txt | uniq >> temps.txt

rm temps_tmp.txt

cat temps.txt
```

Output of the execution:

```
22C
23C
24C
25C
26C
27C
28C
29C
30C
31C
```

26. **Don't run with the scissors**

Contents of the `task26_csv_temp.sh` file:

```
./task25_unique_temperatures.sh

echo ""

sed 's/ +/ /g; s/\s+/,/g; s/\//,/g' temps.txt > temps.csv

cat temps.csv
```

27. **Too long to read**

Output of the wrong command:

```
cip@cip-tp:~/Desktop/UNI/ShellScripting2020/Week3$ grep PROCESSOR_ZONE lost24/monitor/*/*/hp-temps.txt
bash: /usr/bin/grep: Argument list too long
```

The command for finding all the files from 2011.11 is:

```
find lost24/monitor -wholename "*/*/hp-temps.txt"
```

Output of the command:

```
✘ cip ~/Desktop/UNI/ShellScripting2020/Week3 master ± find lost24/monitor -wholename "*/*/hp-temps.txt"
lost24/monitor/2012.08.04/21:20/hp-temps.txt
lost24/monitor/2012.08.04/04:05/hp-temps.txt
lost24/monitor/2012.08.04/16:50/hp-temps.txt
lost24/monitor/2012.08.04/19:45/hp-temps.txt
lost24/monitor/2012.08.04/17:50/hp-temps.txt
lost24/monitor/2012.08.04/22:20/hp-temps.txt
lost24/monitor/2012.08.04/23:00/hp-temps.txt
lost24/monitor/2012.08.04/13:45/hp-temps.txt
lost24/monitor/2012.08.04/11:40/hp-temps.txt
lost24/monitor/2012.08.04/01:25/hp-temps.txt
```

28. **Escape as a true friend**

Output of the commands:

```
cip ~/Desktop/UNI/ShellScripting2020 master ± find . -name *.sh
zsh: no matches found: *.sh
✘ cip ~/Desktop/UNI/ShellScripting2020 master ± find . -name '*.sh'
./Week2/count-homedir.sh
./Week2/task16_find_image_files_corresponding_current_month_and_count.sh
./Week2/task10.sh
./Week2/task12_list_files_subdirectories_November_2011.sh
./Week2/task15_list_all_jpg_current_month.sh
./Week2/task9.sh
./Week2/task13_list_all_jpg_November_2011.sh
./Week2/task14_count_picture_files.sh
./Week1/task4.sh
./Week1/task5.sh
./Week1/task7.sh
./Week1/task6.sh
./Week1/task2.sh
./Week1/task1.sh
./Week3/task17_bash_variable_visibility.sh
./Week3/task18_echo.sh
./Week3/task30_max_temp_file.sh
./Week3/task20_remote_invocation.sh
./Week3/task26_csv_temp.sh
./Week3/task19_bash_variables.sh
./Week3/task29_hipstafy.sh
./Week3/task25_unique_temperatures.sh
```

29. **The Immelmann**

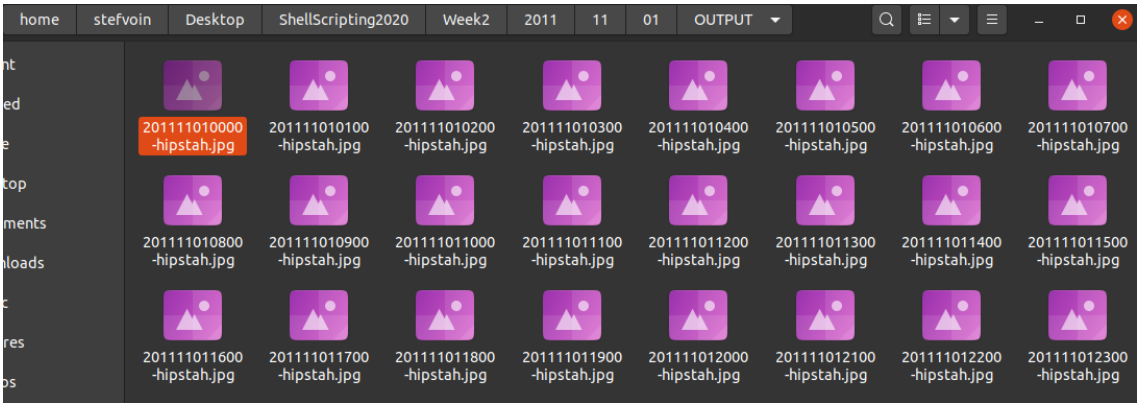
Contents of the `task29_hipstafy.sh` file:

```
input_dir="$1"

output_dir=$input_dir/OUTPUT
mkdir -p $output_dir

images=`find $input_dir -type f -name "*.jpg"`

for image in $images
do
    image_name=`basename $image`
    image_prefix=${image_name%.jpg}
    output_file=$output_dir/$image_prefix-hipstah.jpg
    echo "Converting ... $output_file"
    convert -sepia-tone 60% +polaroid $image $output_file
done
```

```
echo "DONE!"
```

Output of the execution:

```
stefvoin@melkki:~/Desktop/ShellScripting2020$ ./task29_hipstafy.sh /home/stefvoin/Desktop/ShellScripting202
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010000-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010100-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010200-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010300-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010400-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010500-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010600-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010700-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010800-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111010900-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011000-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011100-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011200-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011300-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011400-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011500-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011600-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011700-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011800-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111011900-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111012000-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111012100-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111012200-hipstah.jpg
Converting ... /home/stefvoin/Desktop/ShellScripting2020/Week2/2011/11/01/OUTPUT/201111012300-hipstah.jpg
DONE!
```



30. **Testing**

Contents of the `task29_hipstafy.sh` file:

```
dirs=`find lost24/monitor/ -type d -name "2011.11.*"`
files=`find $dirs -type f -name "*temps.txt"`

max_temp_file=""
max_temp=0

for file in $files
do
    temp=`grep "PROCESSOR_ZONE *[0-9][0-9]C" $file -s | cut -b 32-33`

    echo "File: $file"
    echo "Temperature: $temp"

    if [ $temp -gt $max_temp ]
    then
        max_temp=$temp
        max_temp_file=$file
    fi

done

echo "Max temp: $max_temp"
echo "Max temp file: $max_temp_file"
```

Partial output of the execution: