

# Shell variables, aliases, text editors.

Jan Trdlička

Department of Computer Systems  
Faculty of Information Technology  
Czech Technical University in Prague

*trdlicka@fit.cvut.cz*

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# Contents

- 1 Discussion of homework
- 2 Shell variables
- 3 Aliasing
- 4 Text editors
- 5 Homework

# Discussion of homework

- Any questions about homework?
- Try the following commands and explain their behaviour.

```
echo PWD is $PWD
```

```
echo PWD\ is\ \ $PWD
```

```
echo "PWD_is_ $PWD"
```

```
echo "\$PWD_is_ $PWD"
```

```
echo '\$PWD is $PWD'
```

# Discussion of homework

- Try the following commands and explain their behaviour.

```
cmd=who
```

```
echo cmd
```

```
echo $cmd
```

```
echo "$cmd"
```

```
echo '$cmd'
```

```
echo `${cmd}`
```

```
$cmd
```

- How can we protect output format of the command `who`?

- What types of shell variables can we distinguish and what is the difference between them?
- How can we temporarily create new local variable A and set its value to string "A\_\_B\_\_C"?
- How can we temporarily create new environment variable B and set its value to string "X\_\_Y\_\_Z"?
- Can we omit the quotes? Why yes/no?

- How to print a value of the shell variable A?
- Can we omit the quotes? Why yes/no?
- How to verify that the shell variable A is defined?
- How to verify that the variable B is an environment variable?
- How to destroy the shell variable B?

- How can we permanently define environment variable B?  
Hint: see section "INVOCATION" in the manual page of bash.
- What is the meaning of the following builtin shell variables?

```
PATH
USER
HOSTNAME
PS1
IFS
PAGER
```

- How to change a shell prompt of the current shell to the following value?

```
Hello >
```

- How to change a shell prompt of the current shell to the following value?

```
user@hostname:pwd>
```

Where `user` is login name of the current user, `hostname` is name of the system, `pwd` is the current working directory.



# Aliasing

- An alias is a shorthand notation to enable you to customise and abbreviate commands.
- Aliases are not exported to subshells.
- How to list all defined aliases?

```
alias
```

- How to list alias ll?

```
type ll
```

```
alias ll
```

- How to temporarily define new alias load, which prints the number of all running processes in the system? (use pipe with ps, tail and wc)

```
alias load='ps -e | tail -n +2 | wc -l'
```

- Can we omit the quotes? And why?

- How to destroy the alias load?

```
unalias load
```

- How to define an alias permanently?

Hint: see section "INVOCATION" in the manual page of `bash`.

- Text mode
  - vi, vim (Vi IMproved),
  - nano,
  - pico,
  - joe,
  - emacs.
- Graphics mode
  - gvim,
  - leafpad,
  - gedit (from GNOME),
  - kedit (from KDE).
- Try these editors and select your favourite editor.

- In your favourite text editor create the shell script "s1.bash" with the following content

```
#!/bin/bash  
  
echo "Hello_world"  
date '+Today is %A'
```

- Change the access permission of the script by the following command
- Run the script by the following command

```
chmod 755 s1.bash
```

```
./s1.bash
```

# Homework

- Set values 3 and 5 to local shell variables A and B, respectively.
- How to calculate the sum of the values of A and B by the shell and print the result to the standard output?
- How to calculate the product of the values of A and B by the shell and print the result to the standard output?
- Set octal value 10 and hexadecimal value F1 to local shell variables A and B, respectively. Hint: see manual page of bash.
- How to calculate the decimal sum of the values of A and B by the shell and print the result to the standard output?

- Define local shell variables A and B in the following way

```
A="01010" ; B="AA"
```

- Assume that the variable A contains the binary number and variable B contains hexadecimal number.
- How to calculate the sum of the values of A and B by the shell and print the result like decimal number to the standard output?  
Hint: see manual page of bash.

# Homework

- Create a subdirectory PS1\_3 in your home directory by the following command

```
mkdir "$HOME/PS1_3"
```

- Change the current directory by the following command

```
cd "$HOME/PS1_3"
```

- Create files by the following command

```
touch {,.,}{,.,a,b,c,d,e,f,A,B,C,D,E,F}\\  
{,.,a,b,c,A,B,C}.{txt,c,cpp,txt,C}
```

- Print the number of all files, that were created by previous command touch, on standard output.
- How many non hidden files (filename doesn't begin with the dot) with extension ".txt" have been created by command touch?

# Homework

- How many files with extension ".txt" have been created by command touch?
- How many filenames contain string "aa" ?
- How many filenames begin with string "Fb" or "aC" ?