Shell variables, aliases, text editors.

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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?

Shell variables

- 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 "$A_{\sqcup\sqcup}B_{\sqcup\sqcup}C$"?
- How can we temporarily create new environment variable `B` and set its value to string "$X_{\sqcup\sqcup}Y_{\sqcup\sqcup}Z$"?
- Can we omit the quotes? Why yes/no?

Shell variables

- 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?

Shell variables

- 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
```

Shell variables

- 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?

Aliasing

- 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 editors

- 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.

Text editors

- 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

```
chmod 755 s1.bash
```

- Run the script by the following command

```
./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?

Homework

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

  ```
  A = " 0 1 0 1 0 "  ;  B = " A A "
  ```

- 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"
```

- Crate 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" ?