

Θέμα: [CS242] OPERATING SYSTEMS

Αντρέας

3. Γνωριμία με το κέλυφος των Windows

help

```
Command Prompt
Microsoft Windows [Version 10.0.15063]
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C:\Users\ANDREAS>help
For more information on a specific command, type HELP command-name
ASSOC          Displays or modifies file extension associations.
ATTRIB         Displays or changes file attributes.
BREAK          Sets or clears extended CTRL+C checking.
BCDEDIT        Sets properties in boot database to control boot loading.
CACLS          Displays or modifies access control lists (ACLs) of files.
CALL           Calls one batch program from another.
CD             Displays the name of or changes the current directory.
CHCP           Displays or sets the active code page number.
CHDIR          Displays the name of or changes the current directory.
CHKDSK         Checks a disk and displays a status report.
CHKNTFS        Displays or modifies the checking of disk at boot time.
CLS            Clears the screen.
CMD            Starts a new instance of the Windows command interpreter.
COLOR          Sets the default console foreground and background colors.
COMP           Compares the contents of two files or sets of files.
COMPACT        Displays or alters the compression of files on NTFS partitions.
CONVERT        Converts FAT volumes to NTFS. You cannot convert the
               current drive.
COPY           Copies one or more files to another location.
DATE           Displays or sets the date.
DEL            Deletes one or more files.
DIR            Displays a list of files and subdirectories in a directory.
DISKPART       Displays or configures Disk Partition properties.
DOSKEY         Edits command lines, recalls Windows commands, and
               creates macros.
DRIVERQUERY    Displays current device driver status and properties.
ECHO           Displays messages, or turns command echoing on or off.
ENDLOCAL       Ends localization of environment changes in a batch file.
ERASE          Deletes one or more files.
EXIT           Quits the CMD.EXE program (command interpreter).
FC             Compares two files or sets of files, and displays the
               differences between them.
FIND           Searches for a text string in a file or files.
FINDSTR        Searches for strings in files.
FOR            Runs a specified command for each file in a set of files.
FORMAT         Formats a disk for use with Windows.
FSUTIL         Displays or configures the file system properties.
FTYPE          Displays or modifies file types used in file extension
               associations.
GOTO           Directs the Windows command interpreter to a labeled line in
               a batch program.
GPRESULT       Displays Group Policy information for machine or user.
GRAFTABL       Enables Windows to display an extended character set in
               graphics mode.
HELP           Provides Help information for Windows commands.
ICACLS         Display, modify, backup, or restore ACLs for files and
               directories.
IF             Performs conditional processing in batch programs.
LABEL          Creates, changes, or deletes the volume label of a disk.
MD             Creates a directory.
MKDIR          Creates a directory.
MKLINK         Creates Symbolic Links and Hard Links
MODE           Configures a system device.
MORE           Displays output one screen at a time.
MOVE           Moves one or more files from one directory to another
               directory.
OPENFILES      Displays files opened by remote users for a file share.
PATH           Displays or sets a search path for executable files.
PAUSE          Suspends processing of a batch file and displays a message.
POPD           Restores the previous value of the current directory saved by
               PUSH.D.
PRINT          Prints a text file.
PROMPT         Changes the Windows command prompt.
PUSHD         Saves the current directory then changes it.
RD            Removes a directory.
RECOVER        Recovers readable information from a bad or defective disk.
REM            Records comments (remarks) in batch files or CONFIG.SYS.
REN            Renames a file or files.
RENAME         Renames a file or files.
REPLACE        Replaces files.
RMDIR         Removes a directory.
ROBOCOPY       Advanced utility to copy files and directory trees
SET            Displays, sets, or removes Windows environment variables.
SETLOCAL       Begins localization of environment changes in a batch file.
SC             Displays or configures services (background processes).
SCHTASKS       Schedules commands and programs to run on a computer.
SHIFT         Shifts the position of replaceable parameters in batch files.
SHUTDOWN       Allows proper local or remote shutdown of machine.
SORT           Sorts input.
```

```

START      Starts a separate window to run a specified program or command.
SUBST      Associates a path with a drive letter.
SYSTEMINFO Displays machine specific properties and configuration.
TASKLIST   Displays all currently running tasks including services.
TASKKILL   Kill or stop a running process or application.
TIME       Displays or sets the system time.
TITLE      Sets the window title for a CMD.EXE session.
TREE       Graphically displays the directory structure of a drive or
           path.
TYPE       Displays the contents of a text file.
VER        Displays the Windows version.
VERIFY     Tells Windows whether to verify that your files are written
           correctly to a disk.
VOL        Displays a disk volume label and serial number.
XCOPY      Copies files and directory trees.
WMIC       Displays WMI information inside interactive command shell.

For more information on tools see the command-line reference in the online help.

```

A1) help dir

Displays a list of files and subdirectories in a directory.

```

C:\Users\ANDREAS>help dir
Displays a list of files and subdirectories in a directory.

DIR [drive:][path][filename] [/A[[:]attributes]] [/B] [/C] [/D] [/L] [/N]
  [/O[[:]sortorder]] [/P] [/Q] [/R] [/S] [/T[[:]timefield]] [/W] [/X] [/4]

  [drive:][path][filename]
      Specifies drive, directory, and/or files to list.

  /A      Displays files with specified attributes.
  attributes
      D Directories          R Read-only files
      H Hidden files        A Files ready for archiving
      S System files        I Not content indexed files
      L Reparse Points      - Prefix meaning not
  /B      Uses bare format (no heading information or summary).
  /C      Display the thousand separator in file sizes. This is the
           default. Use /-C to disable display of separator.
  /D      Same as wide but files are list sorted by column.
  /L      Uses lowercase.
  /N      New long list format where filenames are on the far right.
  /O      List by files in sorted order.
  sortorder
      N By name (alphabetic)      S By size (smallest first)
      E By extension (alphabetic) D By date/time (oldest first)
      G Group directories first  - Prefix to reverse order
  /P      Pauses after each screenful of information.
  /Q      Display the owner of the file.
  /R      Display alternate data streams of the file.
  /S      Displays files in specified directory and all subdirectories.
  /T      Controls which time field displayed or used for sorting
  timefield
      C Creation
      A Last Access
      W Last Written
  /W      Uses wide list format.
  /X      This displays the short names generated for non-8dot3 file
           names. The format is that of /N with the short name inserted
           before the long name. If no short name is present, blanks are
           displayed in its place.
  /4      Displays four-digit years

Switches may be preset in the DIRCMD environment variable. Override
preset switches by prefixing any switch with - (hyphen)--for example, /-W.

```

A2) help mkdir

Creates a directory.

```

C:\Users\ANDREAS>help mkdir
Creates a directory.

MKDIR [drive:]path
MD [drive:]path

If Command Extensions are enabled MKDIR changes as follows:

MKDIR creates any intermediate directories in the path, if needed.
For example, assume \a does not exist then:

    mkdir \a\b\c\d
is the same as:

    mkdir \a
    chdir \a
    mkdir b
    chdir b
    mkdir c
    chdir c
    mkdir d
which is what you would have to type if extensions were disabled.

```

A3) help cd

Displays the name of or changes the current directory.

```

C:\Users\ANDREAS>help cd
Displays the name of or changes the current directory.

CHDIR [/D] [drive:][path]
CHDIR [..]
CD [/D] [drive:][path]
CD [..]

    ..    Specifies that you want to change to the parent directory.

Type CD drive: to display the current directory in the specified drive.
Type CD without parameters to display the current drive and directory.

Use the /D switch to change current drive in addition to changing current
directory for a drive.

If Command Extensions are enabled CHDIR changes as follows:

The current directory string is converted to use the same case as
the on disk names.  So CD C:\TEMP would actually set the current
directory to C:\Temp if that is the case on disk.

CHDIR command does not treat spaces as delimiters, so it is possible to
CD into a subdirectory name that contains a space without surrounding
the name with quotes.  For example:

    cd \winnt\profiles\username\programs\start menu
is the same as:

    cd "\winnt\profiles\username\programs\start menu"
which is what you would have to type if extensions were disabled.

```

A4) help rmdir

Removes a directory.

```
C:\Users\ANDREAS>help rmdir
Removes (deletes) a directory.

RMDIR [/S] [/Q] [drive:]path
RD [/S] [/Q] [drive:]path

    /S      Removes all directories and files in the specified directory
            in addition to the directory itself.  Used to remove a directory
            tree.

    /Q      Quiet mode, do not ask if ok to remove a directory tree with /S
```

A5) help echo

Displays messages, or turns command echoing on or off.

```
C:\Users\ANDREAS>help echo
Displays messages, or turns command-echoing on or off.

    ECHO [ON | OFF]
    ECHO [message]

Type ECHO without parameters to display the current echo setting.
```

A6) help set

Displays, sets, or removes Windows environment variables.

```
C:\Users\ANDREAS>help set
Displays, sets, or removes cmd.exe environment variables.

SET [variable=[string]]

    variable    Specifies the environment-variable name.
    string      Specifies a series of characters to assign to the variable.

Type SET without parameters to display the current environment variables.

If Command Extensions are enabled SET changes as follows:

SET command invoked with just a variable name, no equal sign or value
will display the value of all variables whose prefix matches the name
given to the SET command.  For example:

    SET P

would display all variables that begin with the letter 'P'

SET command will set the ERRORLEVEL to 1 if the variable name is not
found in the current environment.

SET command will not allow an equal sign to be part of the name of
a variable.

Two new switches have been added to the SET command:

    SET /A expression
    SET /P variable=[promptString]

The /A switch specifies that the string to the right of the equal sign
is a numerical expression that is evaluated.  The expression evaluator
is pretty simple and supports the following operations, in decreasing
order of precedence:

    ( )                - grouping
    ! ~ -              - unary operators
    * / %              - arithmetic operators
    + -                - arithmetic operators
    << >>              - logical shift
    &                  - bitwise and
    ^                  - bitwise exclusive or
    |                  - bitwise or
    = *= /= %= += -=   - assignment
    &= ^= |= <=> >>=   - assignment
    ,                  - expression separator

If you use any of the logical or modulus operators, you will need to
enclose the expression string in quotes.  Any non-numeric strings in the
expression are treated as environment variable names whose values are
converted to numbers before using them.  If an environment variable name
is specified but is not defined in the current environment, then a value
of zero is used.  This allows you to do arithmetic with environment
variable values without having to type all those % signs to get their
values.  If SET /A is executed from the command line outside of a
command script, then it displays the final value of the expression.  The
assignment operator requires an environment variable name to the left of
the assignment operator.  Numeric values are decimal numbers, unless
prefixed by 0x for hexadecimal numbers, and 0 for octal numbers.
So 0x12 is the same as 18 is the same as 022. Please note that the octal
notation can be confusing: 08 and 09 are not valid numbers because 8 and
9 are not valid octal digits.

The /P switch allows you to set the value of a variable to a line of input
entered by the user.  Displays the specified promptString before reading
the line of input.  The promptString can be empty.

Environment variable substitution has been enhanced as follows:

    %PATH:str1=str2%

would expand the PATH environment variable, substituting each occurrence
of "str1" in the expanded result with "str2".  "str2" can be the empty
string to effectively delete all occurrences of "str1" from the expanded
output.  "str1" can begin with an asterisk, in which case it will match
everything from the beginning of the expanded output to the first
occurrence of the remaining portion of str1.

May also specify substrings for an expansion.

    %PATH:~10,5%

Press any key to continue . . .
```

(A7)

```
C:\Users\ANDREAS>mkdir LAB1-1
C:\Users\ANDREAS>mkdir LAB1-2
```

```
C:\Users\ANDREAS>cd LAB1-1
C:\Users\ANDREAS\LAB1-1>mkdir LAB1-1-1
```

```
C:\Users\ANDREAS>CD LAB1-2
C:\Users\ANDREAS\LAB1-2>mkdir LAB1-3
```

(A8)

```
C:\Users\ANDREAS>cd LAB1-1
C:\Users\ANDREAS\LAB1-1>rmdir LAB1-1-1
C:\Users\ANDREAS>rmdir LAB1-1
```

Εντολή	Λειτουργία	Ερώτηση
copy	Copies one or more files to another location.	(A9)
rename	Renames a file or files.	(A10)
erase	Deletes one or more files.	(A11)

Αντιγράψτε το αρχείο c:\windows\win.ini (ή αν δεν υπάρχει ένα οποιοδήποτε άλλο αρχείο από αυτόν τον κατάλογο) στον κατάλογο LAB1-2, χρησιμοποιώντας την κατάλληλη εντολή:

__ copy win.ini c:\Users\ANDREAS\LAB1-2__ (A12)

```
C:\Users\ANDREAS>cd c:\windows
c:\Windows>copy win.ini c:\Users\ANDREAS\LAB1-2
1 file(s) copied.
```

cd c:\windows

copy win.ini c:\Users\ANDREAS\LAB1-2

Επιβεβαιώστε το με το να εισέλθετε στον κατάλογο LAB1-2 (με την εντολή cd) και να δώσετε dir. Να δώσετε το screenshot ως A13.jpg (A13)

```
C:\WINDOWS\system32>cd c:\Users\ANDREAS\LAB1-2
c:\Users\ANDREAS\LAB1-2>dir
Volume in drive C has no label.
Volume Serial Number is D096-069D

Directory of c:\Users\ANDREAS\LAB1-2

20/04/2021  12:49  μμ    <DIR>          .
20/04/2021  12:49  μμ    <DIR>          ..
18/02/2021  12:37  μμ    <DIR>          LAB1-3
14/07/2009  08:09  πμ              403 win.ini
               1 File(s)              403 bytes
               3 Dir(s)  744.487.481.344 bytes free
```

Βρείτε τις παρακάτω παραμέτρους στο πρόγραμμα dir (χρησιμοποιώντας το help dir)

Παράμετρος για να εμφανίζονται τα σύντομα ονόματα αρχείων: __ /X _____ (A14)

Παράμετρος για να εμφανιστούν τα αποτελέσματα σε ευρεία λίστα: __ /W _____ (A15)

Παράμετρος για να εμφανιστούν τα αρχεία και στους υποκαταλόγους: __ /S _____ (A16)

Να εμφανίσετε τις μεταβλητές περιβάλλοντος φλοιού χρησιμοποιώντας την εντολή set.

Τι τιμή έχει η μεταβλητή windir: _____ C:\WINDOWS_____ (A17)

Τι τιμή έχει η μεταβλητή prompt : _____ \$P\$G_____ (A18)

Χρησιμοποιώντας την βοήθεια της set ορίστε την μεταβλητή:

wdir να έχει την τιμή 123456 _____ set wdir=123456_____ (A19)

```
c:\Users\ANDREAS\LAB1-2>set wdir=123456
```

Επιβεβαιώστε με το να εμφανίσετε την τιμή με τους παρακάτω τρόπους:

α) με την εντολή 'set' _____ (screen shot A20)

```
wdir=123456
```

β) με την εντολή `echo %όνομα μεταβλητής%`

(χωρίς κενό το % και το όνομα της μεταβλητής)

(π.χ. `echo %prompt%`) _____ (screen shot A21)

```
c:\Users\ANDREAS\LAB1-2>echo %wdir%
123456
```

Όπως είδαμε, μπορείτε να αλλάξετε ενεργό οδηγό με το να γράψετε το γράμμα του ενεργού οδηγού ακολουθούμενο από : (άνω κάτω τελεία)

Πηγαίνετε στον οδηγό που βρίσκεται ο χώρος των φοιτητών ή σε μια οποιαδήποτε κοινόχρηστη περιοχή σε έναν υπολογιστή του εργαστηρίου (αν δε βρίσκετε στο εργαστήριο ή δεν υπάρχουν κοινόχρηστες περιοχές στον υπολογιστή που βρίσκεστε, απλώς τοποθετείτε ένα USB flash drive στον υπολογιστή σας και μεταβείτε σε αυτό): _____ (A22)

Χρησιμοποιώντας την εντολή '`dir`' δείτε πόσα αρχεία και πόσοι κατάλογοι υπάρχουν. _____ (A23)

```
G:\>dir
Volume in drive G is APOEL1926
Volume Serial Number is E8AD-6E5E

Directory of G:\

21/04/2021  12:44 πμ  <DIR>          GTS
09/05/2014  08:03 πμ  <DIR>          B5
08/05/2014  02:06 πμ           3.508.990  IMG_7154.JPG
08/05/2014  02:06 πμ           3.689.206  IMG_7155.JPG
                2 File(s)          7.198.196 bytes
                2 Dir(s)       1.992.032.256 bytes free
```

Χρησιμοποιώντας την εντολή '`dir`' με την παράμετρο '`/s`' δείτε πόσα αρχεία και πόσοι κατάλογοι υπάρχουν συνολικά : _____ (A24)


```

G:\>dir /s
Volume in drive G is APOEL1926
Volume Serial Number is E8AD-6E5E

Directory of G:\

21/04/2021  12:44 πμ    <DIR>          GTS
09/05/2014  08:03 πμ    <DIR>          B5
08/05/2014  02:06 πμ          3.508.990 IMG_7154.JPG
08/05/2014  02:06 πμ          3.689.206 IMG_7155.JPG
                2 File(s)          7.198.196 bytes

Directory of G:\GTS

21/04/2021  12:44 πμ    <DIR>          .
21/04/2021  12:44 πμ    <DIR>          ..
                0 File(s)           0 bytes

Directory of G:\B5

09/05/2014  11:10 πμ    <DIR>          .
09/05/2014  11:10 πμ    <DIR>          ..
08/05/2014  02:07 πμ          7.495.286 IMG_7773.JPG
08/05/2014  02:07 πμ          6.826.530 IMG_7774.JPG
08/05/2014  02:07 πμ          7.489.272 IMG_7775.JPG
                3 File(s)        21.811.088 bytes

Directory of G:\System Volume Information

16/01/2016  07:29 μμ    <DIR>          .
16/01/2016  07:29 μμ    <DIR>          ..
16/01/2016  07:29 μμ          76 IndexerVolumeGuid
05/09/2017  03:34 μμ          12 WPSettings.dat
                2 File(s)           88 bytes

Total Files Listed:
                7 File(s)        29.009.372 bytes
                8 Dir(s)    1.992.032.256 bytes free

```

Εκτός από τη help μπορείτε να πάρετε πληροφορίες για κάποια εντολή χρησιμοποιώντας το όνομα της εντολής ακολουθούμενο από το /?

Δώστε "help ping". Υπάρχει βοήθεια για το ping; _____(A25)

```

c:\Users\ANDREAS\LAB1-2>help ping
This command is not supported by the help utility. Try "ping /?".

```

Δείτε τη βοήθεια για το 'ping' με το 'ping /?' Τι κάνει; _____(A26)

```
c:\Users\ANDREAS\LAB1-2>ping /?

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
          [-r count] [-s count] [[-j host-list] | [-k host-list]]
          [-w timeout] [-R] [-S srcaddr] [-c compartment] [-p]
          [-4] [-6] target_name

Options:
    -t          Ping the specified host until stopped.
                To see statistics and continue - type Control-Break;
                To stop - type Control-C.
    -a          Resolve addresses to hostnames.
    -n count    Number of echo requests to send.
    -l size     Send buffer size.
    -f          Set Don't Fragment flag in packet (IPv4-only).
    -i TTL      Time To Live.
    -v TOS      Type Of Service (IPv4-only. This setting has been deprecated
                and has no effect on the type of service field in the IP
                Header).
    -r count    Record route for count hops (IPv4-only).
    -s count    Timestamp for count hops (IPv4-only).
    -j host-list Loose source route along host-list (IPv4-only).
    -k host-list Strict source route along host-list (IPv4-only).
    -w timeout  Timeout in milliseconds to wait for each reply.
    -R          Use routing header to test reverse route also (IPv6-only).
                Per RFC 5095 the use of this routing header has been
                deprecated. Some systems may drop echo requests if
                this header is used.
    -S srcaddr  Source address to use.
    -c compartment Routing compartment identifier.
    -p          Ping a Hyper-V Network Virtualization provider address.
    -4          Force using IPv4.
    -6          Force using IPv6.
```

Βρείτε τις παραμέτρους για το ping, ώστε να εκτελείται το ping με αριθμό αιτήσεων ίσο με 2 _____ -n _____ (A27) . Επιβεβαιώστε με ping προς 83.212.16.1

```
c:\Users\ANDREAS\LAB1-2>ping 83.212.16.1 -n 2

Pinging 83.212.16.1 with 32 bytes of data:
Request timed out.
Request timed out.

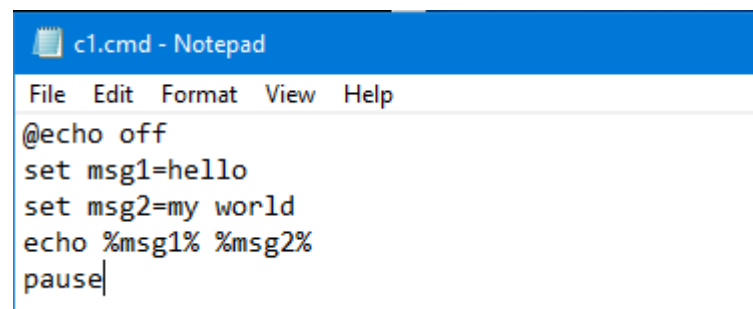
Ping statistics for 83.212.16.1:
    Packets: Sent = 2, Received = 0, Lost = 2 (100% loss),
```

Βρείτε τη σημασία της εντολής pause:_ It allows the computer to pause the currently running batch file until the user presses any key _____ (A28)

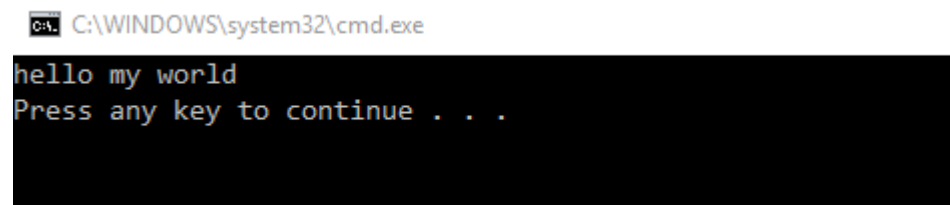
```
c:\Users\ANDREAS\LAB1-2>pause  
Press any key to continue . . .
```

6. Μεταβλητές

(C1)

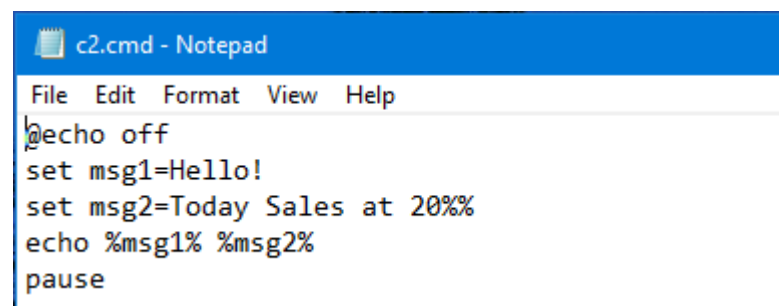


```
c1.cmd - Notepad  
File Edit Format View Help  
@echo off  
set msg1=hello  
set msg2=my world  
echo %msg1% %msg2%  
pause
```

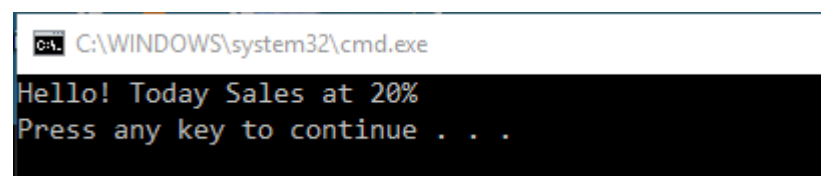


```
C:\> C:\WINDOWS\system32\cmd.exe  
hello my world  
Press any key to continue . . .
```

(C2)



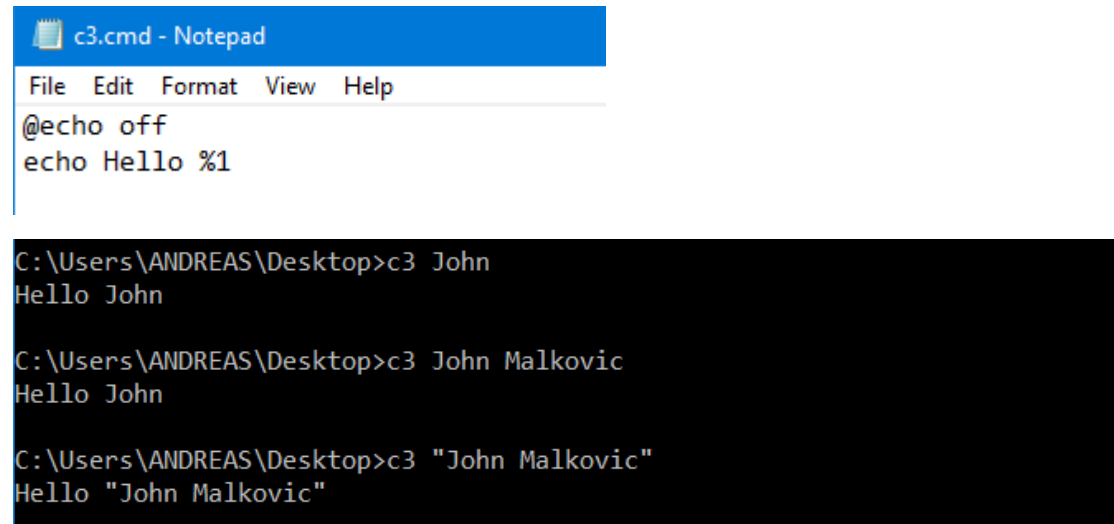
```
c2.cmd - Notepad  
File Edit Format View Help  
@echo off  
set msg1=Hello!  
set msg2=Today Sales at 20%%  
echo %msg1% %msg2%  
pause
```



```
C:\> C:\WINDOWS\system32\cmd.exe  
Hello! Today Sales at 20%  
Press any key to continue . . .
```

6.1 Μεταβλητές της γραμμής εντολών

(C3)



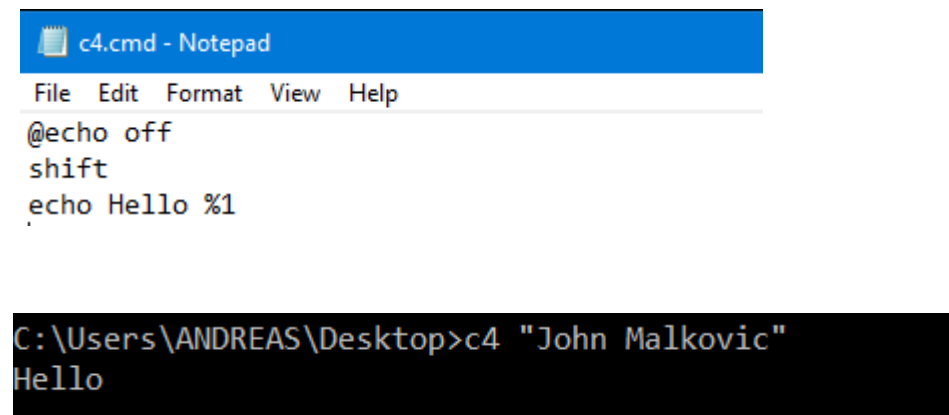
The screenshot shows a Notepad window titled 'c3.cmd - Notepad' with a menu bar (File, Edit, Format, View, Help). The text inside the Notepad is:

```
@echo off  
echo Hello %1
```

Below the Notepad window is a black command prompt window. It shows three commands and their outputs:

```
C:\Users\ANDREAS\Desktop>c3 John  
Hello John  
  
C:\Users\ANDREAS\Desktop>c3 John Malkovic  
Hello John  
  
C:\Users\ANDREAS\Desktop>c3 "John Malkovic"  
Hello "John Malkovic"
```

(C4)



The screenshot shows a Notepad window titled 'c4.cmd - Notepad' with a menu bar (File, Edit, Format, View, Help). The text inside the Notepad is:

```
@echo off  
shift  
echo Hello %1
```

Below the Notepad window is a black command prompt window. It shows one command and its output:

```
C:\Users\ANDREAS\Desktop>c4 "John Malkovic"  
Hello
```

7. Συνθήκες

(C5)

```
c5.cmd - Notepad
File Edit Format View Help
@echo off
IF %1==John echo Welcome John
IF NOT %1==John echo Who are you?
pause

C:\Users\ANDREAS\Desktop>c5 John
Welcome John
Press any key to continue . . .
C:\Users\ANDREAS\Desktop>c5 Andreas
Who are you?
```

(C6)

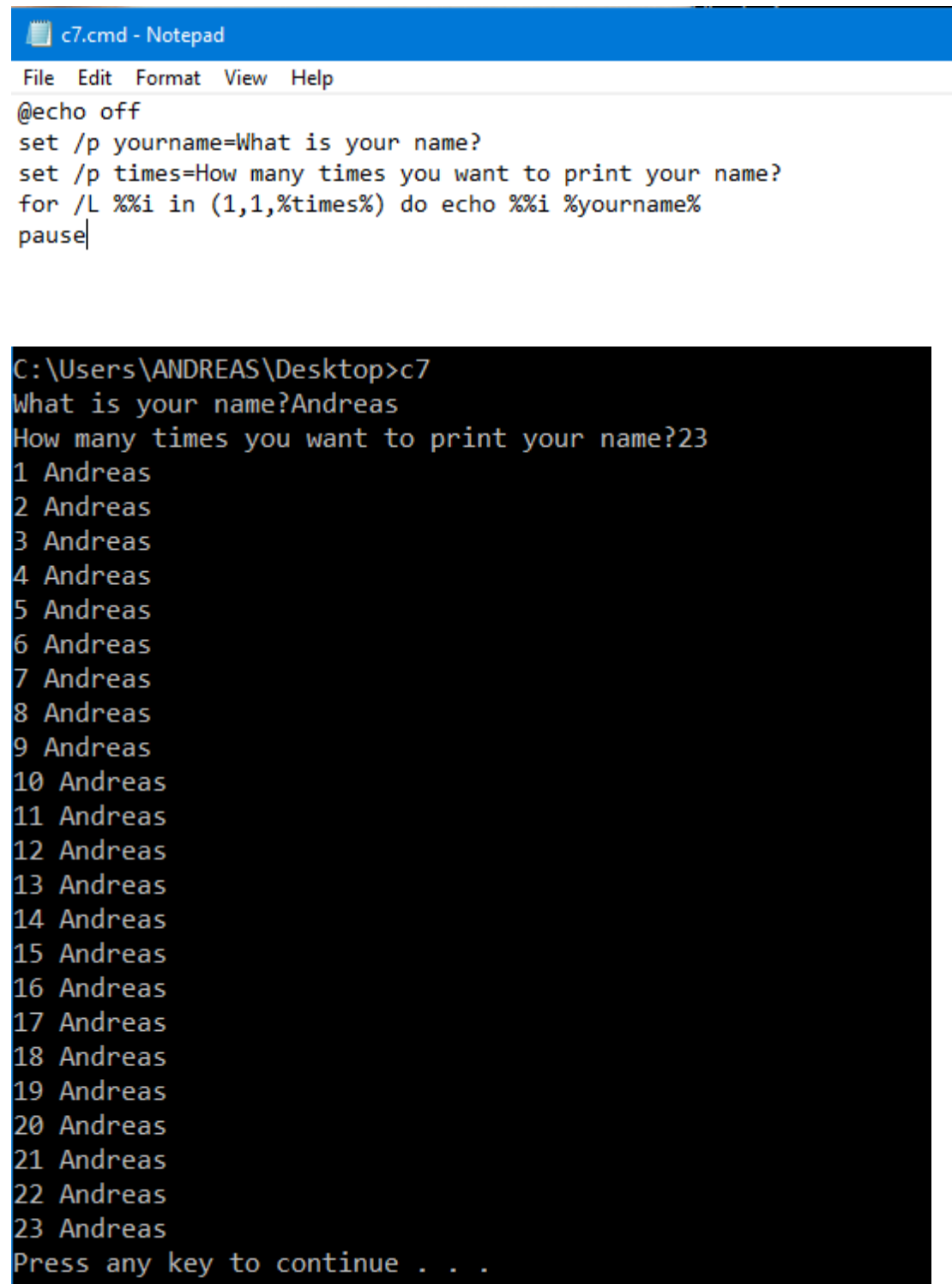
```
c6.cmd - Notepad
File Edit Format View Help
@echo off
set /p yourname=What is your name?
IF %yourname%==John echo Welcome John
IF NOT %yourname%==John echo Who are you?
pause

C:\Users\ANDREAS\Desktop>c6
What is your name?John
Welcome John

C:\Users\ANDREAS\Desktop>c6
What is your name?Andreas
Who are you?
```

8. Βρόχοι Επανάληψης

(C7)



```
c7.cmd - Notepad
File Edit Format View Help
@echo off
set /p yourname=What is your name?
set /p times=How many times you want to print your name?
for /L %%i in (1,1,%times%) do echo %%i %yourname%
pause

C:\Users\ANDREAS\Desktop>c7
What is your name?Andreas
How many times you want to print your name?23
1 Andreas
2 Andreas
3 Andreas
4 Andreas
5 Andreas
6 Andreas
7 Andreas
8 Andreas
9 Andreas
10 Andreas
11 Andreas
12 Andreas
13 Andreas
14 Andreas
15 Andreas
16 Andreas
17 Andreas
18 Andreas
19 Andreas
20 Andreas
21 Andreas
22 Andreas
23 Andreas
Press any key to continue . . .
```