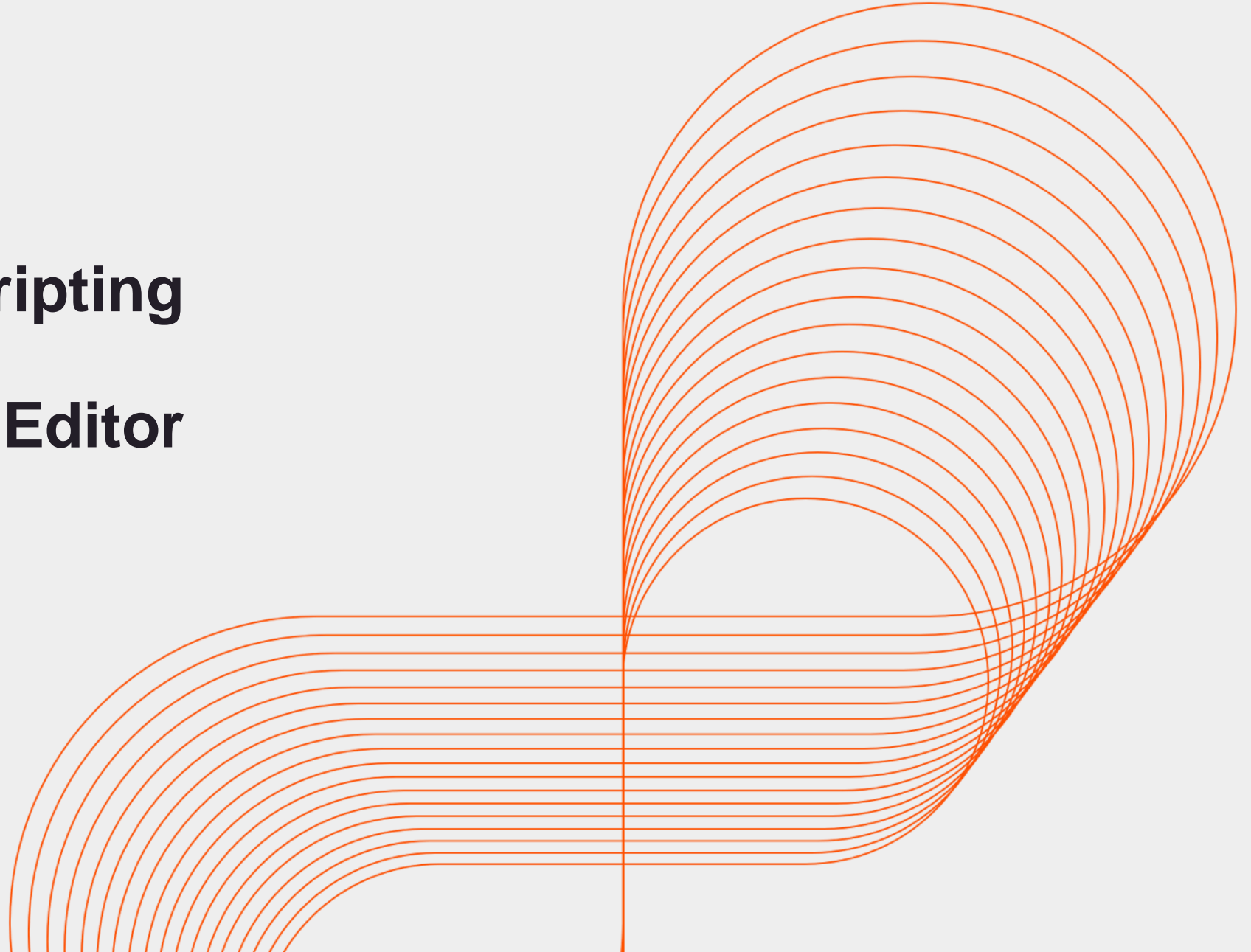# Bash Shell Scripting

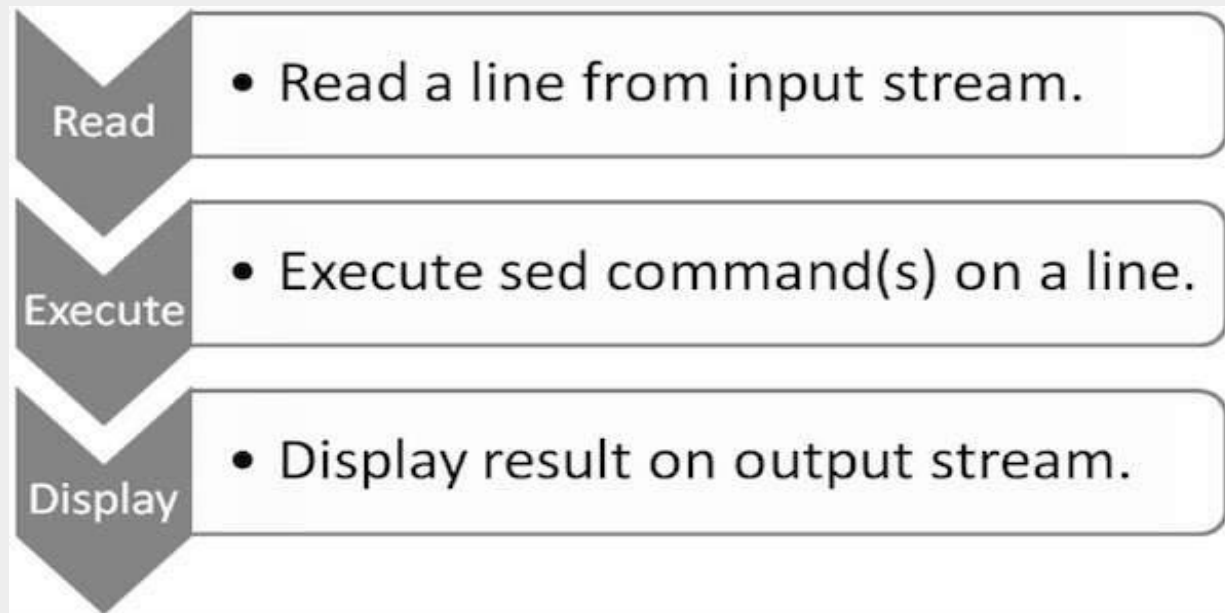# SED – Stream Editor

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Contents

1. SED [Stream Editor]

2. At the end of this module, you should be able to understand:

3. What is SED?

4. Uses of SED.

5. SED command syntax

6. How it works?

7. SED options.

8. SED functions.

SED

- SED (Stream Editor)
  - SED is a "non-interactive" stream-oriented editor
  - It works as a filter, which makes it particularly useful for scripts.
  - SED works line oriented.
  - The most simple commands are a pattern and an action.
  - If no pattern is given, the action is applied to all lines, otherwise it is applied only to lines matching the pattern.
  - SED is shell independent.

- Uses of SED:
  - To automate editing actions to be performed on one or more files.
  - To simplify the task of performing the same edits on multiple files.
  - To write conversion programs.

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SED

- How to check which sed is available?
  - Run below command to check whether sed is available or not?
    - **which sed**
  - To check version of the sed run below command
    - **sed --version**
- SED Workflow

- **Read** • Read a line from input stream.
- **Execute** • Execute sed command(s) on a line.
- **Display** • Display result on output stream.

SED

- Syntax:

  sed {options} {command_pattern_list} file

  sed [-n] [-V] [--quiet] [--silent] [--version] [--help] [-e script] [--expression=script] [-f script-file] [--file=script-file] [script-if-no-other-script] [file...]

- How it works:

  sed -e '1,10d'

  $cat file
  I have three dogs and two cats
  $sed -e 's/dogs/cats/' file
  I have three cats and two cats

SED options

- Suppress automatic printing of pattern space.

  $ **cat file.txt**

  unix is great os. unix is opensource. unix is free os.

  learn operating system.

  unixlinux which one you choose.

  $ **sed -n 's/unix/linux/p' file.txt**

  linux is great os. unix is opensource. unix is free os.

  linuxlinux which one you choose.

SED options

- Specify commands to execute as script.

  $ **sed -e 's/unix/linux/' -e 's/os/system/' file.txt**

  linux is great system. unix is opensource. unix is free os.

  learn operating system.

  linuxlinux which one you chosysteme.

  $ **cat subst.sed**

  #!/bin/sed -f

  s/x/y/g

  $ **sed -f subst.sed inputFile**

- In place editing

  $ **cat Inputfile**

  ABC

  abc

  def

  xyz

  $ **sed -i 's/abc/def/' Inputfile**

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SED functions

- Print:
  - $ **sed 'p' file**
  - ABC
  - ABC
  - abc
  - abc
  - def
  - def
  - xyz
  - xyz

SED functions (Cntd.)

- $ **sed -n 'p' file**

ABC

abc

def

xyz

- $ **sed -n '1,3p' file**

ABC

abc

def

- $ **sed -n '1~2p' file**

ABC

def

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SED functions (Cntd.)

- Delete:

- $ **sed '2d' file**

ABC

def

xyz

- $ **sed '1,3d' file**

xyz

- $ **sed '1~2d' file**

abc

xyz

SED functions

- Substitute:
  - $ cat file.txt
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - unixlinux which one you choose.

- $ sed 's/unix/linux/' file.txt
  - linux is great os. unix is opensource. unix is free os.
  - learn operating system.
  - linuxlinux which one you choose

- $ sed 's/unix/linux/2' file.txt
  - unix is great os. linux is opensource. unix is free os. learn operating system. unixlinux which one you choose.

- $ sed 's/unix/linux/g' file.txt
  - linux is great os. linux is opensource. linux is free os.
  - learn operating system.
  - linuxlinux which one you choose.

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SED functions

- Substitute:
  - **$ cat file.txt**
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - unixlinux which one you choose.
  - **$sed 's/unix/linux/3g' file.txt**
  - unix is great os. unix is opensource. linux is free os.
  - learn operating system.
  - unixlinux which one you choose.
  - **$ sed 's/unix/{&&}/' file.txt**
  - {unixunix} is great os. unix is opensource. unix is free os.
  - learn operating system.
  - {unixunix}linux which one you choose.
  - **$ sed '3 s/unix/linux/' file.txt**
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - linuxlinux which one you choose.

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SED functions

- Substitute:
  - **$ cat file.txt**
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - unixlinux which one you choose.

  - **$ sed '/linux/ s/unix/centos/' file.txt**
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - centoslinux which one you choose.

  - **$ sed 's/unix/linux/' file.txt | sed 's/os/system/'**
  - linux is great system. unix is opensource. unix is free os.
  - learn operating system.
  - linuxlinux which one you chosysteme.

  - $ sed 's_http://_www_' file.txt
  - $ sed 's|http://|www|' file.txt

SED functions

- Insert:
  - $ sed '/unix/ i "Add a new line"' file.txt
  - "Add a new line"
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - "Add a new line"
  - unixlinux which one you choose

- Append:
  - $ sed '/learn/ a Append a line' file.txt
  - unix is great os. unix is opensource. unix is free os.
  - learn operating system.
  - Append a line
  - unixlinux which one you choose.

- Change:
  - $ sed '/unix/ c Change line file.txt
  - Change line
  - learn operating system.
  - Change line

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SED functions

- Transform:
  - $ sed 'y/ul/UL/' file.txt
  - Unix is great os. Unix is opensoUrce. Unix is free os.
  - Learn operating system.
  - UnixLinUx which one yoU choose.

- Invert the expression:
  - $ sed -n '/learn/!p' file
  - unix is great os. unix is opensource. unix is free os.
  - unixlinux which one you choose.

- Print line number:
  - $ sed -n '/unix/=' file
  - 1
  - 3

Quiz

- Sed maintains two data buffers: _____ and _____.

- The option _____ causes the next string to be interpreted as an editing instruction (commands) .

- If we want to print every other line, we can specify the interval using the _____ character.

- With the sed command, _____ represents the matched string.

- The inversion of sed command specified by _____character.

Quiz Solution

- Sed maintains two data buffers: the _active pattern space_, and _auxiliary hold space._

- The option _–e_ causes the next string to be interpreted as an editing instruction(commands).

- If we want to print every other line, we can specify the interval using the "~" character.

- With the sed command, _&_ represents the matched string.

- The inversion of sed command specified by _NOT(!)_ character.

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Summary

- In this module, we have learnt about SED [Stream Editor].

- Now, you should be able to answer following questions:

    - What is sed?

    - How it works and uses of sed?

    - What are different options available with sed command?

    - What are sed functions?

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Reference material

- http://www.folkstalk.com/2012/01/sed-command-in-unix-examples.html

- http://www.computerhope.com/unix/used.htm

- http://www.tutorialspoint.com/unix_commands/sed.htm

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Thank You !!!

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