

Sufiya Shikalgar

TASK 1

Scenario: There is a customer who came to you with a problem to have a custom linux command for his operations. Your task is to understand the problem and create a linux

command via bash script as per the instructions.

Command name - internsctl

Command version - v0.1.0

```
[root@localhost xenonstack]# touch internsctl
[root@localhost xenonstack]# vi internsctl
[root@localhost xenonstack]# cat internsctl
section A

if [[ $1 == "--help" ]]; then
    echo "Usage: internsctl [options]"
    echo "Options:"
    echo "  --help          Display this help message"
    echo "  --version       Display the command version"
    echo "  --man           Display the manual page"
    echo "  --size          Display the file size"
    echo "  --permissions  Display the file permissions"
    echo "  --owner         Display the file owner"
    echo "  --last-modified Display the last modified"
    exit 0
fi

if [[ $1 == "--version" ]]; then
    echo "internsctl v0.1.0"
    exit 0
fi

if [[ $1 == "--man" ]]; then
    echo "INTERNSTL(1)                                User Commands                                INTERNSTL(1)"
    echo ""
    echo "NAME"
    echo "  internsctl - Custom Linux command for operations"
    echo ""
    echo "SYNOPSIS"
    echo "  internsctl [options]"
    echo ""
    echo "DESCRIPTION"
    echo "  The internsctl command provides various options for performing operations."
    echo ""
    echo "OPTIONS"
    echo "  --help          Display the help message and usage guidelines."
    echo ""
    echo "  --version       Display the command version."
    echo ""
    echo "  --man           Display the manual page."
    echo ""
    echo "EXAMPLES"
    echo "  internsctl cpu getinfo          Get CPU information of the server."
    echo ""
```

Section A

1. I want a manual page of command so that I can see the full documentation of the command.

For example if you execute the command

man ls

as output we get the doc and usage guidelines. Similarly if I **execute man internctl** I want to see the manual of my command.

```
[root@localhost xenonstack]# man ./internctl
[root@localhost xenonstack]#
```

```
section A

if [[ $1 == "--help" ]]; then
    echo "Usage: internctl [options]"
    echo "Options:"
    echo "  --help          Display this help message"
    echo "  --version       Display the command version"
    echo "  --man           Display the manual page"
    echo "  --size          Display the file size"
    echo "  --permissions  Display the file permissions"
    echo "  --owner         Display the file owner"
    echo "  --last-modified Display the last modified"
    exit 0 fi

if [[ $1 == "--version" ]]; then
    echo "internctl v0.1.0"
    exit 0 fi

if [[ $1 == "--man" ]]; then
    echo "INTERNSTL(1)                                User Commands                                INTERNSTL(1)"
    echo ""
    echo "NAME"
    echo "  internctl - Custom Linux command for operations"
    echo ""
    echo "SYNOPSIS"
    echo "  internctl [options]"
    echo ""
    echo "DESCRIPTION"
    echo "  The internctl command provides various options for performing operations."
    echo ""
    echo "OPTIONS"
    echo "  --help          Display the help message and usage guidelines."
    echo ""
    echo "  --version       Display the command version."
    echo ""
    echo "  --man           Display the manual page."
    echo ""
    echo "EXAMPLES"
    echo "  internctl cpu getinfo          Get CPU information of the server."
    echo ""
    echo "  internctl memory getinfo       Get memory information of the server."
    echo ""
    echo "  internctl user create <username> Create a new user on the server."
    echo ""
:█
```

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```
# Section B

if [[ $1 == "cpu" && $2 == "getinfo" ]]; then
    lscpu
    exit 0 fi

if [[ $1 == "memory" && $2 == "getinfo" ]]; then
    free
    exit 0 fi

if [[ $1 == "user" && $2 == "create" ]]; then
    if [[ -z $3 ]]; then
        echo "Error: Username not provided. Usage: internctl user create <username>"
        exit 1
    fi

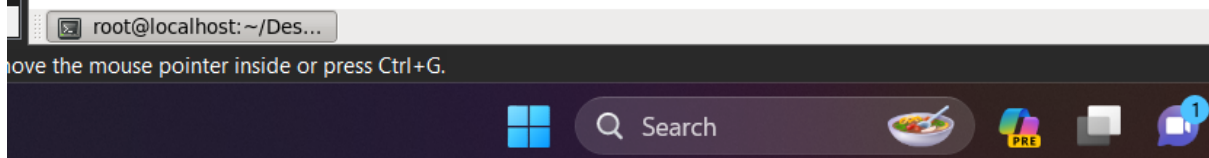
    # Create user
    sudo useradd -m $3
    sudo passwd $3
    exit 0 fi

if [[ $1 == "user" && $2 == "list" ]]; then
    if [[ $3 == "--sudo-only" ]]; then
        # List users with sudo permissions
        sudo awk -F: '$3 >= 1000 && $7 != "/usr/sbin/nologin" { print $1 }' /etc/passwd
    else
        # List all regular users
        awk -F: '$3 >= 1000 && $7 != "/usr/sbin/nologin" { print $1 }' /etc/passwd
    fi
    exit 0 fi

if [[ $1 == "file" && $2 == "getinfo" ]]; then
    if [[ -z $3 ]]; then
        echo "Error: File name not provided. Usage: internctl file getinfo [options] <file-name>"
        exit 1
    fi

    file_info=$(stat -c "File: %n\nAccess: %A\nSize(B): %s\nOwner: %U\nModify: %y" "$3")

    if [[ -n $4 ]]; then
        case $4 in
            --size | -s)
                :
            *)
                :
        esac
    fi
fi
```



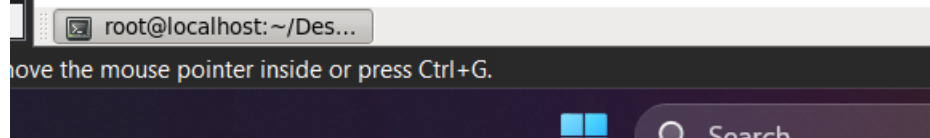
Shows whole internctl manual

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2. Each linux command has an option `--help` which helps the end user to understand the use cases via examples. Similarly if I execute **internsctl --help** it should provide me the necessary help


```
[root@localhost xenonstack]# chmod +x internsctl
[root@localhost xenonstack]# chmod 744 internsctl
[root@localhost xenonstack]# ./internsctl --help
./internsctl: line 1: section: command not found
Usage: internsctl [options]
Options:
  --help          Display this help message
  --version       Display the command version
  --man           Display the manual page
  --size          Display the file size
  --permissions  Display the file permissions
  --owner         Display the file owner
  --last-modified Display the last modified
[root@localhost xenonstack]#
```



3. I want to see version of my command by executing

internsctl --version

```
[root@localhost xenonstack]# ./internsctl --version
./internsctl: line 1: section: command not found
internsctl v0.1.0
[root@localhost xenonstack]#
```



Section B

I want to execute the following command for -

Part1 | Level Easy

I want to get cpu information of my server through the following command:

\$ internsctl cpu getinfo

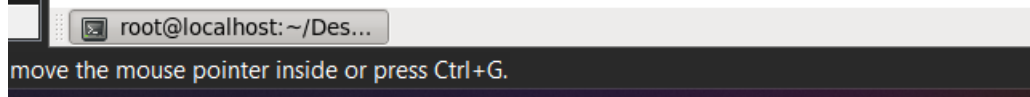
Expected Output -

I want similar output as we get from `lscpu` command

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```
internsctl v0.1.0
[root@localhost xenonstack]# ./internsctl cpu getinfo
./internsctl: line 1: section: command not found
Architecture:      i686
CPU op-mode(s):    32-bit, 64-bit
Byte Order:        Little Endian
CPU(s):            1
On-line CPU(s) list: 0
Thread(s) per core: 1
Core(s) per socket: 1
CPU socket(s):     1
Vendor ID:         GenuineIntel
CPU family:        6
Model:             158
Stepping:          13
CPU MHz:           2400.006
BogoMIPS:          4800.01
L1d cache:         32K
L1i cache:         32K
L2 cache:          256K
L3 cache:          8192K
[root@localhost xenonstack]#
```



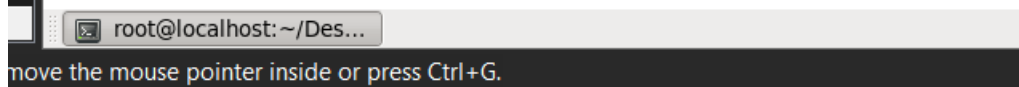
I want to get memory information of my server through the following command:

\$ internsctl memory getinfo

Expected Output

I want similar output as we get from free command

```
[root@localhost xenonstack]# ./internsctl memory getinfo
./internsctl: line 1: section: command not found
      total      used      free      shared    buffers    cached
Mem:    2071204    826144    1245060         0     52472    414372
-/+ buffers/cache:    359300    1711904
Swap:    3071992         0    3071992
[root@localhost xenonstack]#
```



Part2 | Level Intermediate

I want to create a new user on my server through the following command:

\$ internsctl user create <username>

Note - above command should create user who can login to linux system and access his home directory

```
swap: 30/1992 0 30/1992
[root@localhost xenonstack]# ./internsctl user create sufiya
./internsctl: line 1: section: command not found
Changing password for user sufiya.
New password:
BAD PASSWORD: it is too simplistic/systematic
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: it is WAY too short
BAD PASSWORD: is too simple
Retype new password:
[1]+  Stopped                  ./internsctl user create sufiya
[2]+  Stopped                  sudo passwd sufiya
[root@localhost xenonstack]# passwd -d sufiya
Removing password for user sufiya.
passwd: Success
```

I want to list all the regular users present on my server through the following command:

\$ internsctl user list

```
BAD PASSWORD: is too simple
Retype new password:
[2]+  Stopped                  ./internsctl user create sufiya
[root@localhost xenonstack]# ./internsctl user list
./internsctl: line 1: section: command not found
nfsnobody
[root@localhost xenonstack]# █
```

If want to list all the users with sudo permissions on my server through the following command:

\$ internsctl user list --sudo-only

Part3 | Advanced Level

By executing below command I want to get some information about a file

```
[root@localhost xenonstack]# touch Hello.txt
[root@localhost xenonstack]# vi Hello
[root@localhost xenonstack]# cat hello.txt
cat: hello.txt: No such file or directory
[root@localhost xenonstack]# cat hello
cat: hello: No such file or directory
[root@localhost xenonstack]# cat Hello.txt
Invalid command or options. Use 'internsctl --help' for more information.
[root@localhost xenonstack]# cat Hello
sufiya shikalgar
[root@localhost xenonstack]# cat internsctl >> Hello
```

\$ internsctl file getinfo <file-name>

Expected Output [make sure to have the output in following format only]

xenonstack@xsd-034:~\$ internsctl file getinfo hello.txt

File: hellot.txt

Access: -rw-r--r--

Size(B): 5448

Owner: xenonstack

Modify: 2020-10-07 20:34:44.616123431 +0530

```
[root@localhost xenonstack]# cat internsctl >> Hello
[root@localhost xenonstack]# ./internsctl file getinfo Hello
./internsctl: line 1: section: command not found
File: HelloHelloAccess: -rw-r--r--HelloSize(B): 3598HelloOwner: rootHelloModify: 2024-01-04 16:01:59.169956141 +0530
[root@localhost xenonstack]#
```



In case I want only specific information then I must have a provision to use options

\$ internsctl file getinfo [options] <file-name>

--size, -s to print size

--permissions, -p print file permissions

--owner, o print file owner

--last-modified, m

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```
[root@localhost xenonstack]# ./internsctl file getinfo Hello
./internsctl: line 1: section: command not found
File: HelloHelloAccess: -rw-r--r--HelloSize(B): 3598HelloOwner: rootHelloModify: 2
024-01-04 16:01:59.169956141 +0530
[root@localhost xenonstack]#
```

```
[root@localhost xenonstack]# ./internsctl file getinfo Hello
./internsctl: line 1: section: command not found
File: HelloHelloAccess: -rw-r--r--HelloSize(B): 3598HelloOwner: rootHelloModify: 2024-01-04 16:01:59.169956141 +0530
[root@localhost xenonstack]# S
```

Expected Output with options

If I want to obtain the size of the specified file only, I should be able to use the following command:

```
xenonstack@xsd-034:~$ internsctl file getinfo --size hello.txt
5448
```

If I want to obtain the permissions of the specified file only, I should be able to use the following

command:

```
xenonstack@xsd-034:~$ internsctl file getinfo --permissions hello.txt
-rw-r--r--
```

If I want to obtain the owner of the specified file only, I should be able to use the following command:

```
xenonstack@xsd-034:~$ internsctl file getinfo --owner hello.txt
xenonstack
```

If I want to obtain the last modified time of the specified file only, I should be able to use the following command:

```
xenonstack@xsd-034:~$ internsctl file getinfo --last-modified hello.txt
2020-10-07 20:34:44.616123431 +0530
```