General instructions
1. The approach of solving the Problem solely depends on the Candidate
2. Make sure to have Draw.io diagrams for the workflowns and application architecture
3. Every configuration, code written should be pushed on git (Private Repo)
4. Your are not permitted to share the doc with anyone, even with your colleagues

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

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 internsctl I want to see the manual of my command.
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
3. I want to see version of my command by executing
internsctl --version

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

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

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

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**
$ 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:
xenonstackModify: 2020-10-07 20:34:44.616123431 +0530
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
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

Solution:-
Step1:-
Souce code

```
#!/bin/bash

# Section A - Command Handling
case $1 in
  --help)
    # Display usage guidelines and available commands with examples
    echo "Usage: internsctl [command] [options]"
    echo "Commands:"
    echo "  cpu getinfo              Get CPU information"
    echo "  memory getinfo           Get memory information"
    echo "  user create <username>    Create a new user"
    echo "  user list                List all regular users"
    echo "  user list --sudo-only     List users with sudo permissions"
    echo "  file getinfo <file-name>  Get file information"
    echo "Options:"
    echo "  --size, -s               Print file size"
    echo "  --permissions, -p        Print file permissions"
    echo "  --owner, -o              Print file owner"
    echo "  --last-modified, -m      Print last modified time"
    ;;
  --version)
    # Display the command's version
```

```
    echo "internsctl v0.1.0"
    ;;
cpu)
    if [ "$2" == "getinfo" ]; then
        # Retrieve CPU information using lscpu command
        lscpu
    else
        echo "Invalid command. Use 'internsctl --help' for usage."
    fi
    ;;
memory)
    if [ "$2" == "getinfo" ]; then
        # Retrieve memory information using free command
        free
    else
        echo "Invalid command. Use 'internsctl --help' for usage."
    fi
    ;;
user)
    case $2 in
        create)
            if [ -z "$3" ]; then
                # Error message if username is missing
                echo "Error: Missing username. Usage: internsctl user create <username>"
            else
                # Create a new user using adduser command
                sudo adduser "$3"
            fi
            ;;
        list)
            if [ "$3" == "--sudo-only" ]; then
                # List users with sudo permissions using grep on /etc/group
                grep -Po '^sudo.+:\K.*$' /etc/group | tr ',' '\n'
            else
                # List all regular users using getent passwd
                getent passwd | grep -vE '(/sbin/nologin|/bin/false)$' | cut -d: -f1
            fi
            ;;
        *)
            echo "Invalid command. Use 'internsctl --help' for usage."
            ;;
    esac
    ;;
file)
    if [ "$2" == "getinfo" ]; then
        file_name="$3"
        if [ -z "$file_name" ]; then
            # Error message if file name is missing
            echo "Error: Missing file name. Usage: internsctl file getinfo <file-name>"
        else
            case $4 in
                --size | -s)
                    # Retrieve file size using stat command
                    stat --printf="%s\n" "$file_name"
                    ;;
```

```
                --permissions | -p)
                    # Retrieve file permissions using stat command
                    stat --printf="%A\n" "$file_name"
                    ;;
                --owner | -o)
                    # Retrieve file owner using stat command
                    stat --printf="%U\n" "$file_name"
                    ;;
                --last-modified | -m)
                    # Retrieve last modified time using stat command
                    stat --printf="%y\n" "$file_name"
                    ;;
                *)
                    # Error for invalid option
                    echo "Invalid option. Use 'internsctl --help' for usage."
                    ;;
            esac
        fi
    else
        echo "Invalid command. Use 'internsctl --help' for usage."
    fi
    ;;
*)
    # Display error for invalid command
    echo "Invalid command. Use 'internsctl --help' for usage."
    ;;
esac
```

Explanation:-

- Shebang (#!/bin/bash)):

Indicates that the script should be executed using the Bash shell.

- case Statement:

Handles different scenarios based on the provided command ($1) using the case statement.

- Handling Arguments:

Checks for provided arguments ($1, $2, $3, $4) to determine the flow of execution and perform relevant actions based on the command structure.

- Command Execution:

Executes specific commands (lscpu, free, adduser, getent, grep, stat) based on user input and requirements.

- Options Processing:

Processes options (--size, --permissions, --owner, --last-modified) for file-related commands to retrieve specific file information using the stat command.

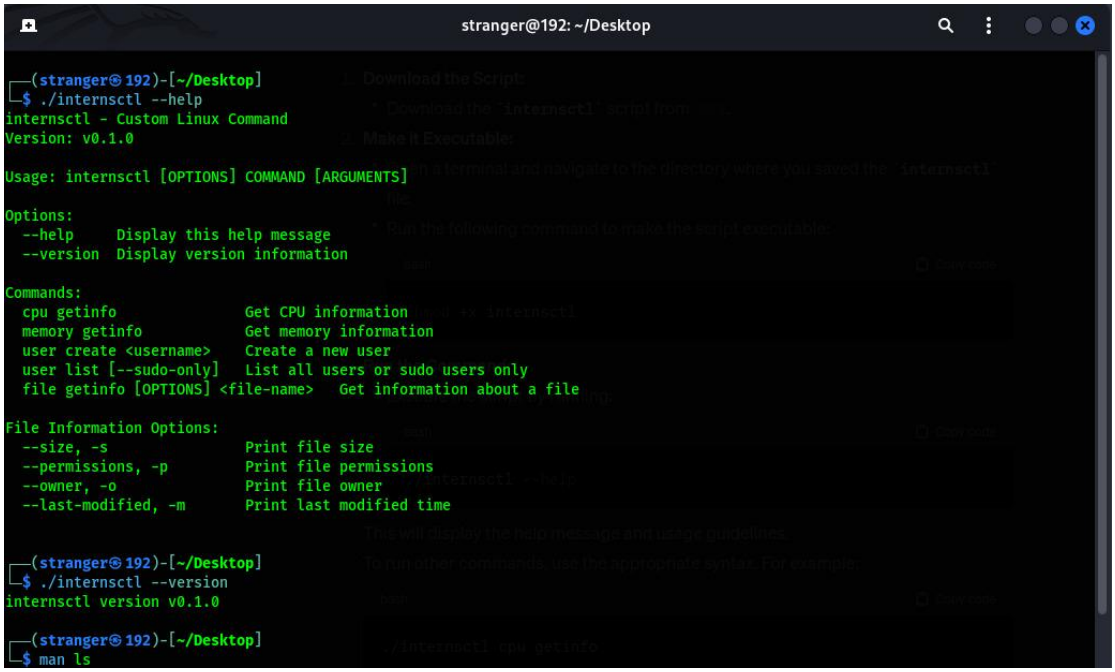
- Error Handling:

Provides error messages for incorrect or incomplete commands or options to guide the user on correct usage.

internsctl Command Documentation

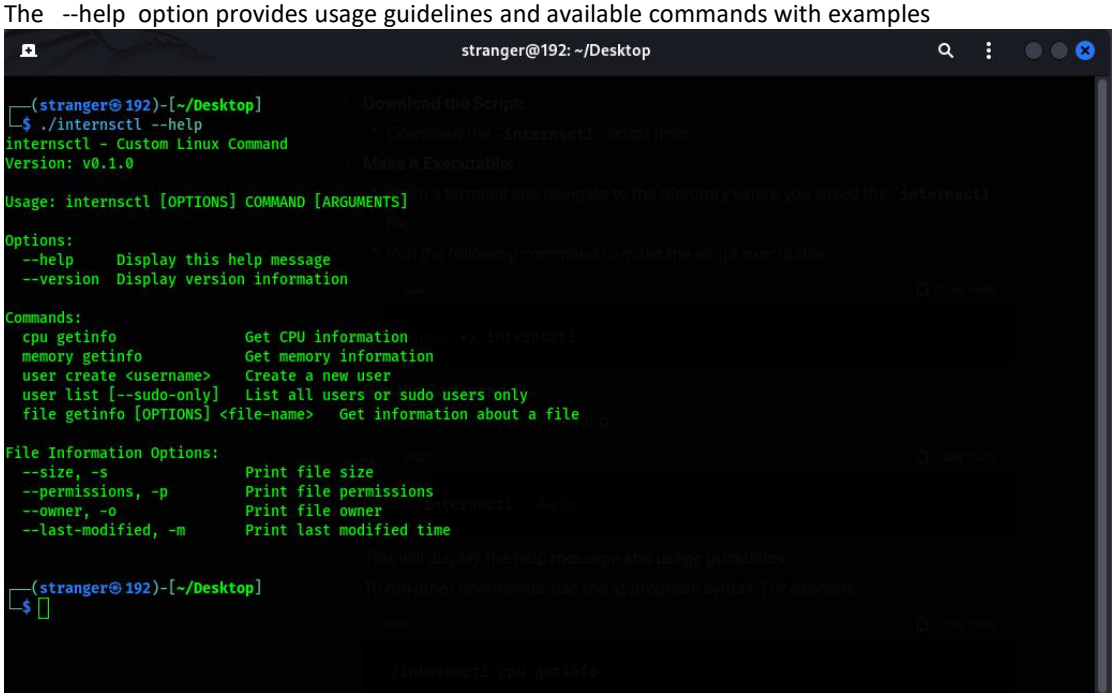
Version

Current version: v0.1.0



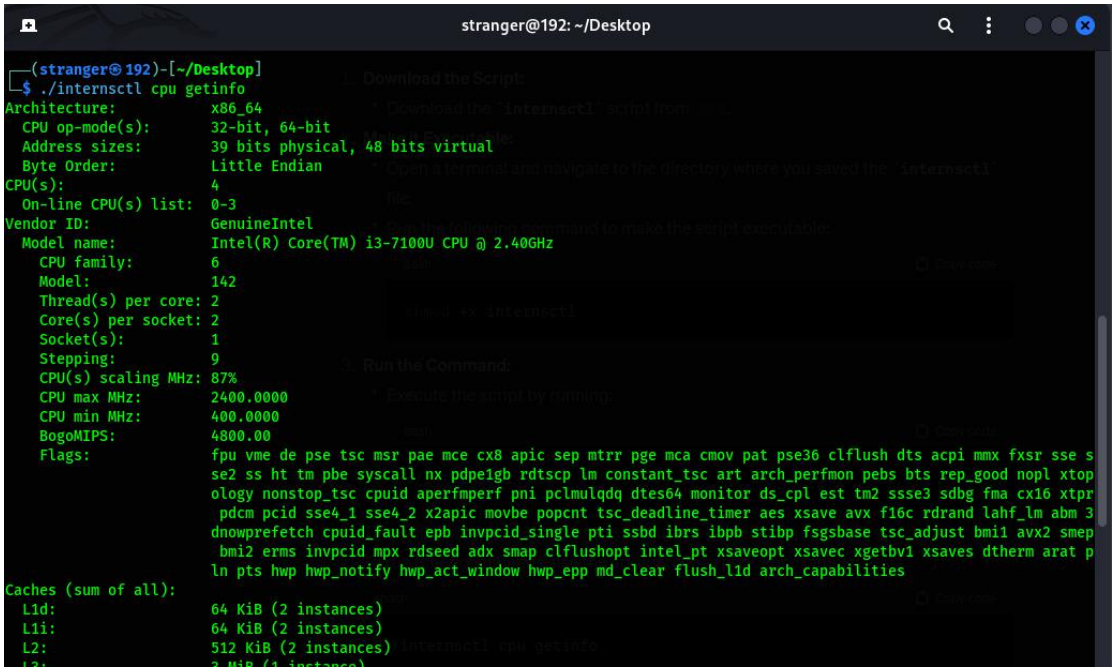
1. Help

The --help option provides usage guidelines and available commands with examples



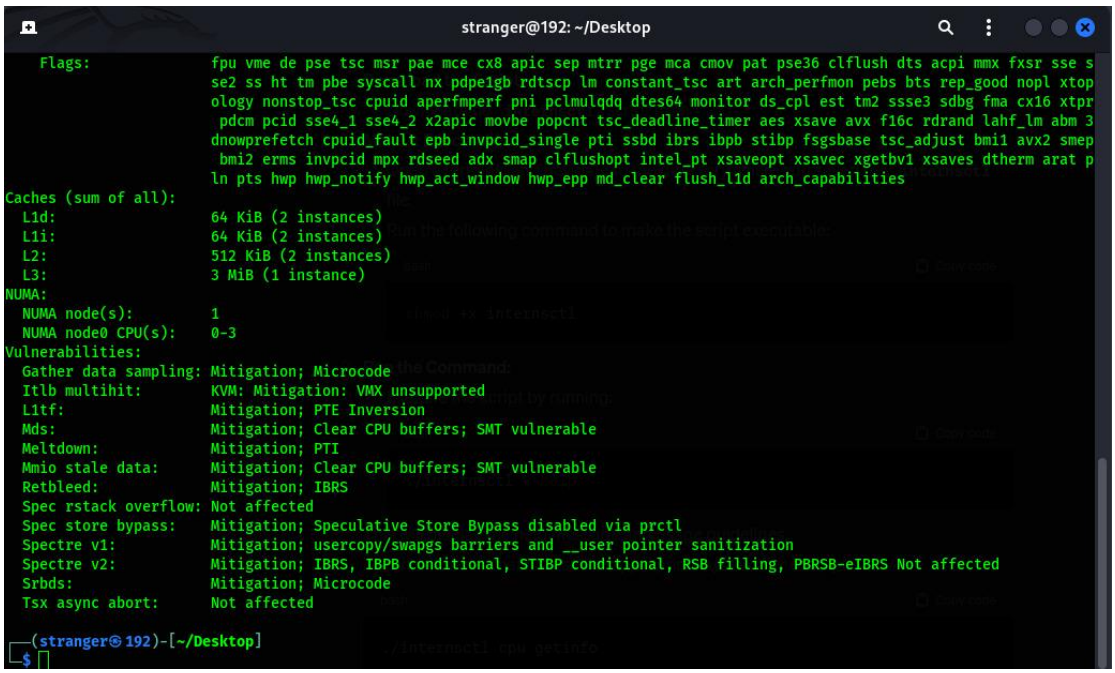
CPU Information

The cpu getinfo command retrieves CPU-related information similar to the lscpu command.



Memory Information

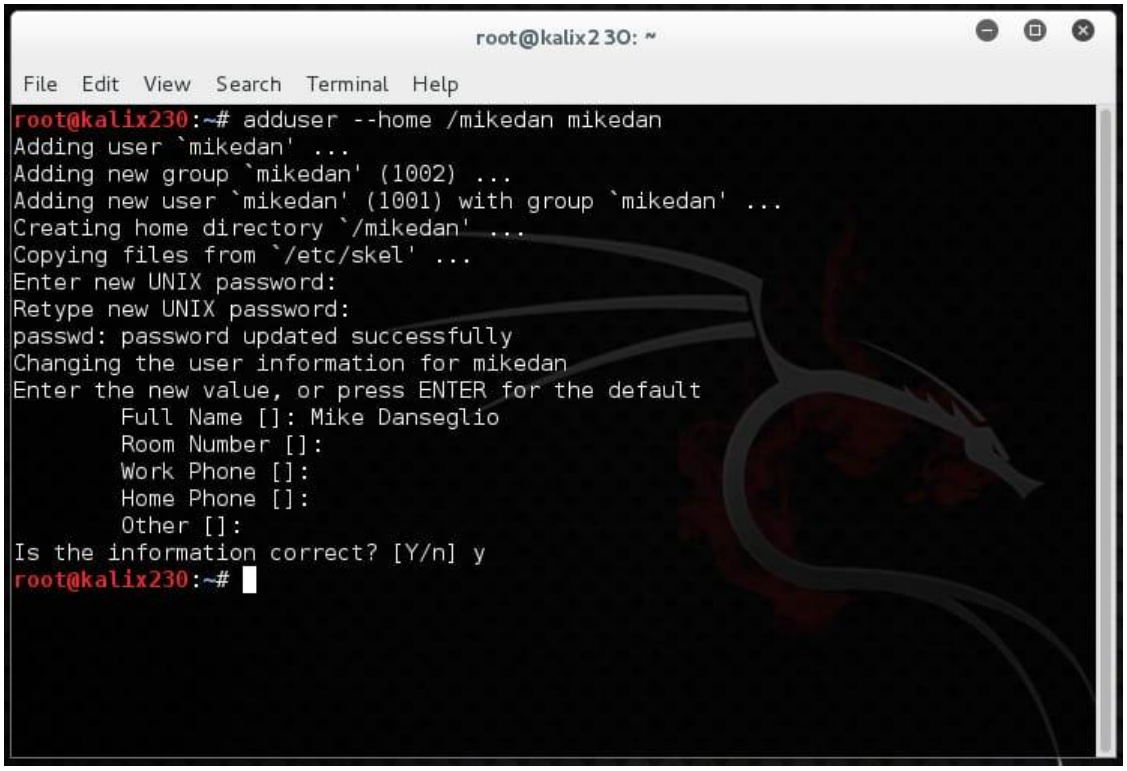
The **memory getinfo** command retrieves memory-related information similar to the free command.



User Management

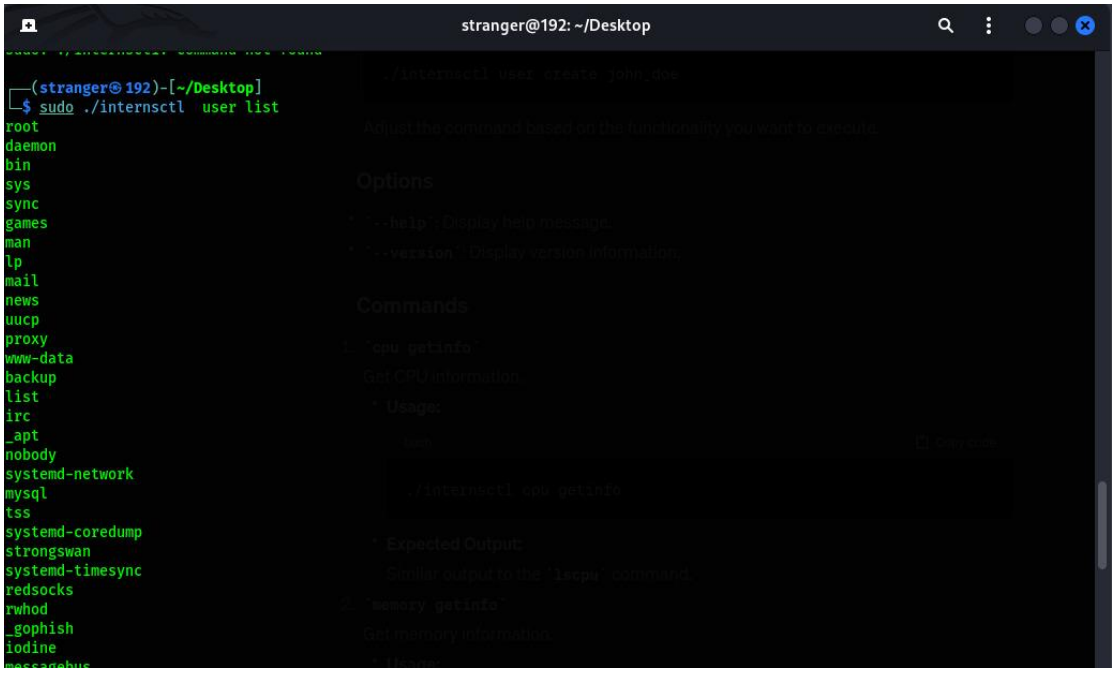
Create User

The **user create <username>** command creates a new user who can log in to the Linux system and access their home directory.



List Users

The user list command lists all regular users on the system.

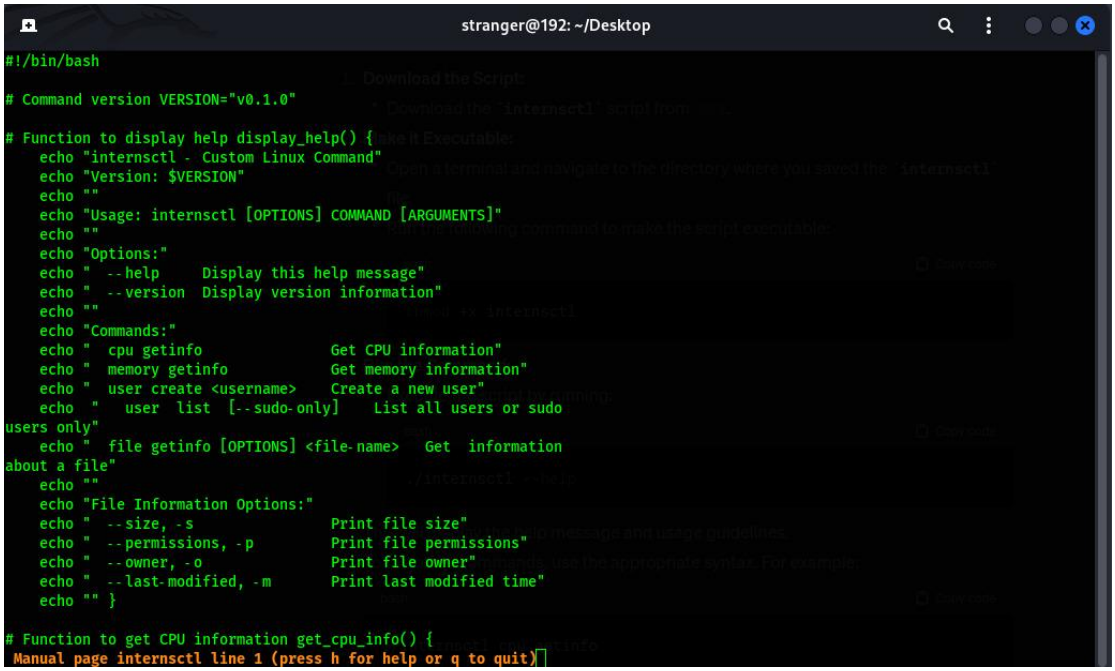


File Information

Get File Information

The file getinfo <file-name> command retrieves detailed information about a specific file

internsctl file getinfo <file-name>



Options for File Information

Options allow fetching specific information about a file:
--size, -s: Retrieve file size.
--permissions, -p: Retrieve file permissions.
--owner, -o: Retrieve file owner.
--last-modified, -m: Retrieve last modified time.