

PYTHON AND ETHICAL HACKING

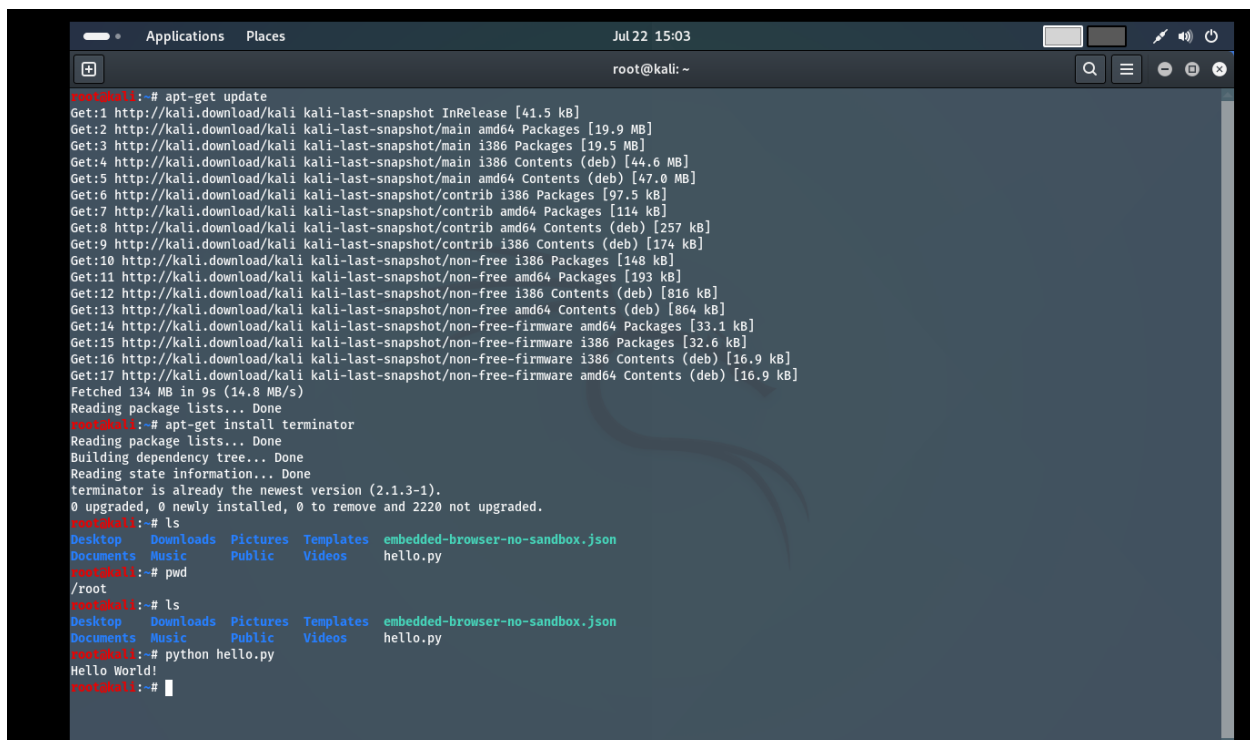
First Program:

Use leafpad as an Editor

```
#!/usr/bin/env python3
```

```
print("Hello World!")
```

Go to Terminal as then:



```
root@kali: ~  
root@kali:~# apt-get update  
Get:1 http://kali.download/kali kali-last-snapshot InRelease [41.5 kB]  
Get:2 http://kali.download/kali kali-last-snapshot/main amd64 Packages [19.9 MB]  
Get:3 http://kali.download/kali kali-last-snapshot/main i386 Packages [19.5 MB]  
Get:4 http://kali.download/kali kali-last-snapshot/main i386 Contents (deb) [44.6 MB]  
Get:5 http://kali.download/kali kali-last-snapshot/main amd64 Contents (deb) [47.0 MB]  
Get:6 http://kali.download/kali kali-last-snapshot/contrib i386 Packages [97.5 kB]  
Get:7 http://kali.download/kali kali-last-snapshot/contrib amd64 Packages [114 kB]  
Get:8 http://kali.download/kali kali-last-snapshot/contrib amd64 Contents (deb) [257 kB]  
Get:9 http://kali.download/kali kali-last-snapshot/contrib i386 Contents (deb) [174 kB]  
Get:10 http://kali.download/kali kali-last-snapshot/non-free i386 Packages [148 kB]  
Get:11 http://kali.download/kali kali-last-snapshot/non-free amd64 Packages [193 kB]  
Get:12 http://kali.download/kali kali-last-snapshot/non-free i386 Contents (deb) [816 kB]  
Get:13 http://kali.download/kali kali-last-snapshot/non-free amd64 Contents (deb) [864 kB]  
Get:14 http://kali.download/kali kali-last-snapshot/non-free-firmware amd64 Packages [33.1 kB]  
Get:15 http://kali.download/kali kali-last-snapshot/non-free-firmware i386 Packages [32.6 kB]  
Get:16 http://kali.download/kali kali-last-snapshot/non-free-firmware i386 Contents (deb) [16.9 kB]  
Get:17 http://kali.download/kali kali-last-snapshot/non-free-firmware amd64 Contents (deb) [16.9 kB]  
Fetched 134 MB in 9s (14.8 MB/s)  
Reading package lists... Done  
root@kali:~# apt-get install terminator  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
terminator is already the newest version (2.1.3-1).  
0 upgraded, 0 newly installed, 0 to remove and 2220 not upgraded.  
root@kali:~# ls  
Desktop  Downloads  Pictures  Templates  embedded-browser-no-sandbox.json  
Documents Music      Public   Videos    hello.py  
root@kali:~# pwd  
/root  
root@kali:~# ls  
Desktop  Downloads  Pictures  Templates  embedded-browser-no-sandbox.json  
Documents Music      Public   Videos    hello.py  
root@kali:~# python hello.py  
Hello World!  
root@kali:~#
```

Writing a MAC address changer:

Manually:

```
ifconfig eth0 down (disable)
```

```
ifconfig eth0 hw ether 00:11:22:33:44:55 (New)
```

```
ifconfig eth0 up (enable)
```

```
ifconfig (check/verify)
```

CODE:

```
#!/usr/bin/env python
```

```
import subprocess
```

```
interface = input(" What is the Interface ? ")
```

```
new_mac = input(" What is the New Mac ?")
```

```
print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
subprocess.call("ifconfig " + interface + " down", shell=True)
```

```
subprocess.call("ifconfig " + interface + " hw ether " + new_mac, shell=True)
```

```
subprocess.call("ifconfig " + interface + " up", shell=True)
```

OR For better and Secure User Input Handling :

```
#!/usr/bin/env python
```

```
import subprocess
```

```
interface = input(" What is the Interface ? ")
```

```
new_mac = input(" What is the New Mac ?")
```

```
print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
subprocess.call(["ifconfig", interface, "up"])
```

Handling Command Line Arguments

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
parser = optparse.OptionParser()
```

```
parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
parser.add_option("-m", "--mac", dest="new_mac", help="New MAC address")
```

```
parser.parse_args()
```

```
interface = input(" What is the Interface ? ")
```

```
new_mac = input(" What is the New Mac ?")
```

```
print("[ - ] Changing MAC address for " + interface + " to " + new_mac)
```

```
subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
subprocess.call(["ifconfig", interface, "up"])
```

Initialising Variables Based on Command-line Arguments

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
parser = optparse.OptionParser()
```

```
parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
parser.add_option("-m", "--mac", dest="new_mac", help="New MAC address")
```

```
(options, arguments) = parser.parse_args()
```

```
interface = options.interface
```

```
new_mac = options.new_mac
```

```
print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
subprocess.call(["ifconfig", interface, "up"])
```

```
Applications  Places  Jul 22 23:18
root@kali: ~/PycharmProjects/mac_changer

root@kali: /opt/pycharm-community-2024.1.4/bin/62x37
dSdk - SDK target configuration data is absent
2024-07-22 22:02:47,369 [ 9551] WARN - #c.i.s.ComponentManagerImpl - com.jetbrains.python.PyElementTypes.<clinit> requests com.jetbrains.python.PyElementTypesFacade instance. Class initialization must not depend on services. Consider using instance of the service on-demand instead.
2024-07-22 22:02:51,385 [ 13567] WARN - #c.i.o.a.i.ActionUpdater - 1684 ms to call on BGT ExecutorRegistryImpl$ExecutorAction#presentation@NewUIRunToolbar (com.intellij.execution.ExecutorRegistryImpl$ExecutorAction(id=Debug))
2024-07-22 22:02:51,386 [ 13568] WARN - #c.i.o.a.i.ActionUpdater - 1404 ms to call on BGT ExecutorRegistryImpl$ExecutorAction#presentation@NewUIRunToolbar (com.intellij.execution.ExecutorRegistryImpl$ExecutorAction(id=Run))
2024-07-22 22:02:52,191 [ 14373] WARN - #c.i.o.a.Application - issue detected: vm.options.env.vars
2024-07-22 22:12:45,223 [ 607405] WARN - #c.i.u.x.Binding - No accessors for com.intellij.toolWindow.ToolWindowLayoutStateManagerState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-22 22:12:45,304 [ 607486] WARN - #c.i.u.x.Binding - No accessors for com.intellij.platform.feedback.impl.state.Don'tShowAgainFeedbackState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-22 22:12:45,329 [ 607511] WARN - #c.i.u.x.Binding - No accessors for com.intellij.platform.feedback.impl.state.CommonFeedbackSurveysState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-22 22:16:40,326 [ 842508] WARN - #c.i.u.x.Binding - No accessors for org.jetbrains.security.package.Package. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-22 22:17:45,121 [ 907303] WARN - #c.i.u.x.Binding - No accessors for com.intellij.openapi.projectRoots.Sdk. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
[]

root@kali: ~/PycharmProjects/mac_changer 62x37
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 919 bytes 139148 (135.8 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collision 0
ns 0
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py
--interface eth0 --mac 00:22:44:66:88:00
[-] Changing MAC address for eth0 to 00:22:44:66:88:00
root@kali:~/PycharmProjects/mac_changer# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.10.136 netmask 255.255.255.0 broadcast 192.168.10.255
inet6 fe80::20c:29ff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
ether 00:22:44:66:88:00 txqueuelen 1000 (Ethernet)
RX packets 1586 bytes 1517308 (1.4 MiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 932 bytes 140434 (137.1 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collision 0
ns 0
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py
--i eth0 --mac 00:22:44:66:88:77
[-] Changing MAC address for eth0 to 00:22:44:66:88:77
root@kali:~/PycharmProjects/mac_changer# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.10.135 netmask 255.255.255.0 broadcast 192.168.10.255
inet6 fe80::20c:29ff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
ether 00:22:44:66:88:77 txqueuelen 1000 (Ethernet)
RX packets 1588 bytes 1517992 (1.4 MiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 940 bytes 141306 (137.9 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collision 0
ns 0
root@kali:~/PycharmProjects/mac_changer#
```

Python Functions

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
def change_mac(interface, new_mac):
```

```
    print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
    subprocess.call(["ifconfig", interface, "down"])
```

```
    subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
    subprocess.call(["ifconfig", interface, "up"])
```

```
parser = optparse.OptionParser()
```

```
parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
parser.add_option("-m", "--mac", dest="new_mac", help="New MAC address")
```

```
(options, arguments) = parser.parse_args()
```

```
change_mac(options.interface, options.new_mac)
```

```
Applications Places Jul 23 12:41
root@kali: ~/PycharmProjects/mac_changer
root@kali: /opt/pycharm-community-2024.1.4/bin 190x21

root@kali: /opt/pycharm-community-2024.1.4/bin# ./pycharm.sh
Picked up JAVA_OPTIONS: -Dwt.useSystemAFontSettings -Dswing.aatext=true
compileCommand: exclude com/intellij/openapi/vfs/impl/FilePartNodeRoot,trieDescend bool exclude = true
2024-07-23 12:15:00,489 [ 7697] WARN - #c.i.e.t.TargetBasedSdk$ - SDK target configuration data is absent
2024-07-23 12:15:00,534 [ 7742] WARN - #c.i.e.t.TargetBasedSdk$ - SDK target configuration data is absent
2024-07-23 12:15:00,545 [ 7753] WARN - #c.i.e.t.TargetBasedSdk$ - SDK target configuration data is absent
2024-07-23 12:15:00,557 [ 7765] WARN - #c.i.e.t.TargetBasedSdk$ - SDK target configuration data is absent
2024-07-23 12:15:03,270 [ 10478] WARN - #c.i.s.ComponentManagerImpl - com.jetbrains.python.PyElementTypes <clinit> requests com.jetbrains.python.PyElementTypesFacade instance. Class initialization must not depend on services. Consider using instance of the service on-demand instead.
2024-07-23 12:15:08,029 [ 15237] WARN - #c.i.o.a.Application - issue detected: vm.options.env.vars
2024-07-23 12:15:12,880 [ 20080] WARN - #c.i.o.a.i.ActionUpdater - 1620 ms to call on BGT ExecutorRegistryImpl$ExecutorAction#presentation@NewUIRunToolbar (com.intellij.execution.ExecutorRegistryImpl$ExecutorAction{id=Debug})
2024-07-23 12:24:54,671 [ 601879] WARN - #c.i.u.x.Binding - No accessors for com.intellij.toolWindow.ToolWindowLayoutStateManagerState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-23 12:24:54,746 [ 601954] WARN - #c.i.u.x.Binding - No accessors for com.intellij.platform.feedback.impl.state.DontShowAgainFeedbackState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-23 12:24:54,749 [ 601957] WARN - #c.i.u.x.Binding - No accessors for com.intellij.platform.feedback.impl.state.CommonFeedbackSurveysState. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
2024-07-23 12:39:00,410 [1447618] WARN - #c.i.u.x.Binding - No accessors for org.jetbrains.security.package.Package. This means that state class cannot be serialized properly. Please see https://jb.gg/ij-psoc
]

bash: cd: mac_changer: No such file or directory
root@kali:~# ls
Desktop Documents Downloads Music Pictures Public PycharmProjects Templates Videos embedded-browser-no-sandbox.json hello.py
root@kali:~# cd PycharmProjects/
root@kali:~/PycharmProjects# ls
hello hello mac_changer
root@kali:~/PycharmProjects# cd mac_changer
root@kali:~/PycharmProjects/mac_changer# ls
mac_changer.py
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:44:66:88:77
[-] Changing MAC address for eth0 to 00:22:44:66:88:77
root@kali:~/PycharmProjects/mac_changer# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.10.137 netmask 255.255.255.0 broadcast 192.168.10.255
    inet6 fe80::20c:29fff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
    ether 00:22:44:66:88:77 txqueuelen 1000 (Ethernet)
    RX packets 842 bytes 958170 (935.7 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 374 bytes 50731 (58.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@kali:~/PycharmProjects/mac_changer#
```


Returning Values From Functions:

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    return parser.parse_args()
```

```
def change_mac(interface, new_mac):
```

```
    print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
    subprocess.call(["ifconfig", interface, "down"])
```

```
    subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
    subprocess.call(["ifconfig", interface, "up"])
```

```
(options, arguments) = get_arguments()
```

```
change_mac(options.interface, options.new_mac)
```

Decision Making in Python/ Using Conditional Statements in Mac changer:

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```
def change_mac(interface, new_mac):

    print("[-] Changing MAC address for " + interface + " to " + new_mac)

    subprocess.call(["ifconfig", interface, "down"])

    subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])

    subprocess.call(["ifconfig", interface, "up"])

options = get_arguments()

change_mac(options.interface, options.new_mac)
```

```
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --mac 00:22:44:66:88:99
Usage: mac_changer.py [options]

mac_changer.py: error: [-] Please specify an interface, use --help for more info
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0
Usage: mac_changer.py [options]

mac_changer.py: error: [-] Please specify a mac address, use --help for more info
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:99
[-] Changing MAC address for eth0 to 00:22:33:99:88:99
root@kali:~/PycharmProjects/mac_changer# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.10.139 netmask 255.255.255.0 broadcast 192.168.10.255
    inet6 fe80::20c:29ff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
    ether 00:22:33:99:88:99 txqueuelen 1000 (Ethernet)
    RX packets 927 bytes 1019953 (996.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 457 bytes 69666 (68.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

MAC CHANGER: ALGORITHM DESIGN

Reading Output Returned By System Commands

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```
def change_mac(interface, new_mac):
```

```
print("[-] Changing MAC address for " + interface + " to " + new_mac)
subprocess.call(["ifconfig", interface, "down"])
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
subprocess.call(["ifconfig", interface, "up"])
```

```
options = get_arguments()
```

```
# change_mac(options.interface, options.new_mac)
```

```
ifconfig_result = subprocess.check_output(["ifconfig", options.interface])
```

```
print(ifconfig_result)
```

Extracting a Substring Using Regex

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
import re
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```
def change_mac(interface, new_mac):
```

```
    print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
    subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
```

```
subprocess.call(["ifconfig", interface, "up"])
```

```
options = get_arguments()
```

```
# change_mac(options.interface, options.new_mac)
```

```
ifconfig_result = subprocess.check_output(["ifconfig", options.interface])
```

```
print(ifconfig_result)
```

```
mac_address_search_result = re.search(r"\w\w:\w\w:\w\w:\w\w:\w\w:\w\w",  
ifconfig_result)
```

```
if mac_address_search_result:
```

```
    print(mac_address_search_result.group(0))
```

```
else:
```

```
    print("[-] Could not read Mac Address")
```

```
Applications  Places  Jul 23 18:55
root@kali: ~/PycharmProjects/mac_changer
root@kali: /opt/pycharm-community-2024.1.4/bin
root@kali: ~/PycharmProjects/mac_changer
root@kali: ~/PycharmProjects/mac_changer 126x35

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 24 bytes 1440 (1.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24 bytes 1440 (1.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.10.139 netmask 255.255.255.0 broadcast 192.168.10.255
    inet6 fe80::20c:29ff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:39:3b:59 txqueuelen 1000 (Ethernet)
    RX packets 8474 bytes 11715870 (11.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1603 bytes 168614 (164.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:11
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 24 bytes 1440 (1.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24 bytes 1440 (1.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[-] Could not read Mac Address
root@kali:~/PycharmProjects/mac_changer#
```


Refactoring & Housekeeping

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
import re
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```

def change_mac(interface, new_mac):

    print("[-] Changing MAC address for " + interface + " to " + new_mac)

    subprocess.call(["ifconfig", interface, "down"])

    subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])

    subprocess.call(["ifconfig", interface, "up"])


def get_current_mac(interface):

    ifconfig_result = subprocess.check_output(["ifconfig", interface])

    mac_address_search_result =
re.search(r"\w\w:\w\w:\w\w:\w\w:\w\w:\w\w", ifconfig_result)

    if mac_address_search_result:

        return mac_address_search_result.group(0)

    else:

        print("[-] Could not read Mac Address")


options = get_arguments()

current_mac = get_current_mac(options.interface)

print("Current Mac = " + str(current_mac))

# change_mac(options.interface, options.new_mac)

```

```

SyntaxError: invalid syntax
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
Current Mac =00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
Current Mac = 00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:11
[-] Could not read Mac Address
Traceback (most recent call last):
  File "mac_changer.py", line 37, in <module>
    print("Current Mac = " + current_mac)
TypeError: cannot concatenate 'str' and 'NoneType' objects
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:11
[-] Could not read Mac Address
Current Mac = None
root@kali:~/PycharmProjects/mac_changer#

```

Implementing The Validation Algorithm

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
import re
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```
def change_mac(interface, new_mac):
```

```
    print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
    subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])
subprocess.call(["ifconfig", interface, "up"])
```

```
def get_current_mac(interface):
    ifconfig_result = subprocess.check_output(["ifconfig", interface])
    mac_address_search_result =
re.search(r"\w\w:\w\w:\w\w:\w\w:\w\w:\w\w", ifconfig_result)
    if mac_address_search_result:
        return mac_address_search_result.group(0)
    else:
        print("[-] Could not read Mac Address")
```

```
options = get_arguments()
current_mac = get_current_mac(options.interface)
print("Current Mac = " + str(current_mac))
```

```
change_mac(options.interface, options.new_mac)
```

```
current_mac = get_current_mac(options.interface)
if current_mac == options.new_mac:
    print("[+] MAC address was Successfully changed to " + current_mac)
else:
    print("[-] MAC address did not get changed")
```

```
Applications Places Jul 23 19:30
root@kali: ~/PycharmProjects/mac_changer
root@kali: /opt/pycharm-community-2024.1.4/bin x root@kali: ~/PycharmProjects/mac_changer x
root@kali: ~/PycharmProjects/mac_changer 126x35
00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
File "mac_changer.py", line 30
    return mac_address_search_result.group(0))
    ^
SyntaxError: invalid syntax
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
Current Mac = 00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:11
Current Mac = 00:0c:29:39:3b:59
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:11
[-] Could not read Mac Address
Traceback (most recent call last):
  File "mac_changer.py", line 37, in <module>
    print("Current Mac = " + current_mac)
TypeError: cannot concatenate 'str' and 'NoneType' objects
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:11
[-] Could not read Mac Address
Current Mac = None
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i lo --mac 00:22:33:99:88:99
[-] Could not read Mac Address
Current Mac = None
[-] Changing MAC address for lo to 00:22:33:99:88:99
SIOCSIFHWADDR: Invalid argument
[-] Could not read Mac Address
[-] MAC address did not get changed
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:12
Current Mac = 00:0c:29:39:3b:59
[-] Changing MAC address for eth0 to 00:22:33:99:88:12
[+] MAC address was Successfully changed to 00:22:33:99:88:12
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:21
Current Mac = 00:22:33:99:88:12
[-] Changing MAC address for eth0 to 00:22:33:99:88:21
[+] MAC address was Successfully changed to 00:22:33:99:88:21
root@kali:~/PycharmProjects/mac_changer#
```

Mac_Changer: Python3 Compatibility/Version

```
#!/usr/bin/env python
```

```
import subprocess
```

```
import optparse
```

```
import re
```

```
def get_arguments():
```

```
    parser = optparse.OptionParser()
```

```
    parser.add_option("-i", "--interface", dest="interface", help="Interface to  
change its MAC address")
```

```
    parser.add_option("-m", "--mac", dest="new_mac", help="New MAC  
address")
```

```
    (options, arguments) = parser.parse_args()
```

```
    if not options.interface:
```

```
        parser.error("[-] Please specify an interface, use --help for more info")
```

```
    elif not options.new_mac:
```

```
        parser.error("[-] Please specify a mac address, use --help for more info")
```

```
    return options
```

```
def change_mac(interface, new_mac):
```

```
    print("[-] Changing MAC address for " + interface + " to " + new_mac)
```

```
    subprocess.call(["ifconfig", interface, "down"])
```

```
subprocess.call(["ifconfig", interface, "hw", "ether", new_mac])  
subprocess.call(["ifconfig", interface, "up"])
```

```
def get_current_mac(interface):  
    ifconfig_result = subprocess.check_output(["ifconfig", interface])  
    mac_address_search_result =  
re.search(r"\w\w:\w\w:\w\w:\w\w:\w\w:\w\w", str(ifconfig_result))  
    if mac_address_search_result:  
        return mac_address_search_result.group(0)  
    else:  
        print("[-] Could not read Mac Address")
```

```
options = get_arguments()  
current_mac = get_current_mac(options.interface)  
print("Current Mac = " + str(current_mac))
```

```
change_mac(options.interface, options.new_mac)
```

```
current_mac = get_current_mac(options.interface)  
if current_mac == options.new_mac:  
    print("[+] MAC address was Successfully changed to " + current_mac)  
else:  
    print("[-] MAC address did not get changed")
```

```
Applications Places Jul 23 19:39
root@kali: ~/PycharmProjects/mac_changer
root@kali: /opt/pycharm-community-2024.1.4/bin x root@kali: ~/PycharmProjects/mac_changer x
root@kali: ~/PycharmProjects/mac_changer 126x35
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:12
Current Mac = 00:0c:29:39:3b:59
[-] Changing MAC address for eth0 to 00:22:33:99:88:12
[+] MAC address was Successfully changed to 00:22:33:99:88:12
root@kali:~/PycharmProjects/mac_changer# python mac_changer.py --i eth0 --mac 00:22:33:99:88:21
Current Mac = 00:22:33:99:88:12
[-] Changing MAC address for eth0 to 00:22:33:99:88:21
[+] MAC address was Successfully changed to 00:22:33:99:88:21
root@kali:~/PycharmProjects/mac_changer# python3 mac_changer.py --i eth0 --mac 00:22:33:99:88:11
Traceback (most recent call last):
  File "/root/PycharmProjects/mac_changer/mac_changer.py", line 36, in <module>
    current_mac = get_current_mac(options.interface)
                  ~~~~~
  File "/root/PycharmProjects/mac_changer/mac_changer.py", line 28, in get_current_mac
    mac_address_search_result = re.search(r"\w\w:\w\w:\w\w:\w\w:\w\w:\w\w", ifconfig_result)
                                ~~~~~
  File "/usr/lib/python3.11/re/_init_.py", line 176, in search
    return _compile(pattern, flags).search(string)
           ~~~~~
TypeError: cannot use a string pattern on a bytes-like object
root@kali:~/PycharmProjects/mac_changer# python3 mac_changer.py --i eth0 --mac 00:22:33:99:88:19
Current Mac = 00:22:33:99:88:21
[-] Changing MAC address for eth0 to 00:22:33:99:88:19
[+] MAC address was Successfully changed to 00:22:33:99:88:19
root@kali:~/PycharmProjects/mac_changer# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.10.142 netmask 255.255.255.0 broadcast 192.168.10.255
    inet6 fe80::20c:29ff:fe39:3b59 prefixlen 64 scopeid 0x20<link>
    ether 00:22:33:99:88:19 txqueuelen 1000 (Ethernet)
    RX packets 1073 bytes 1014341 (990.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 574 bytes 115400 (112.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
root@kali:~/PycharmProjects/mac_changer#
```