NETWORK AUTOMATION USING PYTHON
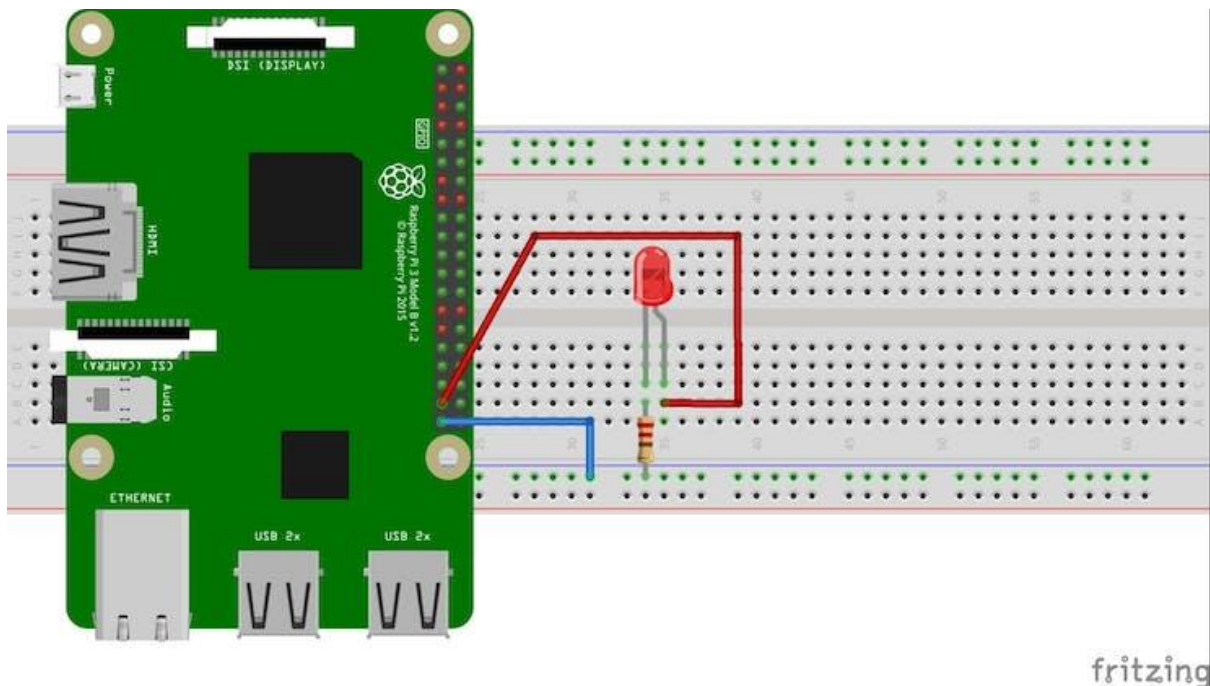

→ We need to go to this directory on the Raspberry Pi do this by writing this in the Terminal.

$ cd /home/pi/documents

→ Then we need to make a new folder called ledBlinking to organize our Work

$ mkdir project

$ cd project

$ nano ledblink.py

CODE →

```python
import time
import RPi.GPIO as GPIO


# The GPIO.BCM option means that you are referring to the pins by the
"Broadcom SOC channel" number, these are the numbers after "GPIO"

GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)


Led = 26


GPIO.setup(led, GPIO.OUT)
GPIO.output(led, GPIO.LOW)


while True:
        GPIO.output(led, GPIO.HIGH)
        print ("the led is turning ON")
        time.sleep(1)

        GPIO.output(led, GPIO.LOW)
        print ("the led is turning OFF")
        time.sleep(1)
```

Python Libraries for Network Automation

- ➔ Paramiko
- ➔ Netmiko
- ➔ SCP
- ➔ FTP
- ➔ Time
- ➔ OS
- ➔ Getpass
- ➔ Sys
- ➔ Telnetlib
- ➔ Ssh

Basic vlan configuration Scripts

```
import getpass
import sys
import telnetlib
for i in range(15,17):
    HOST = "192.168.122."+str(i)
    tn = telnetlib.Telnet(HOST)
    tn.read_until("Username: ")
    tn.write("7m" + "\n")
    tn.read_until("Password: ")
    tn.write("7m" + "\n")
    tn.write("en\n")
    tn.write("ccna\n")
    tn.write("conf t\n")
    for j in range(2,10):
```

```python
        tn.write("vlan " +str(j) + "\n")

        tn.write("name " "vlan_"+str(j) + "\n")

    tn.write("end\n")

    tn.write("exit\n")

    print (tn.read_all())
```

Basic Backup script

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

import getpass

import telnetlib

#Ask for username and password

user=raw_input("Enter your telnet username: ")

password=getpass.getpass()

#Open a file called switch_list

f=open('switch_list')

#Telnet to switches and get the running config

for line in f:

    print "Getting Backup from switch" +(line)

#strip for removing empty space

    HOST = line.strip()

    tn = telnetlib.Telnet(HOST)

    tn.read_until("Username: ")

    tn.write(user + "\n")

    tn.read_until("Password: ")

    tn.write(password + "\n")

    tn.write("en\n")

    tn.write("ccna\n")

    tn.write("terminal length 0\n")
```

```
tn.write("sh clock \n")

tn.write("sh run \n")

tn.write("exit\n")

readoutput=tn.read_all()

saveoutput=open("switch"+HOST,"w")

saveoutput.write(readoutput)

saveoutput.close()
```

 Note: Switch_list file contain IP address of the devices

192.168.122.11

192.168.122.12

192.168.122.13

192.168.122.14

Paramiko example

```
import paramiko

import getpass

import time

ip_add=raw_input("Please Enter IP address of the device: ")

user_name=raw_input("Enter device username: ")

password=getpass.getpass()

loopback=raw_input("Please Enter loopback number:")

ssh_client=paramiko.SSHClient()

ssh_client.set_missing_host_key_policy(paramiko.AutoAddPolicy())

ssh_client.connect(hostname=ip_add,username=user_name,password=password)

print "Successful connection", ip_add

#rc=Remote_conncetion

rc=ssh_client.invoke_shell()
```

```
rc.send("en \n")

rc.send("ccna\n")

rc.send("config t \n")

rc.send("int loopback " +str(loopback) + "\n\n" )

rc.send("ip add  1.1.2.1 255.255.255.0 \n")

rc.send("end \n")

time.sleep(1)

print "Loopback is configure successfully"

ssh_client.close
```