

IoT Chapter 4 Task

CPU_USAGE

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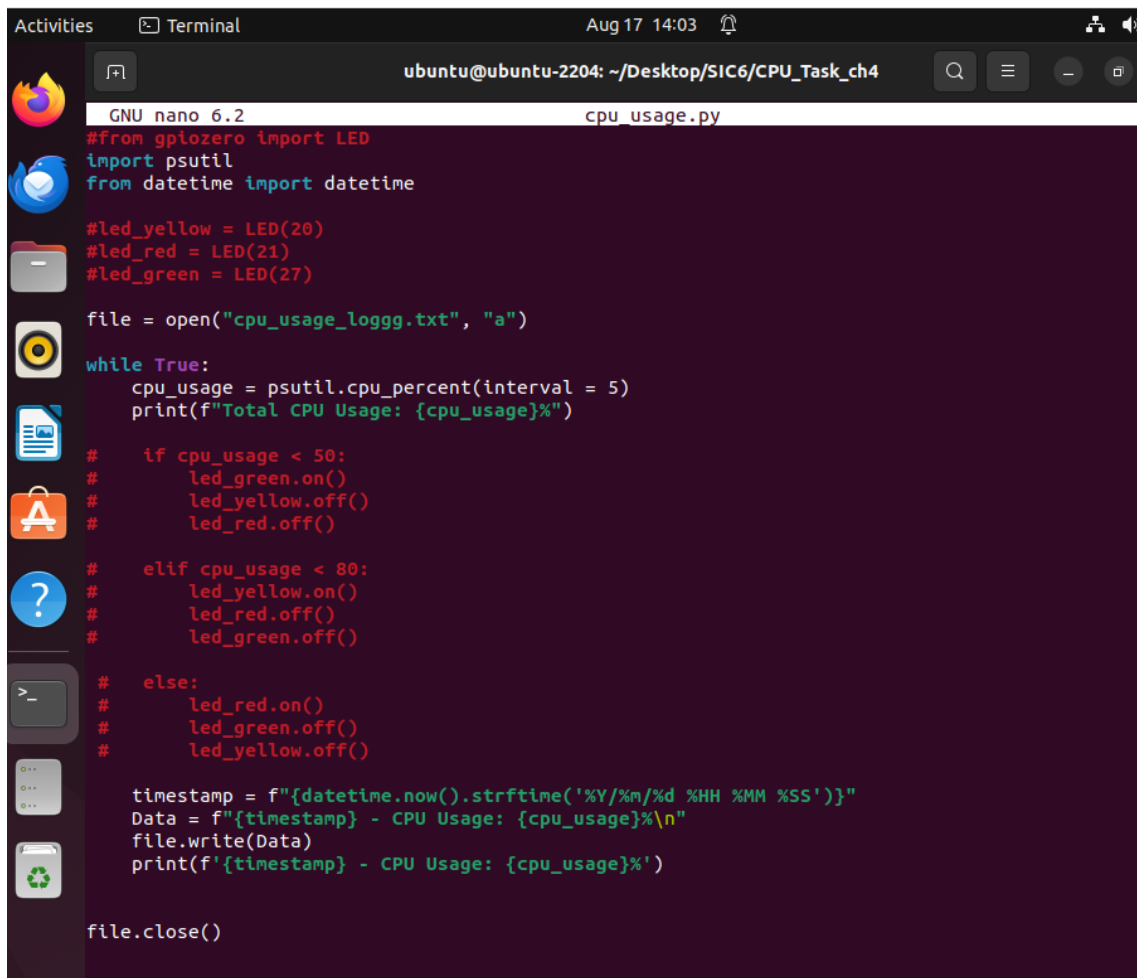
TASK CH4

Write a Python script that covers the following points:

- Reads total CPU usage.
- Appends the usage to a log file with a timestamp every 5 seconds.
- Lights a green LED when the percentage is less than 50%, lights a yellow LED when the percentage is less than 80%, and finally lights a red LED when the percentage is above or equal to 80%.

Step 1:

Python script:



```
GNU nano 6.2 cpu_usage.py
#from gpiozero import LED
import psutil
from datetime import datetime

#led_yellow = LED(20)
#led_red = LED(21)
#led_green = LED(27)

file = open("cpu_usage_loggg.txt", "a")

while True:
    cpu_usage = psutil.cpu_percent(interval = 5)
    print(f"Total CPU Usage: {cpu_usage}%")

    # if cpu_usage < 50:
    #     led_green.on()
    #     led_yellow.off()
    #     led_red.off()

    # elif cpu_usage < 80:
    #     led_yellow.on()
    #     led_red.off()
    #     led_green.off()

    # else:
    #     led_red.on()
    #     led_green.off()
    #     led_yellow.off()

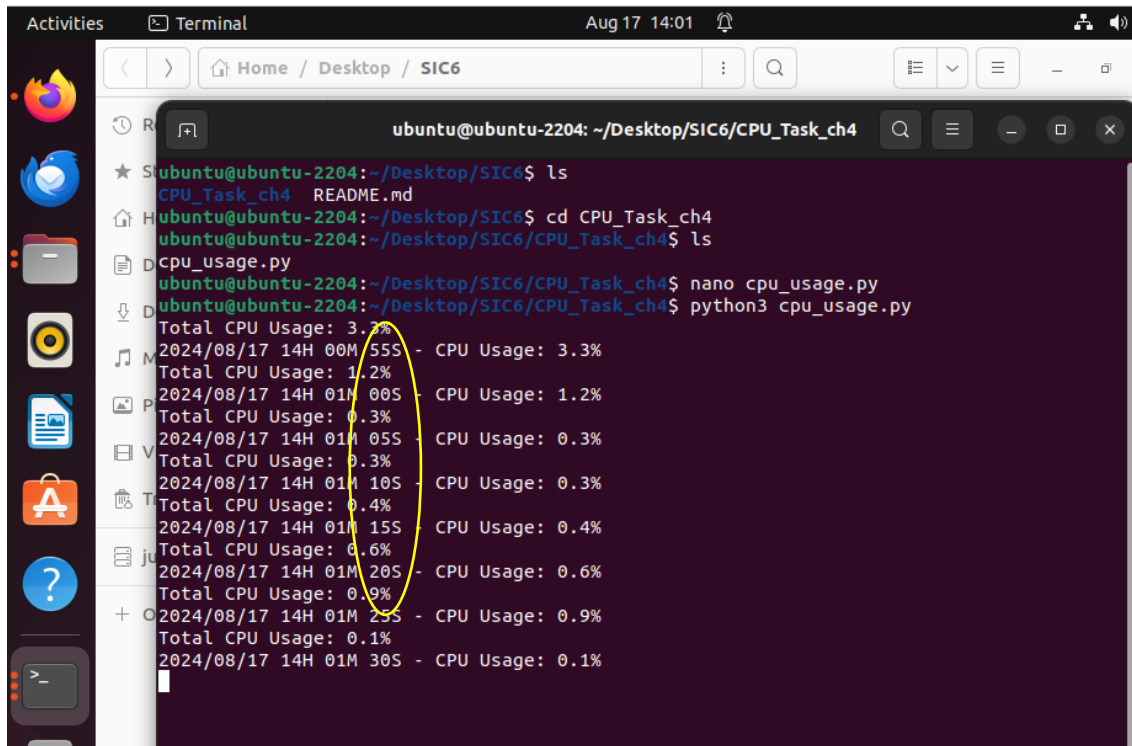
    timestamp = f"{datetime.now().strftime('%Y/%m/%d %HH %MM %SS')}"
    Data = f"{timestamp} - CPU Usage: {cpu_usage}%\n"
    file.write(Data)
    print(f'{timestamp} - CPU Usage: {cpu_usage}%')

file.close()
```

Step 2:

Run cpu_usage.py

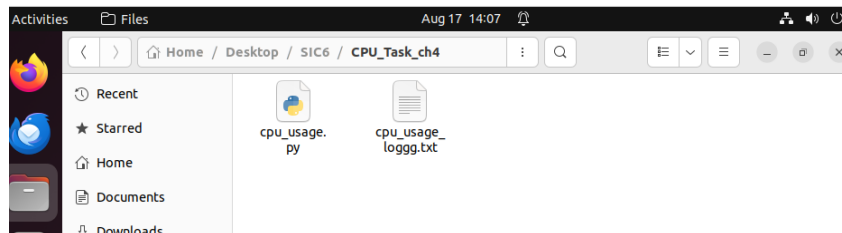
Total CPU_Usage output is printed in the terminal, with timestamp every 5 seconds between readings.

A terminal window titled 'ubuntu@ubuntu-2204: ~/Desktop/SIC6/CPU_Task_ch4' shows the execution of a Python script. The user navigates to the directory and runs 'python3 cpu_usage.py'. The output displays 'Total CPU Usage' and 'CPU Usage' percentages at 5-second intervals. A yellow oval highlights the first five lines of output.

```
ubuntu@ubuntu-2204:~/Desktop/SIC6$ ls
CPU_Task_ch4  README.md
ubuntu@ubuntu-2204:~/Desktop/SIC6$ cd CPU_Task_ch4
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$ ls
cpu_usage.py
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$ nano cpu_usage.py
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$ python3 cpu_usage.py
Total CPU Usage: 3.3%
2024/08/17 14H 00M 55S - CPU Usage: 3.3%
Total CPU Usage: 1.2%
2024/08/17 14H 01M 00S - CPU Usage: 1.2%
Total CPU Usage: 0.3%
2024/08/17 14H 01M 05S - CPU Usage: 0.3%
Total CPU Usage: 0.3%
2024/08/17 14H 01M 10S - CPU Usage: 0.3%
Total CPU Usage: 0.4%
2024/08/17 14H 01M 15S - CPU Usage: 0.4%
Total CPU Usage: 0.6%
2024/08/17 14H 01M 20S - CPU Usage: 0.6%
Total CPU Usage: 0.9%
2024/08/17 14H 01M 25S - CPU Usage: 0.9%
Total CPU Usage: 0.1%
2024/08/17 14H 01M 30S - CPU Usage: 0.1%
```

Step3:

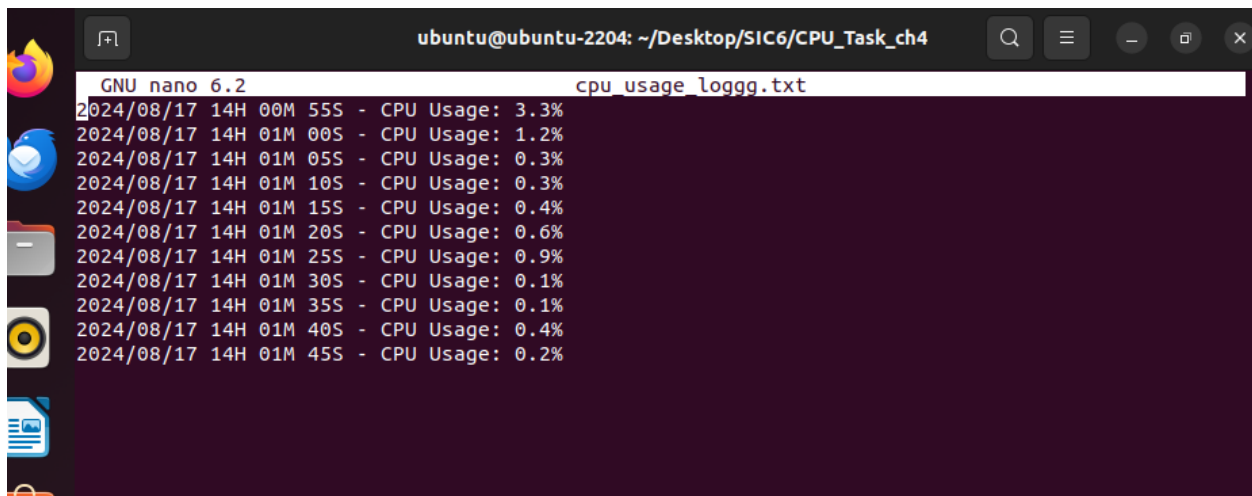
Access Log file we 've created and appended the data to it-> which is cpu_usage_loggg.txt



Using Cat command -> To access content of the file in the terminal

```
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$ nano cpu_usage.py
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$ cat cpu_usage_loggg.txt
2024/08/17 14H 00M 55S - CPU Usage: 3.3%
2024/08/17 14H 01M 00S - CPU Usage: 1.2%
2024/08/17 14H 01M 05S - CPU Usage: 0.3%
2024/08/17 14H 01M 10S - CPU Usage: 0.3%
2024/08/17 14H 01M 15S - CPU Usage: 0.4%
2024/08/17 14H 01M 20S - CPU Usage: 0.6%
2024/08/17 14H 01M 25S - CPU Usage: 0.9%
2024/08/17 14H 01M 30S - CPU Usage: 0.1%
2024/08/17 14H 01M 35S - CPU Usage: 0.1%
2024/08/17 14H 01M 40S - CPU Usage: 0.4%
2024/08/17 14H 01M 45S - CPU Usage: 0.2%
ubuntu@ubuntu-2204:~/Desktop/SIC6/CPU_Task_ch4$
```

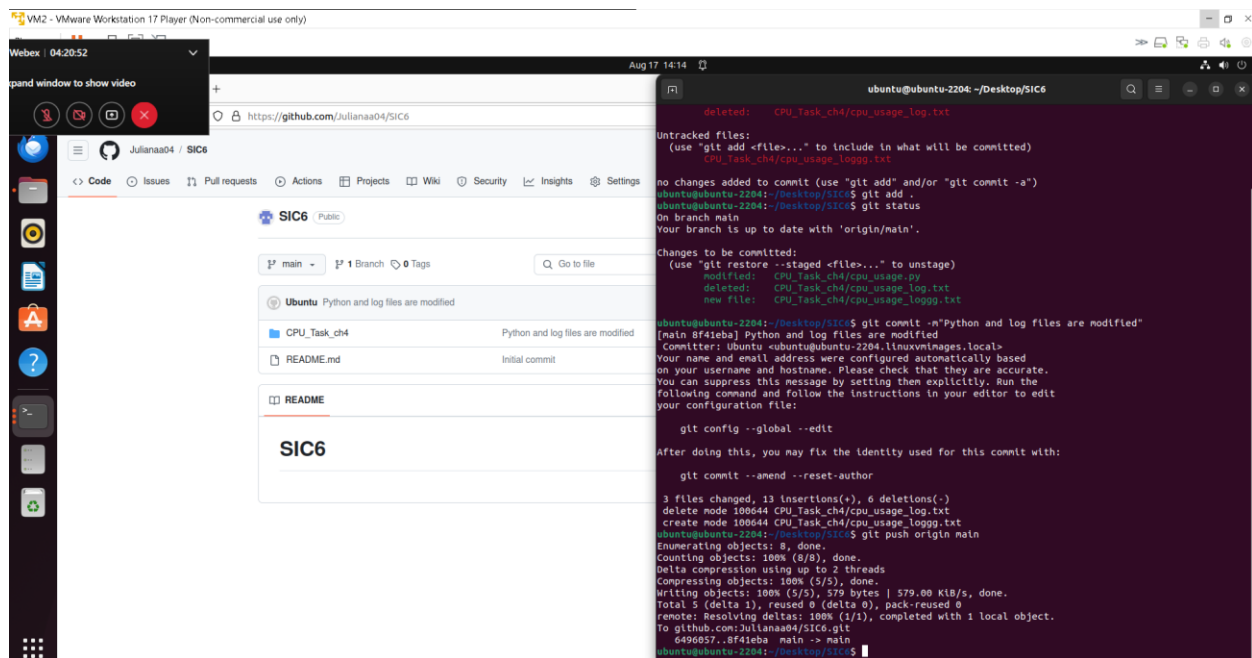
& Using Nano command -> To access File itself to edit or ..etc.



```
ubuntu@ubuntu-2204: ~/Desktop/SIC6/CPU_Task_ch4
GNU nano 6.2      cpu_usage_loggg.txt
2024/08/17 14H 00M 55S - CPU Usage: 3.3%
2024/08/17 14H 01M 00S - CPU Usage: 1.2%
2024/08/17 14H 01M 05S - CPU Usage: 0.3%
2024/08/17 14H 01M 10S - CPU Usage: 0.3%
2024/08/17 14H 01M 15S - CPU Usage: 0.4%
2024/08/17 14H 01M 20S - CPU Usage: 0.6%
2024/08/17 14H 01M 25S - CPU Usage: 0.9%
2024/08/17 14H 01M 30S - CPU Usage: 0.1%
2024/08/17 14H 01M 35S - CPU Usage: 0.1%
2024/08/17 14H 01M 40S - CPU Usage: 0.4%
2024/08/17 14H 01M 45S - CPU Usage: 0.2%
```

Step4:

A Repo is Created remotely using ssh & git commands to push folder successfully to the repo.



The screenshot shows a VMware Workstation 17 Player window titled 'VM2 - VMware Workstation 17 Player (Non-commercial use only)'. Inside the player, there is a terminal window and a web browser window.

The terminal window, titled 'ubuntu@ubuntu-2204: ~/Desktop/SIC6', shows the following commands and output:

```
deleted: CPU_Task_ch4/cpu_usage_log.txt
Untracked files:
(use "git add <file>..." to include in what will be committed)
CPU_Task_ch4/cpu_usage_loggg.txt
no changes added to commit (use "git add" and/or "git commit -a")
ubuntu@ubuntu-2204: ~/Desktop/SIC6$ git add .
ubuntu@ubuntu-2204: ~/Desktop/SIC6$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
(use "git restore --staged <file>..." to unstage)
modified:   CPU_Task_ch4/cpu_usage.py
deleted:    CPU_Task_ch4/cpu_usage_log.txt
new file:   CPU_Task_ch4/cpu_usage_loggg.txt

ubuntu@ubuntu-2204: ~/Desktop/SIC6$ git commit -m "Python and log files are modified"
[main 8f41eba] Python and log files are modified
Committer: ubuntu <ubuntu@ubuntu-2204:linuxvmimages.local>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

3 files changed, 13 insertions(+), 0 deletions(-)
delete mode 100644 CPU_Task_ch4/cpu_usage_log.txt
create mode 100644 CPU_Task_ch4/cpu_usage_loggg.txt
ubuntu@ubuntu-2204: ~/Desktop/SIC6$ git push origin main
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 579 bytes | 579.00 KiB/s, done.
Total 5 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:Juliana04/SIC6.git
 6496b57..8f41eba main -> main
ubuntu@ubuntu-2204: ~/Desktop/SIC6$
```

The web browser window, titled 'Webex | 04:20:52', shows the GitHub repository page for 'Juliana04 / SIC6'. The page displays the repository name, a description 'Ubuntu Python and log files are modified', and a list of files: 'CPU_Task_ch4' (Python and log files are modified) and 'README.md' (Initial commit). The 'README' tab is selected, showing the content of the README file.