

Task2

Collect data script (collect.sh)

The image shows a screenshot of a Mobaxterm terminal window. The title bar at the top indicates the version is 127.0.0.1 and lists various menu items: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help. Below the title bar is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultExec, Tunneling, Packages, Settings, and Help. The terminal window itself has a title bar with 'Quick' and a tab labeled '4. 127.0.0.1'. The prompt is '#!/bin/bash'. The script content is as follows:

```
##### collect data #####
output_dir="/var/www/html/data"
mkdir -p $output_dir

time=$(date +%Y-%m-%d-%H-%M-%S)

cpu=$(top -bn1 | grep "%Cpu(s)" | awk -F',' '{print $4}' | awk '{print $1}')
echo "$time $cpu" >> "$output_dir/cpu_$time.txt"

used_mem=$(free --giga | grep "Mem" | tr -s ' ' | cut -d' ' -f3)
free_mem=$(free --giga | grep "Mem" | tr -s ' ' | cut -d' ' -f7)
echo "$time $used_mem $free_mem" >> "$output_dir/mem_$time.txt"

used_disk=$(df -BG / | tail -1 | tr -s ' ' | cut -d' ' -f3 | sed 's/G//')
free_disk=$(df -BG / | tail -1 | tr -s ' ' | cut -d' ' -f4 | sed 's/G//')
echo "$time $used_disk $free_disk" >> "$output_dir/disk_$time.txt"

echo "All the data r collected at time: $time"
```

The terminal output shows the execution of these commands. At the bottom of the terminal, there is a status bar with system information: system.example.com, 2% CPU usage, 1.97 GB / 3.57 GB memory usage, 0.01 Mb/s network speed, 143 min uptime, and disk usage for /boot (69%), /home (4%), /mnt (1%), and /run/media/nahmoudzabade (51%). The bottom of the image shows a Windows taskbar with the Start button, a search bar, and several pinned application icons. The system clock in the bottom right corner shows 7:28 AM on 12/4/2025.

Display the collected data script (calculate_avg.sh)

- **CPU calculations and HTML code**

```
##### CPU calculations & HTML code #####
total=0
count=0

for file in "$data_dir"/cpu*.txt; do
    value=$(cat "$file" | cut -d' ' -f2)
    total=$((total + $value))
    count=$((count + 1))
done

if [ $count -gt 0 ]; then
    cpu_avg=$((echo "scale=1; $total / $count" | bc))
else
    cpu_avg=0
fi

cat > "$html_dir"/cpu.html <<EOF
<!DOCTYPE html>
<html>
<head><title>CPU Ideal</title></head>
<body>
<h1>CPU Ideal</h1>
<p>Average: $cpu_avg%</p>
<ul>
EOF

for file in "$data_dir"/cpu*.txt; do
    date=$(cut -d' ' -f1 "$file")
    Ideal=$(cut -d' ' -f2 "$file")
    #echo "Date = $date Ideal(%) = $Ideal"
    #echo "Date = $date Ideal(%) = $Ideal"
    echo "<li>Date = $date\n\n\n\n\n\n\n\n\n\nIdeal(%) = $Ideal</li>" >> "$html_dir/cpu.html"
done

echo "</ul></body></html>" >> "$html_dir/cpu.html"
```

- **Memory calculations and HTML code**

```
count=0
for file in "$data_dir"/mem *.txt; do
    value1=$(cat "$file" | cut -d' ' -f2)
    value2=$(cat "$file" | cut -d' ' -f3)
    total1=$((total1 + value1))
    total2=$((total2 + value2))
    count=$((count + 1))
done

if [ $count -gt 0 ]; then
    used_mem_avg=$((total1 / count))
    free_mem_avg=$((total2 / count))
else
    used_mem_avg=0
    free_mem_avg=0
fi

cat > "$html_dir"/mem.html <<EOF
<!DOCTYPE html>
<html>
<head><title>Memory Statistics</title></head>
<body>
<h1>Memory Statistics</h1>
<p>Average Used: $used_mem_avg GB</p>
<p>Average Free: $free_mem_avg GB</p>
<ul>
EOF

for file in "$data_dir"/mem *.txt; do
    mem_date=$(cut -d' ' -f1 "$file")
    mem_used=$(cut -d' ' -f2 "$file")
    mem_free=$(cut -d' ' -f3 "$file")
    echo "<li>Date = $mem_date&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&Used (GB) = $mem_used&nbsp;&nbsp;&~Free (GB) = $mem_free</li>" >> "$html_dir/mem.html"
done
```

59,0-1

48%

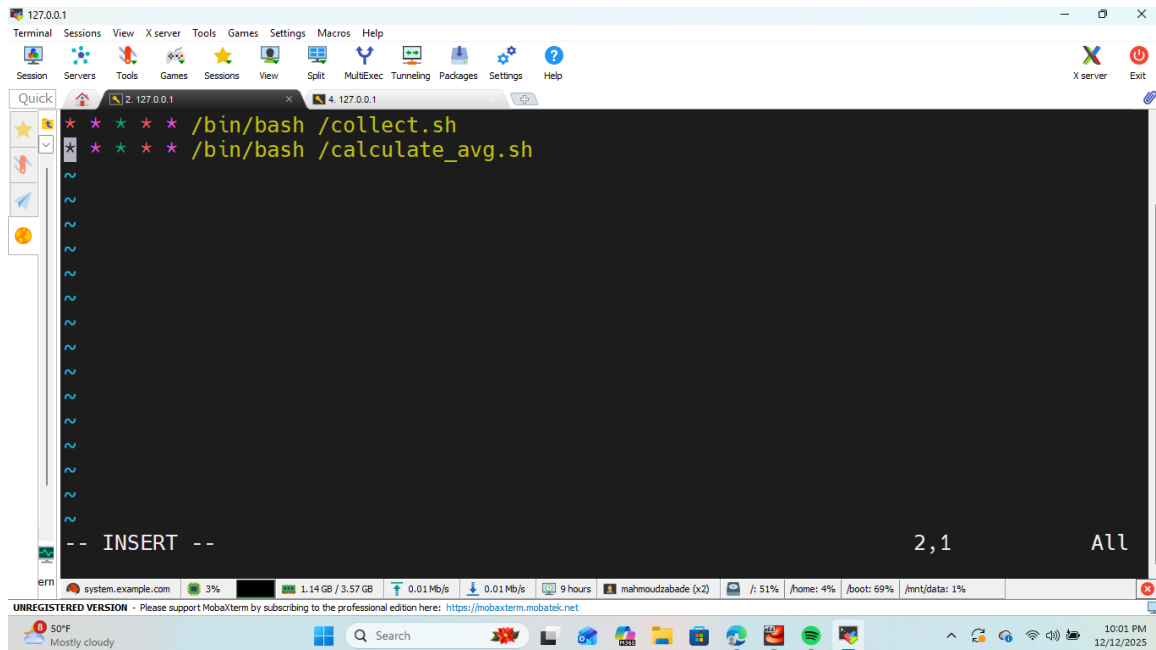
- **Disk calculations and HTML code**

[illegible]

108,28

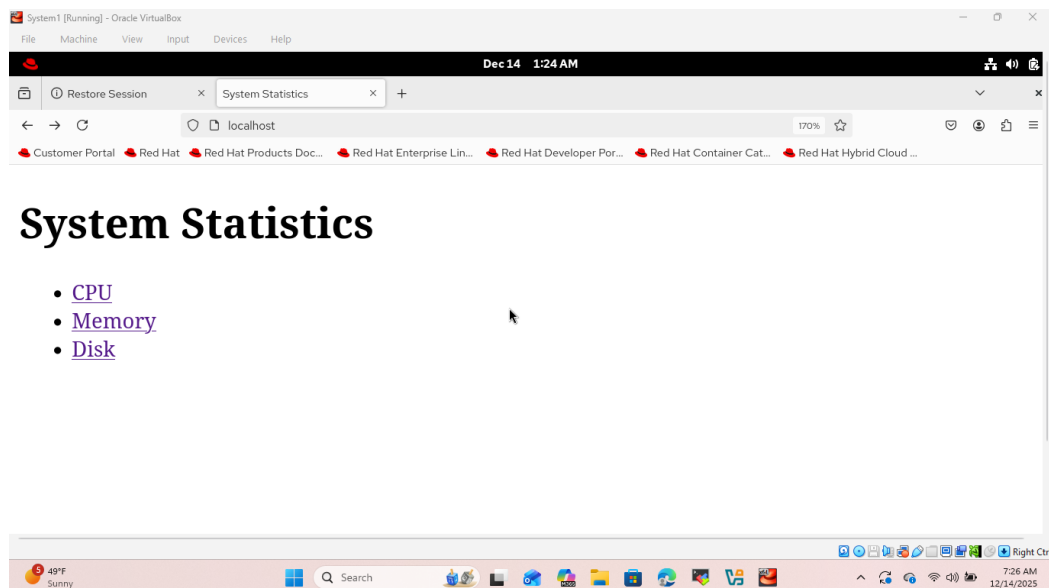
99%

Crontab

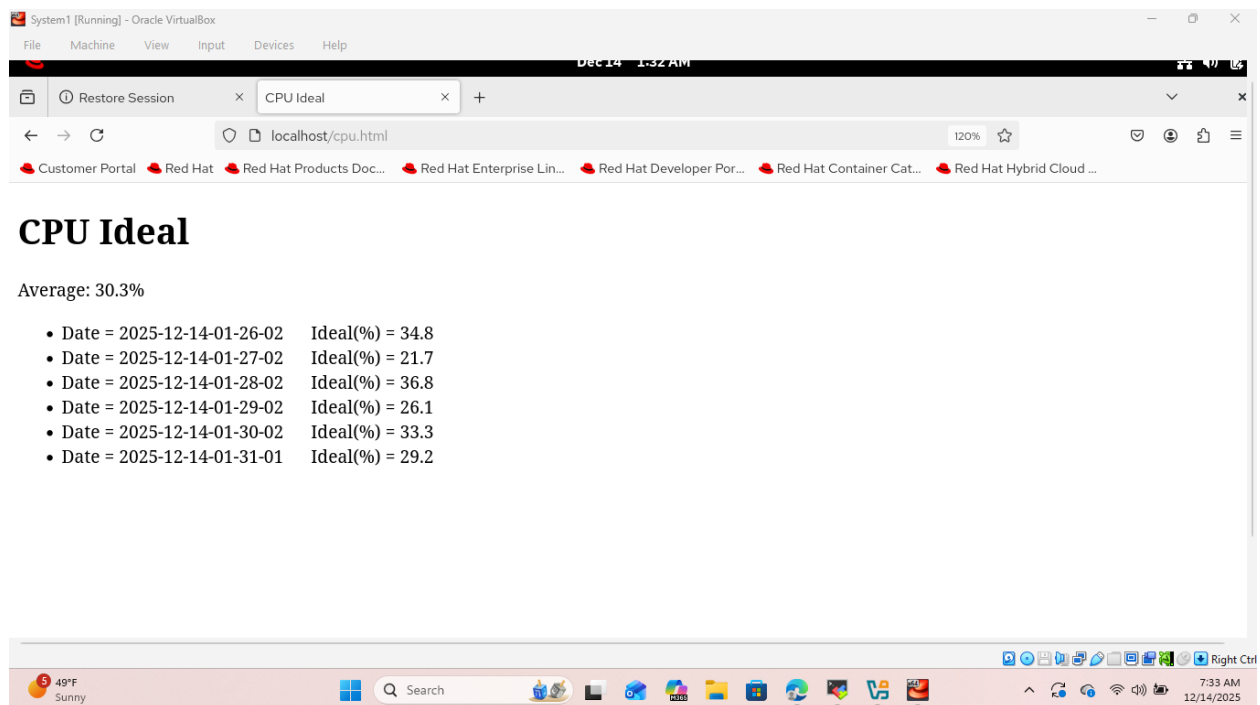


HTML page & Results

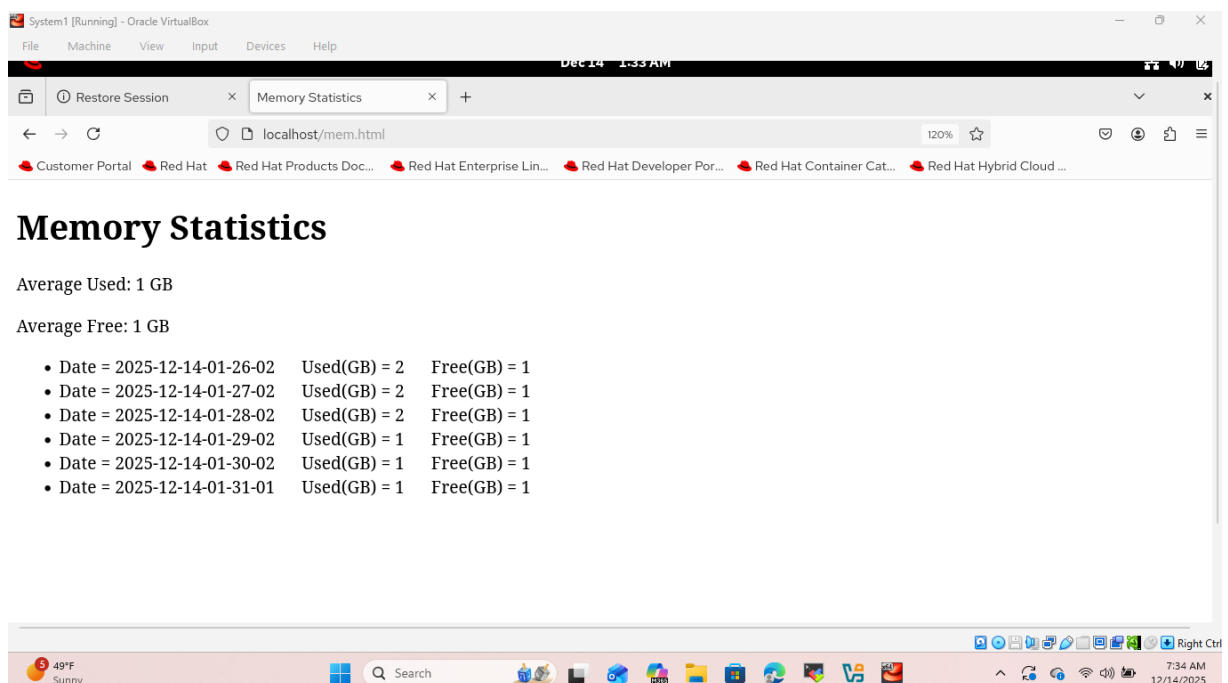
- Main Page



- CPU Ideal



• Memory Usage



• Disk Usage

System1 [Running] - Oracle VirtualBox

FileMachineViewInputDevicesHelp

Dec 141:34 AM

Disk Statistics

localhost/disk.html120%

Customer PortalRed HatRed Hat Products Doc...Red Hat Enterprise Lin...Red Hat Developer Por...Red Hat Container Cat...Red Hat Hybrid Cloud ...

Disk Statistics

Average Used: 13 GB

Average Free: 13 GB

- Date = 2025-12-14-01-26-02Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-27-02Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-28-02Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-29-02Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-30-02Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-31-01Used(GB) = 13Free(GB) = 13
- Date = 2025-12-14-01-32-02Used(GB) = 13Free(GB) = 13

5 49°F Sunny

Search

7:35 AM12/14/2025

Right Ctrl