CA3INT416

Name   :   Kritika Dangol

Faculty   :   Ms. Navjot Kaur

Section   :   KE057

Roll,no   :   B65

Name of the University :   Lovely Professional University

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GitHub Link :- https://github.com/kritikadangol/CA3

QUESTION NO. 42:- Using desired Open Source Software display an overview of all the hardware and operating system detail; also do live monitoring to show the temperature and current usage of various hardware components.

1. INTRODUCTION

Open source software refers to software whose source code is freely accessible to anyone to view, modify, and distribute. This means that users can modify the code according to their needs, and the resulting software is often available for free as well. The importance of open source software lies in several factors:

- Collaboration and innovation: Allowing anyone to contribute to and modify the software can lead to a more diverse range of ideas and perspectives, fostering innovation and more effective software.
- Cost savings: Open source software is typically free to use and distribute, providing cost savings compared to proprietary software.
- Transparency: Open source software is transparent, allowing anyone to review the source code and verify that the software does not include any malicious code or vulnerabilities.
- Community support: Open source software projects often have active communities of developers and users who can provide support, troubleshooting, and ongoing development for the software.

Overall, open source software is important because it promotes collaboration, innovation, transparency, and cost savings, making it a valuable resource for individuals, businesses, and organizations alike.

For completing this task, I have used a open-source software called HWiNFO64 to obtain an overview of the hardware and operating system details of a computer system. I used the same software to monitor the temperature and current usage of various hardware components in real-time as well. This information can be useful for system administrators and power users who need to keep track of their system's performance and diagnose any potential issues. This open source software is available for many Linux-based operating systems.

1.1 OBJECTIVE OF THE PROJECT

The objectives of this task are as follows:-

➢ To obtain a detailed overview of a computer's hardware and operating system using the open-source software HWiNFO64.

➢ To monitor the temperature and current usage of various hardware components in real-time using the same software.

➢ To provide valuable information for system administrators and power users to keep track of their system's performance and diagnose potential issues.

➢ To identify potential issues and suggest solutions related to hardware and operating system performance based on the collected data.

➢ To enhance understanding of computer hardware and operating system details and their impact on performance.

➢ To use the HWiNFO64 package to achieve these objectives.

1.2 DESCRIPTION OF THE PROJECT

The project to utilize HWiNFO64 to display an overview of a computer's hardware and operating system and live monitor various hardware components' temperature and current usage has numerous benefits for users. With the software's help, users can obtain a detailed and comprehensive overview of their computer's hardware and operating system, including components like the CPU, motherboard, RAM, graphics card, and more. This information can be particularly useful for system administrators, power users, and gamers who want to stay on top of their system's performance and ensure that it's functioning optimally.

By providing a detailed overview of the hardware and operating system, users can better understand their computer's capabilities and limitations. They can identify which components are bottlenecking performance or which areas of their system could benefit from upgrades. Furthermore, the real-time monitoring feature can alert users to any hardware components that may be overheating or overworking, which can cause significant performance issues or even hardware failure if not addressed promptly.

The project's compatibility with a wide range of hardware components and operating systems is another significant benefit. The software can work with a variety of different computer setups, allowing a wider range of users to take advantage of its capabilities. Additionally, the open-source nature of the software means that users can modify the code to suit their specific needs or even contribute to its ongoing development.

The project's importance is further underscored by the significant cost savings it can offer compared to proprietary software alternatives. Many proprietary software options that provide similar capabilities can be expensive, making it challenging for users to justify the investment. In contrast, hwinfo64 is available for free, providing users with a high-quality solution for monitoring their computer's performance without breaking the bank.

In summary, the project to display an overview of a computer's hardware and operating system and live monitor various hardware components' temperature and current usage using hwinfo64 offers numerous benefits for users. It can provide users with valuable insights into their system's performance, help identify potential issues, and offer significant cost savings compared to proprietary software alternatives.

1.3 SCOPE OF THE PROJECT

The goal is to provide users with an in-depth understanding of their computer's performance by displaying detailed hardware and operating system information. The software's potential use cases are numerous, including system administration, gaming, and power users who require detailed information about their computer's performance. System administrators can use this software to monitor the performance of servers, workstations, and other network devices to ensure that they are running efficiently. Gamers can use the software to monitor their computer's performance while playing games to optimize their gaming experience. Power users can use the software to identify hardware issues, troubleshoot problems, and fine-tune their computer's performance. This software's scope is significant, and it's crucial to consider user requirements and technical limitations. However, the software's benefits include better system performance and improved hardware management.

2. SYSTEM DESCRIPTION

HWiNFO64 is a comprehensive system information tool that provides users with a detailed overview of their computer's hardware and software components. This powerful tool can offer a complete analysis of a system's hardware, including the CPU, RAM, motherboard, graphics card, and storage devices. Additionally, it can provide detailed information about the installed operating system, including the version, build, and service pack level.

One of the key features of HWiNFO64 is its real-time monitoring capabilities, which allow users to track various hardware components' temperature, voltage, and current usage. The tool can monitor the CPU, GPU, motherboard, and other components and can provide alerts if the temperature or usage exceeds a set threshold.

Designed with user-friendliness in mind, HWiNFO64 features an intuitive interface that enables users to access and understand the hardware and operating system details easily. The software also provides multiple customization options, allowing users to select which components to monitor and how they should be displayed.

HWiNFO64 is a versatile tool that can be used by a range of users, including system administrators, gamers, and power users who require detailed information about their computer's performance. It is compatible with a wide range of hardware and operating systems, making it an indispensable tool for system analysis and optimization. Furthermore, it is regularly updated, providing users with the latest hardware and software information and ensuring that the software remains compatible with new hardware and operating systems.

2.1 SCOPE OF THE PROJECT

HWiNFO64 is a versatile system information tool that is compatible with a wide range of laptops. To use HWiNFO64 on a laptop, the following requirements must be met:

Operating System: HWiNFO64 is compatible with various versions of the Windows operating system, including Windows 10, 8.1, and 7. Therefore, the laptop must have one of these operating systems installed.

Processor: The laptop must have a processor that supports the features of HWiNFO64. The software can run on processors made by AMD, Intel, and VIA.

Memory: HWiNFO64 can run on laptops with a minimum of 512 MB of RAM, but it is recommended to have more RAM for better performance.

Storage: The software requires only a small amount of storage space to run, but the laptop must have sufficient storage capacity to store the data collected by HWiNFO64.

Display: The laptop must have a display that supports the resolution and size required to display the information provided by HWiNFO64.

Overall, HWiNFO64 is an excellent tool for laptop users who want to monitor their system's hardware and software performance.
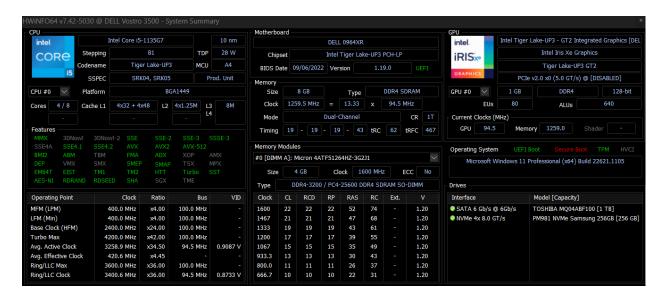
3. ANALYSIS REPORT

The analysis report generated by HWiNFO64 provides a detailed overview of a system's hardware and software performance. It includes information about the CPU, RAM, motherboard, graphics card, and storage devices, as well as the installed operating system, including version, build, and service pack level.

Moreover, it also offers real-time monitoring data, including temperature, voltage, and current usage, for various hardware components, helping users identify potential issues and optimize their system for better performance.
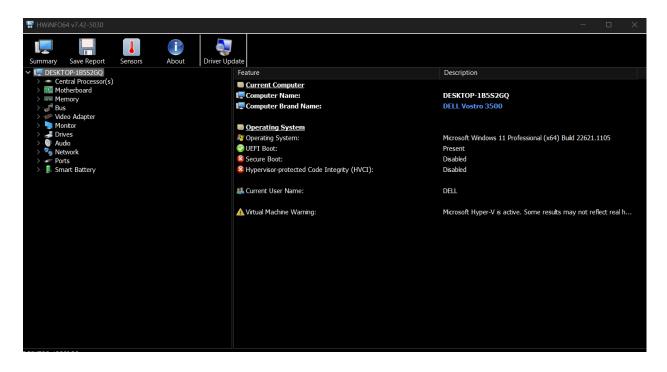
Overall, the HWiNFO64 analysis report is a valuable tool for system administrators, gamers, and power users who need detailed information about their computer's performance. The report is generated in a clear and concise manner, making it easy to understand and take action based on the insights it provides. It is an excellent resource for troubleshooting issues and optimizing system performance.

3.1 SYSTEM SNAPSHOTS AND FULL ANALYSIS REPORT

A. Hardware Analysis Report by HWiNFO64.

B. Software Analysis Report by HWiNFO64.

C. Revisions committed in GitHub

1. First commit

```
C:\Users\DELL\Downloads\HW_SW_Report>git add "Log 2.CSV"

C:\Users\DELL\Downloads\HW_SW_Report>git commit -m "Second Revision"
[master 8ba2e02] Second Revision
 1 file changed, 2328 insertions(+)
 create mode 100644 Log 2.CSV

C:\Users\DELL\Downloads\HW_SW_Report>git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 26.94 KiB | 5.39 MiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/kritikadangol/CA3
   6108c36..8ba2e02  master -> master

C:\Users\DELL\Downloads\HW_SW_Report>
```

2. Second commit

```
C:\Users\DELL\Downloads\HW_SW_Report>git init
Initialized empty Git repository in C:/Users/DELL/Downloads/HW_SW_Report/.git/

C:\Users\DELL\Downloads\HW_SW_Report>git add "Log 1.CSV"

C:\Users\DELL\Downloads\HW_SW_Report>git commit -m "First Revision"
[master (root-commit) 5e8d959] First Revision
 1 file changed, 2328 insertions(+)
 create mode 100644 Log 1.CSV

C:\Users\DELL\Downloads\HW_SW_Report>git remote add origin https://github.com/kritikadangol/CA3

C:\Users\DELL\Downloads\HW_SW_Report>git push origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 26.88 KiB | 5.38 MiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/kritikadangol/CA3
 * [new branch]      master -> master

C:\Users\DELL\Downloads\HW_SW_Report>
```

3. Third commit

```
C:\Users\DELL\Downloads\HW_SW_Report>git add "Log 4.CSV"

C:\Users\DELL\Downloads\HW_SW_Report>git commit -m "Fourth Revision"
[master 0e9b307] Fourth Revision
 1 file changed, 2328 insertions(+)
 create mode 100644 Log 4.CSV

C:\Users\DELL\Downloads\HW_SW_Report>git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 26.94 KiB | 5.39 MiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/kritikadangol/CA3
   5480887..0e9b307  master -> master

C:\Users\DELL\Downloads\HW_SW_Report>
```

4. Fourth commit

```
C:\Users\DELL\Downloads\HW_SW_Report>git add "Log 3.CSV"

C:\Users\DELL\Downloads\HW_SW_Report>git commit -m "Third Revision"
[master 5480887] Third Revision
 1 file changed, 2328 insertions(+)
 create mode 100644 Log 3.CSV

C:\Users\DELL\Downloads\HW_SW_Report>git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 26.97 KiB | 5.39 MiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/kritikadangol/CA3
   8ba2e02..5480887  master -> master

C:\Users\DELL\Downloads\HW_SW_Report>
```

5. Fifth commit

```
C:\Users\DELL\Downloads\HW_SW_Report>git add "Log 5.CSV"

C:\Users\DELL\Downloads\HW_SW_Report>git commit -m "Fifth Revision"
[master 7b13356] Fifth Revision
 1 file changed, 2328 insertions(+)
 create mode 100644 Log 5.CSV

C:\Users\DELL\Downloads\HW_SW_Report>git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 26.94 KiB | 5.39 MiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/kritikadangol/CA3
   0e9b307..7b13356  master -> master

C:\Users\DELL\Downloads\HW_SW_Report>
```

4. REFERENCE/BIBLIOGRAPHY

[1] https://www.hwinfo.com/

[2] https://rtech.support/docs/guides/hwinfo.html

[3] https://support.lumion.com/hc/en-us/articles/360021829573-How-do-you-provide-a-log-file-from-HWiNFO-

[4] https://www.thewindowsclub.com/hwinfo32-hardware-information-tool

[5] https://github.com/openSUSE/hwinfo

[6] https://www.youtube.com/watch?v=LIyb-AjwqLo