North South University

Department of Electrical and Computer Engineering
School of Engineering and Physical Sciences
Summer, 2019
CSE 323

Group-12

Project report on *"System Monitor in windows operating system"*

Submitted To

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Date of Submission: 29th August, 2019

Letter of Transmittal

Date: 29th August, 2019

Dr. Rashed Mazumder

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Subject: Submission of the project report.

Dear sir,

With due respect, we would like to submit our CSE 323 group project titled "Task Manager in Microsoft windows operating system" due 29th August, 2019. In preparing this report, we have tried our level best to include the entire topics, theories and processes we were asked to.

If you have any questions and/or comments regarding the interpretation of this report, please ask us. Thank you for your immense support through the course, and we look forward to working with you again soon.

Sincerely,

Kamruzzman Shuvo

Faria Rahman Annasha

Md Sharif Hossain

Abstract:

This is a windows platform application which will act as a task manager of a computer. It will collect data of Model no, detailed processor information, CPU status, network status, physical and virtual memory status etc. from computer and show them in one platform.

We used C# programming language on Visual Studio with .NET framework for this program.

System Requirements:

- Windows 7/8/10
- Visual Studio environment setup
- .NET Framework 4.7

Introduction:

System monitor is a task manager and startup manager included with Microsoft Windows systems. It provides information about computer performance and running software, including name of running processes, CPU load, commit charge, I/O details, logged-in users, and Windows services. Task Manager can also be used to set process priorities, processor affinity, start and stop services, and forcibly terminate processes.

For an advanced tool that can do an incredible number of things, most of the time the Windows Task Manager is used to do something very basic: see what's running right now.

Open programs are listed, of course, as are programs that are running "in the background" that Windows and your installed programs have started.

Purposes:

Task Manager can be used to forcefully end any of those running programs, as well as to see how much individual programs are using your computer's hardware resources and which programs and services are starting when your computer starts. See Task Manager: A Full Walkthrough for every detail about Task Manager. You'll be amazed at how much you can learn about the software that's running on your computer with this utility.

The program can be started in recent versions of Windows by pressing ⊞ Win+R and then typing in taskmgr.exe, by pressing Ctrl+Alt+Delete and clicking *Start Task Manager*, by pressing Ctrl+⇧ Shift+Esc, or by right-clicking on the Windows taskbar and selecting "Task Manager". (Fig 1)

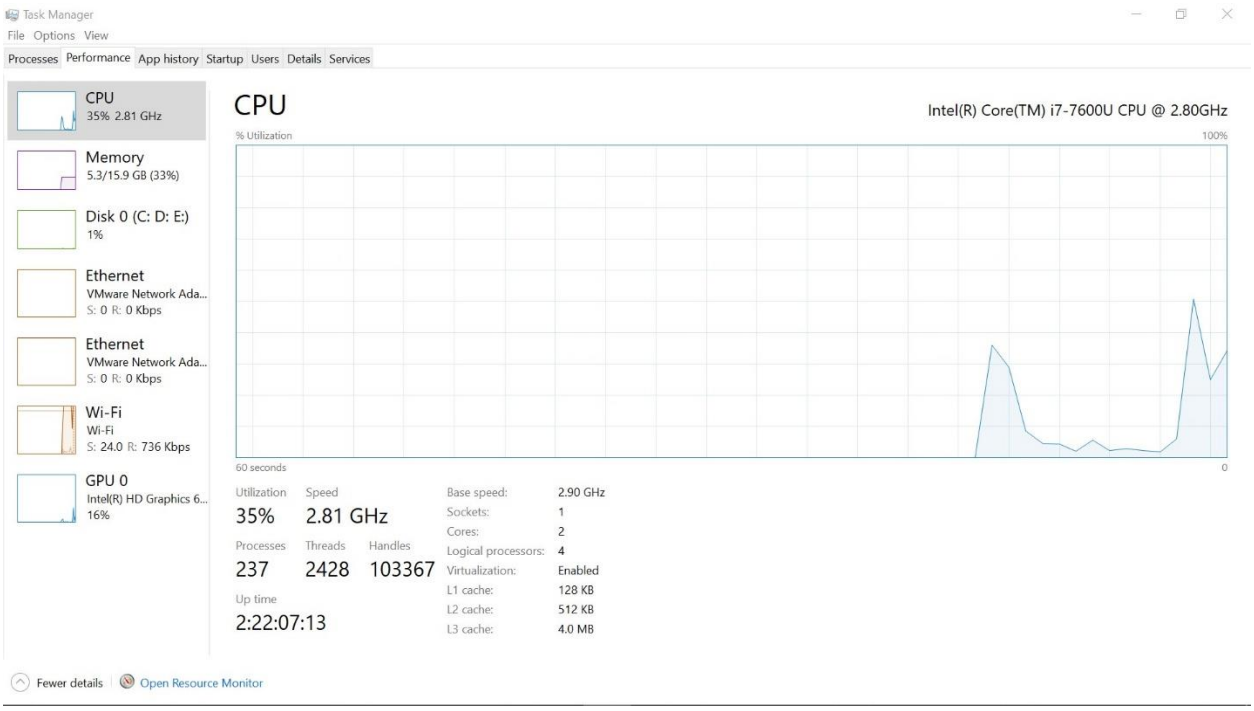


Figure 1: Task manager example in windows

Software construction:

Firstly, we created a windows form layout containing different fields such as LebelModel, Processor, CPU, CPU usage history, Virtual memory as Mem V, Primary memory as Mem p, Memory usage history, Disk speed of reading and writing, uploading and downloading speed which will identify our output data. Then we constructed few functions written by C# programming language. We created a timer construction which finds the previous data collection time and refreshes data in each 1000 mille seconds. Constructed functions and their purposes are given below:

- **Model no:** It shows the architecture name and model, version of a computer
- **Processor:** It shows the processor name with generation.
- **User:** Shows user name of the operating system.
- **CPU:** CPU is the central processing unit of the computer. A computer's CPU handles all instructions it receives from hardware and software running on the computer. It shows the performance percentage of pc.
- **Usage history:** It shows the past CPU usage graphically.
- **Mem V:** Virtual memory is a memory management capability of an operating system (OS) that uses hardware and software to allow a computer to compensate for physical memory

shortages by temporarily transferring data from random access memory (RAM) to disk storage.

- **Mem P:** Primary memory is computer memory that is accessed directly by the CPU. This includes several types of memory, such as the processor cache and system ROM. However, in most cases, primary memory refers to system RAM. It shows usage of RAM
- **Memory Usage History:** It shows the RAM status graphically.
- **Disk R:** It shows the HDD or SSD reading speed.
- **Disk W:** It shows the HDD or SSD writing speed. So we can easily find if the disk is busy or not or how much busy it is.
- **Net I:** It shows the uploading speed of internet.
- **Net O:** It shows the downloading speed of internet.

Application View: Once we run the program, we'll find the following outcome. (Fig 2)

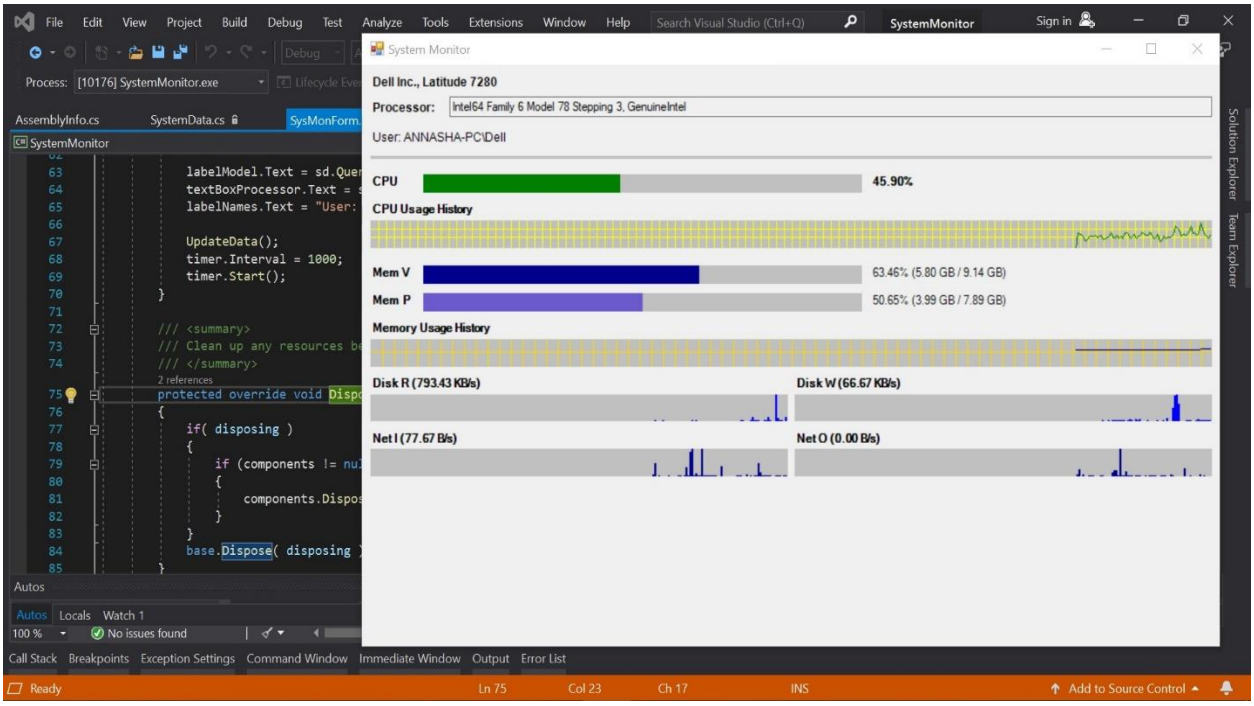
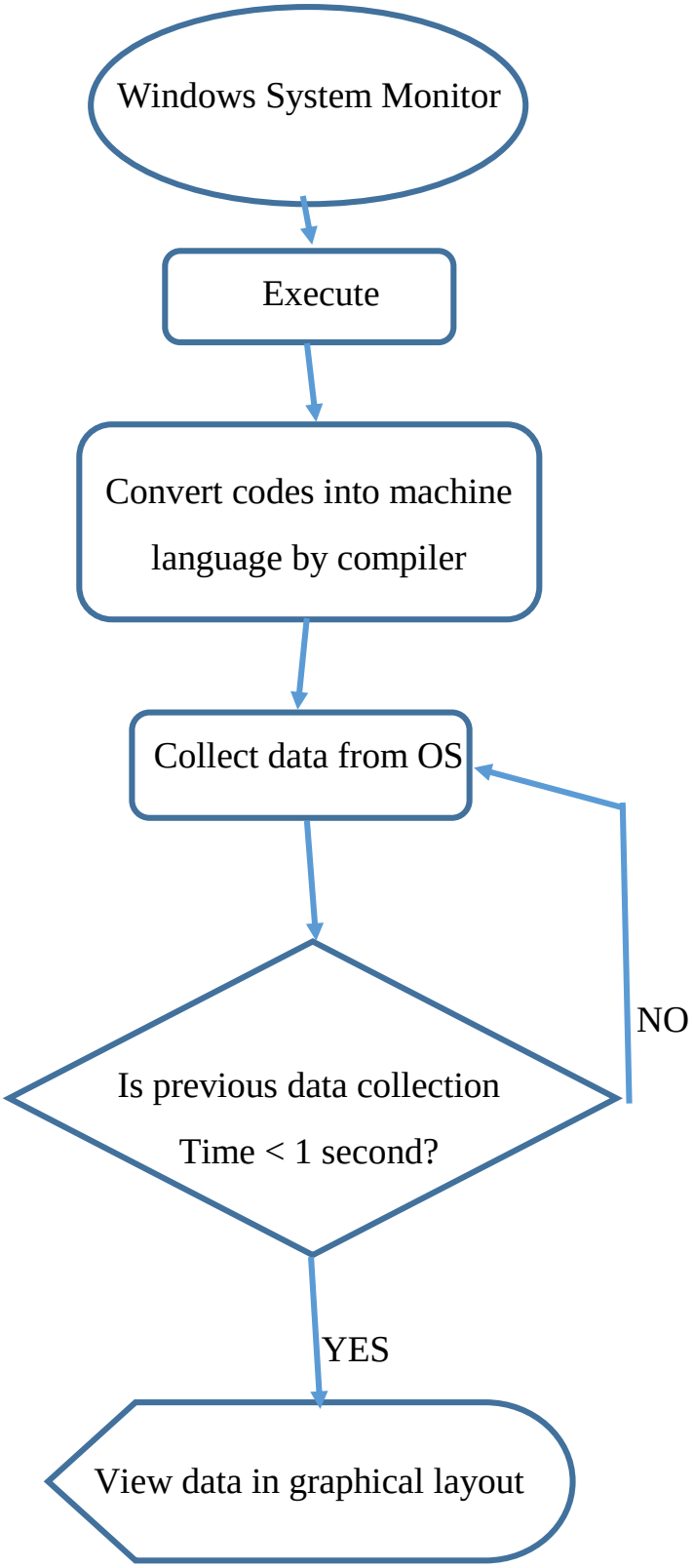


Figure 2: System Monitor application

Work flow:


Windows System Monitor
Execute
Convert codes into machine language by compiler
Collect data from OS
Is previous data collection Time < 1 second?
NO
YES
View data in graphical layout

Conclusion:

Monitoring a running system is as much important as the hardwires. This application will make it easier and user friendly to monitor a computer.

Project Contribution:

1. **Kamruzzman Shuvo:** Software development (Windows form, C# language, some construction), work flow report writing.
2. **Faria Rahman Annasha:** Presentation slide, report writing, application layout.
3. **Md Sharif Hossain:** Work flow, report writing, timing and some other constructors in software.

References:

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