**Basic Structure of a computer**

Q) How to view basic information of system-
Go to **setting->system->about**


PC name DESKTOP-

Rename PC

Organization WORKGROUP

Connect to work or school

| | |
|---|---|
| Edition | Windows 10 Home |
| Version | 1607 |
| OS Build | 14393.693 |
| Product ID | 00325-95931-35728-AAOEM |
| Processor | Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz 3.20 GHz |
| Installed RAM | 8.00 GB |
| System type | 64-bit operating system, x64-based processor |
| Pen and touch | No pen or touch input is available for this display |

Change product key or upgrade your edition of Windows

Read the Privacy Statement for Windows and Microsoft services

**Hardware:**

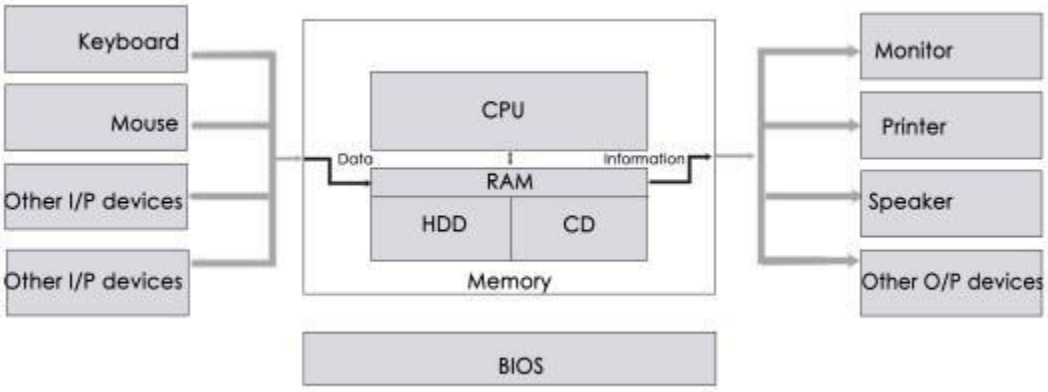
Basic structure of a computer include following functional unit:

1. Memory
2. Processor

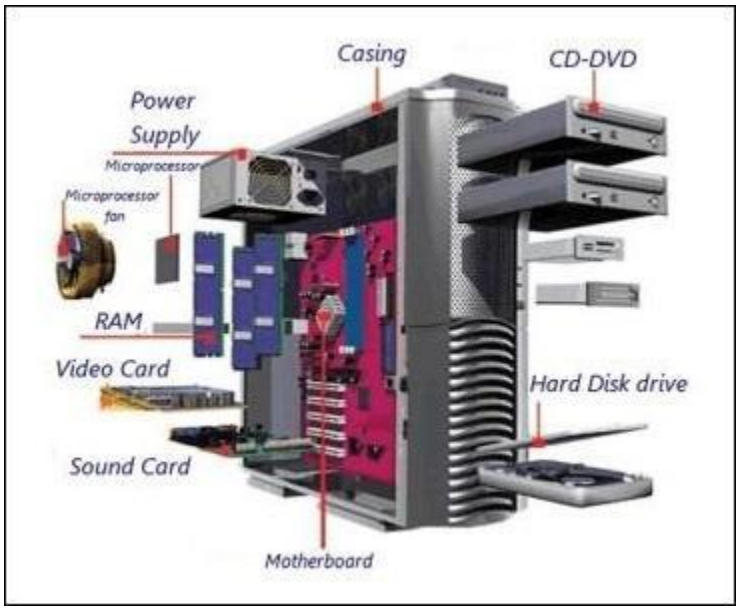
3. Input-output

The hardware of a computer consists of various electronic, electro-mechanical and electro-magnetic devices along with the interfacing buses connecting them. If the hardware is the body, then the software is the soul of a system.

This is how they are put together:



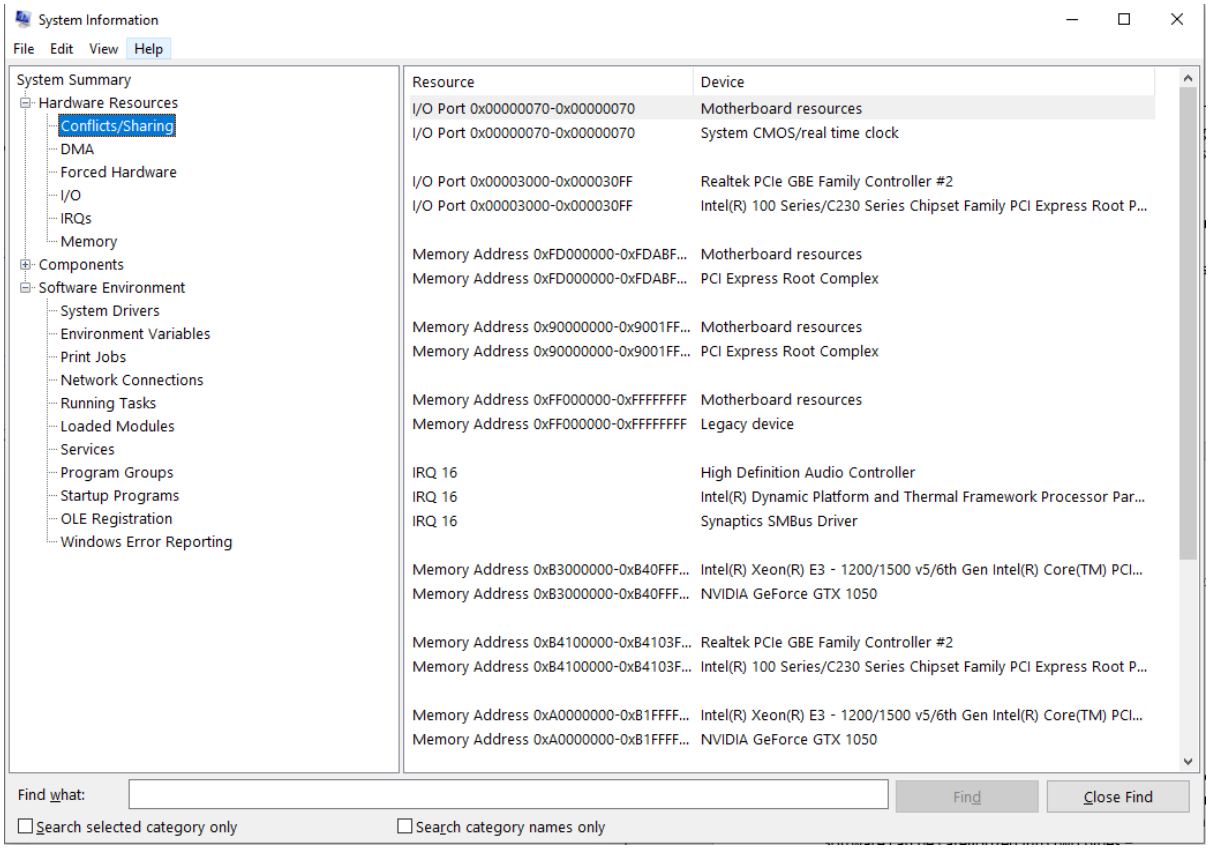

Some of the hardware parts are shown in the below diagram:




It consists of electronic components like ICs, diodes, registers, crystals, boards, insulators, etc, are some of the other than those hardware components visible above.

Q: To check the hardware resources that your computer has access to, follow these steps:

1. Press the Windows logo key + R, type “System Information” in the Open box, and then select OK.
2. Select “+” besides the Hardware Resources to expand the selection.
3. You will find window displaying information of I/O, Memory, etc. Check all the available resources:




4. Similarly, explore the I/O devices and Memory components on your computer.

**Basic Operations of a computer:**

The basic operations of a computer may confuse you at first glimpse as it is a versatile machine doing numerous tasks such as playing awesome games, useful calculations, huge storage, quick retrieval, processing spreadsheets, etc. So, among this huge list of tasks a computer performs, these can be identified as the basic ones:

1. Central Processing Unit
2. I/O Devices
3. Memory

## Central Processing Unit:

**Processing unit**

The task of performing calculations and comparisons are known as processing. The unit in Computer System that is responsible for processing is ALU (Arithmetic and Logical Unit). ALU is the place where actual execution of the instructions takes place during the processing operations. All calculations & comparisons are made in the ALU.

**Control unit**

ALU does does not know what should be done with the data likewise, output unit does not know when the result should be displayed. By selecting, interning and seeing to the execution of the program the CU is able to maintain order and direct the operations of the entire system. CU doesn't perform any actual processing on data yet it is known as a central nervous system for the comforts of the computer. It manages and coordinates the entire system.

**1.Identify the manufacturing company of the processor in your laptop ?**

1. Press on the Windows key  on your keyboard and start typing *System*, choose System Information which will show Processor information with the name, number, and speed of the processor.
2. If the Windows key is not available on your keyboard, using your mouse, go to the Windows icon located on the bottom-left corner of your screen, right-click, and choose System. Look up the processor's name and number in the Processor information.

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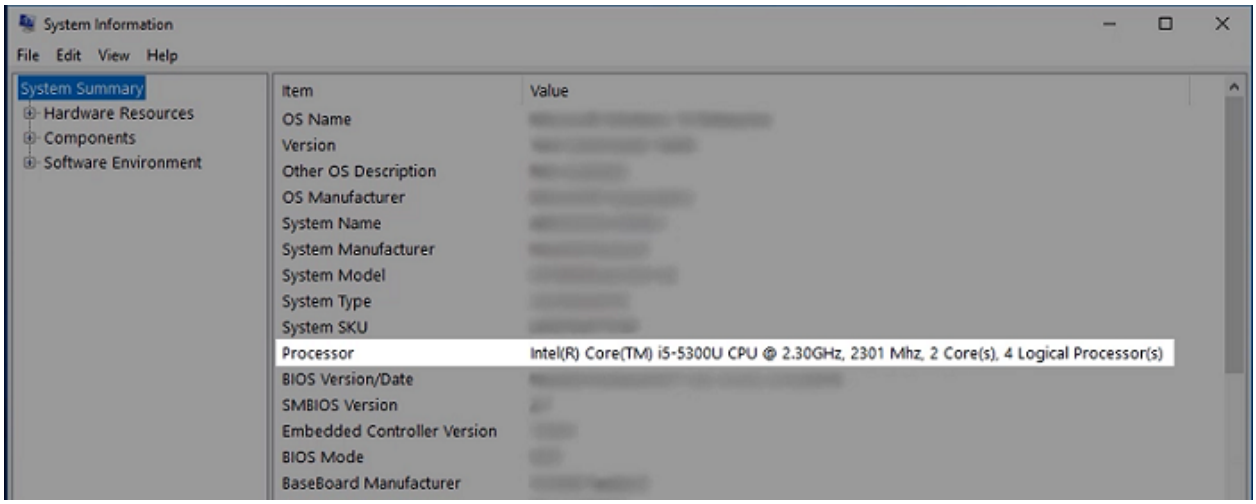
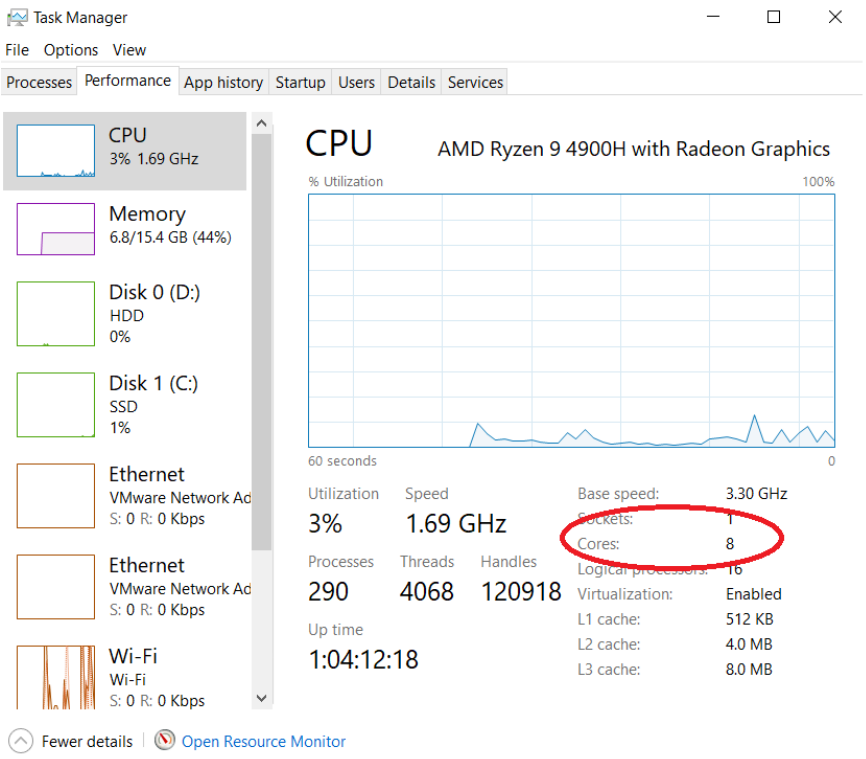



3. Here manufacturing company is **INTEL.**

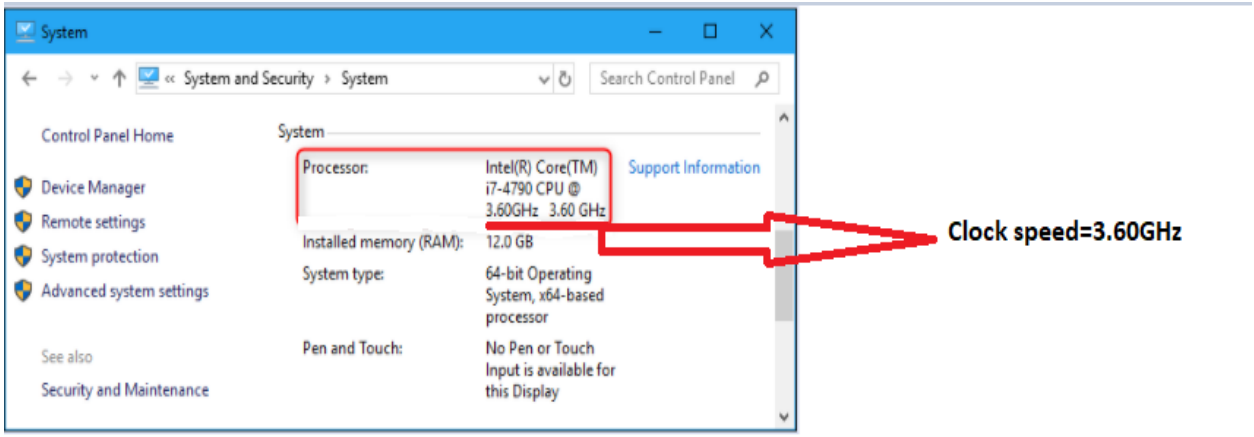
**2.Modern PC processors are multicore. Each core is as fully functional as the others. Each has its own cache, but can communicate with other CPU cores as needed. Identify the number of cores in your computer or laptop.**

Press the Ctrl + Shift + Esc keys simultaneously to open the Task Manager. Go to the Performance tab and select CPU from the left column. You'll see the number of physical cores in the bottom-right side.




**3.Each of the computers manipulations (instructions) begins with a tick of the clock.So the faster the clock ticks, the faster the Computer .Clock speed is a measure of how fast the computer is and is given in GHz (Giga hertz )**

Windows 7—or Windows 10—users can find this information in the Control Panel. Specifically, it's on the system pane. Head to Control Panel > System and Security > System to open it. You can also press Windows+Pause on your keyboard to instantly open this window.




## I/O Devices:

### Input unit

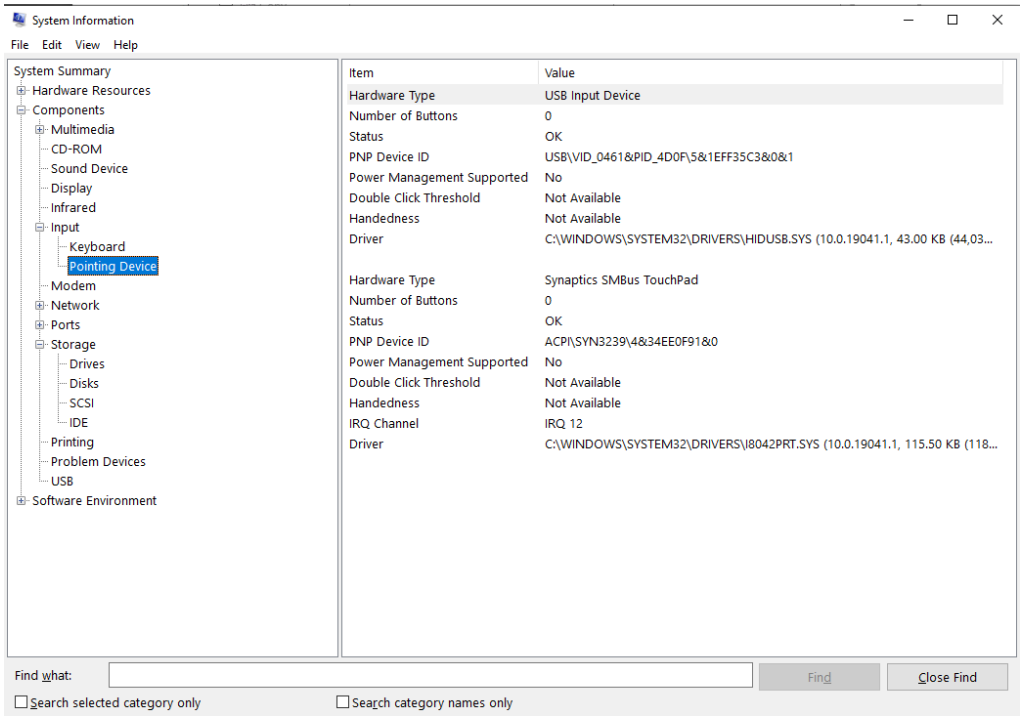
This is the act of feeding in the data and instruction to the. The devices that help you to input data and instructions are known as Input Devices. Keyboard, Mouse, Light Pen, JoyStick, Scanners, Microphone etc are some examples of input unit devices.

### Output unit

This unit takes care of receiving processed information from processing unit and present it to the user in the suitable form. The devices that can output information from a computer are known as output unit devices. Monitors, Speakers, Projectors are soft output devices whereas printers, plotters produce hard copy output. Soft copy output is something that is temporary or is available only as long as the output device is turned on.

**Q. What are the Storage and I/O devices connected to your computer?**

1. Press the Windows logo key + R, type “System Information” in the Open box, and then select OK.
2. Select “+” besides the Components to expand the selection, then select Input or Storage.
3. On the right panel, you will the respective components and their configuration present in your system.




## Memory:

The data & instructions, results produced by the computer are required to be stored before it is passed to the output unit. The intermediate result produced by the computer must also be stored for further processing. Thus, the importance of storage Unit in a computer system is vital.

Primary storage is also called primary memory. Secondary storage is known by other names such as backup storage or secondary memory. For the storage purpose, a computer system may have different devices such as registers, cache, RAM/ROM, flash, magnetic disks, optical disks and so on.

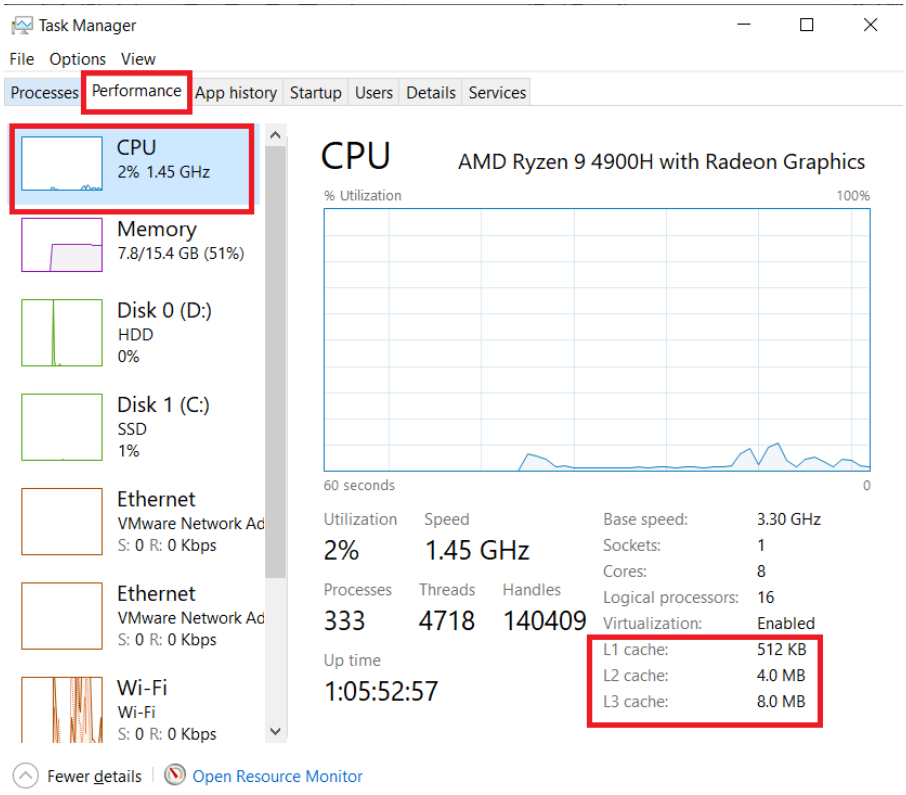
**4..Compared to RAM, the Processor Cache provides faster access to information, resulting in faster processing of programs and data on a computer.**

**You are likely to find the 3 types of Processor Cache Memories.Identify the size of RAM and size of Cache and compare them.**

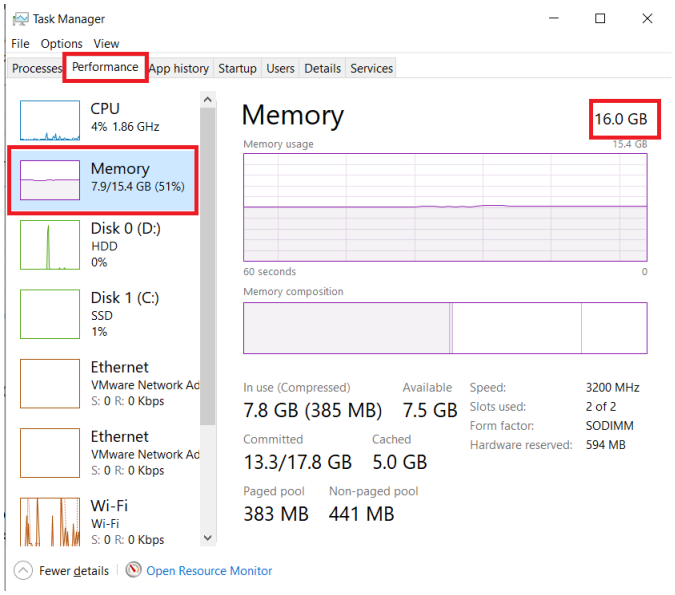
The Task Manager in Windows 10 provides detailed information about the Processor installed on your computer, including L1, L2, and L3 Processor Cache sizes.

1. Right-click on the Start button and click on Task Manager.

2. On the Task Manager screen, click on the Performance tab > click on CPU in the left pane. In the right-pane, you will see L1, L2 and L3 Cache sizes listed under “Virtualization” section.




3.In the same performance tab,Go to Memory and Observe the size of RAM.



**Observation :** Size Of RAM >> Size of all Caches

L1 Cache will always be less than size of L2,L3 cache.Thus searching in L1 Cache takes less time than L2,L3 Cache**.**

**Questions:**

Q1. What is the job of CPU?

a. Calculation b. Data flow control c. Instruction execution d. All of these

Q2. Which of the following can act as both an input and output device?

a. Touch Screen b. Webcam c. Joystick d. None of these

Q3. While the computer is on, the OS instructions resides on

a. RAM b. Hard disk c. Both of them d. None of them

Q4. The storage unit holds:

a. data to be processed b. intermediate result c. Both of these d. None

Q5. The fastest and most close storage device to CPU is

a. Flash Memory b. RAM/ROM c. Registers d. Cache

Q6. Which of the following devices cannot be classified as a programmable computer

a. Smartphone b. Calculator c. ATM machine d. Smart watch

Answers:

1. D 2. A 3. C 4. C 5. C 6. B

**Software:**

A set of instructions that drives computer to do stipulated tasks is called a program. Software instructions are programmed in a computer language, translated into machine language, and executed by computer. They make sure that the bare machinery operates and fulfill the objectives. Software can be categorized into two types –

1. **System Software:**

   System software operates directly on hardware devices of computer. These softwares depend upon the architecture of the underlying computer. It provides a platform to run an application. It provides and supports user functionality. Examples of system software include operating systems such as Windows, Linux, Unix, etc, loader, linker and translators.

2. **Application Software:**

   An application software is designed for benefit of users to perform one or more tasks. Examples of application software include Microsoft Word, Excel, PowerPoint, Oracle, Photoshop etc.

**Q. Check which version of the Operating System (Windows/ Linux/ Ubuntu) you are working on?**

**Windows:**

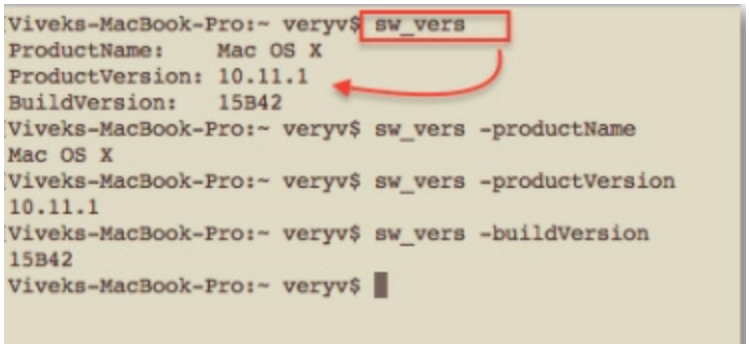
To find out which version of Windows your device is running, press the Windows logo  key + R, type “winver” in the Open box, and then select OK. It displays the version number and the build number that is installed on your system.

**Ubuntu/Linux:**

1. Open the terminal using “Show Applications” or use the keyboard shortcut [Ctrl] + [Alt] + [T].
2. Type the command “lsb_release -a” into the command line and press enter.
3. The terminal shows the Ubuntu version you’re running under “Description” and “Release”.

**MacOS:**

Try these commands:




**Q. Tell if the following are system software or application software? Give reasons.**

1. **Web browser (Google Chrome/Firefox/Safari)**

**2. Device (Printer) Driver Software**

**3. Antivirus Software**

Ans:

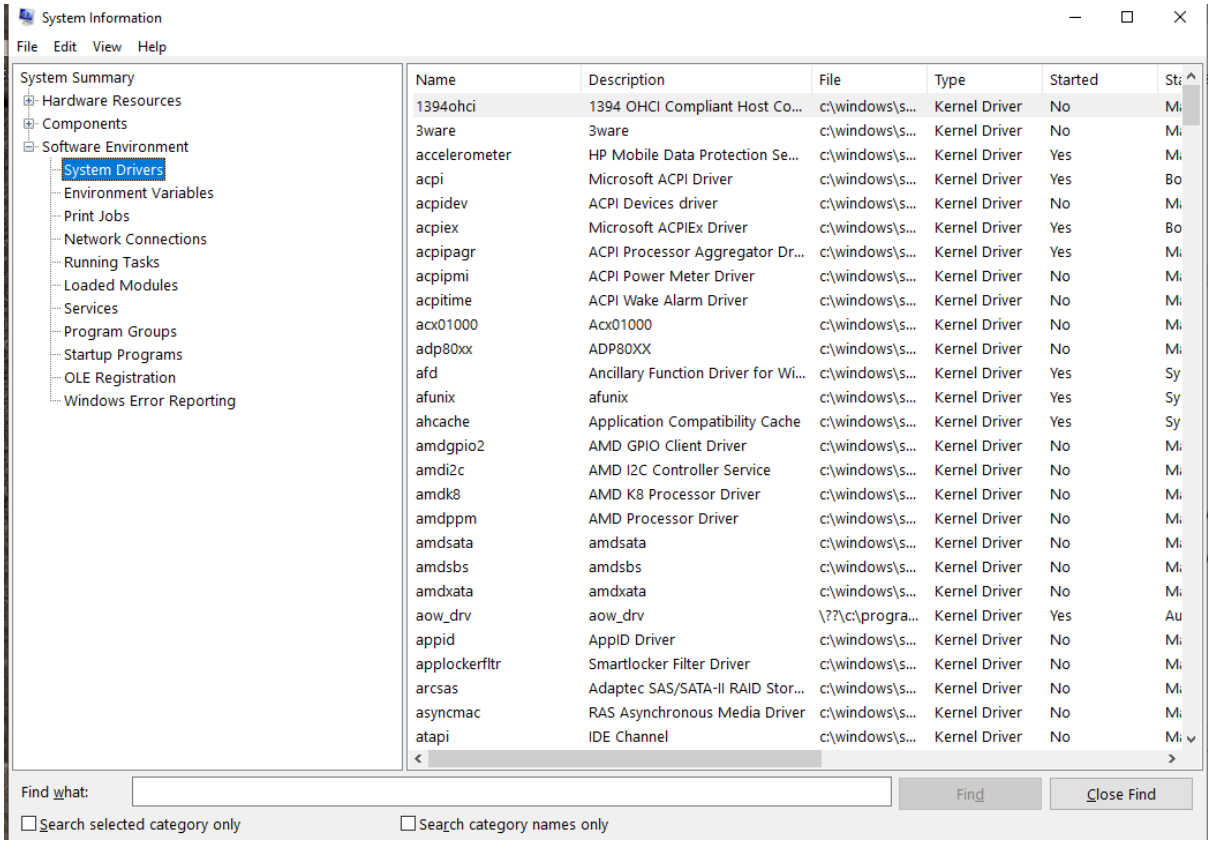
1- Application SW

2- System SW

3- Application SW

**Q. List the drivers installed on your system.**

1. Press the Windows logo  key + R, type “System Information” in the Open box, and then select OK.
2. Select “+” besides the Software Environment to expand the selection, then select System Drivers.
3. On the right panel, you will find the list of drivers installed on your system.


System Information
File Edit View Help
System Summary
Hardware Resources
Components
Software Environment
System Drivers
Environment Variables
Print Jobs
Network Connections
Running Tasks
Loaded Modules
Services
Program Groups
Startup Programs
OLE Registration
Windows Error Reporting
Name Description File Type Started
1394ohci 1394 OHCI Compliant Host Co... c:\windows\s... Kernel Driver No
3ware 3ware c:\windows\s... Kernel Driver No
accelerometer HP Mobile Data Protection Se... c:\windows\s... Kernel Driver Yes
acpi Microsoft ACPI Driver c:\windows\s... Kernel Driver Yes
acpidev ACPI Devices driver c:\windows\s... Kernel Driver No
acpiex Microsoft ACPIEx Driver c:\windows\s... Kernel Driver Yes
acpipagr ACPI Processor Aggregator Dr... c:\windows\s... Kernel Driver Yes
acpipmi ACPI Power Meter Driver c:\windows\s... Kernel Driver No
acpitime ACPI Wake Alarm Driver c:\windows\s... Kernel Driver No
acx01000 Acx01000 c:\windows\s... Kernel Driver No
adp80xx ADP80XX c:\windows\s... Kernel Driver No
afd Ancillary Function Driver for Wi... c:\windows\s... Kernel Driver Yes
afunix afunix c:\windows\s... Kernel Driver Yes
ahcache Application Compatibility Cache c:\windows\s... Kernel Driver Yes
amdgpio2 AMD GPIO Client Driver c:\windows\s... Kernel Driver No
amdi2c AMD I2C Controller Service c:\windows\s... Kernel Driver No
amdk8 AMD K8 Processor Driver c:\windows\s... Kernel Driver No
amdppm AMD Processor Driver c:\windows\s... Kernel Driver No
amdsata amdsata c:\windows\s... Kernel Driver No
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aow_drv aow_drv \??\c:\progra... Kernel Driver Yes
appid AppID Driver c:\windows\s... Kernel Driver No
applockerfltr Smartlocker Filter Driver c:\windows\s... Kernel Driver No
arcsas Adaptec SAS/SATA-II RAID Stor... c:\windows\s... Kernel Driver No
asyncmac RAS Asynchronous Media Driver c:\windows\s... Kernel Driver No
atapi IDE Channel c:\windows\s... Kernel Driver No
Find what:
Find
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Search selected category only
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