



Computer Basics and Programming

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01

Introduction



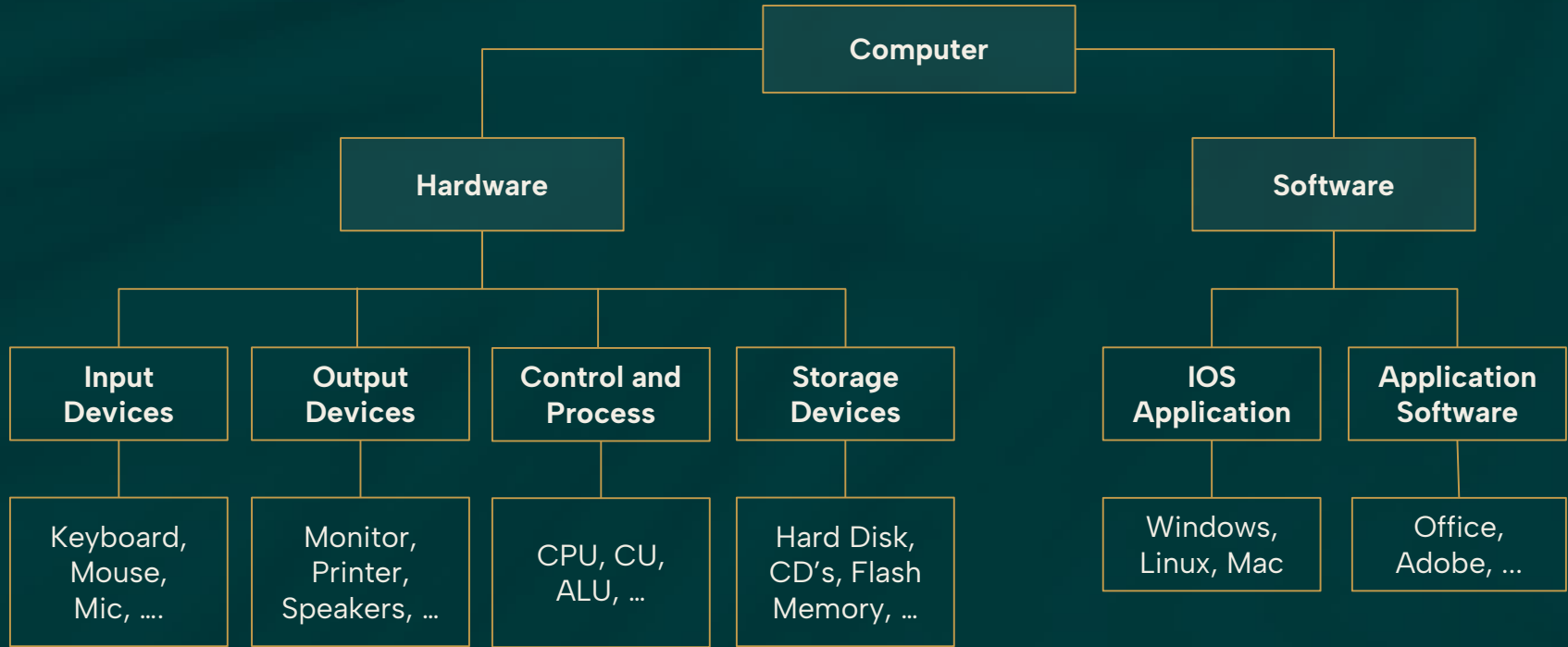


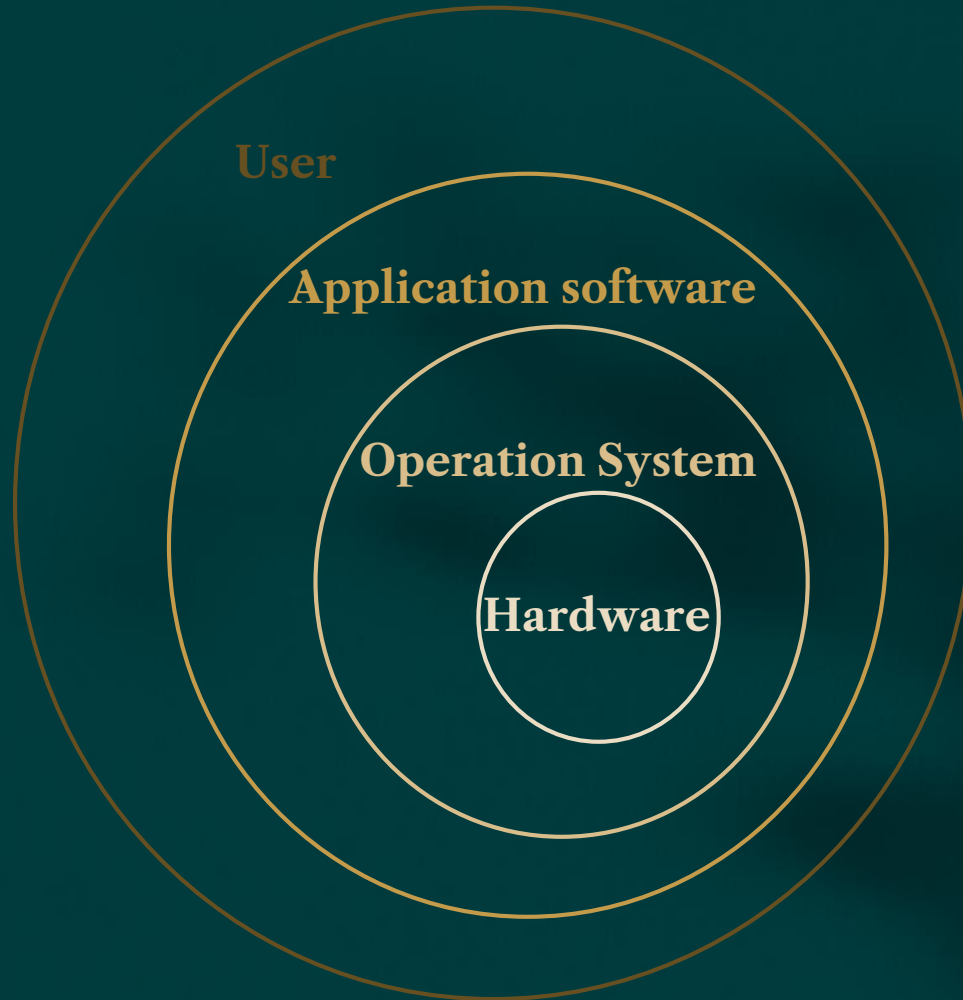
What is a Computer?

A computer is an electronic device that manipulates information, or data. It has the ability to store, retrieve, and process data. You may already know that you can use a computer to type documents, send email, play games, and browse the Web. Computers can meet human needs due to the following features:

- Accuracy
- Speed
- Repetition
- Faultless
- Forgetfulness

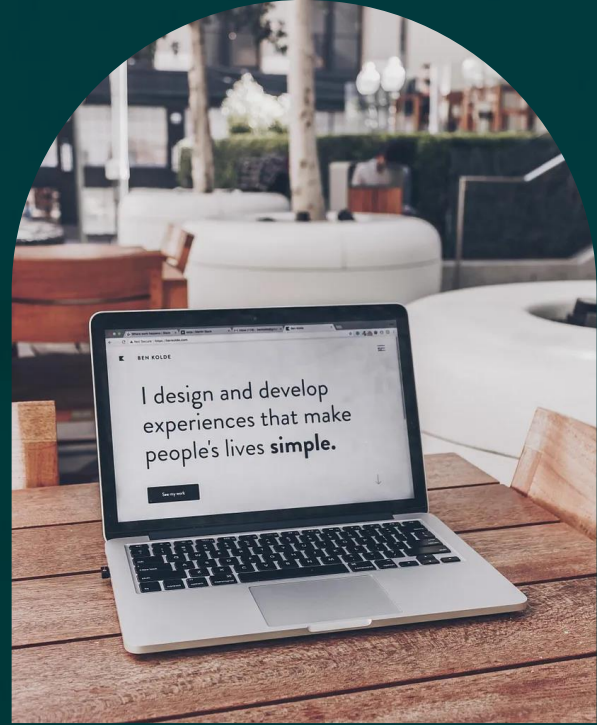
Computer Parts

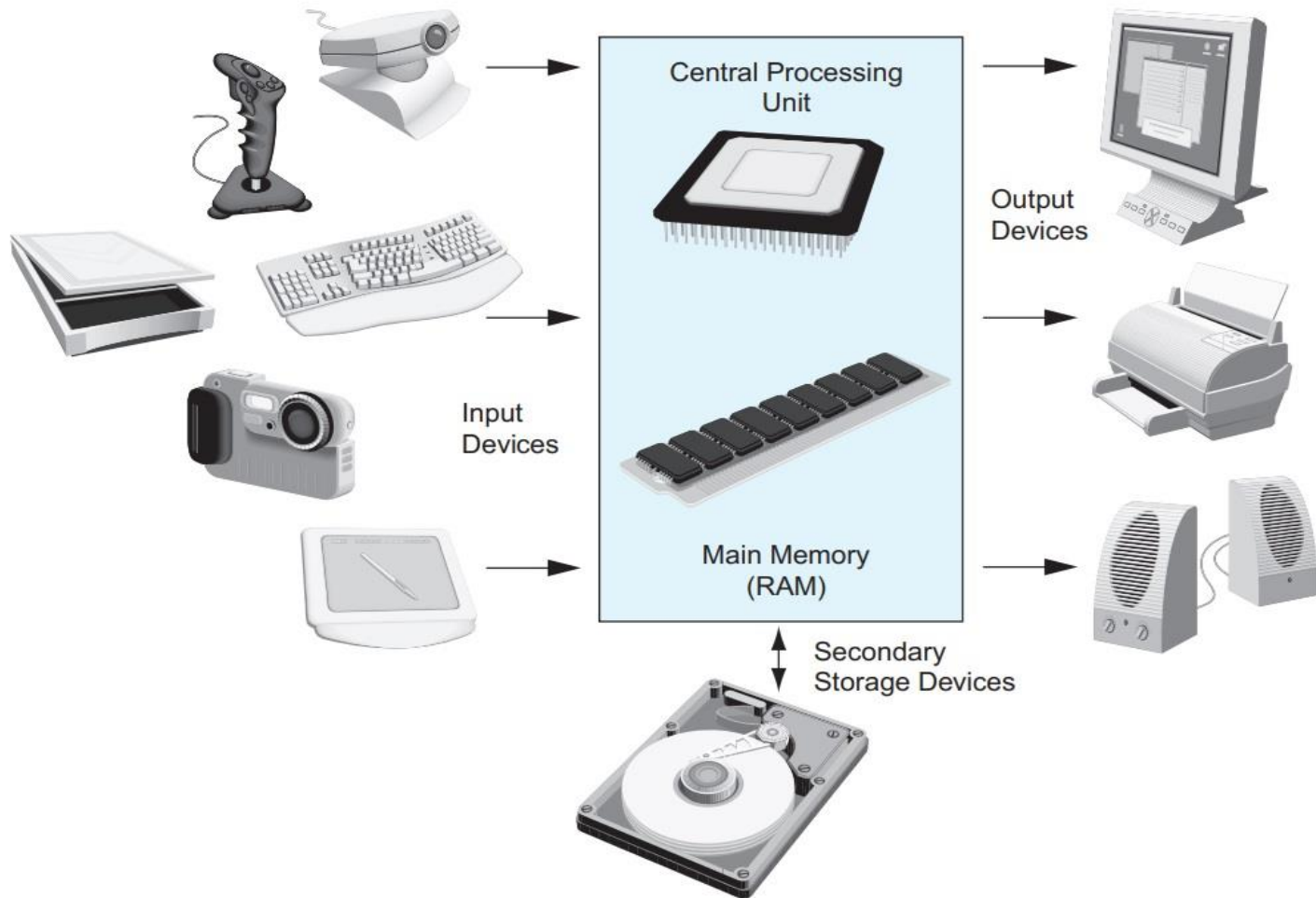


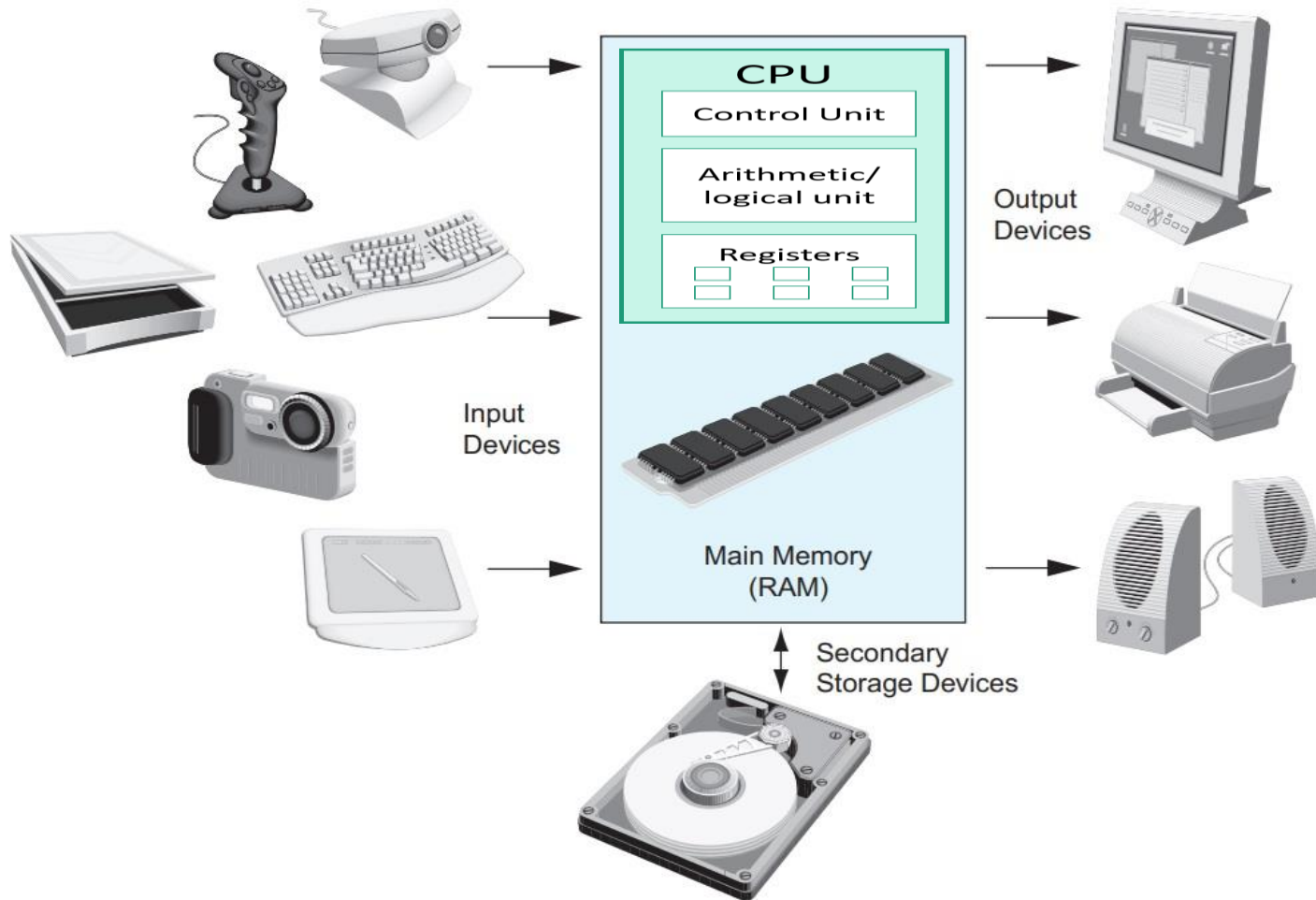


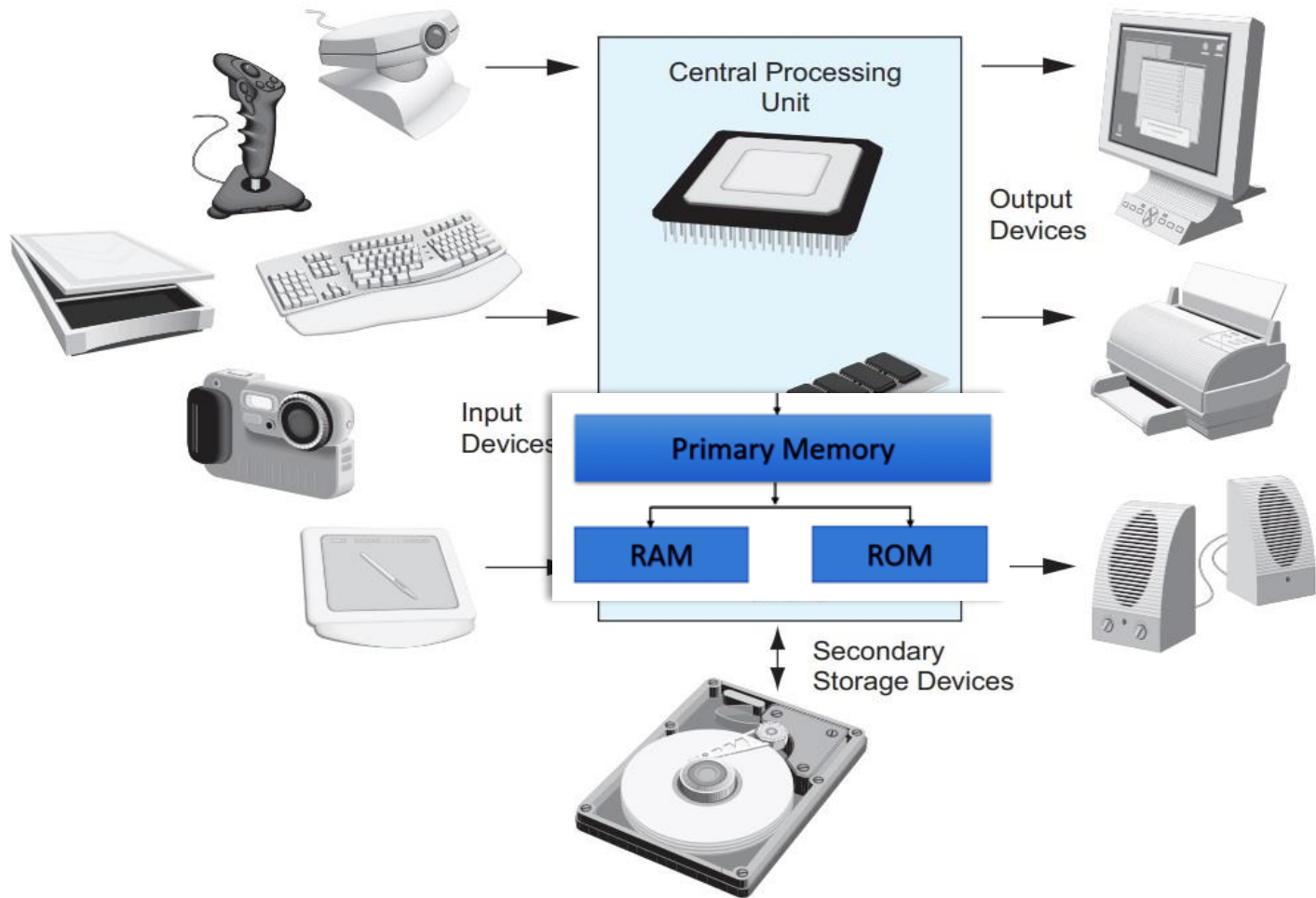
02

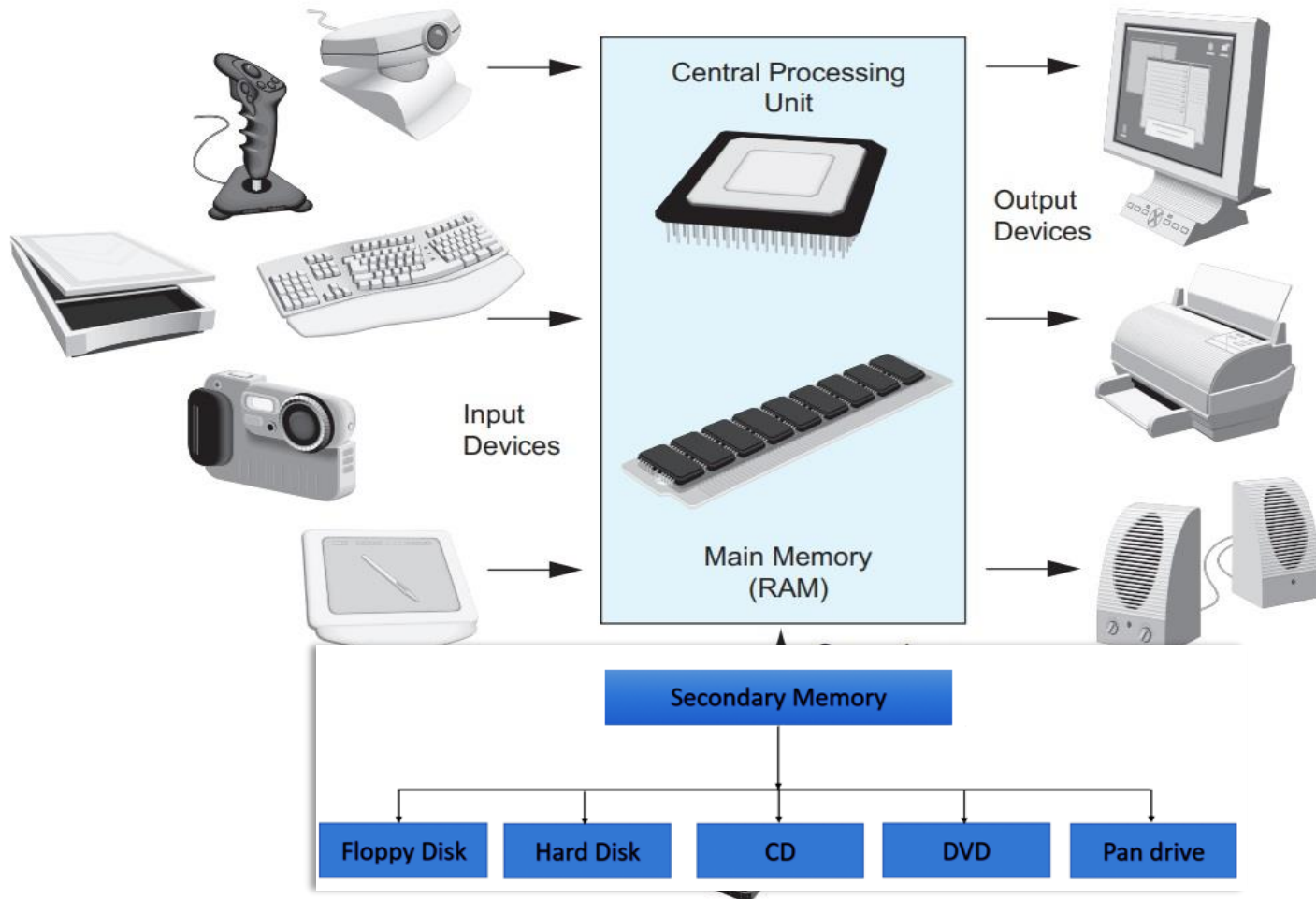
Computer Hardware





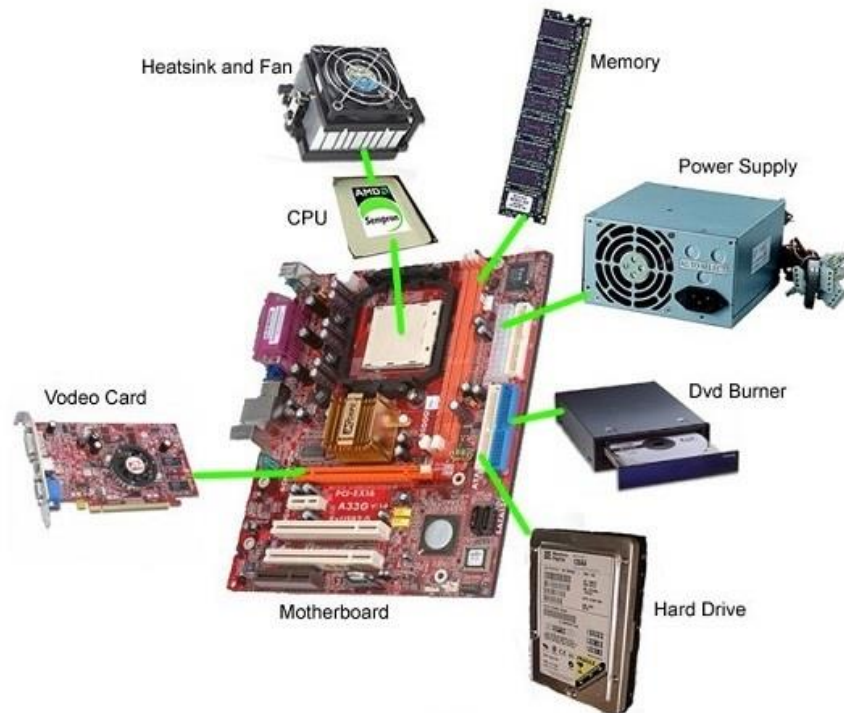








Motherboard



03

Computer Software





Search for apps, settings, and documents

Pinned

All apps >



Edge



Word



Excel



PowerPoint



Settings



OneNote



File Explorer

Recommended

More >



MinGW Installation Manager
Recently added



Dev-C++
Recently added



navigatingwindows_startbutton2.jpg
7m ago



photo_5850326132891697982_y.jpg
1h ago



template.pptx
2h ago



1. Computer Basics - Introduction.p...
6h ago

Start



Taskbar

Notification area



Search



Task manager (ctrl + shift + del)

- **Processes:** Shows active apps, background processes, Windows processes, and detailed information about CPU, RAM, data carrier, network, GPU and power levels. You can end or restart any process by right-clicking on it.
- **Performance:** Displays a graphic showing how heavy the load on the CPU, RAM, data carrier or Wi-Fi is in real time.
- **App history:** Shows you the resource usage history of apps in the current user account.
- **Startup:** Displays current apps that automatically launch with every Windows 11 startup. You can also uninstall apps you're not using to speed up Windows 11
- **Users:** Shows all currently logged-in user accounts and their resource usage.
- **Details:** Displays a list of all processes including name, status, CPU and description.
- **Services:** Provides a list of all applications used for computer management. There's a description of each app as well as information about its status, PID and application group.



Processes



Performance



App history



Startup apps



Users



Details



Services

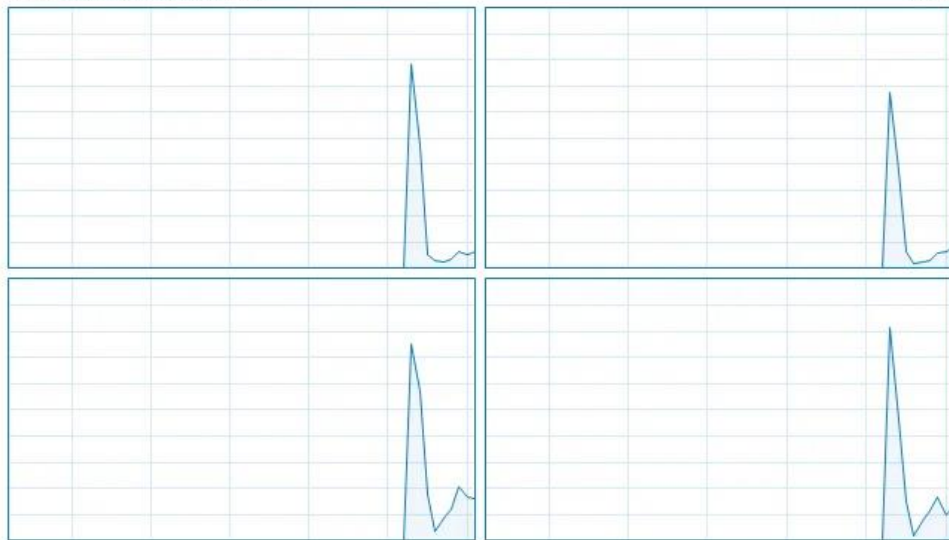
**CPU**
11% 3.70 GHz**Memory**
2.4/12.2 GB (20%)**Disk 0 (C:)**
HDD
1%**Ethernet**
Ethernet
S: 0 R: 0 Kbps

CPU

Intel(R) Core(TM) i7-8700K CPU @ 3.70GHz

% Utilization over 60 seconds

100%



Utilization

Speed

Base speed:

3.70 GHz

11%

3.70 GHz

Sockets:

1

Processes

Threads

Handles

Virtual processors:

4

137

2049

55806

Virtual machine:

Yes

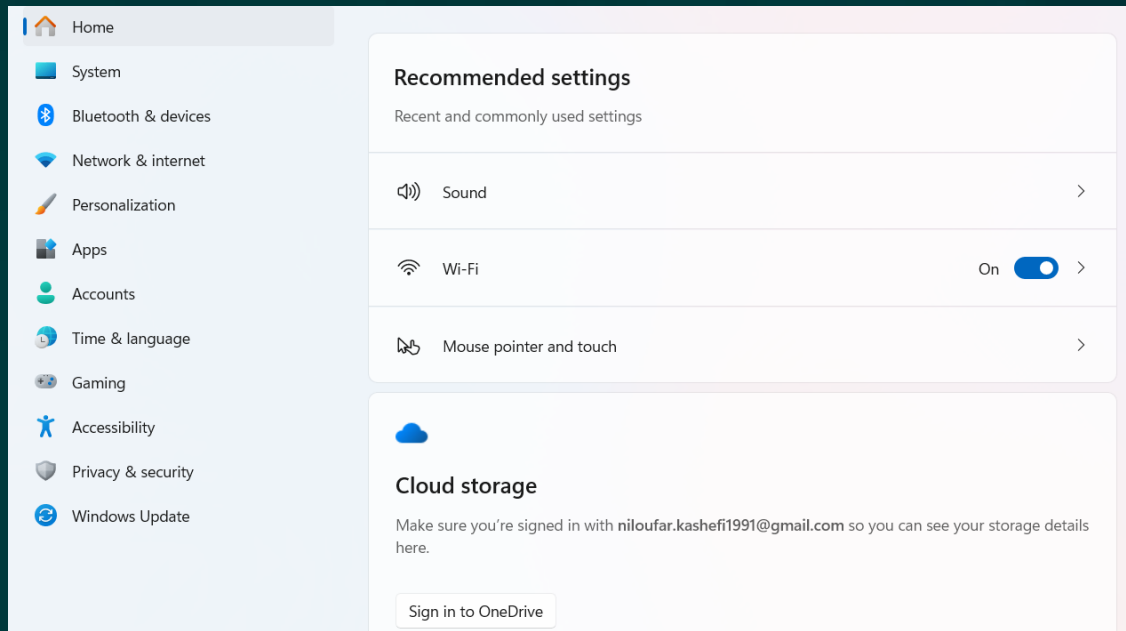
L1 cache:

N/A

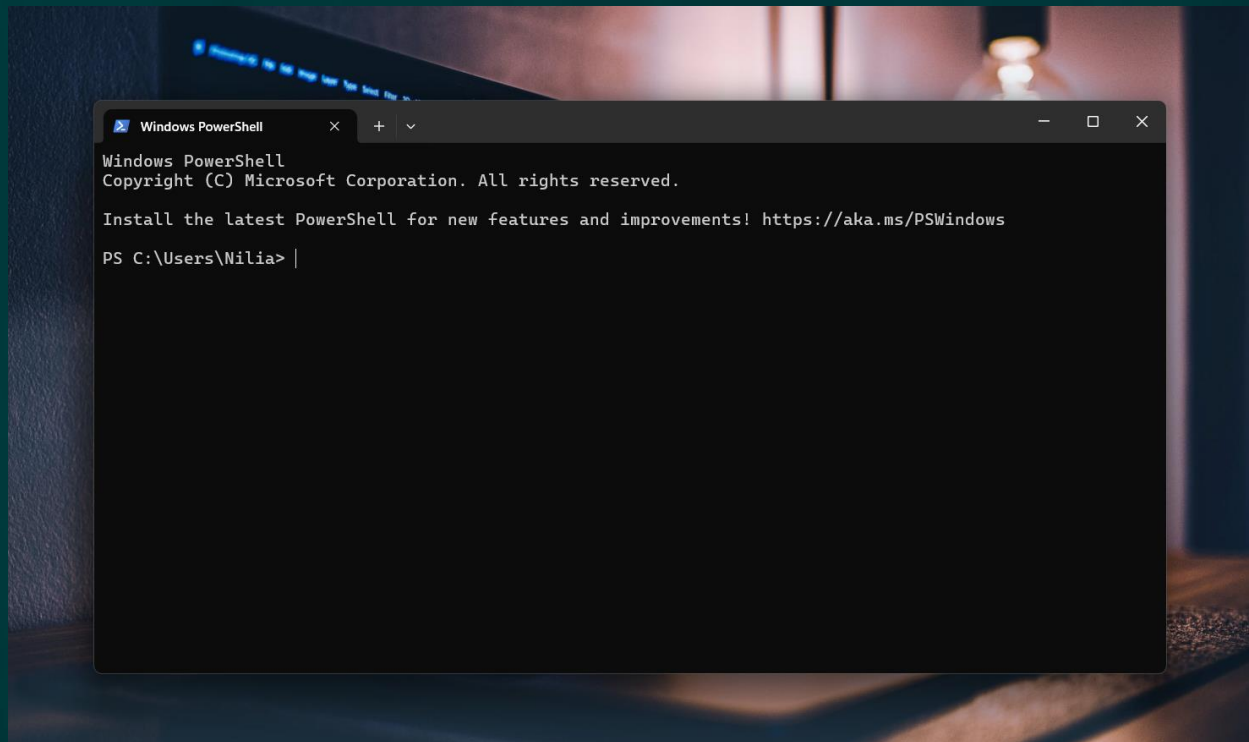
Up time

Setting (win + i)

Settings is the main application to customize and manage Windows settings. It allows users to adjust their user preferences, configure their operating system, and manage their connected devices.



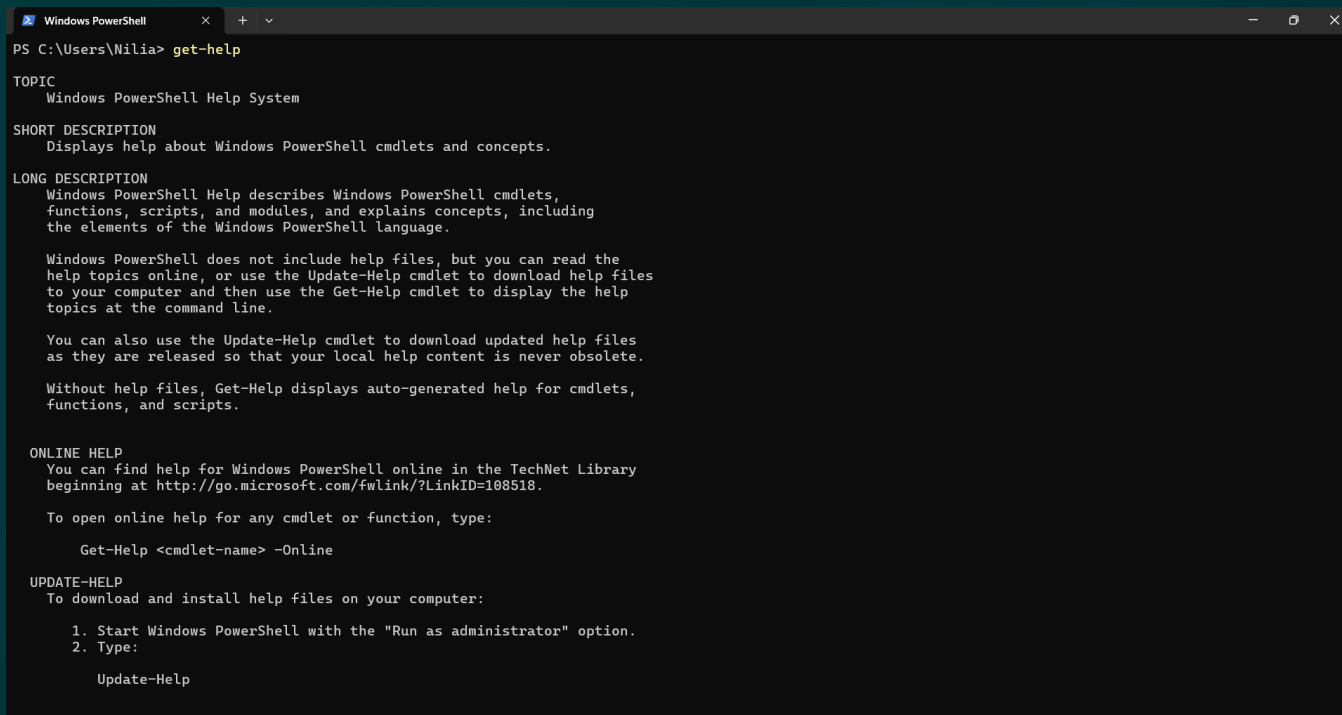
PowerShell



PowerShell Commands

Command	Description
Get-Service	Retrieve information about services
Get-Process	Retrieve information about processes
Get-EventLog	Retrieve information from event logs
Set-ExecutionPolicy	Modify the script execution policy
Test-Connection	Test the connectivity to a remote computer
Out-File	Write PowerShell output to a file
Get-Help	Display information about concepts and commands
Get-History	Retrieve recent commands in your current session

PowerShell Commands: Get-Help



```
Windows PowerShell
PS C:\Users\Nilia> get-help

TOPIC
    Windows PowerShell Help System

SHORT DESCRIPTION
    Displays help about Windows PowerShell cmdlets and concepts.

LONG DESCRIPTION
    Windows PowerShell Help describes Windows PowerShell cmdlets,
    functions, scripts, and modules, and explains concepts, including
    the elements of the Windows PowerShell language.

    Windows PowerShell does not include help files, but you can read the
    help topics online, or use the Update-Help cmdlet to download help files
    to your computer and then use the Get-Help cmdlet to display the help
    topics at the command line.

    You can also use the Update-Help cmdlet to download updated help files
    as they are released so that your local help content is never obsolete.

    Without help files, Get-Help displays auto-generated help for cmdlets,
    functions, and scripts.

ONLINE HELP
    You can find help for Windows PowerShell online in the TechNet Library
    beginning at http://go.microsoft.com/fwlink/?LinkID=108518.

    To open online help for any cmdlet or function, type:

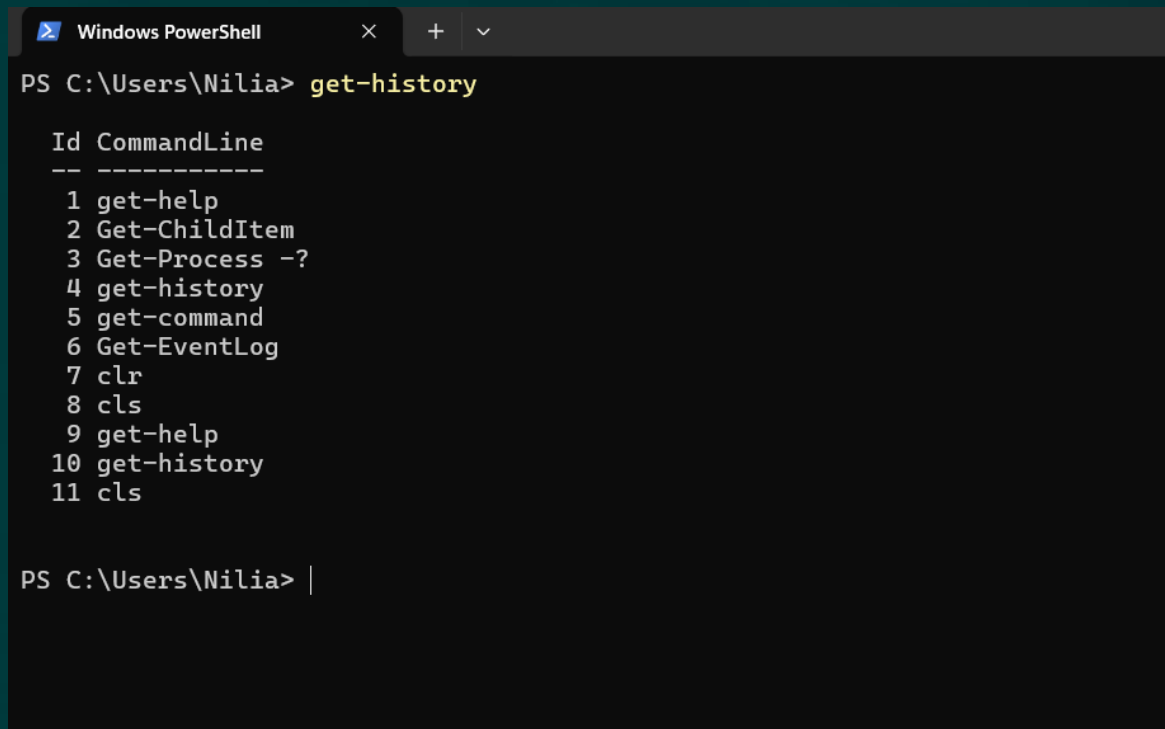
        Get-Help <cmdlet-name> -Online

UPDATE-HELP
    To download and install help files on your computer:

        1. Start Windows PowerShell with the "Run as administrator" option.
        2. Type:

            Update-Help
```

PowerShell Commands: Get-History



```
Windows PowerShell
PS C:\Users\Nilia> get-history

Id CommandLine
--
1 get-help
2 Get-ChildItem
3 Get-Process -?
4 get-history
5 get-command
6 Get-EventLog
7 clr
8 cls
9 get-help
10 get-history
11 cls

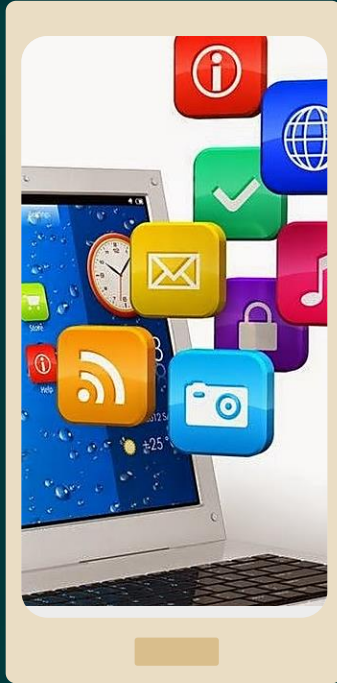
PS C:\Users\Nilia> |
```

PowerShell Commands: Get-Service

```
PS C:\Users\Nilia> get-service
```

Status	Name	DisplayName
-----	----	-----
Stopped	AarSvc_2080384	Agent Activation Runtime_2080384
Running	agent_ovpnconnect	OpenVPN Agent agent_ovpnconnect
Stopped	AJRouter	AllJoyn Router Service
Stopped	ALG	Application Layer Gateway Service
Stopped	AppIDSvc	Application Identity
Running	Appinfo	Application Information
Stopped	AppMgmt	Application Management
Stopped	AppReadiness	App Readiness
Stopped	AppVClient	Microsoft App-V Client
Stopped	AppXSvc	AppX Deployment Service (AppXSVC)
Stopped	AssignedAccessM...	AssignedAccessManager Service
Running	AudioEndpointBu...	Windows Audio Endpoint Builder
Running	AudioSrv	Windows Audio
Stopped	autotimesvc	Cellular Time
Stopped	AxInstSV	ActiveX Installer (AxInstSV)
Stopped	BcastDVRUserSer...	GameDVR and Broadcast User Service_...
Stopped	BDESVC	BitLocker Drive Encryption Service
Running	BFE	Base Filtering Engine
Stopped	BITS	Background Intelligent Transfer Ser...
Stopped	BluetoothUserSe...	Bluetooth User Support Service_2080384
Running	BrokerInfrastru...	Background Tasks Infrastructure Ser...
Stopped	BTAGService	Bluetooth Audio Gateway Service
Stopped	BthAvctpSvc	AVCTP service
Running	bthserv	Bluetooth Support Service
Running	camsvc	Capability Access Manager Service
Stopped	CaptureService_...	CaptureService_2080384
Running	cbdhsvc_2080384	Clipboard User Service_2080384
Running	CDPSvc	Connected Devices Platform Service
Running	CDPUserSvc_2080384	Connected Devices Platform User Ser...
Stopped	CertPropSvc	Certificate Propagation
Running	ClickToRunSvc	Microsoft Office Click-to-Run Service
Stopped	ClipSVC	Client License Service (ClipSVC)

Application Software



Browser

Chrome
Firefox



Microsoft Office

Word
Excel
Power Point



Adobe

Photoshop
Premier



Antivirus

ESET NOD32
KASPERSKY



Programming IDE


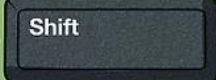

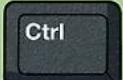






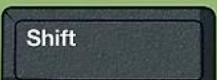


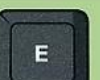
Visual studio code
PyCharm
PHPstorm



Download













IDM (Internet Download Manager)

Shortcut keys

 +  + 	Open the Task Manager
 +  + 	Open the Windows Security menu
 + 	Open the Start menu
 + 	Close an open window or program
 + 	Permanently delete a selected item. This will bypass the Recycle Bin.
 + 	Open File Explorer

wikiHow to Use Keyboard Shortcuts

Shortcut keys

 + 	Copy selected text. You can also use this to copy selected files or folders.
 + 	Copy and remove selected text (known as "cutting").
 + 	Paste copied text at the cursor. This also works with files and folders.
 + 	Undo the last action. Depending on the program, this command can be used multiple times to undo multiple mistakes.
 + 	Reverse the last undo. Depending on the program, this command can be used multiple times to revert multiple undo commands.
 + 	Print your document.

wiki How to Use Keyboard Shortcuts

04

Programming

```
function(e, t, n) {  
  o = e.length,  
  a = M(e);  
  if (n) {  
    if (a) {  
      for (; o > i; i++)  
        if (r = t.apply(e[i], n), r === !1) bre  
    } else  
      for (i in e)  
        if (r = t.apply(e[i], n), r === !1) bre  
  } else if (a) {  
    for (; o > i; i++)  
      if (r = t.call(e[i], i, e[i]), r === !1) bre  
  } else  
    for (i in e)  
      if (r = t.call(e[i], i, e[i]), r === !1) bre  
  return e  
},  
trim: b && !b.call("\uffeff\u00a0") ? function(e) {  
  return null == e ? "" : b.call(e)  
} : function(e) {  
  return null == e ? "" : (e + "").replace(C, "")  
},  
makeArray: function(e, t) {  
  var n = t || [];  
  return null != e && (M(Object(e)) ? x.merge(n, "stri  
),  
isArray: function(e, t, n) {  
  var r;  
  if (t) {  
    if (n) return a.call(t, e, n);  
    for (r = t.length, n = n ? 0 > n ? Math.max(0, r  
      if (n in t && t[n] === e) return n  
  }  
}
```

What is Programming?

01

Programming

Human Need
(**Software**)

Algorithm

02

Translate

Source Code
(**Made By Programming**)

- *Python, Java, C#*
- *C++*
- *Assembly*

03

Executable Program
(**In machine Language**)

- *High Level Languages*
- *Mid Level Languages*
- *Low Level Languages*



05

Programming Roadmap



Algorithmic mind

Solve the problem, using algorithms

Search

You can solve your problem by search

English

Self study – Search

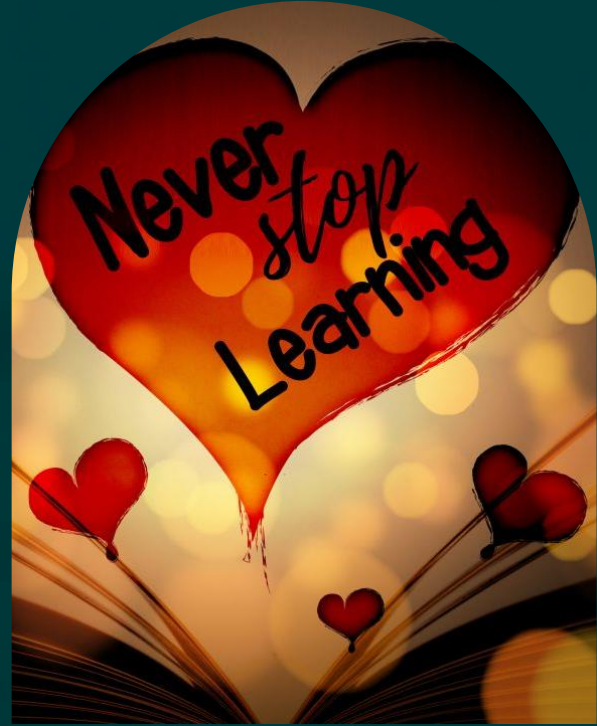
Programming Roadmap:

To learn programming, you need to go through the following steps:

<u>Structure of a Computers</u>	I/O unit – Memory unit– CPU – CU- ALU
<u>Computer softwares</u>	Operation System and application softwares
<u>Define the Problem</u>	Including all parts of the project in detail
<u>Algorithms</u>	A procedure or formula used for solving a problem
<u>Programming Structure</u>	Variables – Operators – Program Control – Function , ...
<u>Programming Language syntax</u>	It can be different from one language to another
<u>Software Development Process</u>	Solution -> Algorithm -> Code -> Test -> Document -> Installation and deployment

06

Resources



Resources

Become a programmer using these sites:

Iranian

- <https://faradars.org/>
- <https://www.aparat.com/>
- <https://maktabkhooneh.org/>

Foreign

- <https://www.youtube.com/>
- <https://www.udemy.com/>
- <https://www.coursera.org/>
- <https://www.w3schools.com/>
- <https://www.linkedin.com/>
- <https://stackoverflow.com/>
- <https://github.com/>



Thanks

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