



Workshop on
Cyber Security & Computer Hardware
for faculty members
25th February 2023

Agenda:

10:00-10:30	Registration	
10:30-10:45	Inaugural Session	
10:45-11:00	Hi-Tea	
11:00-11:45	Session-1: (Mr. D Sahoo, Ex Banker-CGM, PNB)	
	Cyber Security: Safe Digital Banking Practices to prevent Fraud	
11:50-01:00	Session-2: (Mr. RR Behera)	
	Computer Systems' Fault Detection, Awareness on Trouble Shooting	
01:00-01:30	Lunch Break	
01:35-03:15	Session-3 (Mr RR Behera, Mr. SN Sahoo)	
	- Cloud Usage for Research & Office Works	
	- Certificate distribution	
03:25	Photography	
Contacts	Participation certificates- Dr. T. Nayak,	9861599215
	Technical Details -Mr. RR Behera,	7008018094



1.1 Session-1: Safe Digital Banking Practices to prevent Fraud

- i. Payment Systems
- ii. eCommerce Transactions
- iii. Phishing/Vishing/RA/Juice Jacking /Online J Fraud/M-Mule/ SIM cloning
- iv. Safe Digital Banking Practices

- In the current scenario adoption of digital transactions has become mandatory to a large extent. Life has become easier by adopting digital transactions. Instead of regular visiting to a bank branch or ATM it is quite easy to do a financial transaction through UPI. It is advisable to do digital transactions with adequate precautions.
- Never share your account details such as account number, login ID, password, PIN, UPI-PIN, OTP, ATM / Debit card / credit card details with anyone, not even with bank officials, however genuine they might sound.
- Any phone call / email threatening the blocking of your account on the pretext of non-updation of KYC and suggestion to click link for updating the same is a common modus operandi of fraudsters. Do not respond to offers for getting KYC updated / expedited. Always access the official website of your bank / NBFC / e-wallet provider or contact the branch.
- Do not download any unknown app on your phone / device. The app may access your confidential data secretly.
- Transactions involving receipt of money do not require scanning barcodes / QR codes or entering MPIN. Thus, exercise caution if asked to do so.
- Always access the official website of bank / NBFC / e-wallet provider for contact details. Contact numbers on internet search engines may be fraudulent.
- Check URLs and domain names received in emails / SMSs for spelling errors. Use only verified, secured, and trusted websites / apps for online banking, that is, websites starting with "https". In case of suspicion, notify local police / cybercrime branch immediately.
- If you receive an OTP for debiting your account for a transaction not initiated by you, inform your bank / e-wallet provider immediately. If you receive a debit SMS for a transaction not done, inform your bank / e-wallet provider immediately and block all modes of debit, including UPI. If you suspect any fraudulent activity in your account, check for any addition to the beneficiary list enabled for internet / mobile banking.
- Do not share the password of your email linked to your bank / e-wallet account. Do not have common passwords for e-commerce / social media sites and your bank account / email linked to your bank account. Avoid banking through public, open or free networks.
- Do not set your email password as the word "password" while registering in any website / application with your email as user-id. The password used for accessing your email, especially if linked with your account, should be unique and used only for email access and not for accessing any other website / application.
- Do not be misled by advices intimating deposit of money on your behalf with RBI for foreign remittances, receipt of commission, or wins of lottery.
- Regularly check your email and phone messages for alerts from your financial service provider. Report any un-authorized transaction observed to your bank / NBFC / Service provider immediately for blocking the card / account / wallet, so as to prevent any further losses.
- Secure your cards and set daily limit for transactions. You may also set limits and activate / deactivate for domestic / international use. This can limit loss due to fraud.
- In case your account is fraudulently debited without your authorization, please contact the toll free number of your bank or the branch immediately. You can lodge a complaint by dialing **1930** or contacting the local Cyber Police Station. Contact Number of Bhubaneswar Cyber Police Station : 8280405691. Cyber Helpline at Bhubaneswar is : 7440006709.



1.2 Session-2: Computer Systems' Fault Detection, Awareness on Trouble Shooting

i. Some common observed Problems related to PC/Laptop and how to fix?

You don't have to run to the repair shop every time your PC ends up with an issue. Many of the common PC problems have a **rather simple solution**, and you can **fix them yourself with a few simple steps**. To help you troubleshoot common PC problems yourself, following 15 most common PC H/w problems and **what your options are** if you face any of them.

Prob#	General Observations	Prob#	General Observations
P-1	PC Overheating	P-9	PC isn't powering on
P-2	Dysfunctional USB Port	P-10	Noisy PC
P-3	PC keeps disconnecting from WiFi	P-11	Noisy hard drive
P-4	PC beeps	P-12	Blue Screen of Death
P-5	PC Fans not working	P-13	Blank monitor
P-6	PC not using a portion of RAM	P-14	Monitor goes black after few seconds
P-7	Overworking fan	P-15	Keyboard issues
P-8	PC crashes before loading the OS		

1. PC Overheating

A **heating PC slows down the whole system and leads to frequent crashes**. Additionally, PC components may also get permanently damaged due to constant exposure to heat.

There are **two main reasons your PC heats up**, i.e. either the cooling system isn't working properly or the PC is heating to the point your cooling system can't handle it anymore. In either case, I have written a comprehensive article on different solutions to handle an overheating PC. Do check it out.

2. Dysfunctional USB Port

If your USB port stops working, it's not necessary that it's broken. Below are some solutions that can fix this issue:

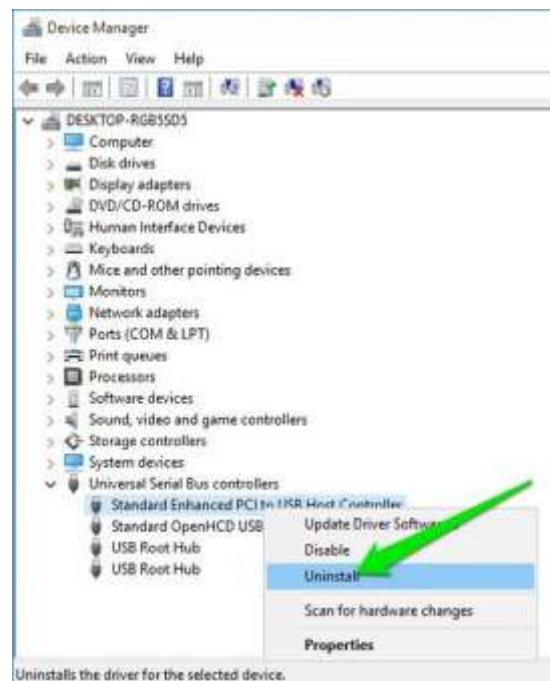
Method 1: Restart the PC

Restarting the PC is the answer to many problems, and it is a common solution to USB port problem as well.

Method 2: Uninstall USB port driver

Uninstalling the driver of the USB port will force Windows to reinstall it when you will restart the PC. This may fix the problem. Here is how to do it:

1. Press **Windows + R** keys and enter **devmgmt.msc** in the **Run** dialog to open the **Device Manager**.
2. Here, expand **Universal Serial Bus controllers** option.
3. Now right-click the entry **USB Host Controller** and then click on **Uninstall**.
4. Repeat this for all entries with **USB Host Controller** to uninstall drivers for all the USB ports.
5. Once deleted, restart the PC and **Windows will automatically reinstall the drivers** and fix any driver issues.





Method 3: Disable USB selective suspend

USB Selective Suspend is a Windows power saving feature that **suspends unused or idle USB ports to conserve power**. Sometimes it could stop a USB port from working. Here is how to disable it:

1. Press **Windows** + **R** keys and type `powercfg.cpl` in the **Run** dialog to open Windows Power options.
2. Here click on **Change plan settings** next to your current plan and then click on **Change advanced power settings**.
3. Now, expand **USB settings** and disable **USB selective suspend setting**.
4. Restart the PC to see if it fixes the USB port issue.

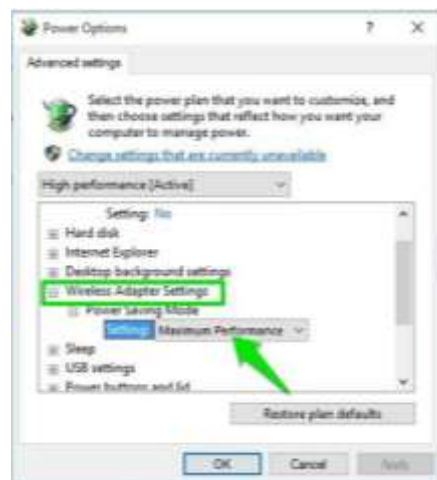
Note: This option should be kept enabled if you want to save battery power. If it **doesn't fix the USB port issue, then enable it again**.



3. PC keeps disconnecting from WiFi

If your Wi-Fi is working fine but your PC keeps disconnecting from it, then your PC's network card may not be receiving full power. Windows has a **built-in power saver option that gives less power to the network card**. You need to disable this feature:

1. Go to **Advanced settings** in the **Power Options**.
2. Here expand **Wireless Adaptor Settings** and then expand **Power Saving Mode**.
3. Set this to **Maximum Performance**.



4. PC beeps

The PC **motherboard is smart enough to detect problems** and sounds beeps in different rhythms to tell you. Here is an article on what it actually means when the PC beeps multiple times.

If the PC doesn't start after the beeps, then it's usually difficult to solve the problem yourself. However, I'm going to list down two of the most common problems due to which beeps occur, and thankfully, you can solve them yourself as well.

Problem 1: Out of place RAM

A problem I recently dealt with. If the **RAM inside your PC gets loose or out of place, then your PC will beep 2-3 times** and won't boot at all. The solution is simple, open up the PC (laptop users should let an expert handle this) and **reinsert the RAM**. Here's how:

1. **Take out the RAM completely and clean any dirt inside** the slot using a cotton bud.
2. Now **insert back the RAM** and put enough pressure on both ends to ensure it is fully inside.
3. Afterward, close the clips and **make sure they're properly locked**. Even a slightly loose RAM will be unable to work.

This video should help you properly install the RAM



Problem 2: Recently added hardware

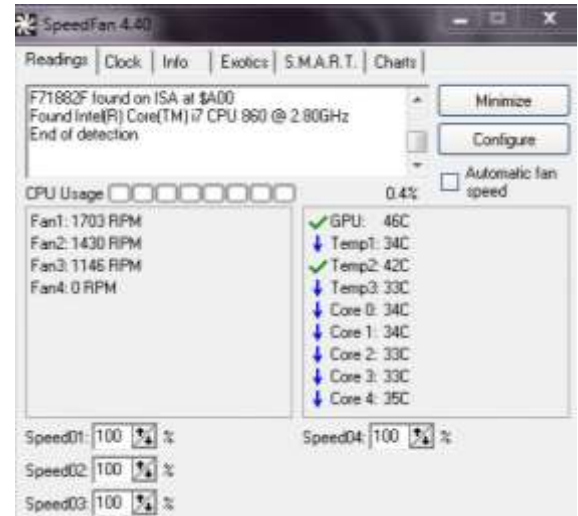
A damaged or **wrongly installed hardware component could lead to beeps**. Take out any newly added hardware components and see if it solves the problem. If the PC works fine afterward, then either **get it installed properly or get it fixed** (or replaced).

5. PC Fans not working

If you notice one or more fans in your PC aren't working, then it could be due to the dirt inside. You will have to open up the PC and **use a compressed air can or a leaf blower** to clean up the fans and other components.

Here's a video to help you with the cleaning process:

If dirt wasn't the problem, then you can also use the SpeedFan app to see what the problem is. The **app will let you control the fans to make them work again**. Although your PC motherboard must support fan control to use this app.



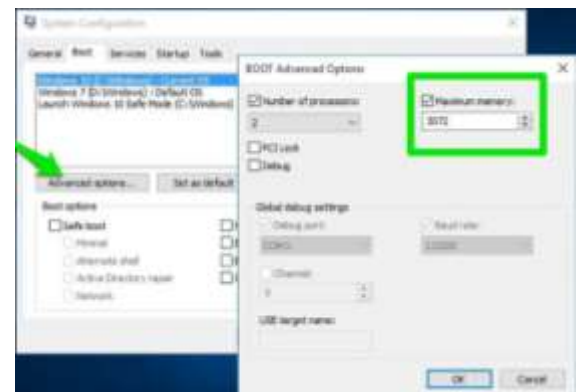
6. PC not using a portion of RAM

Sometimes your PC may not use a portion of RAM. For example, **You may have 4GB of RAM, but your PC only uses 2GB when you check it from the Task Manager**. This is usually a Windows setting issue.

Note: If only a few MBs (200-400MB) of RAM isn't being utilized, then it's probably being used by PC hardware and you can't do anything about it.

The solution to this problem is simple – **Windows must have been configured to only use a portion of the RAM**. Here is how to fix it:

1. Press **Windows** + **R** keys and type msconfig in the **Run** dialog to open **System Configurations**.
2. Move to **Boot** tab and click on **Advanced options**.
3. Now check the checkbox next to **Maximum memory** and enter the maximum amount RAM you have installed (in MBs).
4. Click on **OK** and restart the PC to let it take effect.



Good to know: While you are at it, you should also check the checkbox next to **Number of processors** option and ensure your PC is utilizing all the CPU cores as well. Set it to the maximum number if you want to use all of the CPU power. If this didn't fix the problem, then **there is also a chance one of the RAM isn't installed properly**. Try reinstalling it.

7. Overworking fan

Your PC fan **runs according to how much your PC is heating**. The higher the temperature, the faster the fan will run. In case your PC temperature is fine (you can use HWMonitor to check it), but the fan is running at full speed; then you'll have to manually control it.

You can use the SpeedFan app for this purpose as well. It will **tell you the running speed of all the fans inside your PC** so you can manage their speed. Don't worry about app compatibility, overworking fan problem only happens with motherboards that can control the fans.

8. PC crashes before loading the OS

If your **PC only shows manufacturer logo and then crashes** right before it was supposed to load the operating system, then it's a **problem with RAM or hard disk**. As the OS is unable to load, then either the RAM is corrupted and can't hold the boot loader or the **hard drive is damaged** and can't load data inside it.

If you have multiple RAM slots, then **taking out each one of them one by one and starting the PC** will help find the culprit. In the end, you will have to replace the corrupted RAM or the hard disk, whichever has the issue.

9. PC isn't powering on

If your PC is not powering on at all – not even a single light in it, then it must be a problem with the power source. **Desktop users:** If your PC's **extension cord, power outlet, and other connections** are working fine, then the problem may be with the PC's power cable. **Replace the power cable of the monitor with the CPU's** (if you don't have a spare) to see if it turns on. You'll have to get a new power cable if this fixes the problem.

Laptop users: Take out the battery and put it back before starting the laptop. If this doesn't work, then **take out the battery again and connect the charging cable to the laptop**. Start the PC on charger power and see if it works. You will have to replace the battery if it fixes the problem.

Note: You should also remove all types of external devices connected to your PC while trying this. A malfunctioning device might cause this issue.

10. Noisy PC

If you hear a lot of extra noise while using the PC, then most probably it is a plea to clean it up. **Get it cleaned or use a can of compressed air or leaf blower** to clean it up yourself. If you have overclocked your PC GPU and CPU, then they could be the reason for the noise as well.

Here is a video with simple methods to clean your PC:

There is also a chance that **a disc inside the DVD ROM is making the extra sound**. You can check this article about all the PC components that create noise for more information.

11. Noisy hard drive

If you hear **clicking or grinding sound from the hard drive**, then it might be time to get a new one. Hard drives have a limited lifespan and **loud sounds are the main sign of a near hard drive failure**. You can use CrystalDiskInfo hard drive monitoring tool to check the health of your hard drive. The tool will tell you the current health of the hard drive with signs like "Good", "Caution" or "Bad".

You should **back up all your data** immediately and **try to get another hard disk** before this one fails on you.



12. Blue Screen of Death

The dreaded Blue Screen of Death (BSOD) can occur **due to both software and hardware problems**, but usually, it's a hardware problem. Whatever the cause, BSOD requires immediate attention as it's a **sign of a big problem**.

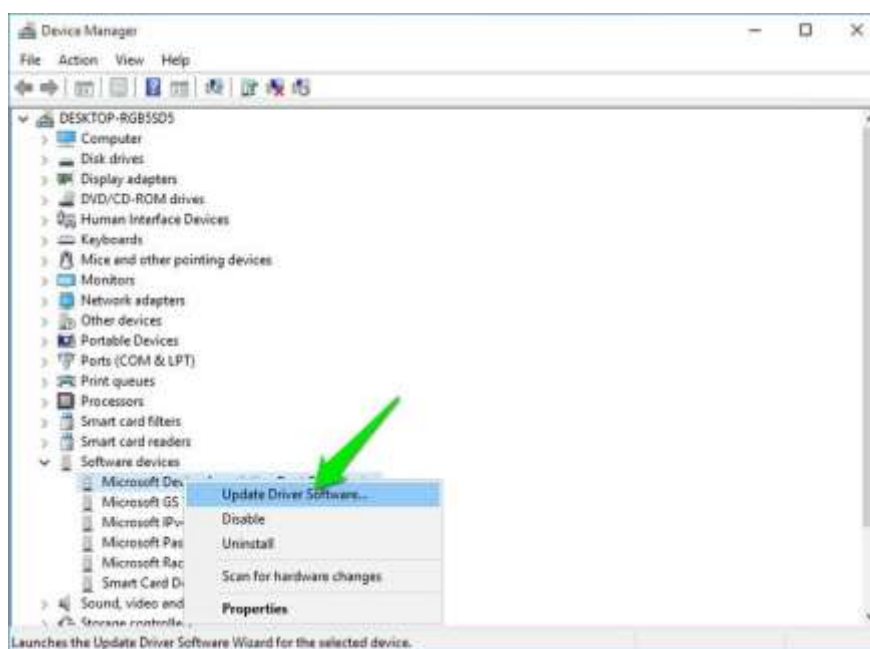


Blue Screen View is a great Nirsoft utility that will show important information if you have recently suffered a Blue Screen of Death. You should be able to identify and solve the problem using this information. Below are some common reasons for BSOD and their solutions.

i. Corrupted drivers

A corrupt driver may be the cause of BSOD. To find that out, use the following steps:

1. Open **Device Manager** by typing **devmgmt.msc** in the *Run*.
2. Here expand each menu and look for a yellow triangle icon next to each driver.
3. If you find any, right-click on it and select **Update Driver Software** to update its driver.



You can also use a third-party app like IObit Driver Booster to automatically find and fix driver problems.

ii. Too much pressure on the RAM

If you **open too many programs that RAM can't handle**, then it may freeze the system and show BSOD. For that, you should either stop opening too many programs or upgrade the RAM.

iii. Faulty hard disk

BSOD is also a **sign of a dying hard disk**, use the instructions in problem #11 above to identify hard disk problems.

iv. Heating PC

Heating PC also leads to BSOD if **too much pressure is put on the components**. Use the instruction in problem #1 to solve it.



13. Blank monitor

If your monitor isn't showing anything, then this could be a **problem with the monitor itself or the graphics card**. You should connect the monitor to another PC to see whether the problem is with the PC or the monitor.

If the **monitor isn't powering on at all**, then replace the power cable with a working one and see if it helps. Here is a good article on how to fix a monitor that isn't showing anything.

14. Monitor goes black after few seconds

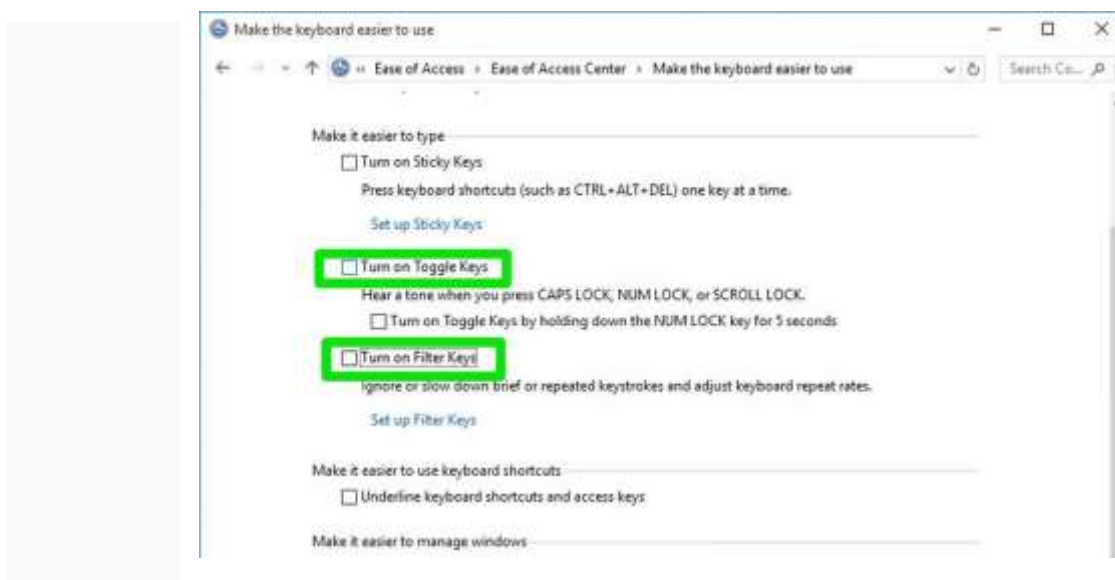
If the monitor goes black after few seconds of display, then it could be a problem with the **color quality or screen adjustment**. Press the auto-adjust button on your monitor to see if it fixes it. If not, then you will have to **change display color from 32bit to 16 bit**.

You can **connect the PC to another monitor to adjust colors from your graphics card settings**. Pressing the auto-adjust may show the display for few seconds. You can use this to your advantage and adjust the color while pressing auto-adjust.

15. Keyboard issues

If your keyboard is **making noise and won't type repeated words properly**, then there is no problem with the keyboard. You must have enabled toggle keys and filter keys in Windows settings that cause such a problem. To disable them:

1. Open the **Control Panel** and click on **Ease of Access**.
2. Here click on **Change how your keyboard works** button.
3. Now uncheck the checkbox next to **Toggle keys** and **Filter Keys** to solve this problem.



How to Fix Mouse Left-click malfunction in Windows

How to Fix Mouse Left-click malfunction in Windows

Left-click of your mouse is the most used function that helps open files and programs and confirm commands...



1.3 Session-3: Cloud usage for Research & Office Works

1. The ChatGPT (An OpenAI- Digital Assistant)

Getting your busy work schedule organized may be time consuming — but ChatGPT and other forms of AI can help make the process go a little bit smoother.

- Microsoft is working to incorporate it into its Bing search engine.
- Every PC users (especially employees) could likely use ChatGPT in some way to make their workflow faster.
- Employees in industries ranging from marketing to education are taking advantage of the artificial intelligence bot developed by OpenAI.
- ChatGPT can be used from tasks including **writing emails, scripts and social media copy**

i. Use it to come up with ideas for content.

When content is a big part of your writing strategy, it can sometimes be very challenging to come up with fresh and interesting content. You can easily ask ChatGPT to offer some ideas on a certain topic, like "Give me 20 ideas for articles about artificial intelligence." We can find a great way to get the creative solutions.

ii. Leverage it to generate a first draft.

Imagine a case when you have to write a press release of a function being conducted or a blog post and you are short on time. You could ask ChatGPT "Write me a press release for a company called X that has just raised \$100 million." This is a great way to get the first draft of your work.

iii. Let it come up with a title for your content.

As we know, good titles are super important for your content. You might have the absolute best video, but if the title doesn't pull me in, I'll never watch it. So, ask ChatGPT to produce five titles for a video about a specific topic, and then, even if you don't use one of the exact titles it generates, you can use them as ideas for your title.

iv. Allow it to shorten text for platforms with character limits.

When user post on Facebook and then, when going to post it on Instagram or LinkedIn, the user realizes the post is too long. So how to shorten the text!

Paste the text of your post into ChatGPT and ask it "Shorten this text to 2,200 characters while maintaining the tone of the post."

It provides the result as is, and offer with proofreading , but it's a fantastic baseline for the shorter version.

v. Ask it to help you with your research.

Whether you want to use ChatGPT as your research tool or ask it for questions to use in your research, it can be a tremendous resource when doing research. Google is a primary source of information as is Wikipedia when doing any sort of research. The other way is to ask ChatGPT, "What questions should I be asking when doing research on the topic cyber security and digital threat protocols?"

1. Cloud based Drive (Google Drive, Microsoft OneDrive : repository)

- Access (Edit/Share) your digital file (any format) everywhere
- Easy management of Version, recovery, compatible with various devices (PC/Laptop/SmartPhones)
- Form based digital data collection and printing facility
- AI tools (Google Colab, Scikit Learn, TensorFlow, Keras, Pytorch, Auto ML)

SAFE DIGITAL BANKING PRACTICES TO PREVENT FRAUD

PRESENTATION BY

D SAHOO

FORMER CGM, PUNJAB NATIONAL BANK

PAYMENT SYSTEM

- CASH PAYMENT
- PAYMENT THROUGH CARDS – ATM, POS,
- PAYMENT THROUGH NET BANKING
- PAYMENT THROUGH UPI
- ECOMMERCE TRANSACTIONS
- AADHAR ENABLED PAYMENT SYSTEM

CARD PAYMENT

- USE OF DEBIT CARD/ CREDIT CARD
- WITHDRAWAL FROM ATM – USE OF PIN
- PAYMENT AT POS – PHYSICAL CARD + PIN
(SAME AS ATM TRANSACTION)
- PAYMENT IN ECOMMERCE TRANSACTIONS –
PHYSICAL CARD NOT REQUIRED , BUT CARD
NO, CVV NO AND OTP (CNP TRANSACTIONS)

PAYMENT THROUGH NETBANKING

- LOGIN PASSWORD + TRANSACTION PASSWORD (SOME CASES ADDITIONAL OTP)
- P2P TRANSFER OF FUNDS
- BENEFICIARY CREATION IS MANDATORY
- COOLING PERIOD AFTER WHICH FUND TRANSFER CAN HAPPEN
- PAYMENT TO ANY MERCHANT – BILL PAYMENT

PAYMENT THROUGH UPI

- PAYMENT BY USING MMID
- SIMPLE TRANSFER BY USING PHONE NUMBER OR ACCOUNT NUMBER OR SCANNING QR CODE
- UPI PIN IS MANDATORY – NO OTP
- AS A RECEIVER OF FUNDS THROUGH UPI NO PIN IS REQUIRED

ECOMMERCE TRANSACTIONS

- PAYMENT TO GOVERNMENT DEPARTMENT
- PAYMENT OF UTILITY BILLS
- PAYMENT ON PURCHASE OF MERCHANDISE OR SERVICES LIKE RAIL / AIR TICKET

PHISHING

- Spoofed emails and / or SMSs designed to dupe customers into thinking that the communication has originated from their bank / e-wallet provider and contain links to extract confidential details.

VISHING

- Phone calls pretending to be from bank / non-bank e-wallet providers / telecom service providers in order to lure customers into sharing confidential details in the pretext of KYC-updation, unblocking of account / SIM-card, crediting debited amount, etc.

REMOTE ACCESS

- By luring customers to download an application on their mobile phone / computer which is able to access all the customers' data on that customer device.

JUICE JACKING

The charging port of a mobile can also be used to transfer files / data. Fraudsters use public charging ports to transfer malware to customer phones connected there and take control / access / steal sensitive data such as emails, SMS, saved passwords, etc. from the customers' mobile phones.

ONLINE JOB FRAUD

Fraudsters create fake job search websites and when the job seekers share secure credentials of their bank account / credit card / debit card on these websites during registration, their accounts are compromised.

Fraudsters also pose as officials of reputed company(s) and offer employment after conducting fake interviews. The job seeker is then induced to transfer funds for registration, mandatory training program, laptop, etc.

MONEY MULE

- Fraudsters contact customers via emails, social media, etc., and convince them to receive money into their bank accounts (money mule), in exchange for attractive commissions.
The money mule is then directed to transfer the money to another money mule's account, starting a chain that ultimately results in the money getting transferred to the fraudster's account.
- Alternatively, the fraudster may direct the money mule to withdraw cash and give it to someone.
When such frauds are reported, the money mule becomes the target of police investigation for money laundering.

SIM CARD CLONING

- Fraudsters gain access to the customer's SIM card or may obtain a duplicate SIM card (including electronic-SIM) for the registered mobile number connected to the customer's bank account.
- Fraudsters use the OTP received on such duplicate SIM to carry out unauthorized transactions.
- Fraudsters generally collect the personal / identity details from the customer by posing as a telephone / mobile network staff and request the customer details in the name of offers such as - to provide free upgrade of SIM card from 4G to 5G or to provide additional benefits on the SIM card.

SAFE DIGITAL BANKING PRACTICES

- Never share your account details such as account number, login ID, password, PIN, UPI-PIN, OTP, ATM / Debit card / credit card details with anyone, not even with bank officials, however genuine they might sound.
- Any phone call / email threatening the blocking of your account on the pretext of non-updation of KYC and suggestion to click link for updating the same is a common modus operandi of fraudsters. Do not respond to offers for getting KYC updated / expedited. Always access the official website of your bank / NBFC / e-wallet provider or contact the branch.
- Do not download any unknown app on your phone / device. The app may access your confidential data secretly.

SAFE DIGITAL BANKING PRACTICES

- Transactions involving receipt of money do not require scanning barcodes / QR codes or entering MPIN. Thus, exercise caution if asked to do so.
- Always access the official website of bank / NBFC / e-wallet provider for contact details. Contact numbers on internet search engines may be fraudulent.
- Check URLs and domain names received in emails / SMSs for spelling errors. Use only verified, secured, and trusted websites / apps for online banking, that is, websites starting with “https”. In case of suspicion, notify local police / cybercrime branch immediately.

SAFE DIGITAL BANKING PRACTICES

- If you receive an OTP for debiting your account for a transaction not initiated by you, inform your bank / e-wallet provider immediately. If you receive a debit SMS for a transaction not done, inform your bank / e-wallet provider immediately and block all modes of debit, including UPI. If you suspect any fraudulent activity in your account, check for any addition to the beneficiary list enabled for internet / mobile banking. Do not share the password of your email linked to your bank / e-wallet account. Do not have common passwords for e-commerce / social media sites and your bank account / email linked to your bank account. Avoid banking through public, open or free networks.
- Do not set your email password as the word “password” while registering in any website / application with your email as user-id. The password used for accessing your email, especially if linked with your account, should be unique and used only for email access and not for accessing any other website / application.

SAFE DIGITAL BANKING PRACTICES

- Do not be misled by advices intimating deposit of money on your behalf with RBI for foreign remittances, receipt of commission, or wins of lottery.
- Regularly check your email and phone messages for alerts from your financial service provider. Report any unauthorized transaction observed to your bank / NBFC / Service provider immediately for blocking the card / account / wallet, so as to prevent any further losses.
- Secure your cards and set daily limit for transactions. You may also set limits and activate / deactivate for domestic / international use. This can limit loss due to fraud.
- In case your account is fraudulently debited without your authorization, please contact the toll free number of your bank or the branch immediately. You can lodge a complaint by dialing **1930** or contacting the local Cyber Police Station.

AADHAR ENABLED PAYMENT SYSTEM

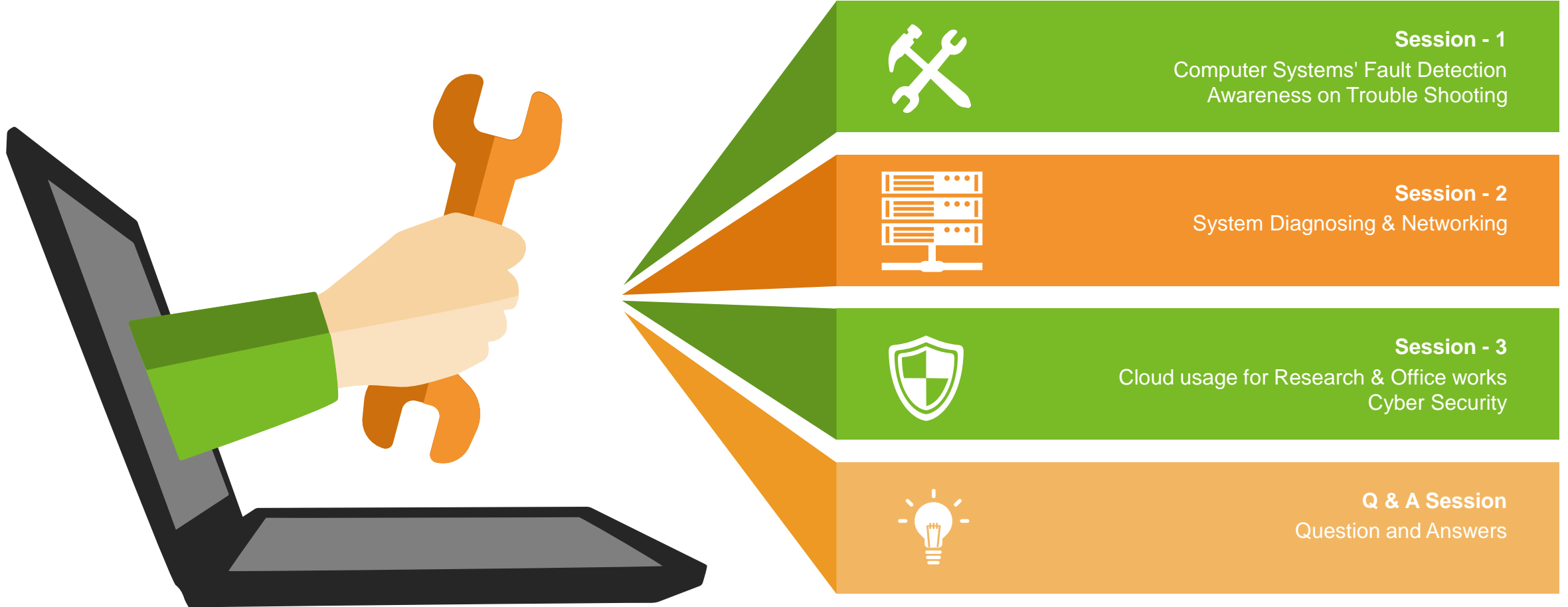
- Only AADHAR number is required + biometrics
- Any third person may be able to know your AADHAR number but difficult to clone the biometrics. (?)

THANKS



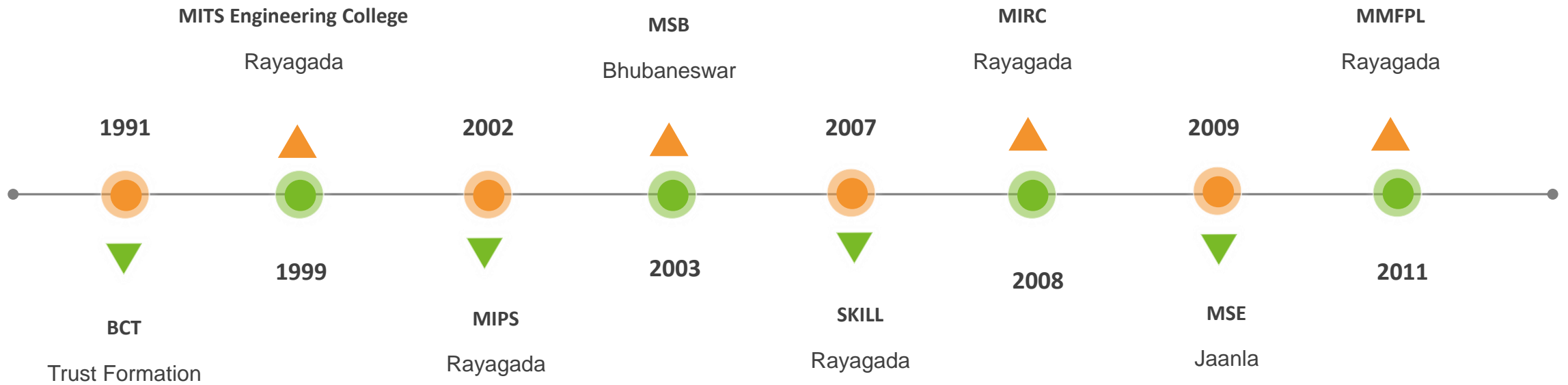
MITSCHOOL OF
BIOTECHNOLOGY

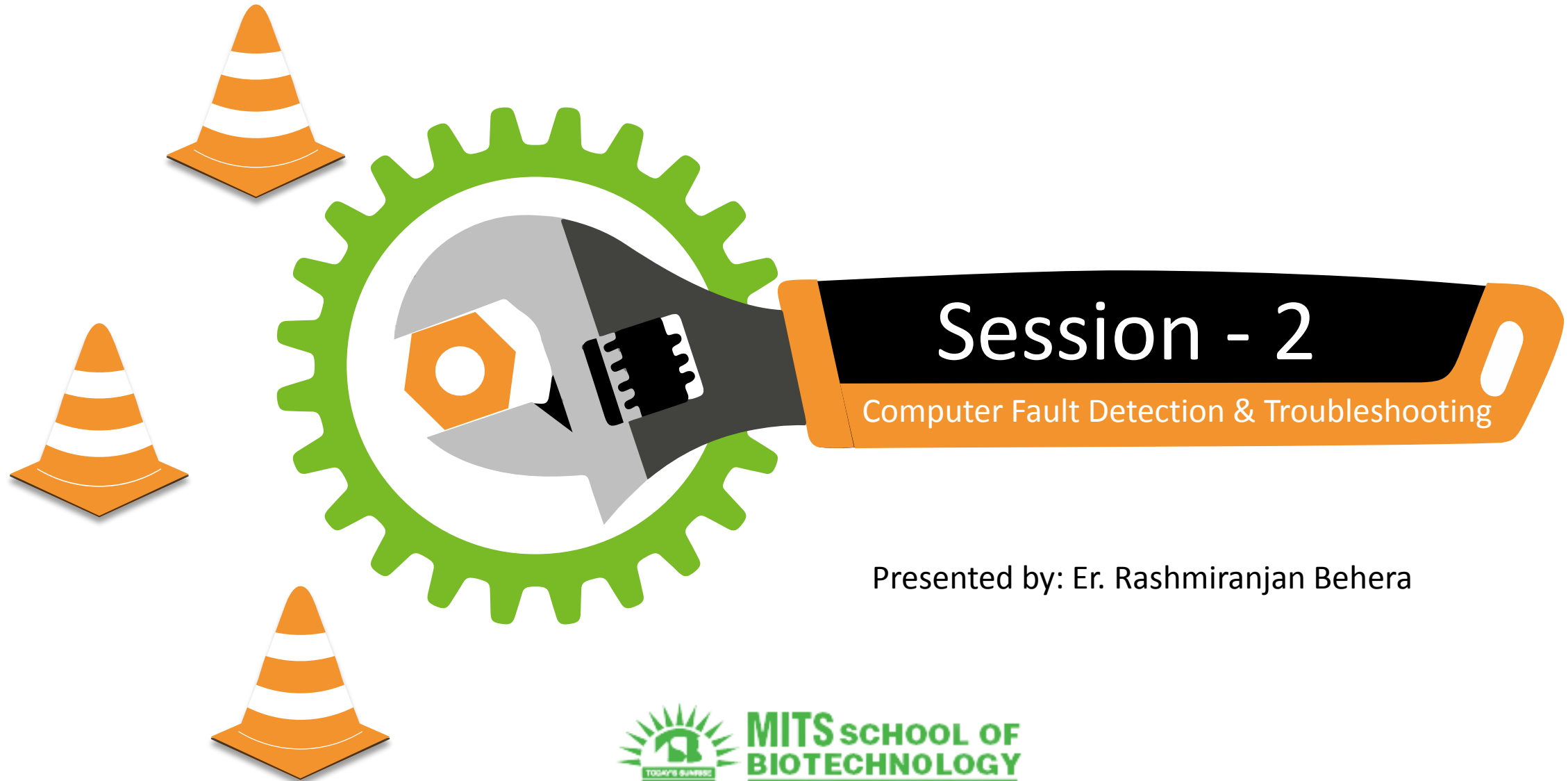
Workshop Agenda



Evolution of MITS

Providing Quality Education Since 1999





Presented by: Er. Rashmikiranjan Behera

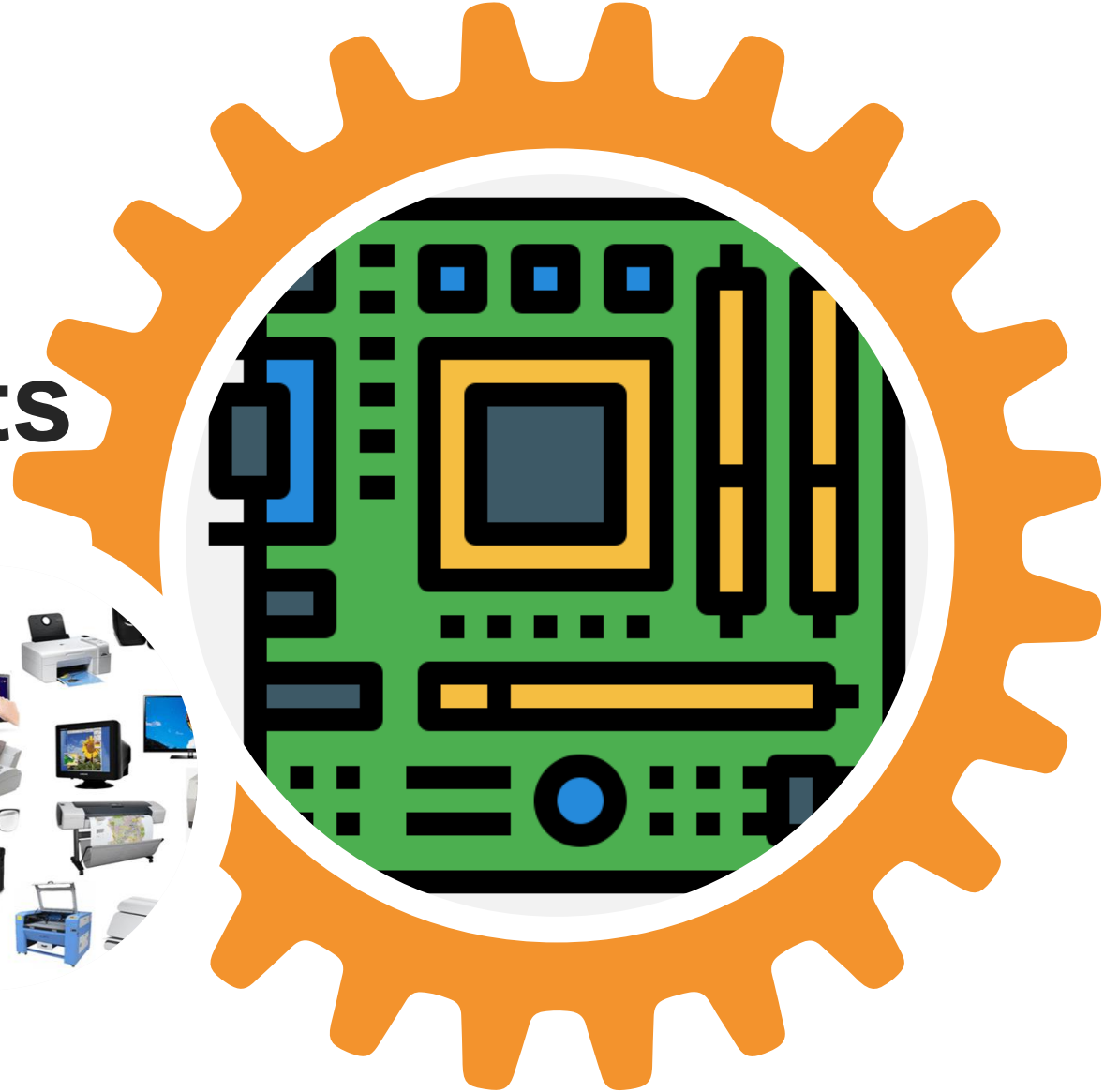


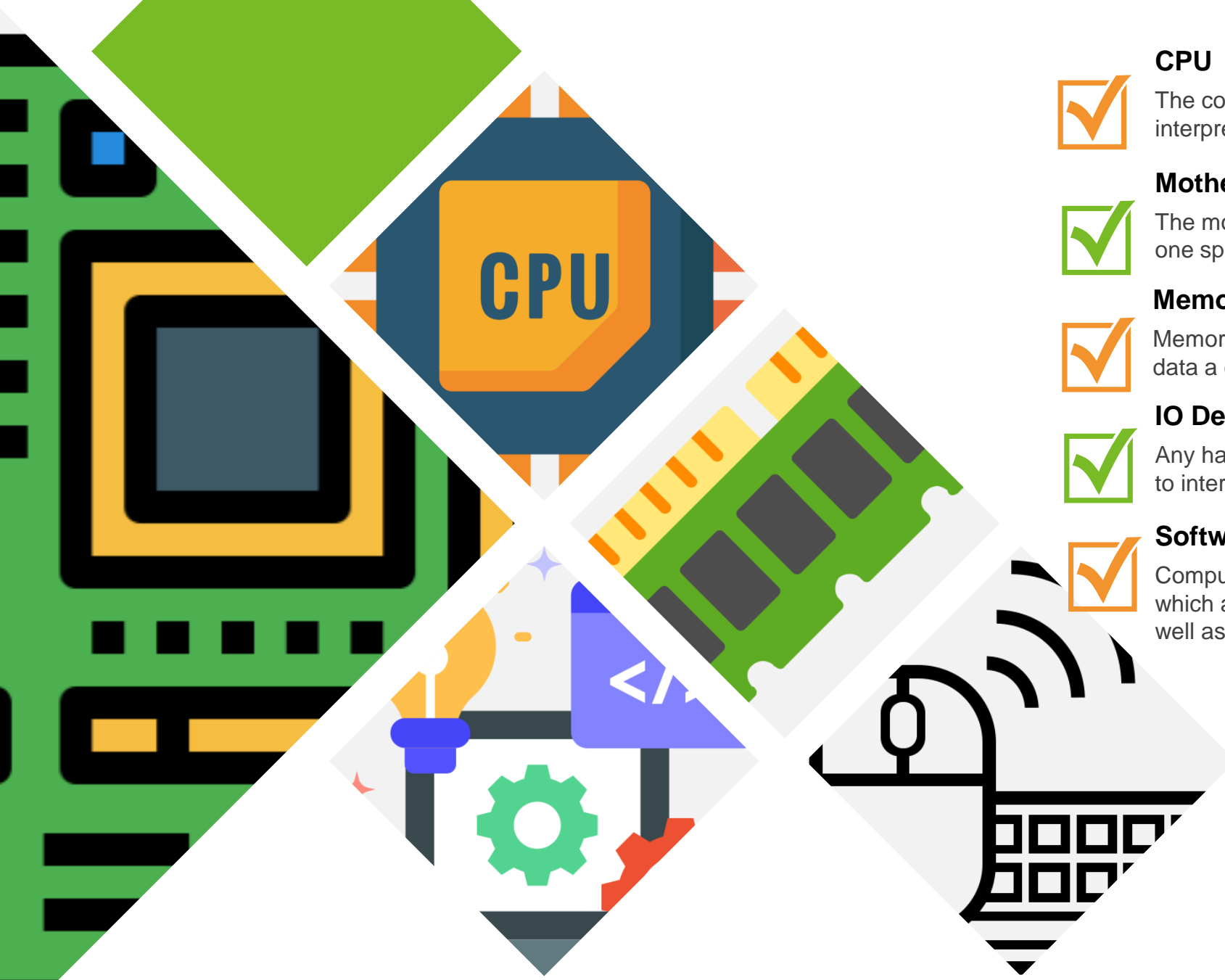
Topics Covered

What We'll Cover

- 01 Computer Components**
Basics of computer hardware and software.
- 02 Computer Problems**
Many computer problems appears more serious than they really are.
- 03 Maintenance Tools & Tips**
Treat your computer right and it will stay fast and responsive for many years. But neglect proper maintenance and your system will suffer..
- 04 Importance of Backup**
Backups can help save time and money if these failures occur.
- 05 Potential use of Cloud**
Maintenance Free Computing

Computer Components





CPU



The component of a computer system that controls the interpretation and execution of instructions.

Motherboard, GPU & Power Supply



The motherboard ties the computer's components together at one spot and allows them to talk to each other.

Memory & Storage



Memory is the electronic holding place for the instructions and data a computer needs.

IO Devices



Any hardware that allows a human operator or other systems to interface with a computer

Software



Computer software examples include operating systems, which allow for easy use of a computer's processing power, as well as applications like Notepad and Firefox.

Computer Components

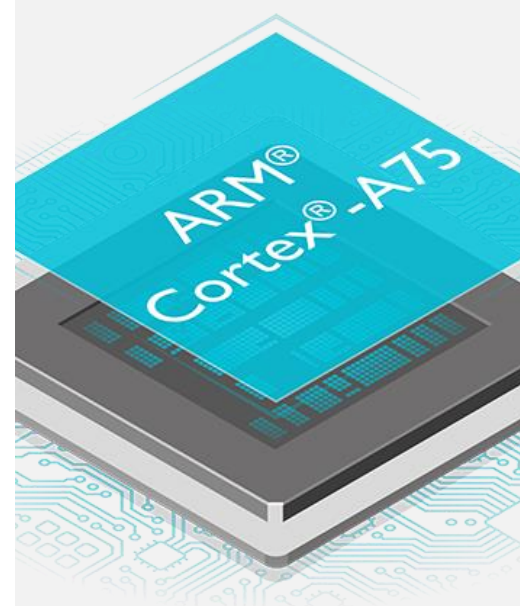
Central Processing Unit




x86
32bit



x64
64bit




ARM
Still Evolving

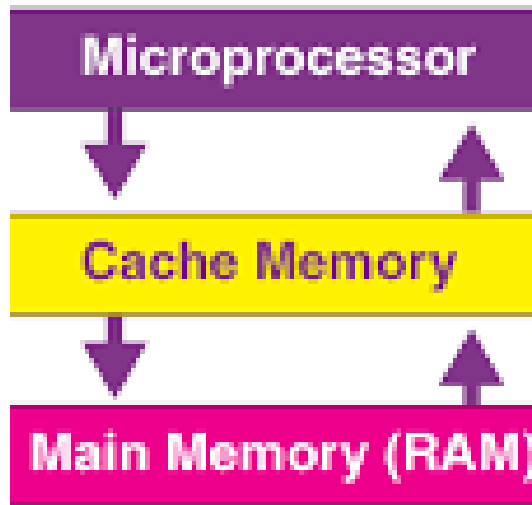


**Central
Processing Unit
(CPU)**

3 type main stream
processor types



Central Processing Unit

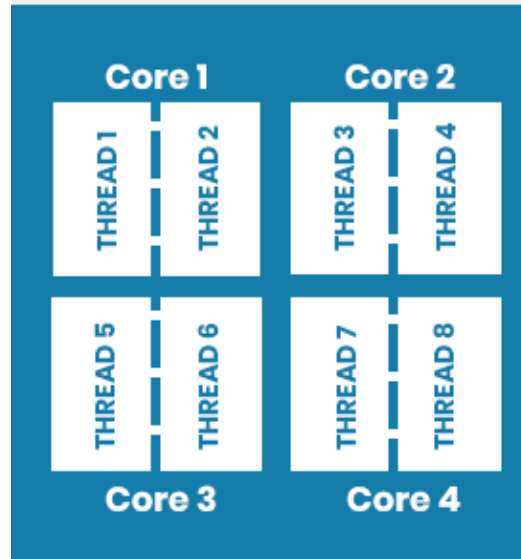


Cache

Speed

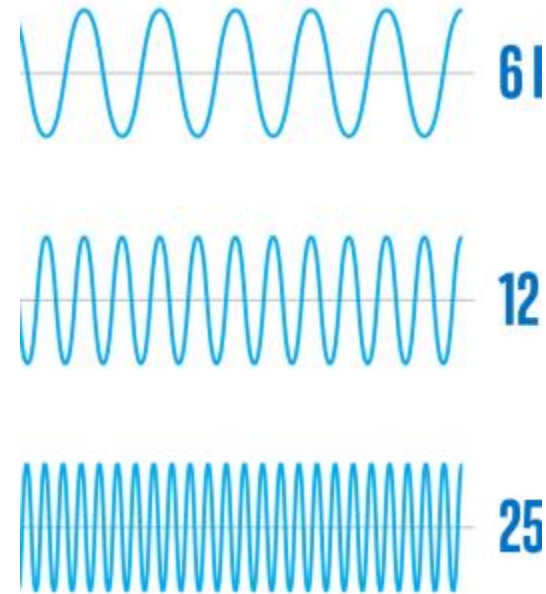


CPU THREADS



Cores vs Threads

Physical vs Logical



CPU Cycle / Speed

Bandwidth



Performance Parameters

The higher the number the greater the performance



Memory

Primary Memory

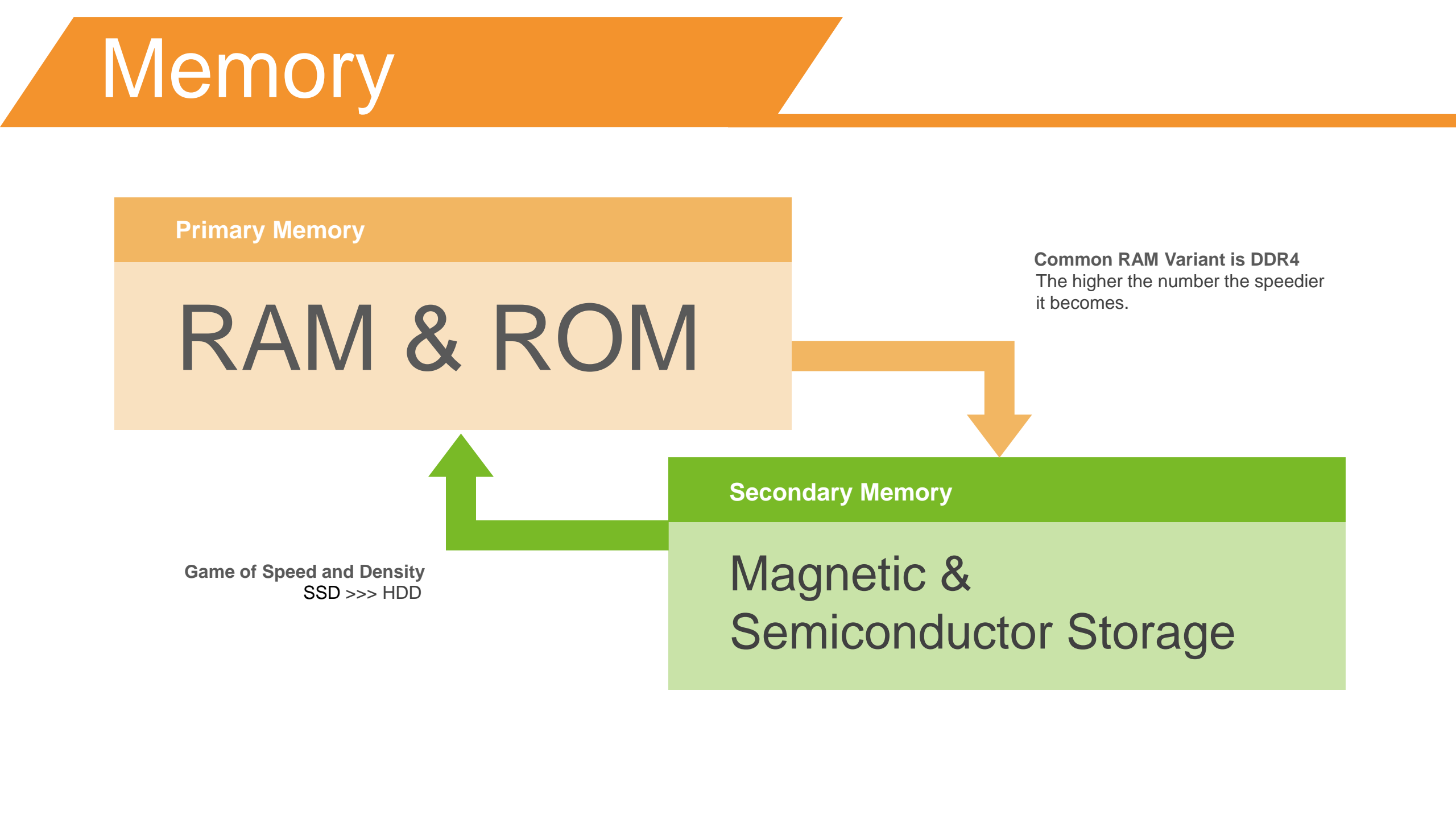
RAM & ROM

Common RAM Variant is DDR4
The higher the number the speedier
it becomes.

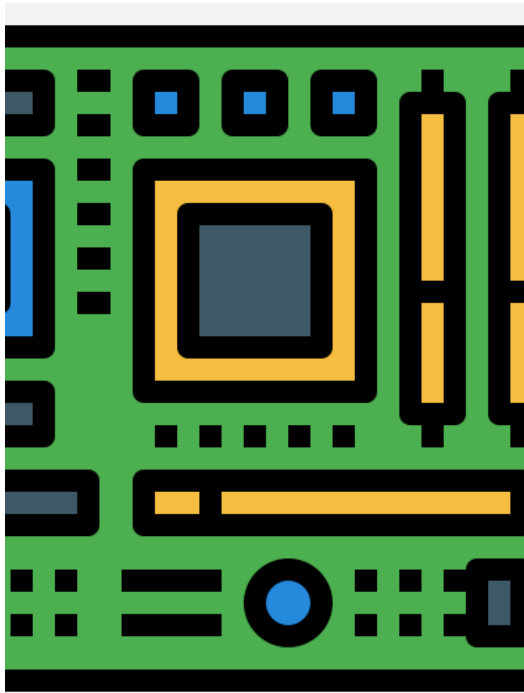
Secondary Memory

Magnetic &
Semiconductor Storage

Game of Speed and Density
SSD >>> HDD

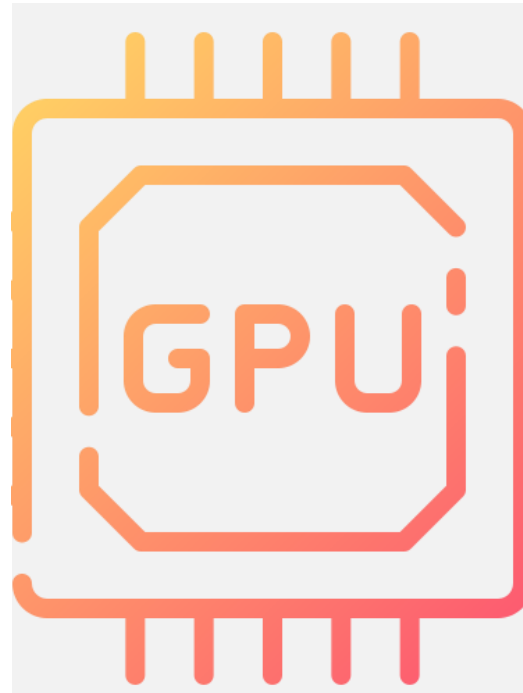


Motherboard, GPU & Power Supply



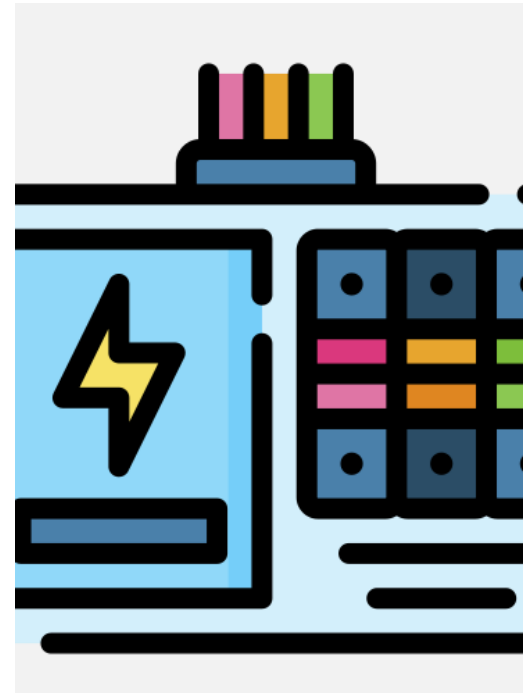
Motherboard

Connects All



GPU

Graphical Processing Unit



SMPS

Power



Power+

With-out proper setup
system will not perform.



IO Devices

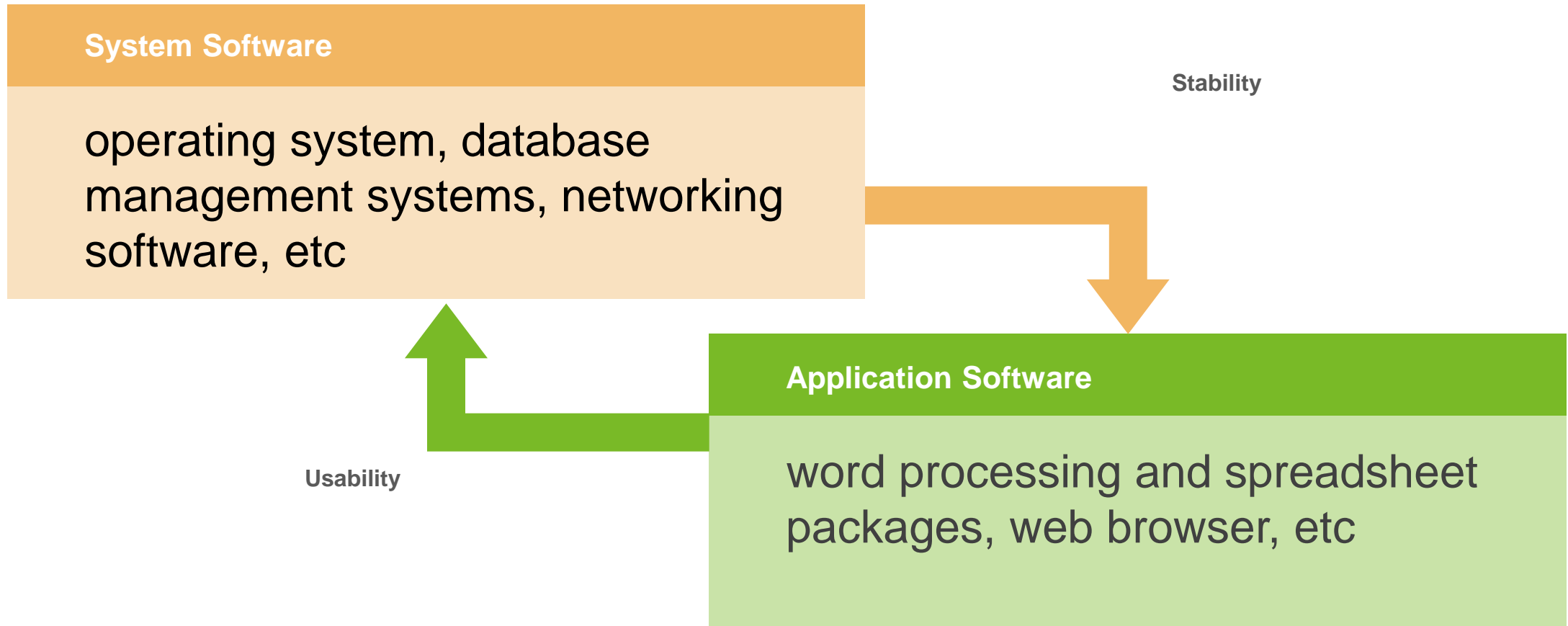
INPUT OUTPUT DEVICES



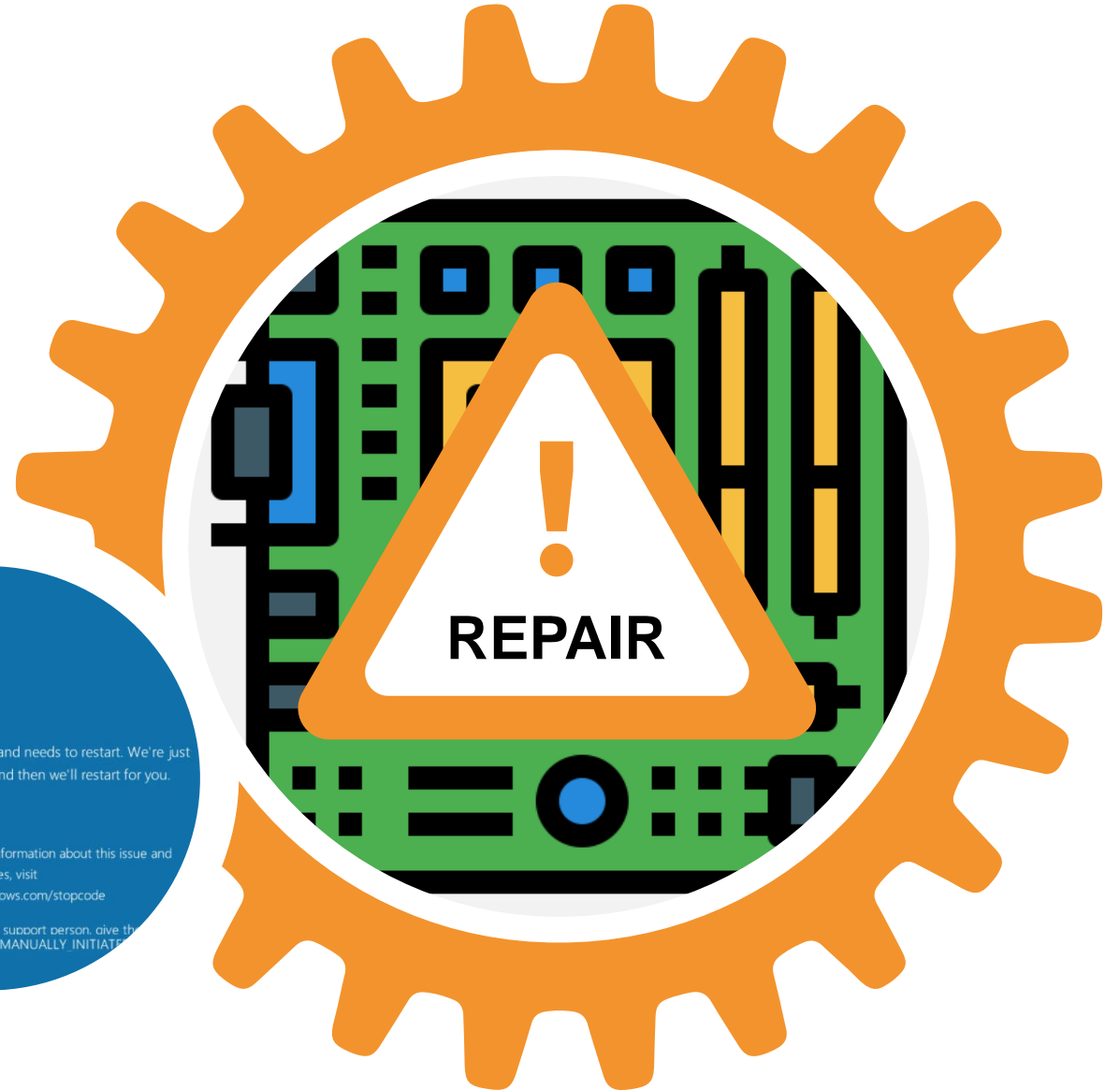
An input/output device, often known as an IO device, is any hardware that allows a human operator or other systems to interface with a computer.



Software



Computer Problems



Computer Problems

Problem	SOFTWARE	HARDWARE
Computer is slow	Could be malware, too many start-up items (Windows) or build up of temporary files	Could be hard drive is fragmented or starting to fail, not enough RAM or an old CPU
Computer keeps restarting	Could be automatic OS update problem, adware, virus or other malware	Could be graphics card, motherboard or network card drivers
Keyboard, mouse, printer or other peripherals aren't working properly	Could be driver issues	Could be computer port issues or peripheral component issues
Peripheral commands interpreted incorrectly	✓	
App command not working	Software if it's happening in only one app	Hardware if it's happening in more than one app
Internet is slow	Could be an app in background is consuming the bandwidth	Could be hard disk failing

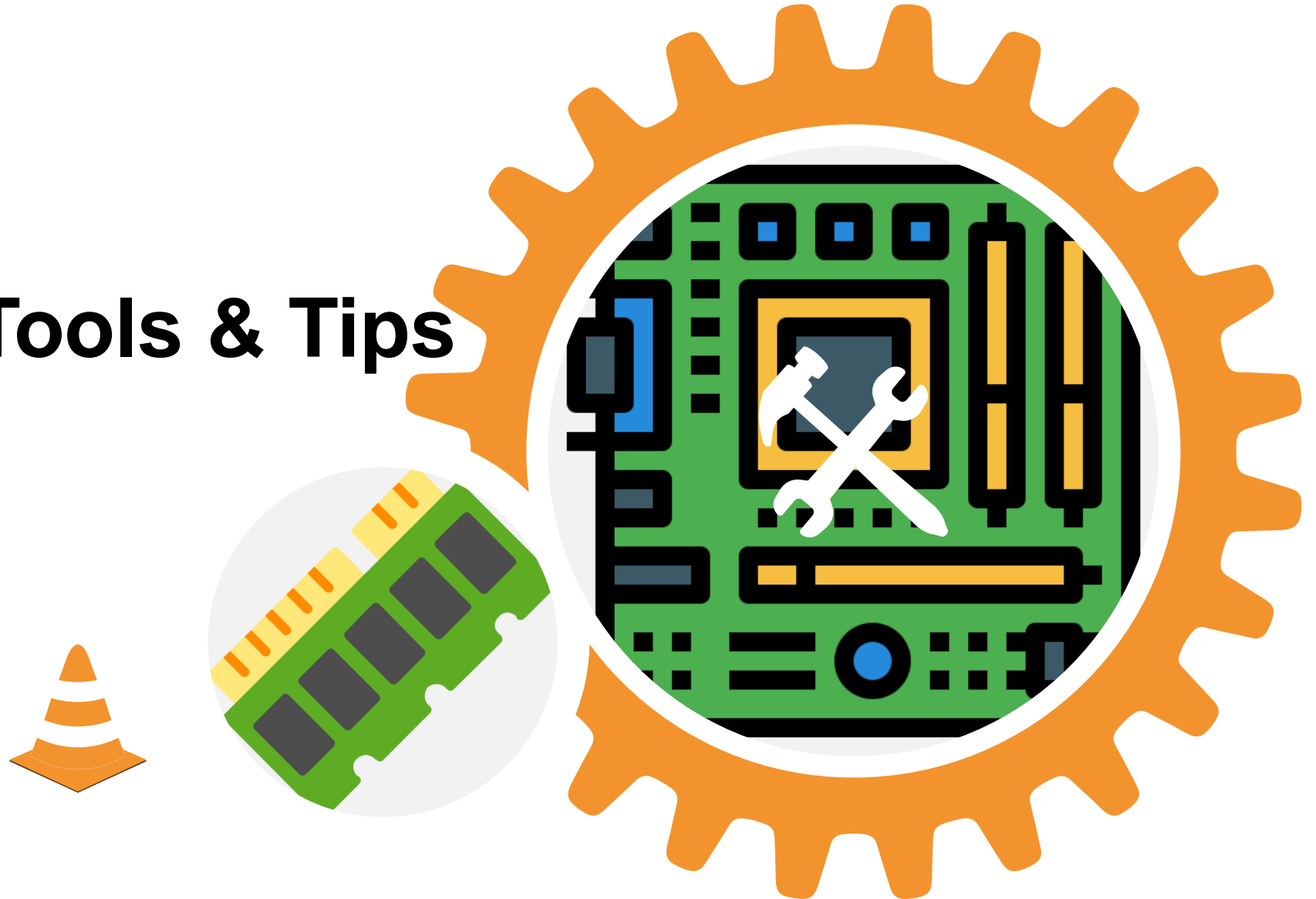
Computer Problems

Problem	SOFTWARE	HARDWARE
Downloads take forever		✓
Computer freezes	✓	
Attachments won't open	✓	
PC blue screen of death		✓ (although it could be your drivers)
Pop-up ads	✓	
Corrupt files or long delays accessing files		✓

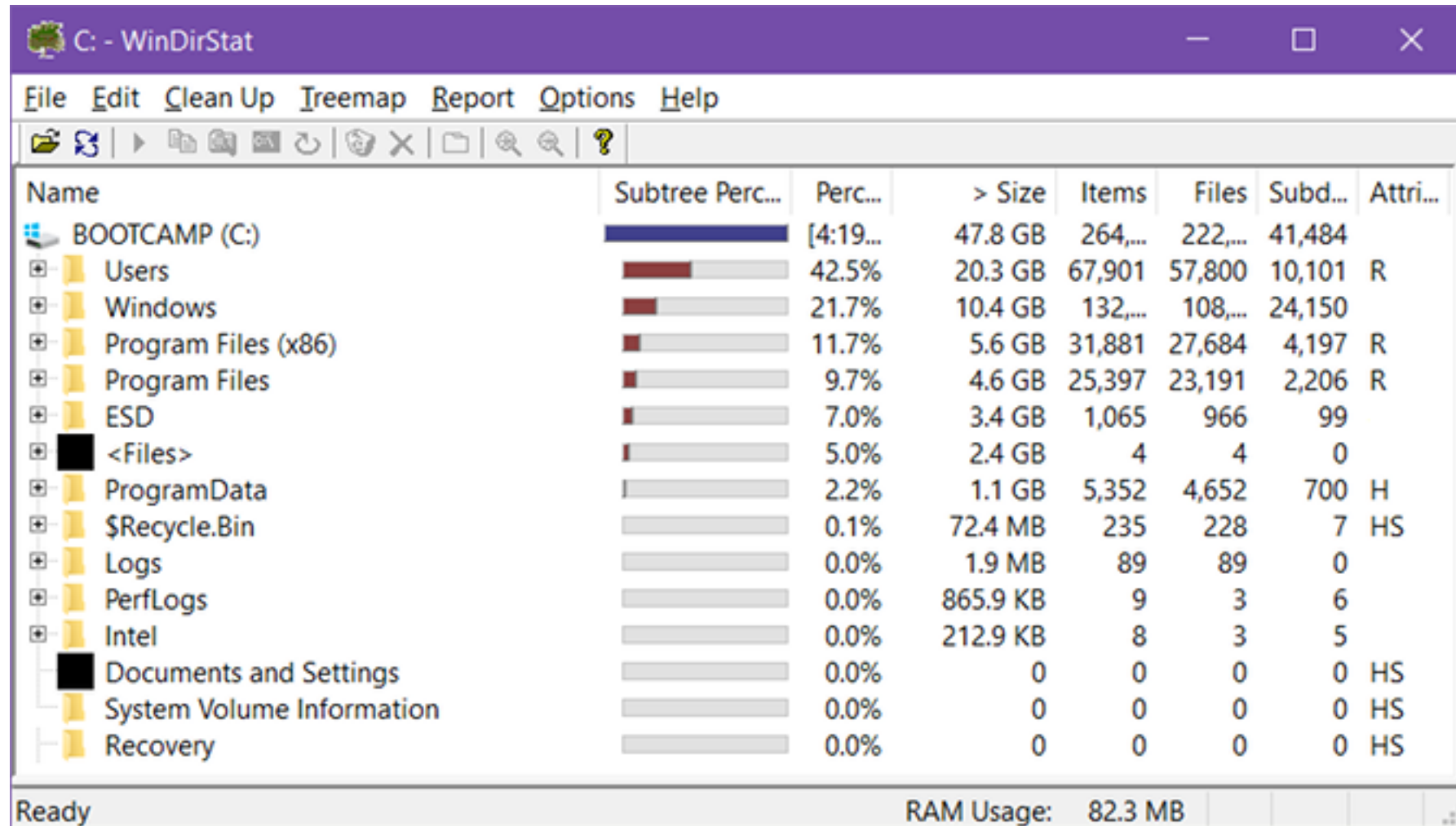
Computer Problems

Problem	SOFTWARE	HARDWARE
Date time always change	Time zone setting	CMOS battery problem
Sudden shut off...or sudden anything weird		✓
Graphical errors like your computer screen is jumbled		✓
Unusual noises		✓
Computer hangs on POST	Misconfigured BIOS	Corrupt BIOS, RAM, HDD
Computer not starting		✓

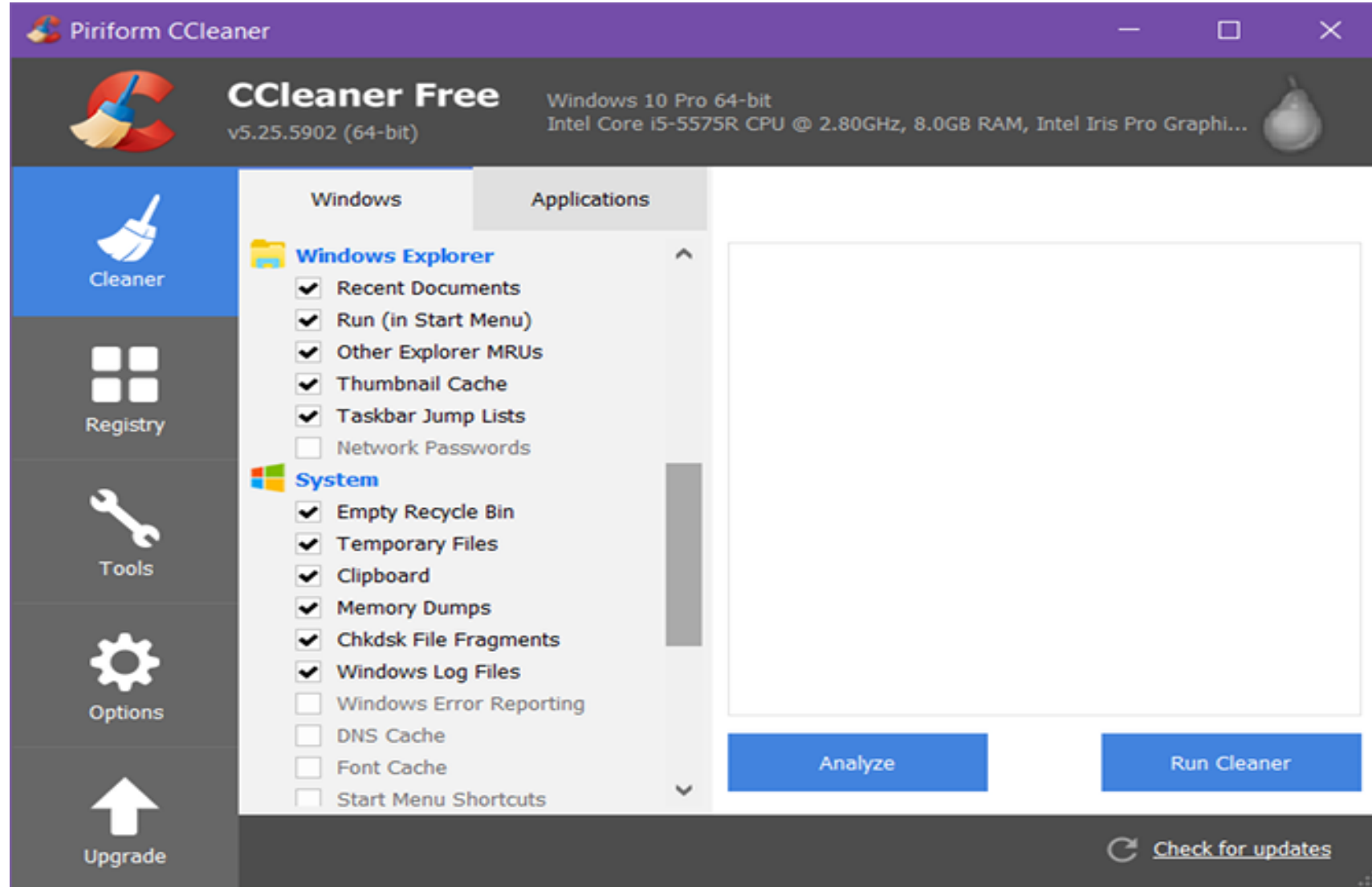
Maintenance Tools & Tips



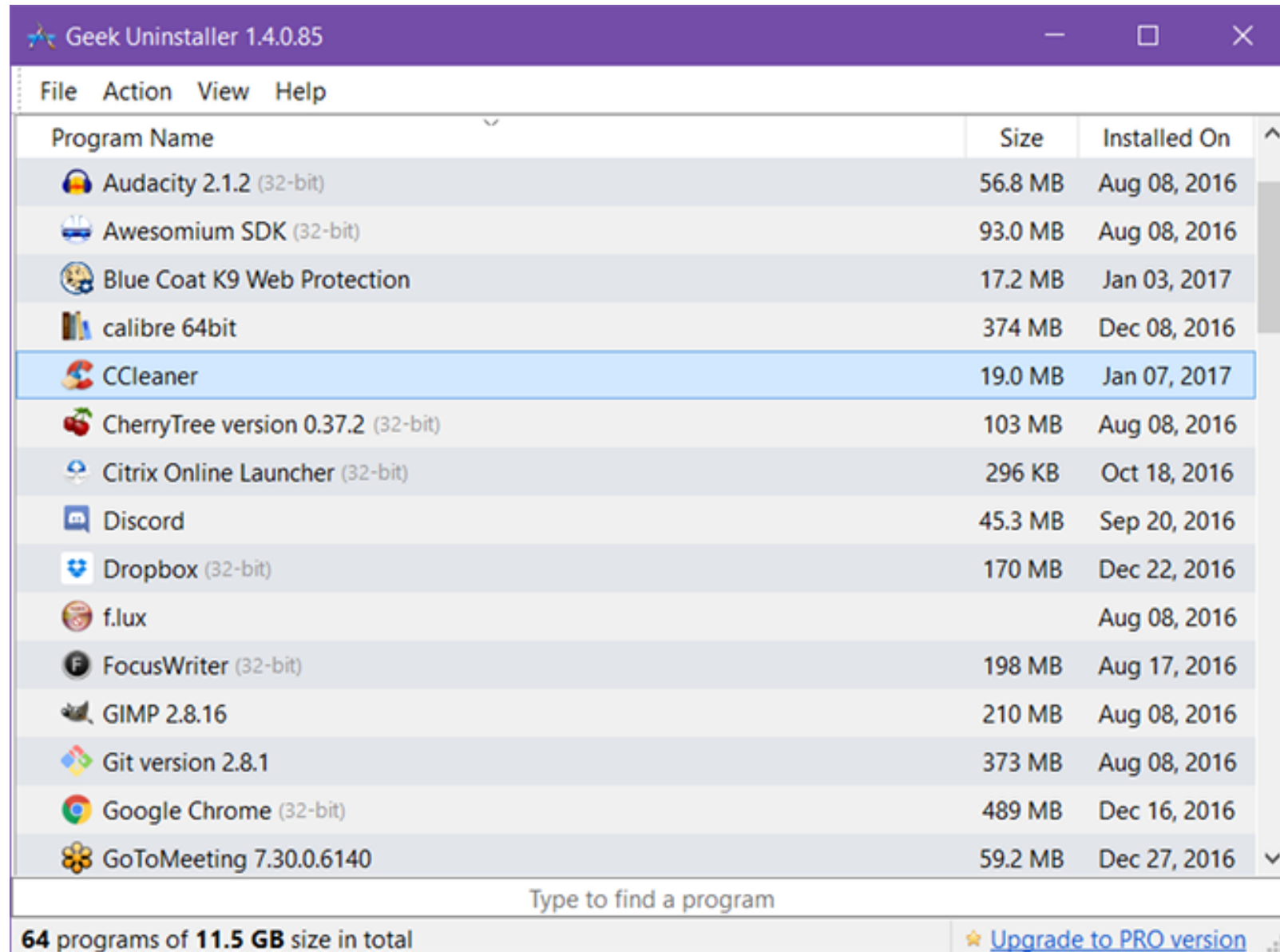
Need For Speed..


















Need For Speed..



Need For Speed..



The screenshot shows the Geek Uninstaller 1.4.0.85 application window. It features a menu bar with 'File', 'Action', 'View', and 'Help'. Below the menu is a table of installed programs. The table has three columns: 'Program Name', 'Size', and 'Installed On'. The 'Program Name' column includes an icon for each program. The 'Size' column shows the size of the program in MB or KB. The 'Installed On' column shows the date of installation. The program 'CCleaner' is highlighted in blue. At the bottom of the window, there is a search bar with the placeholder text 'Type to find a program'. Below the search bar, it says '64 programs of 11.5 GB size in total'. In the bottom right corner, there is a link to 'Upgrade to PRO version'.

Program Name	Size	Installed On
 Audacity 2.1.2 (32-bit)	56.8 MB	Aug 08, 2016
 Awesomium SDK (32-bit)	93.0 MB	Aug 08, 2016
 Blue Coat K9 Web Protection	17.2 MB	Jan 03, 2017
 calibre 64bit	374 MB	Dec 08, 2016
 CCleaner	19.0 MB	Jan 07, 2017
 CherryTree version 0.37.2 (32-bit)	103 MB	Aug 08, 2016
 Citrix Online Launcher (32-bit)	296 KB	Oct 18, 2016
 Discord	45.3 MB	Sep 20, 2016
 Dropbox (32-bit)	170 MB	Dec 22, 2016
 f.lux		Aug 08, 2016
 FocusWriter (32-bit)	198 MB	Aug 17, 2016
 GIMP 2.8.16	210 MB	Aug 08, 2016
 Git version 2.8.1	373 MB	Aug 08, 2016
 Google Chrome (32-bit)	489 MB	Dec 16, 2016
 GoToMeeting 7.30.0.6140	59.2 MB	Dec 27, 2016

Type to find a program

64 programs of 11.5 GB size in total

★ [Upgrade to PRO version](#)

Need For Speed..

The screenshot shows the Malwarebytes Anti-Malware Home (Free) 2.2.1.1043 interface. The top navigation bar includes the Malwarebytes logo, the text 'ANTI-MALWARE', and icons for 'DASHBOARD', 'SCAN', 'SETTINGS', and 'HISTORY'. There are also 'ACTIVATE' and 'UPGRADE NOW' buttons. Below the navigation bar, the main heading is 'Malwarebytes Anti-Malware (Free)' with a green smiley face icon. The interface displays four status sections: 'License' (Malwarebytes Anti-Malware (Free) with a 'Buy Premium »' link), 'Database Version' (v2017.01.07.02 with an 'Update »' link), 'Scan Progress' (Not Running), and 'Real-Time Protection' (Available with Malwarebytes Anti-Malware Premium with a 'Start Free Trial »' link). A large blue 'Scan Now' button is centered at the bottom, and a 'Need Help?' link is in the bottom right corner.

Malwarebytes Anti-Malware Home (Free) 2.2.1.1043

Malwarebytes ANTI-MALWARE

DASHBOARD SCAN SETTINGS HISTORY

ACTIVATE UPGRADE NOW

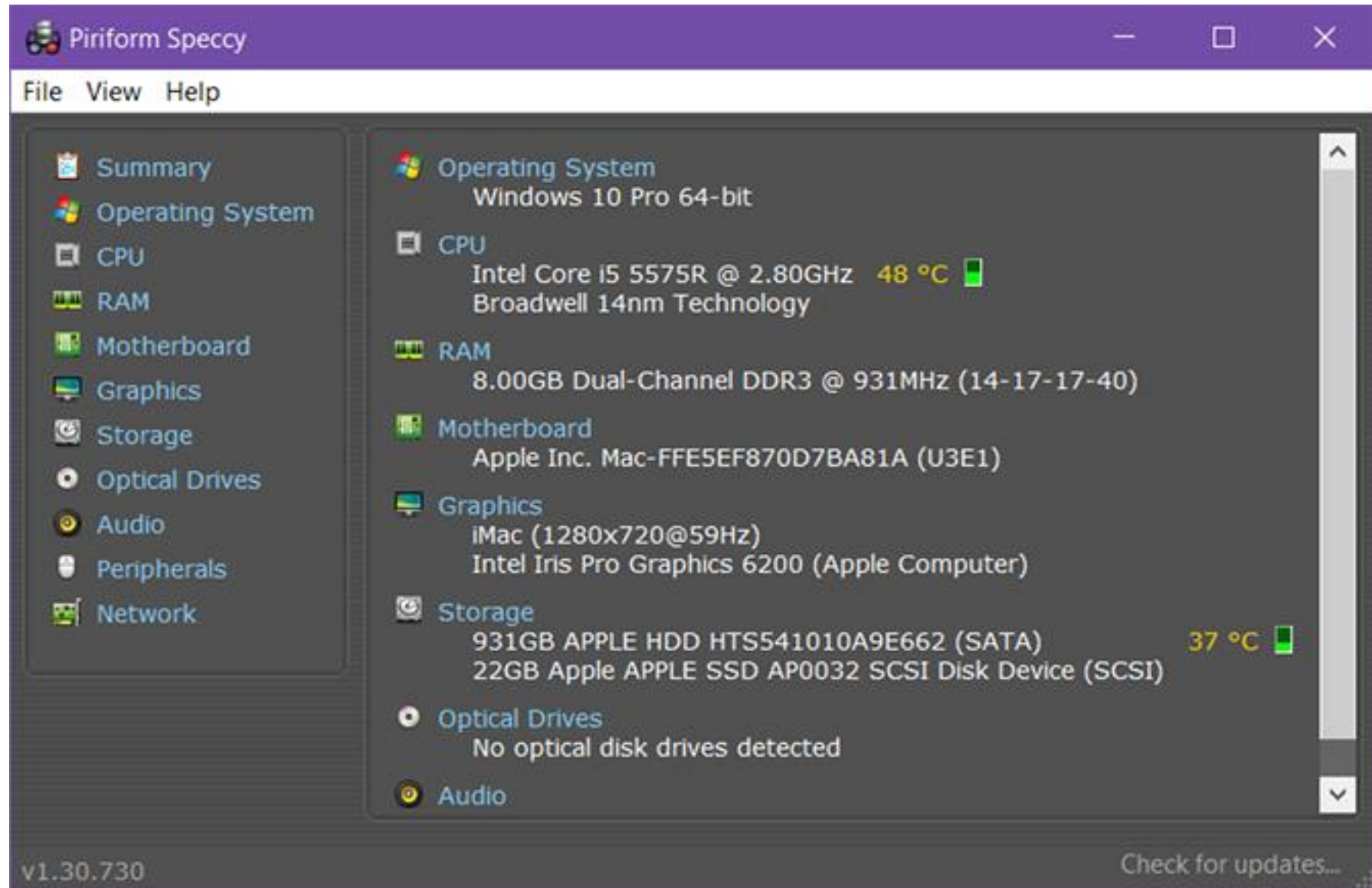
Malwarebytes Anti-Malware (Free)

License	● Malwarebytes Anti-Malware (Free)	Buy Premium »
Database Version	● v2017.01.07.02	Update »
Scan Progress	● Not Running	
Real-Time Protection	● Available with Malwarebytes Anti-Malware Premium	Start Free Trial »

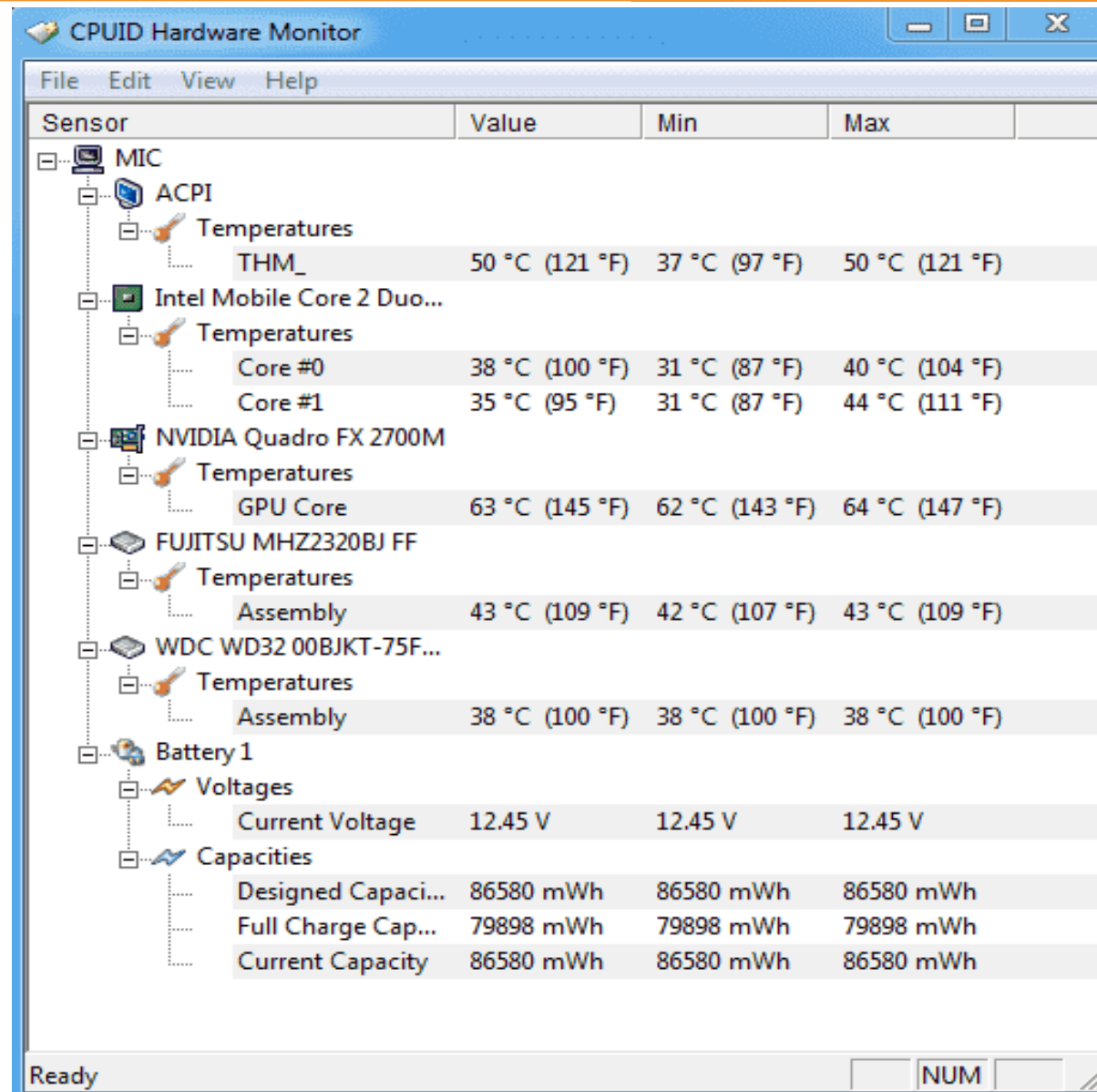
Scan Now

[Need Help?](#)

Need For Speed..



Need For Speed..



The screenshot shows the CPUID Hardware Monitor application window. The window has a menu bar with 'File', 'Edit', 'View', and 'Help'. Below the menu bar is a table with columns: 'Sensor', 'Value', 'Min', and 'Max'. The table lists various hardware components and their current, minimum, and maximum values. The components include MIC, ACPI, Intel Mobile Core 2 Duo..., NVIDIA Quadro FX 2700M, FUJITSU MHZ2320BJ FF, WDC WD32 00BJKT-75F..., and Battery 1. The table is organized into a tree structure with expandable/collapsible icons next to the component names. The 'Value' column displays temperatures in both Celsius and Fahrenheit, voltages, and capacities in mWh.

Sensor	Value	Min	Max
MIC			
ACPI			
Temperatures			
THM_	50 °C (121 °F)	37 °C (97 °F)	50 °C (121 °F)
Intel Mobile Core 2 Duo...			
Temperatures			
Core #0	38 °C (100 °F)	31 °C (87 °F)	40 °C (104 °F)
Core #1	35 °C (95 °F)	31 °C (87 °F)	44 °C (111 °F)
NVIDIA Quadro FX 2700M			
Temperatures			
GPU Core	63 °C (145 °F)	62 °C (143 °F)	64 °C (147 °F)
FUJITSU MHZ2320BJ FF			
Temperatures			
Assembly	43 °C (109 °F)	42 °C (107 °F)	43 °C (109 °F)
WDC WD32 00BJKT-75F...			
Temperatures			
Assembly	38 °C (100 °F)	38 °C (100 °F)	38 °C (100 °F)
Battery 1			
Voltages			
Current Voltage	12.45 V	12.45 V	12.45 V
Capacities			
Designed Capaci...	86580 mWh	86580 mWh	86580 mWh
Full Charge Cap...	79898 mWh	79898 mWh	79898 mWh
Current Capacity	86580 mWh	86580 mWh	86580 mWh

Ready NUM

Need For Speed..

CrystalDiskInfo 8.0.0

File Edit Function Theme Disk Help Language

Good
33 °C
C: D: E:

WDC WD10EZEX-00MFCA0 1000.2 GB

Health Status: **Good**

Temperature: **33 °C**

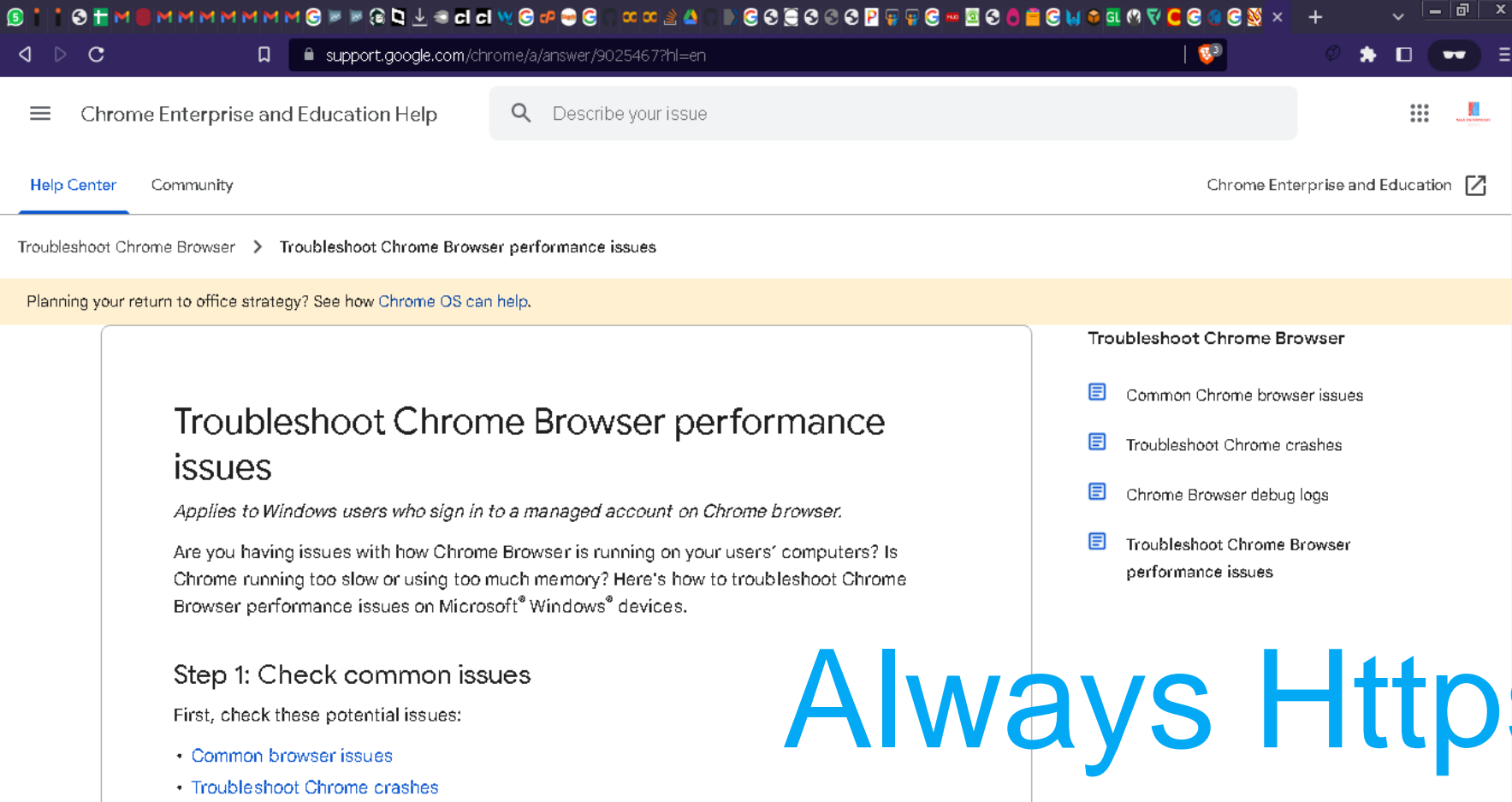
Firmware: 01.01A01
Serial Number: WD-WCC6Y3SKA63H
Interface: Serial ATA
Transfer Mode: SATA/600 | SATA/600
Drive Letter: C: D: E:
Standard: ACS-3 | ACS-3 Revision 3b
Features: S.M.A.R.T., NCQ

Rotation Rate: 7200 RPM
Power On Count: 1038 count
Power On Hours: 3393 hours

ID	Attribute Name	Current	Worst	Threshold	Raw Values
01	Read Error Rate	200	200	51	000000000000
03	Spin-Up Time	173	171	21	00000000092E
04	Start/Stop Count	99	99	0	00000000040E
05	Reallocated Sectors Count	200	200	140	000000000000
07	Seek Error Rate	100	253	0	000000000000
09	Power-On Hours	96	96	0	000000000D41
0A	Spin Retry Count	100	100	0	000000000000
0B	Recalibration Retries	100	100	0	000000000000
0C	Power Cycle Count	99	99	0	00000000040E
C0	Power-off Retract Count	200	200	0	00000000000E
C1	Load/Unload Cycle Count	200	200	0	000000000467
C2	Temperature	110	105	0	000000000021
C4	Reallocation Event Count	200	200	0	000000000000
C5	Current Pending Sector Count	200	200	0	000000000000
C6	Uncorrectable Sector Count	200	200	0	000000000000
C7	UltraDMA CRC Error Count	200	200	0	000000000000
C8	Write Error Rate	200	200	0	000000000000

Need For Speed..

Important Chrome Browser Extensions



350+ Tabs

Always Https

AD Block

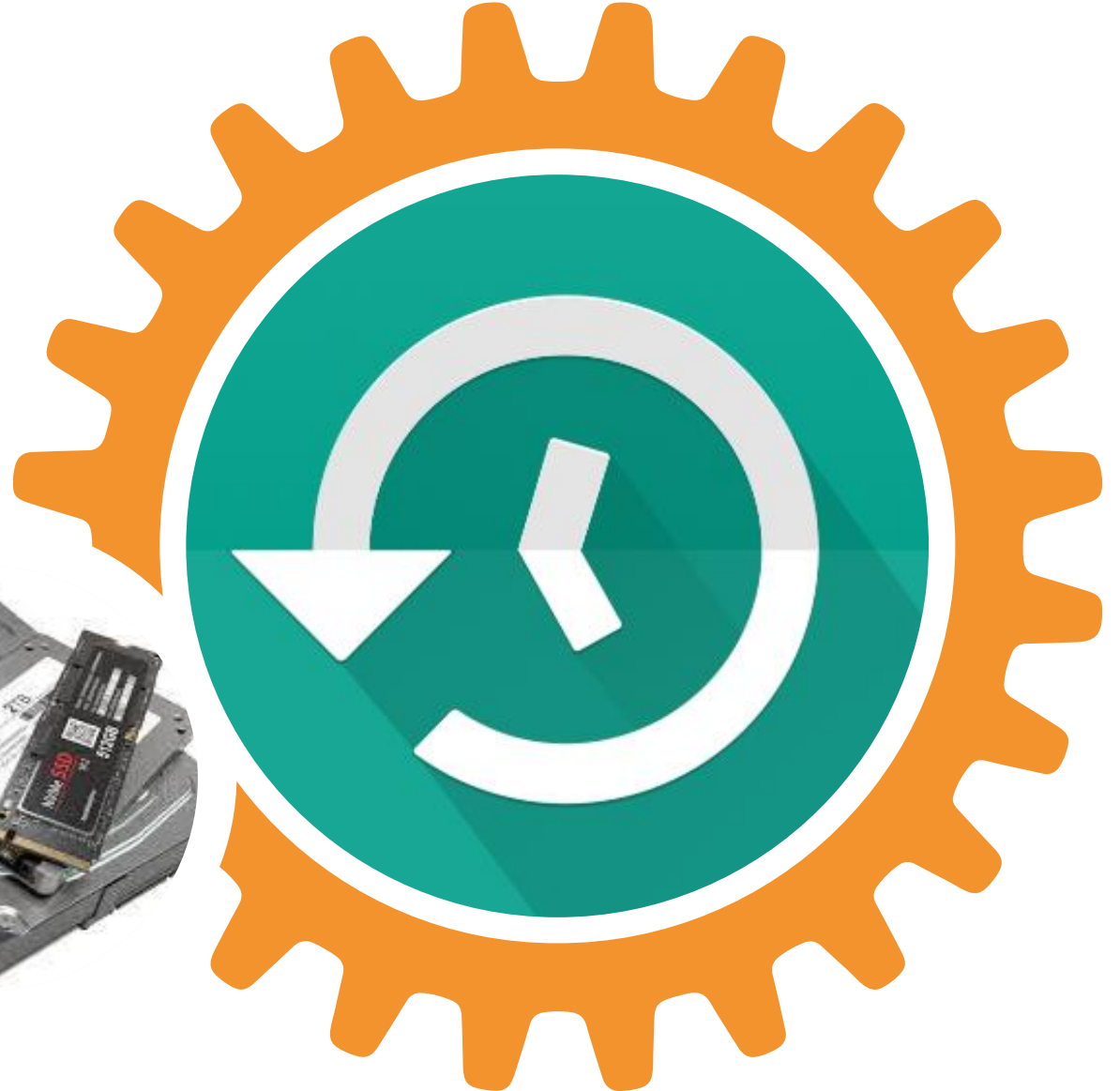
Tab Suspender

Importance of Backup

Anything Can Fail

Data Recovery Cost

Replicate Storage



Potential use of Cloud



Maintenance Free

Cloud Computing

Pay As you Go

Backup Drive

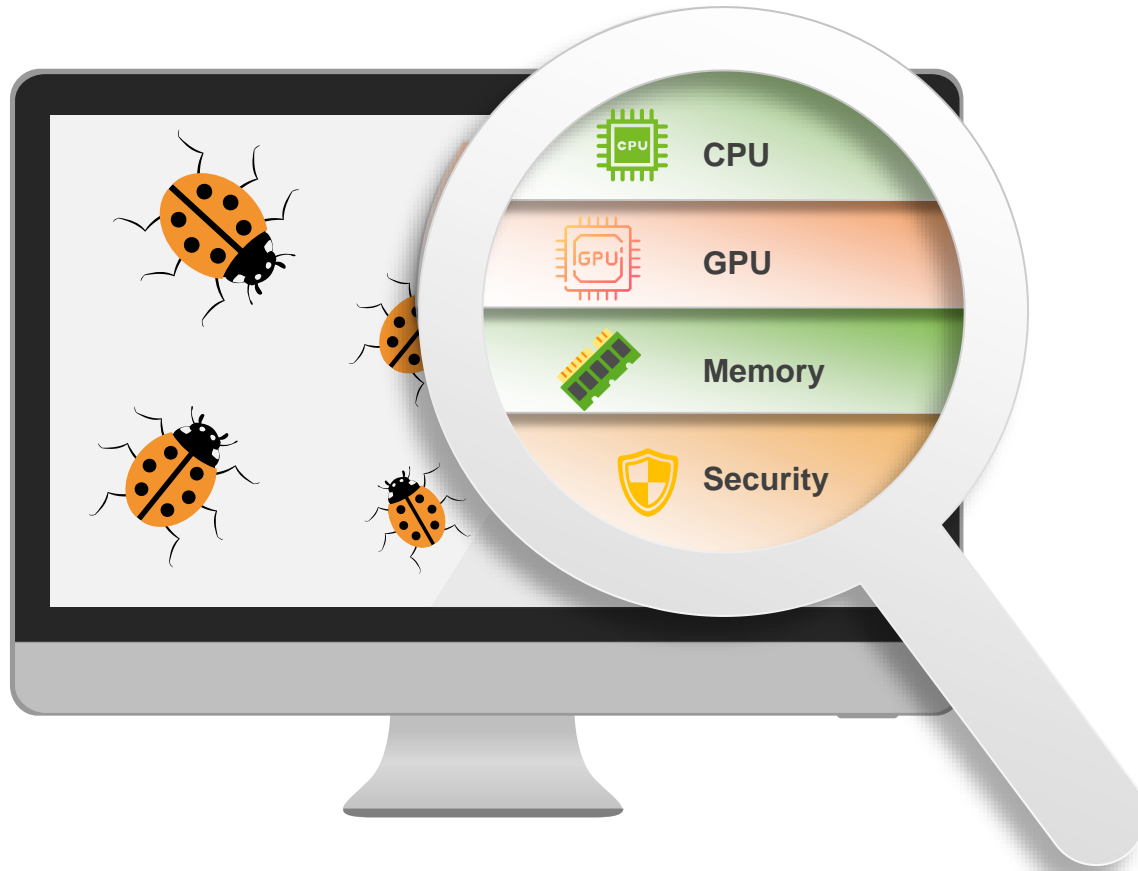


Google Cloud Platform



Buying Tips

Performance per every ₹ Spent



A

BRAND Warranty

B

CPU Type , Base Freq, Cache

C

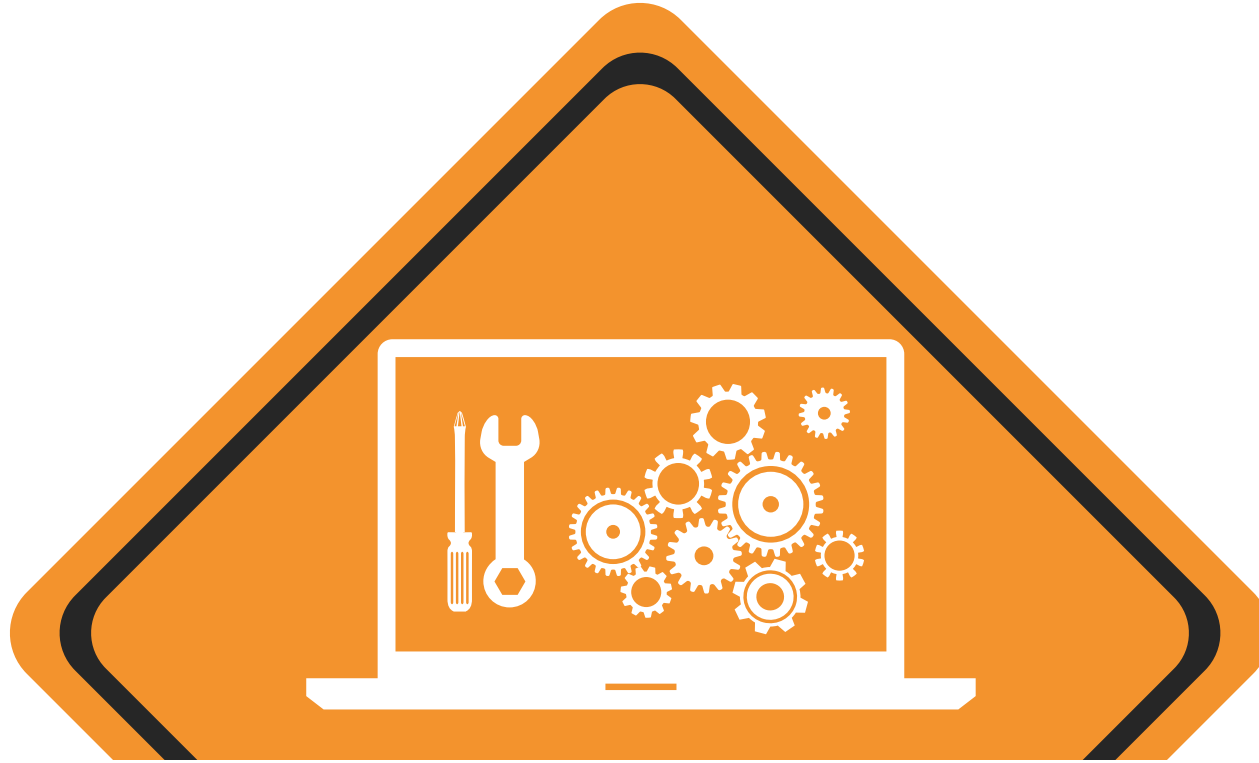
Memory

D

Security

E

GPU



Thank You

