



# Competency Based Learning Materials (CBLM)

Computer Operation

Level-3

## Module: Performing Basic Maintenance and Troubleshooting



National Skills Development Authority  
Prime Minister's Office  
Government of the People's Republic of Bangladesh

## Copyright

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This Competency Based Learning Materials (CBLM) on “Performing Basic Maintenance and Troubleshooting” under the Computer Operation, Level-3 qualification is developed based on the national competency standard approved by National Skills Development Authority (NSDA)

This document is to be used as a key reference point by the competency-based learning materials developers, teachers/trainers/assessors as a base on which to build instructional activities.

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This Competency Based Learning Materials is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order to meet the qualification of individuals who graduated through the established standard via competency-based assessment for a relevant job.

This document has been developed by NSDA in association with industry representatives, academia, related specialist, trainer and related employee.

Public and private institutions may use the information contained in this CBLM for activities benefitting Bangladesh.

## List of Abbreviations

CS	- Competency Standard
ISC	- Industry Skills Council
NSDA	- National Skills Development Authority
NSQF	- National Skills Qualifications Framework
BNQF	- Bangladesh National Qualifications Framework
OSH	- Occupational Safety and Health
PPE	- Personal Protective Equipment
SCVC	- Standards and Curriculum Validation Committee
STP	- Skills Training Provider
SOP	- Standard Operating Procedure
TNA	- Training Need Analysis
UoC	- Unit of Competency
EC	- Executive Committee
CBT&A	- Competency based Training & Assessment
CBC	- Competency based Curriculum
CAD	- Course Accreditation Document
CBLM	- Competency Based Learning Materials
CO	- Computer Operation

Approved by

---th Executive Committee (EC) Meeting of NSDA

Held on -----

Deputy Director (Admin)

and

Officer of Secretarial Duties for EC meeting  
National Skills Development Authority

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## How to use this Competency Based Learning Materials (CBLMs)

The module Perform Basic Maintenance and Troubleshooting training materials and activities for you to complete. These activities may be completed as part of structured classroom activities or you may be required you to work at your own pace. These activities will ask you to complete associated learning and practice activities in order to gain knowledge and skills you need to achieve the learning outcomes.

1. Review the **Learning Activity** page to understand the sequence of learning activities you will undergo. This page will serve as your road map towards the achievement of competence.
2. Read the **Information Sheets**. This will give you an understanding of the jobs or tasks you are going to learn how to do. Once you have finished reading the **Information Sheets** complete the questions in the **Self-Check**.
3. **Self-Checks** are found after each **Information Sheet**. **Self-Checks** are designed to help you know how you are progressing. If you are unable to answer the questions in the **Self-Check** you will need to re-read the relevant **Information Sheet**. Once you have completed all the questions check your answers by reading the relevant **Answer Keys** found at the end of this module.
4. Next move on to the **Job Sheets**. **Job Sheets** provide detailed information about *how to do the job* you are being trained in. Some **Job Sheets** will also have a series of **Activity Sheets**. These sheets have been designed to introduce you to the job step by step. This is where you will apply the new knowledge you gained by reading the Information Sheets. This is your opportunity to practise the job. You may need to practise the job or activity several times before you become competent.
5. Specification **sheets**, specifying the details of the job to be performed will be provided where appropriate.
6. A review of competency is provided on the last page to help remind if all the required assessment criteria have been met. This record is for your own information and guidance and is not an official record of competency

When working through this Module always be aware of your safety and the safety of others in the training room. Should you require assistance or clarification please consult your trainer or facilitator. When you have satisfactorily completed all the Jobs and/or Activities outlined in this module, an assessment event will be scheduled to assess if you have achieved competency in the specified learning outcomes. You will then be ready to move onto the next Unit of Competency or Module

## Module Content

<b>Unit of Competency</b>	<b>Perform Basic Maintenance and Troubleshooting</b>
<b>Unit Code</b>	OU-ICT-CO-06-L3-V1
<b>Module Title</b>	<b>Performing Basic Maintenance and Troubleshooting</b>
Module Descriptor	This unit covers the knowledge, skills and attitudes required to perform basic maintenance and troubleshooting. It specifically includes identifying the problem, diagnosing and fixing peripheral device faults, fixing printing error, fixing application error and troubleshooting network connectivity.
Nominal Hours	<b>25 Hours</b>
Learning Outcome	<p>Upon completion of this module the trainees must be able to:</p> <ol style="list-style-type: none"> <li>1. Identify the problem</li> <li>2. Diagnose and fix Peripheral device faults</li> <li>3. Fix printing error</li> <li>4. Fix application error</li> <li>5. Troubleshoot network connectivity</li> </ol>

### Assessment Criteria :

1. Occupational Safety and Health (OSH) procedures are followed.
2. Hardware & Software are checked for non-functionalities.
3. Problems are identified, recorded and reported to authority.
4. Faulty Peripheral devices or connections are checked and identified.
5. The problems are diagnosed, recorded and reported to authority.
6. Faults are fixed within scope of jobs
7. Printing error is detected
8. Possible solutions for error selected and applied
9. Faulty Software or fonts are identified.
10. Application Software and fonts are installed/ uninstalled.
11. Updates for software's are checked and updated
12. Device drivers are checked and installed/ Uninstalled as required
13. Network devices are checked for connectivity.
14. Network connections are diagnosed.
15. Network devices are Connected and disconnected for fixing network connection.
16. Unsolved issues are reported to the designated persons.

### Contents

This learning package includes the following:

1. Identify Problem
2. Diagnose and fix Peripheral device faults
3. Fix printing error
4. Fix application error
5. Troubleshoot network connectivity



## Learning Outcome 1: Identify the Problem

### **Content:**

1. Problems
  - a. Device Power Issue
  - b. Data cable issue
  - c. Device Date & Time mismatch
  - d. Boot Device fault
  - e. OS Failure
  - f. Application software error
  - g. Network connection

### **Assessment Criteria:**

1. Occupational Safety and Health (OSH) procedures are followed.
2. Hardware & Software are checked for non-functionalities.
3. Problems are identified, recorded and reported to authority.

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

#### **Training resources**

- Training environment
- CBLM
- Handouts
- Laptop
- Multimedia projector
- Paper, pen, pencil, eraser
- Internet
- Whiteboard & Marker
- Audio, Video device

#### **Methodologies**

- Discussion
- Presentation
- Demonstration
- Guided practice
- Individual practice
- Project work
- Problem solving
- Brainstorming

#### **Assessment Methods**

- Written test
- Demonstration
- Oral questioning

## Learning Experience 1: Identify the problem

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

Learning Steps	Resources specific instructions
1. Student will ask the instructor about Problem Identification	1. Instructor will provide the learning materials “ <b>Identify the problem</b> ”
2. Read the Information sheet/s	2. Information Sheet No.1.1: Identify the problem.
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No.1.1: Identify the problem. Answer key No. 1.1: Interpret Identify the problem.
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No.1.1: Identify the problem. Specification Sheet 1.1: Identify the problem.

## Information Sheet No.1: Identify the problem.

**Learning Objectives:** After completion of this information sheet, the learners will be able to explain, define and interpret the following contents:

- 1.1 Know about non-functionalities of software & Hardware
- 1.2 Identify & record hardware & software problem then reports to authority

### 1.1 Know about non-functionalities of software & Hardware

Checking hardware and software for non-functionalities typically involves a systematic approach to identify any issues or malfunctions that may be present. Here's a general overview of how this process might be conducted

#### Hardware Check





<b>Physical Inspection</b>	:	Inspect hardware components visually for any signs of damage or wear.
<b>Connections</b>	:	Ensure all cables, connectors and peripherals are properly connected.
<b>Diagnostic Tools</b>	:	Use diagnostic tools to check hardware components such as RAM, hard drives, CPU and Graphics cards for errors or malfunctions.
<b>Cooling</b>	:	Check temperature levels and ensure adequate cooling systems are functioning properly.
<b>Power Supply</b>	:	Verify that the power supply is delivering the required voltage and current without fluctuations.

#### Software Check


<b>Functional Testing</b>	:	Test software applications to ensure they perform as expected and meet requirements.
<b>Compatibility Testing</b>	:	Verify that software applications are compatible with the operating system and other software components.
<b>Security Check</b>	:	Scan for vulnerabilities and ensure that security measures are in place.
<b>Performance Testing</b>	:	Evaluate the performance of software applications under different conditions to identify any bottlenecks or issues.
<b>Error Logging</b>	:	Check error logs for any reported issues or abnormalities.
<b>Patch Management</b>	:	Ensure that software is up-to-date with the latest patches and updates to mitigate known issues.




## 1.2 Identify & Record Hardware & Software Problem Then Reports to Authority

### Device Power Issue

<p>A device power issue occurs when a device has trouble receiving or using electricity. This can cause the device to not turn on, shut down unexpectedly, or experience other problems.</p>		
		
<p>Ensure the power outlet is functional by testing it with another device.</p>	<p>Verify that the power cable is securely connected to both the PC/laptop and the power outlet.</p>	<p>If using a power strip or surge protector make sure it's turned on and functioning correctly.</p>
	<p>For laptops, check the battery status indicator lights.  <b>Amber (flashing):</b> Battery low.  <b>Amber:</b> Battery is charging.  <b>Blue:</b> Battery is fully charged</p>	

### Data cable issue

<p>Data cable issues can be frustrating, but there are several things you can try to troubleshoot the problem</p>		
<p><b>Common Issues</b></p>		<p><b>As like</b></p>
<p>Loose connection</p>	<p>This is one of the most common problems. Try pushing the connector firmly into the port on both the device and the computer.</p>	

<p>Damaged cable</p>	<p>Inspect the cable for any visible signs of damage, such as fraying, cuts, or kinks. If you see any damage, the cable will likely need to be replaced.</p>	
<p>Dirty connector</p>	<p>Dust or debris in the connector can prevent a good connection. Try gently cleaning the connector with a dry cotton swab or compressed air.</p>	
<p>Incorrect cable type</p>	<p>Make sure you are using the correct type of cable for your device. For example, a USB-C cable will not work with a device that has a micro-USB port.</p>	
<p><b>Troubleshoot</b></p> <p><b>Try a different cable:</b> This is the easiest way to rule out a problem with the cable itself. Borrow a cable from a friend or use the original cable that came with your device.</p> <p><b>Try a different port:</b> If using a computer, try plugging the cable into a different USB port.</p>		

### Device Date & Time mismatch

<p>Device date and time mismatch occurs when the displayed date and time on your device are incorrect compared to the actual time. This can happen due to various reasons, including:</p>
<p><b>Manual error:</b> You might have accidentally set the wrong date and time.</p> <p><b>Unsynchronized settings:</b> The device might not be automatically syncing its time with an external time server, leading to a gradual drift.</p> <p><b>Outdated settings:</b> The time zone information on the device might be outdated, causing a discrepancy.</p> <p><b>Software glitch:</b> A temporary software issue might be causing the time to be displayed incorrectly.</p> <p><b>Hardware malfunction:</b> In rare cases, a failing internal battery (CMOS battery on computers) responsible for maintaining time settings can cause the date and time to reset after a power outage.</p> <p>The impact of a date and time mismatch can vary depending on the context. In</p>

everyday use, it might cause inconvenience, like missed appointments or incorrectly displayed timestamps on photos. However, in situations like financial transactions or system security, an accurate time is crucial, and a mismatch can lead to errors or security risks.

### Check the automatic settings

Right-click on the clock in the taskbar and select "Adjust date and time" (Windows 11) or "Set the time and date" (Windows 10)

Make sure the toggle for "Set time automatically" is turned on.

If it is already on, try turning it off and then on again.

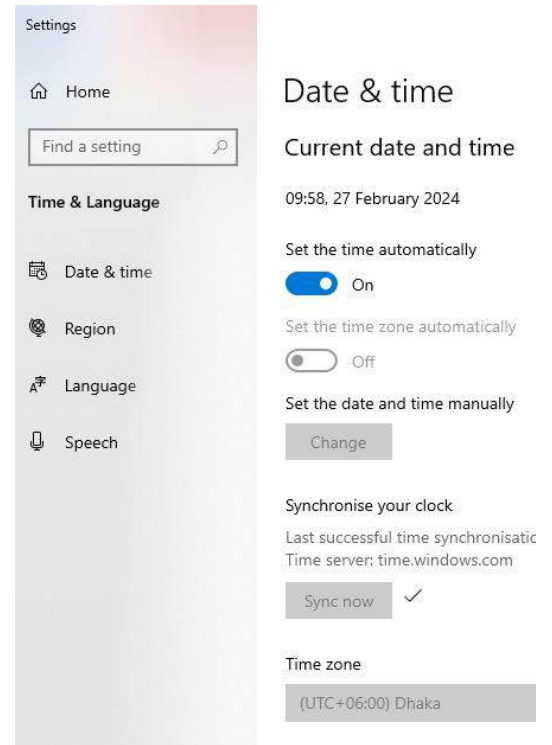
If available, check the "Set time zone automatically" option.

### Manually set the date and time

If automatic settings aren't working, you can try setting the date and time manually.

In the same menu from step A, click on "Change" next to date and time.

Set the correct date and time and ensure the time zone is accurate for your location.

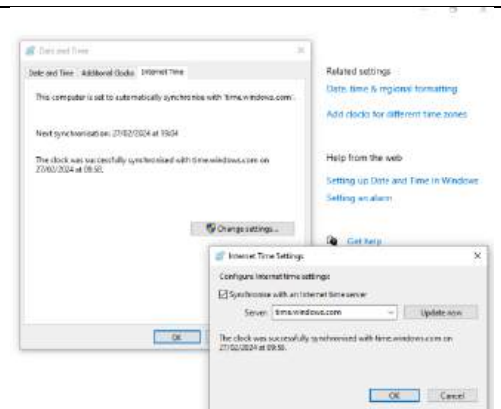


### Synchronize with internet time server

In the "Adjust date and time" menu ->Click "Add clocks for different time zones" -> click on the "Internet Time" tab -> click "Change settings".

Check the box next to "Synchronize with an internet time server" and choose a reliable server (time.windows.com).

Click "Update now" and then "OK" to save the changes.



## Check for CMOS battery issues



If the date and time keep resetting after you set them, it might be a sign of a weak CMOS battery. The CMOS battery is a small button battery that powers the system clock even when the PC is off. Replacing the CMOS battery is a relatively simple process, but it's important to consult your PC's manual or manufacturer for specific instructions.

## Boot Device fault

A "Boot Device fault" signifies an issue preventing your computer from successfully starting up. It essentially means the system couldn't find or access the necessary files to boot the operating system. This can be caused by various factors, including:

### Hardware Issues

**Faulty storage device:** The hard drive, solid-state drive (SSD), or other storage device where your operating system resides might be malfunctioning or physically damaged.



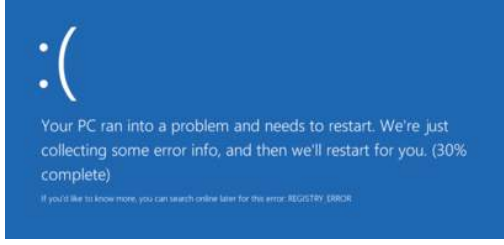


**Loose connections:** Cables connecting the storage device to the motherboard might be loose or disconnected.



**Incorrect boot order:** The BIOS (or UEFI) might be configured to prioritize booting from a different device (like a USB drive) instead of your primary storage.

Reboot and select proper Boot Device  
or Insert Boot Media in selected Boot device

## Software Issues

<p><b>Corrupted system files:</b> Essential system files required for the boot process might be corrupted.</p>	
<p><b>Boot sector issues:</b> The boot sector, a specific part of your storage device containing critical boot information, might be damaged.</p>	
<p><b>Outdated BIOS/UEFI:</b> An outdated BIOS/UEFI firmware might have compatibility issues with your hardware or operating system.</p>	

**After identify the Problems** is documented and preserved for future reference. This can involve creating reports, logs, or taking screenshots to capture details for further investigation or resolution.

The final step involves notifying the appropriate individual or department responsible for addressing the problem. This could be a supervisor, manager, IT support, customer service, or even legal authorities depending on the nature of the issue.



## Self-Check Sheet 1

**Question 01:** What is the purpose of following Occupational Safety and Health (OSH) procedures?

Answer:

**Question 02:** Why is it important to check hardware and software for non-functionalities?

Answer:

**Question 03:** What should be done when problems are identified?

Answer:

## **Answer key 1**

**Question 01:** What is the purpose of following Occupational Safety and Health (OSH) procedures?

Answer: To ensure a safe working environment and prevent accidents or injuries.

**Question 02:** Why is it important to check hardware and software for non-functionalities?

Answer: To ensure smooth operation and prevent potential issues or disruptions.

**Question 03:** What should be done when problems are identified?

Answer: They should be recorded and reported to the appropriate authority for resolution.

## Activity Sheet 1:

Task Name: Identify the problem.

### Working Procedure:

1. Check hardware and software malfunctions.
2. Inspect the physical components of the computer, including cables, power supply, and peripherals.
3. Ensure everything is properly connected and powered on.
4. Boot the computer and observe any error messages or unusual behaviour.
5. Check the status of software applications and operating systems for any signs of issues.
6. Identify Problems recorded and report to authority.
7. Clearly describe the symptoms and potential causes of the problem.
8. Document the identified problems in a logbook or digital system, noting the date, time, and detailed description of the issue.
9. Communicate the findings to the relevant authority (e.g., IT department, supervisor) through email, report, or ticketing system.

## **Learning Outcome 2: Diagnose and fix Peripheral device faults**

### **Content:**

1. Faulty Peripheral devices or connections
2. Problems are diagnosed, recorded and reported
3. Faults are fixed

### **Assessment Criteria:**

- 2.1. Faulty Peripheral devices or connections are checked and identified.
- 2.2. The problems are diagnosed, recorded and reported to authority.
- 2.3. Faults are fixed within scope of jobs

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Training resources
- Training environment
- CBLM
- Hands out
- Laptop
- Multimedia projector
- Paper, pen, pencil, eraser
- Internet
- Whiteboard & Marker
- Audio, Video device

### **Methodologies**

- Discussion
- Presentation
- Demonstration
- Guided practice
- Individual practice
- Project work
- Problem solving
- Brain storming

### **Assessment Methods**

- Written test
- Demonstration
- Oral questioning

## Learning Experience 2: Diagnose and fix Peripheral device faults

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

<b>Learning Steps</b>	<b>Resources specific instructions</b>
1. Student will ask the instructor “Diagnose and fix Peripheral device faults”	1. Instructor will provide the learning materials “ <b>Diagnose and fix Peripheral device faults</b> ”
2. Read the Information sheet/s	2. Information Sheet No.2: Diagnose and fix Peripheral device faults.
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No. 2.1: Diagnose and fix Peripheral device faults. Answer key No. 2.1: Diagnose and fix Peripheral device faults.
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No. 2.1: Diagnose and fix Peripheral device faults. Specification Sheet 2.1: –Diagnose and fix Peripheral device faults.

## Information Sheet No.2: Diagnose and fix Peripheral device faults

**Learning Objectives:** After completion of this information sheet, the learners will be able to explain, define and interpret the following contents:

- 2.1 Identify Faulty Peripheral devices or connections
- 2.2 Diagnose Faulty Peripheral devices and record for future documentation
- 2.3 Report to appropriate authority.
- 2.4 Fix within scope of jobs

### 2.1 Faulty Peripheral devices or connections are checked and identified.

Effectively handling faulty peripheral devices or connections requires a systematic and well-defined process.

- **Initial Observation and Information Gathering**

**Identify the malfunction:** Start by observing the behavior of the peripheral device. Is it unresponsive, producing distorted output (e.g., blurry webcam video, distorted audio), or exhibiting any unusual behavior altogether?

**Gather details:** Note any error messages, unusual noises, or visual signs of damage (e.g., frayed cables, bent pins) that might offer clues about the problem.

- **Isolation and Inspection**

**Isolate the device:** Disconnect the suspected peripheral device from the computer to isolate the source of the issue.

**Inspect the connection:** Carefully examine the cable and connector for any physical damage like fraying, cuts or bent pins.

**Test the connection:** If possible, try connecting the peripheral to a different computer or using a different cable with the same device. This helps determine if the problem lies with the device itself, the cable, or the computer's port.

### 2.2 The problems are diagnosed, recorded and reported to authority.

- **Diagnose the problem:** Based on the observations, tests, and gathered information, attempt to pinpoint the likely cause of the issue. This could be a faulty device, a damaged cable, a software conflict, or even incorrect configuration.
- **Document the findings:** Create a clear and concise record of the problem description, the troubleshooting steps taken, and the diagnosed cause. This documentation serves as a valuable reference point for future actions and potential reporting.

### 2.3 Reporting to the Appropriate Authority

Depending on the organization and the nature of the issue, the relevant authority could be:

**Internal:** IT department, supervisor, or designated support personnel within the organization.

**External:** Manufacturer of the device (for warranty claims or technical support).

**Report the issue:** Clearly communicate the problem description, your diagnosis, and any relevant information to the identified authority. This might involve submitting a formal report, filing a support ticket, or notifying a specific contact person.

## **2.4 Faults are fixed within scope of jobs**

**Fix the problem (if within scope):** Based on your job description and expertise, attempt to fix the issue within the limitations of your role. This might involve:

- Replacing a damaged cable.
- Reinstalling device drivers.
- Performing basic troubleshooting steps as outlined in official documentation or manufacturer guidelines.

Escalate if needed: If the problem requires advanced troubleshooting, specialized knowledge or resource allocation beyond your scope, don't hesitate to escalate the issue to the appropriate authority for further action.

## Self-Check Sheet 2

Question1: What is done when faulty peripheral devices or connections are detected?

Answer:

Question2: What steps are taken after problems are diagnosed?

Answer:

Question3: How are faults typically addressed within the scope of the job?

Answer:



## **Answer key 2**

Question1: What is done when faulty peripheral devices or connections are detected?

Answer: They are checked and identified.

Question2: What steps are taken after problems are diagnosed?

Answer: They are recorded and reported to the authority.

Question3: How are faults typically addressed within the scope of the job?

Answer: They are fixed.

## Activity Sheet 2

Task Name: Diagnose and fix Peripheral device faults.

### Working Procedure:

1. Faulty Peripheral devices or connections
2. Initial Observation: Note any non-functioning peripherals (e.g., printer, mouse, keyboard, external drives).
3. Check for loose connections, damaged cables, and ensure that the devices are properly plugged into the correct ports.
4. Problems are diagnosed, recorded and reported
5. Connect the peripheral device to another computer to verify if the issue is with the device or the computer.
6. Look for error messages or codes on the computer or the peripheral device itself.
7. Record the symptoms, error messages, and initial observations in a logbook or digital system.
8. Reporting: Communicate the identified issues to the relevant authority (e.g., IT department, supervisor) through a formal report, email, or ticketing system.
9. Power cycle the computer and peripheral devices.
10. Ensure that the necessary drivers for the peripheral devices are installed and up-to-date. Reinstall or update drivers if necessary.
11. Verify that the peripheral device settings on the computer are correct and that the device is enabled.

## **Learning Outcome 3: Fix printing error**

### **Content:**

#### **Printing error**

- a. Print spooling
- b. Paper jam
- c. Poor print quality
- d. Printer status Offline

#### **Assessment Criteria:**

- 1.1. Printing error is detected
- 1.2. Possible solutions for error selected and applied

#### **Resources Required/ Conditions:**

The trainees must be provided with the following:

#### **Training resources**

- Training environment
- CBLM
- Handsout
- Laptop
- Multimedia projector
- Paper, pen, pencil, eraser
- Internet
- Whiteboard & Marker
- Audio, Video device

#### **Methodologies**

- Discussion
- Presentation
- Demonstration
- Guided practice
- Individual practice
- Project work
- Problem solving
- Brainstroming

#### **Assessment Methods**

- Written test
- Demonstration
- Oral questioning

### **Learning Experience 3: Fix printing error**

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

<b>Learning Steps</b>	<b>Resources specific instructions</b>
1. Student will ask the instructor about <b>Fix printing error</b>	1. Instructor will provide the learning materials “ <b>Fix printing error</b> ”
2. Read the Information sheet/s	2. Information Sheet No 2: Fix printing error.
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No: 2 Fix printing error. Answer key No. 2 Fix printing error.
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No:2- Fix printing error. Specification Sheet1 –Fix printing error.

## Information Sheet No 3: Fix printing error

**Learning Objectives:** After completion of this information sheet, the learners will be able to explain, define and interpret the following contents:

3.1 Detect Printing error

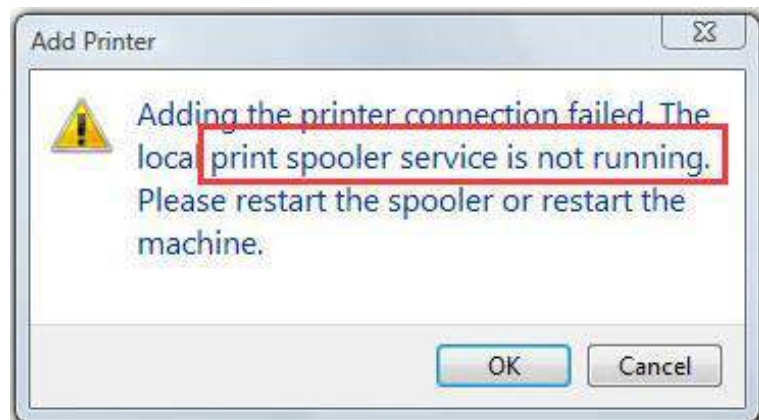
3.2 Select and apply Possible solutions for error

### 3.1 Printing error is detected

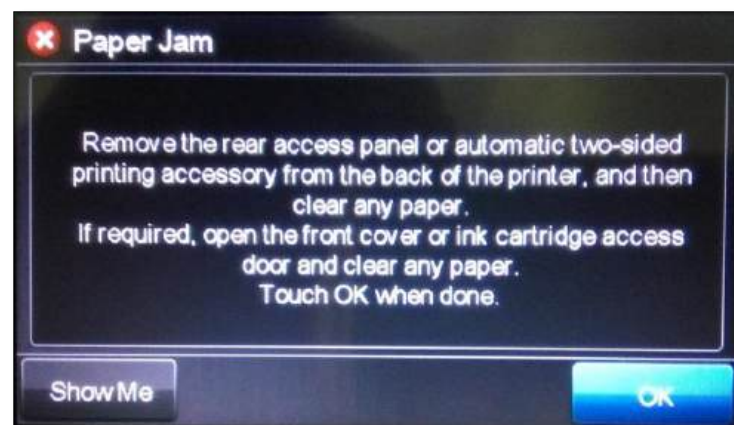
When a printing error is detected, there are several steps you can take to identify and potentially solve the problem. Here's a breakdown of the process:

**Observe the error message:** The printer will usually display an error message on its screen or a notification will pop up on your computer. Pay close attention to the specific wording as it can provide clues about the nature of the problem.

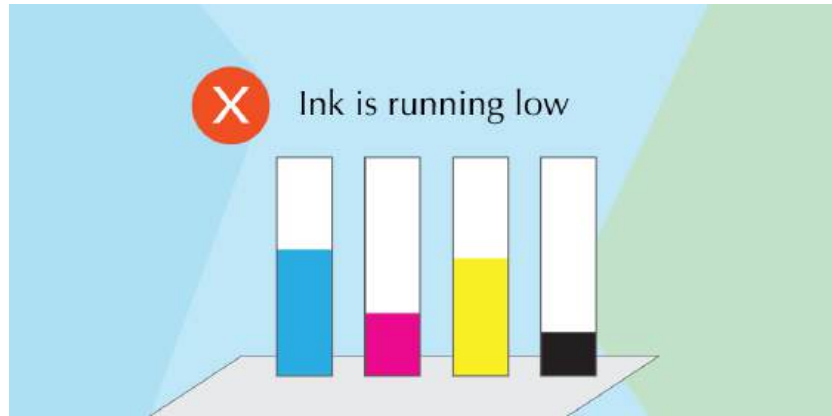
**Print spooling**



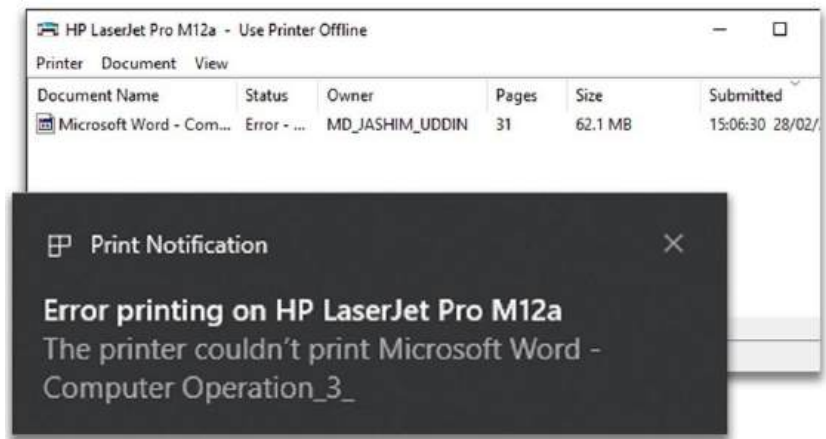
**Paper jam**



**Poor print quality**



**Printer status Offline**



### 3.1 Possible solutions for error selected and applied

**Consult the printer manual:** The manufacturer's manual often provides troubleshooting guides for various error messages. Look for the specific error code or description and follow the recommended solutions.

**Online resources:** Search online using the specific error message or a brief description of the issue. You might find solutions reported by other users or official troubleshooting guides from the manufacturer's website.

**Basic troubleshooting:** Some common solutions can be tried first

#### For Print spooling

**Restart the printer:** This can sometimes resolve temporary glitches.

Ensure the printer is properly connected to your computer (wired or Wi-Fi) and the power source.



#### Paper jam

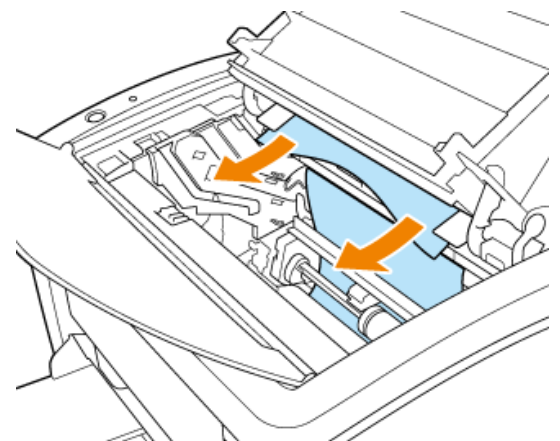
If paper is jammed in the multi-purpose tray or manual feed tray

Remove the jammed paper by pulling it from the multi-purpose tray or manual feed tray.

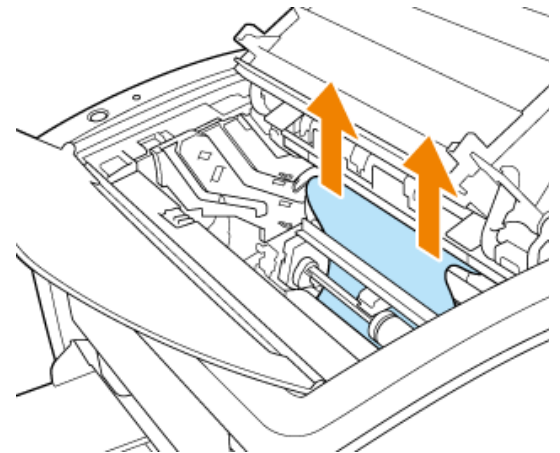


If paper is jammed in the output tray

Remove the jammed paper by pulling it upward slowly.



If paper is jammed inside the printer unit  
Pull the jammed paper upward slowly.



### **Poor print quality**

**Verify paper and ink/toner levels:** Make sure there's enough paper in the tray and sufficient ink or toner in the cartridges.

**Clean the print head:** Refer to the manual for instructions on cleaning the print head, which can remove clogs that might be causing printing issues.



### **Printer status Offline**

Ensure the printer is opened.

**Updating printer drivers:** Outdated drivers can sometimes cause compatibility issues. Update the drivers from the manufacturer's website or through your operating system's device manager.

**Reinstalling the printer software:** In rare cases, reinstalling the printer software might be necessary. Consult the manual for specific instructions.



For complex issues, consider seeking professional help from a qualified technician.

**Remember:** The specific solutions might vary depending on the printer model, error message, and operating system. Always consult the printer manual or manufacturer's website for specific troubleshooting guidance.



### **Self-Check Sheet 3**

Question 1: What action is taken upon detecting a printing error?

Answer:

Question 2: What is the process when selecting and applying possible solutions for a printing error?

Answer:

Question 3: How are the selected solutions applied to address the printing error?

Answer:

Question 4: What is the goal when selecting and applying possible solutions for a printing error?

Answer:

Question 5: Why is it important to apply troubleshooting methods when addressing printing errors?

Answer:

Question 6: Who typically selects and applies possible solutions for printing errors?

Answer:

### **Answer key 3**

Question1: What action is taken upon detecting a printing error?

Answer: Possible solutions for the error are selected and applied.

Question 2: What is the process when selecting and applying possible solutions for a printing error?

A: Troubleshooting methods are employed to resolve the issue

Question 3: How are the selected solutions applied to address the printing error?

Answer: The solutions are implemented and tested to ensure resolution of the error

Question 4: What is the goal when selecting and applying possible solutions for a printing error?

Answer: To resolve the error and restore normal printing functionality.

Question 5: Why is it important to apply troubleshooting methods when addressing printing errors?

Answer: To identify the root cause and implement effective solutions.

Question 6: Who typically selects and applies possible solutions for printing errors?

Answer: The individual responsible for managing or troubleshooting printing equipment.

## Activity Sheet 3

**Task Name:** Fix printing error.

### Working Procedure:

- 1 Printing Error is Detected:
- 2 Note any error messages displayed on the printer or computer screen.
- 3 Observe the symptoms, such as paper jams, poor print quality, or the printer not responding.
- 4 Ensure the printer is turned on and connected to the computer or network.
- 5 Check the printer's status display for any specific error codes or warnings.
- 6 Turn off the printer and computer, then turn them back on to reset the connection.
- 7 Ensure all cables are securely connected and that the printer is connected to the correct network or USB port.
- 8 Make sure the correct printer is set as the default printer in the computer's settings.
- 9 Check the print queue for any stuck print jobs and clear them if necessary.
- 10 Check Paper and Ink/Toner:
- 11 Ensure there is enough paper in the tray and that it is loaded correctly.
- 12 Check the ink or toner levels and replace cartridges if they are low or empty.
- 13 Open the printer and carefully remove any jammed paper. Ensure no small pieces are left inside.
- 14 Check the rollers for any debris or damage and clean them if necessary.
- 15 Update or Reinstall Printer Drivers:
- 16 Visit the printer manufacturer's website to download and install the latest drivers.
- 17 Uninstall the printer drivers from the computer and reinstall them to ensure a clean installation.
- 18 Use the printer's built-in diagnostic tools to identify and fix common issues.
- 19 Utilize any diagnostic software provided by the printer manufacturer.
- 20 Ensure the printer is connected to the correct Wi-Fi network or Ethernet connection.
- 21 Verify that the printer's IP address is correctly configured and matches the network settings.
- 22 Print a test page to check if the printer is functioning correctly.
- 23 Try printing different types of files (e.g., documents, images) to ensure the problem is not file-specific.
- 24 Check for and install any firmware updates for the printer.
- 25 Restart the print spooler service on the computer.

## **Learning Outcome 4: Fix application error**

### **Content:**

1. Software and fonts
  - a. Office Application Software
  - b. Bangla Typing Software (Bijoy, Avro)
  - c. Fonts
  - d. ASCII (sutonymj, ananda)
  - e. Unicode (nikosh, solaimanlipi, kalpurush, mukti, vrinda, Sonar Bangla)
  - f. Antivirus Software (Sophos, Kaspersky, McAfee, Norton, Bitdefender, Avira, Eset)
2. Device drivers
  - a. Printer Driver
  - b. Scanner Driver
  - c. Webcam Driver

### **Assessment Criteria:**

- 4.1. Faulty Software or fonts are identified.
- 4.2. Application Software and fonts are installed/ uninstalled.
- 4.3. Updates for software's are checked and updated
- 4.4. Device drivers are checked and installed/ Uninstalled as required

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

#### **Training resources**

- Training environment
- CBLM
- Handouts
- Laptop
- Multimedia projector
- Paper, pen, pencil, eraser
- Internet
- Whiteboard & Marker

#### **Methodologies**

- Discussion
- Presentation
- Demonstration
- Guided practice
- Individual practice
- Project work
- Problem solving

#### **Assessment Methods**

- Written test
- Demonstration
- Oral questioning

## Learning Experience 4: fix application error

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

Learning Steps	Resources specific instructions
1. Student will ask the instructor about <b>fix application error</b>	1. Instructor will provide the learning materials “ <b>fix application error</b> ”
2. Read the Information sheet/s	2. Information Sheet No. 4.1: fix application error.
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No 4.1: fix application error. Answer key No. 4: fix application error.
4. Read the Job Sheet and Specification Sheet and perform job	Job- Sheet No 4.1: fix application error. Specification Sheet 5: fix application error.

## Information Sheet No. 4: fix application error

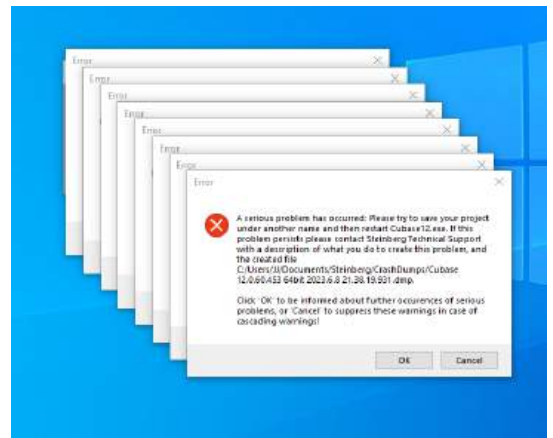
**Learning Objectives:** After completion of this information sheet, the learners will be able to explain, define and interpret the following contents:

- 4.1 Identify faulty Software or fonts
- 4.2 Install/ uninstall Application Software and fonts
- 4.3 Check and update software
- 4.4 Check and Install/ uninstall Device Drivers

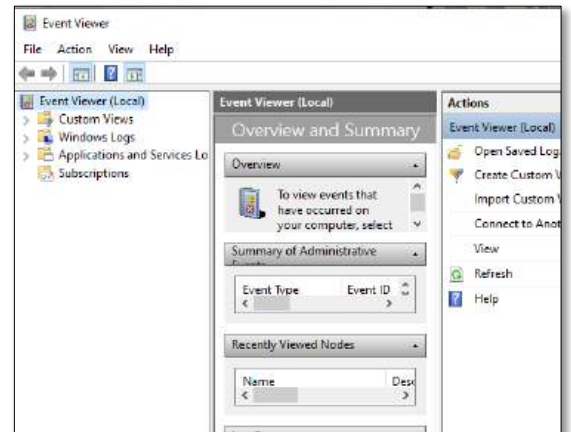
### 4.1 Identify faulty Software or fonts

#### Software

**Error messages:** Pay close attention to any error messages displayed, as they might provide clues about the faulty software.



**Event viewer:** Check the event viewer logs (Windows) or system logs (Mac) for any entries related to the software or the time the issue occurred.

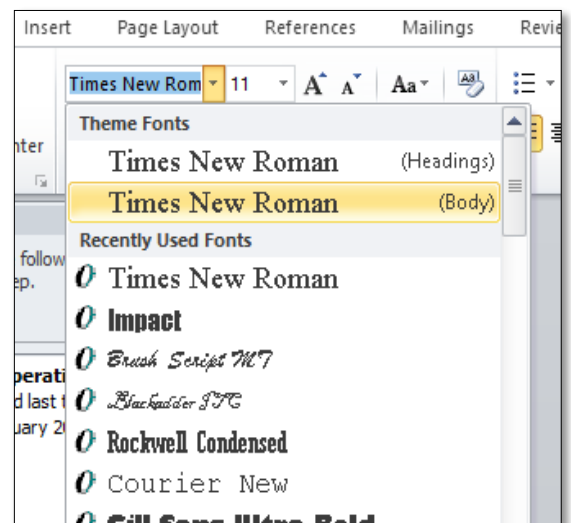


**Task manager:** Monitor resource usage in the task manager while running the software. High CPU or memory usage by the software could indicate instability or resource conflicts

Name	Status	CPU	Memory	Disk
<b>Apps (6)</b>				
BijoyBeyarino (32 bit)		0%	1.9 MB	0 MB/s
Google Chrome (21)		1.6%	771.0 MB	0.1 MB/s
Microsoft Edge (56)		0.1%	1,690.4 MB	0 MB/s
Microsoft Word (32 bit)		0%	32.6 MB	0 MB/s
Task Manager		0.7%	23.1 MB	0.1 MB/s
Windows Explorer		1.1%	57.2 MB	0.1 MB/s
<b>Background processes (62)</b>				
AggregatorHost		0%	0.3 MB	0 MB/s
Antimalware Service Executable		0.0%	133.5 MB	0.1 MB/s
Application Frame Host		0%	3.4 MB	0 MB/s

## Fonts

**Font preview:** Compare the font's preview in the font manager or application with its actual appearance in the document. This can help identify corrupted or damaged font files.



**Font conflict:** Check if the font conflicts with other fonts installed on your system. Try using a different font in the document.

- **War (Macro):** World Wars involve broad disagreements between nations, driven by territorial disputes and causing widespread military engagements.
- **Roommate Dispute (Micro):** Roommate Disputes reflect personal differences in expectations or values, such as cleanliness differences.

**Update software:** Check for updates for the suspected software and install them if available.

**Reinstall software:** In some cases, reinstalling the software can resolve issues caused by corrupted files or incorrect installation.

**Uninstall and reinstall the font:** This can sometimes fix problems caused by corrupted font

files. However, ensure you only uninstall fonts from a reliable source and avoid downloading fonts from untrusted websites.

**Use a system font:** If the issue persists, try using a system font that is pre-installed on your device.

## 4.2 Install/ uninstall Application Software and fonts

**Office application software** refers to software used in business for various tasks. These applications are designed to enhance productivity and streamline work processes. Here are some common office applications:

Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft OneNote, Microsoft Outlook, Microsoft Access, Skype for Business, Microsoft InfoPath etc.

You can install your needed software by following step.

Office application Installation process is showed by open source office application software.

This Application software's Download link:  
<https://www.libreoffice.org/download/download-libreoffice/>

step 1 : Download or Collect Needed software



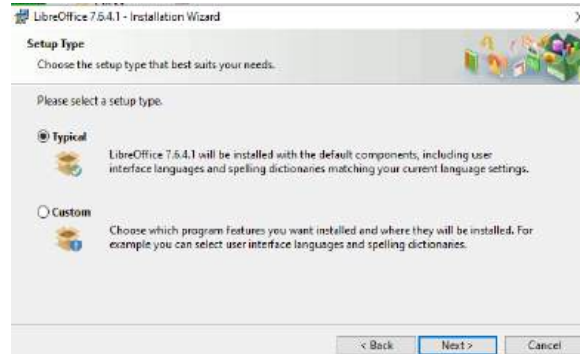
step 2 : Open application Software



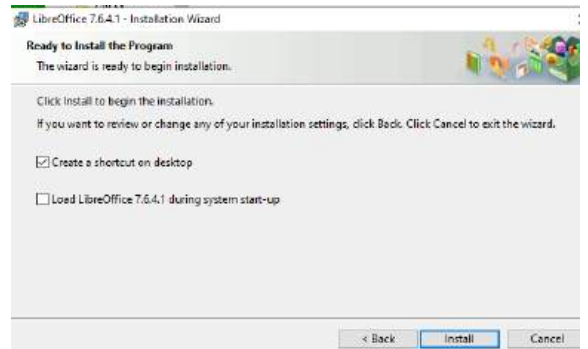
step 3 : Continue by clicking **Next** button from “Welcome Wizard”



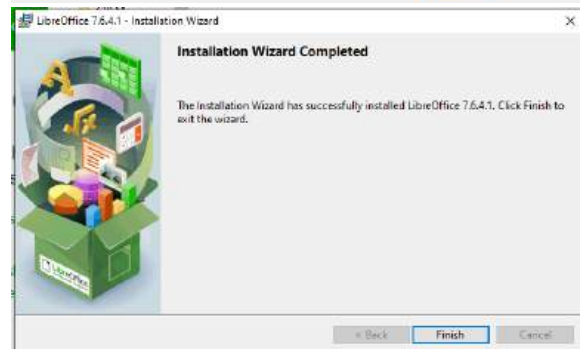
step 4 : Choose your “setup type” then click **Next** button



step 5 : Now click **Install** button. After clicking Install button, the installation process will be start.



step 6 : By clicking **Finish** button, Installation process will have completed.



## Bangla typing software Installation process is showed by Avro

You can install your needed software by flowing step.

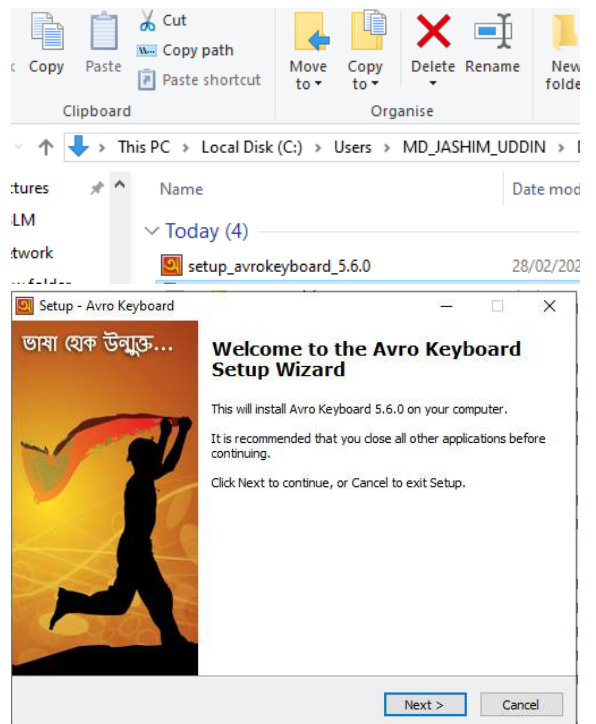
This Application software's Download link:  
<https://www.omicronlab.com/avro-keyboard.html>

Download or Collect Bangla typing softer

step 1 : Click **Download Avro Keyboard Now**

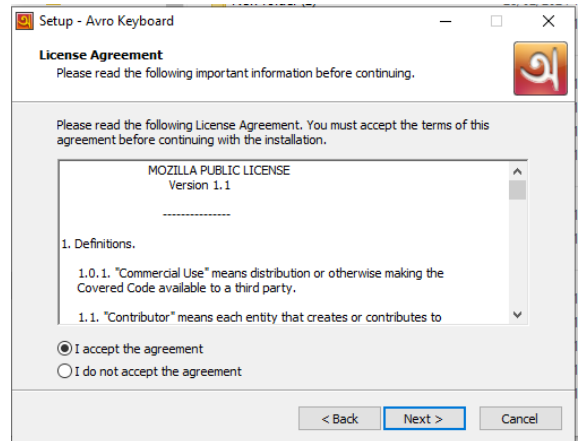


step 2 : Open application Software

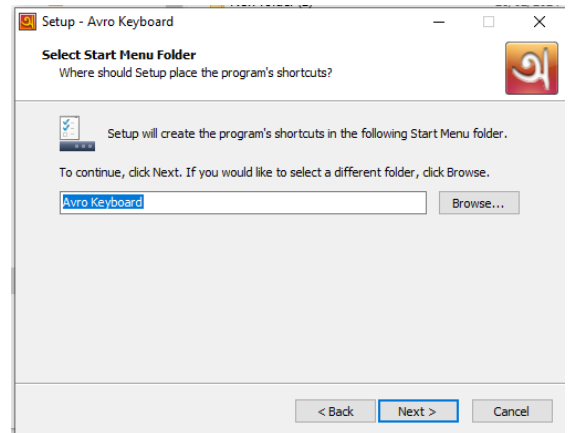


step 3 : Continue by clicking **Next** button from “Welcome Wizard”

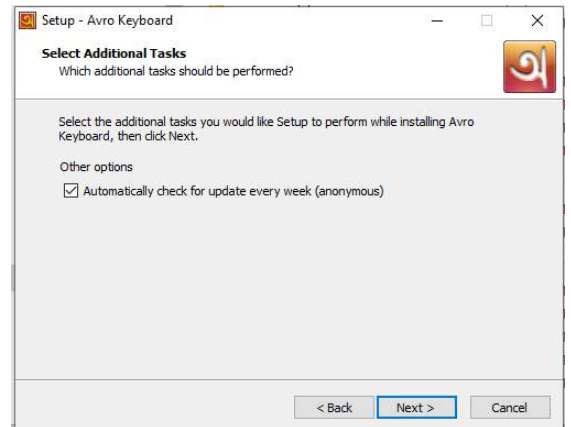
step 4 : Checked “I accept the agreement” then click **Next** button



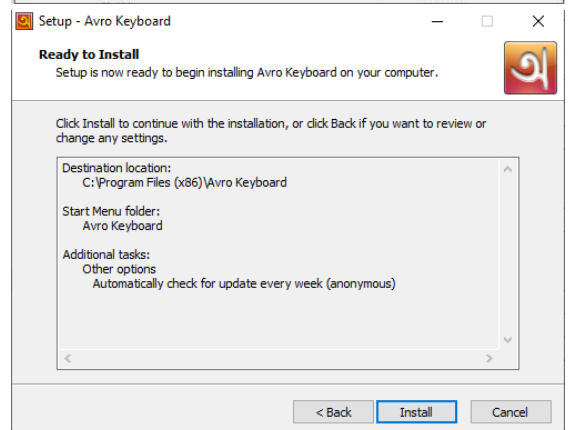
step 5 : click **Next** button (You can choose folder where software installs or open next time)



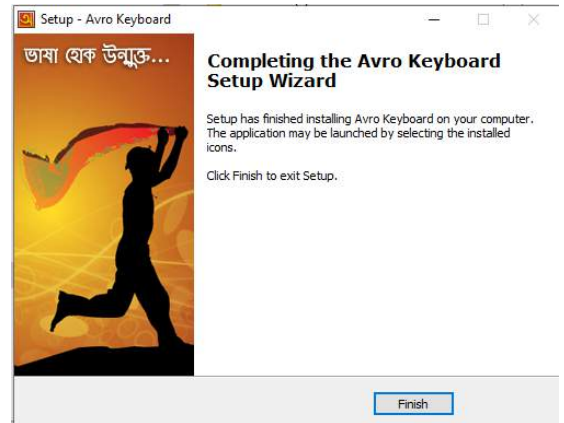
step 6 : Click **Next** button



step 7 : Click **Install** button. After clicking Install button, the installation process will be start.



step 8 : By clicking **Finish** button, Installation process will have completed.



## Font Installation process

You can install your needed font by following step.

This font Download link :

<https://www.omiconlab.com/bangla-fonts.html>

or

<https://bengalifont.com/download/download-nikosh-font/>

or

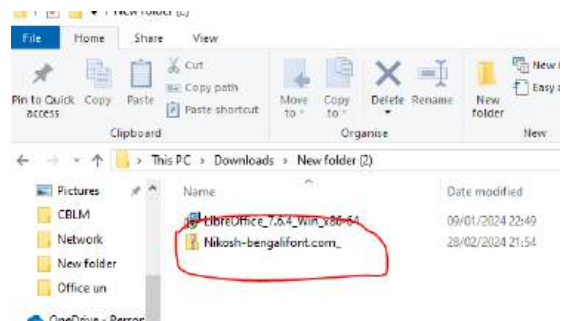
<https://lipighor.com/>



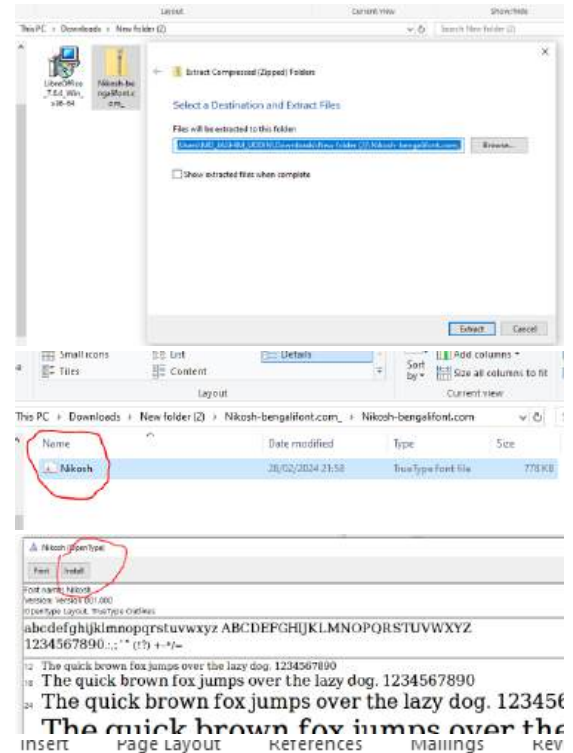
Download or Collect Bangla typing software

step 1 : Click **“Download”** Nikosh Font

step 2 : Select downloaded font file



step 3 : Extract the downloaded font file

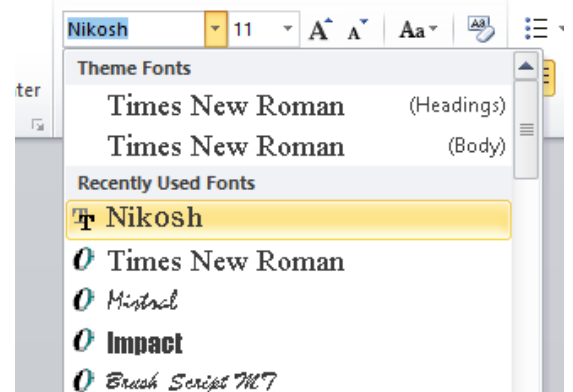


step 4 : Double click downloaded “Nikosh font”

step 5 : Click Install

After successfully install the nikosh

step 6 : Check your installed font



some common ASCII and Unicode font

ASCII

Sutonnymj

Ananda

Unicode

Nikosh

Solaimanlipi

Kalpurush

Mukti

Vrinda

Sonar Bangla

You can uninstall your unnecessary software by flowing step.

Office application uninstallation process is showed by open source office application software.

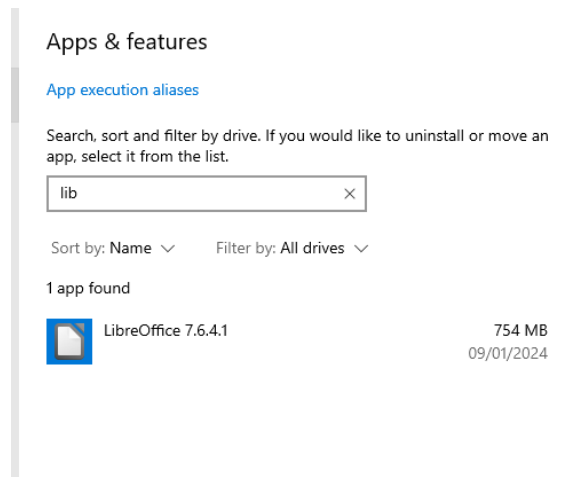
step 1 : From  Windows Menu go to your computer **settings** Menu



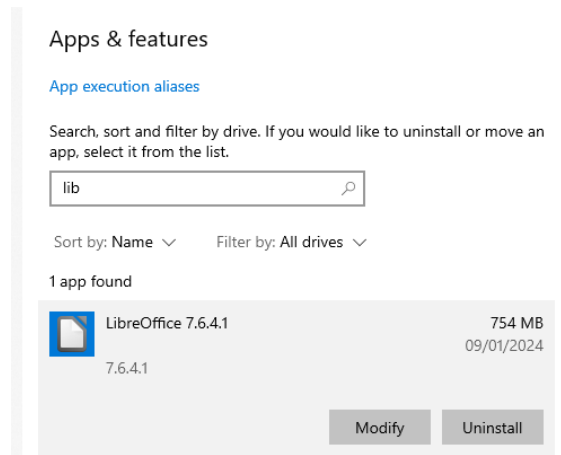
step 2 : Click on **Apps** (uninstall, Defaults ) option



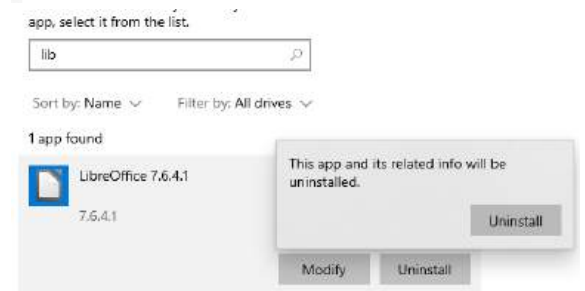
step 3 : Find out you're unnecessary software, like "**LibraOffice**"



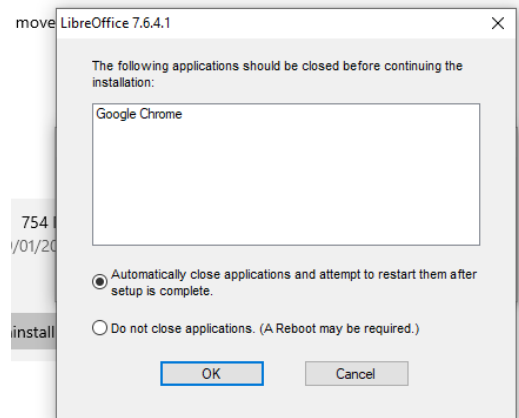
step 4 : Click on LibreOffice then click **uninstall** button. After clicking uninstall button, a popup option will be visible.



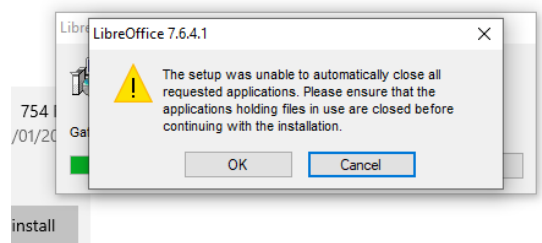
step 5 : In popup option click **Uninstall**. uninstallation process will be start after click uninstall.



step 6 : Check “Automatically close application and attempt to restart them setup is complete. Then Click **OK** button.

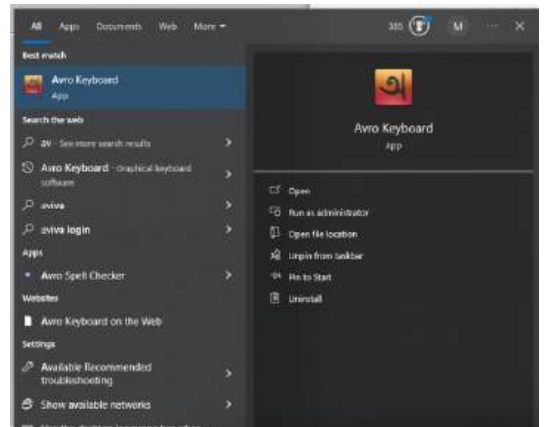


step 7 : Click **OK**

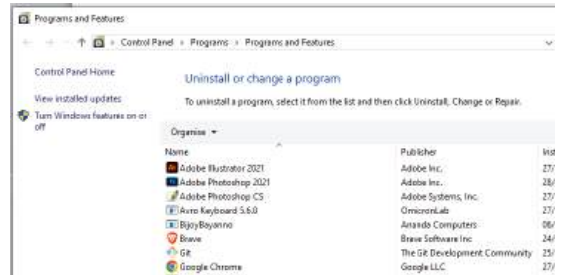


## Unnecessary Bangla typing software uninstallation process is showed by Avro.

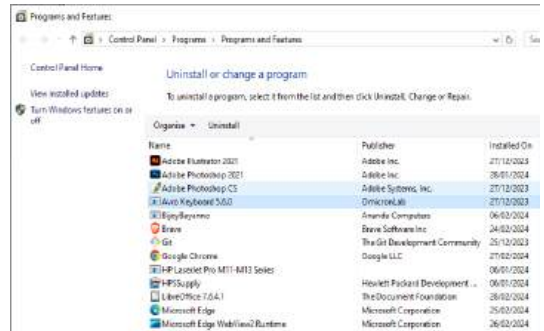
step 1 : From Windows search option type **Avro Keyboard** ->then click **uninstall** option



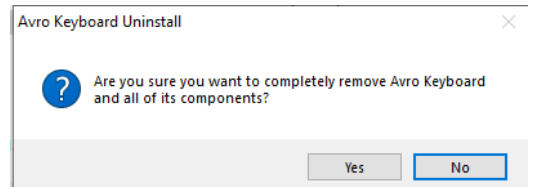
step 2 : Find out **Avro Keyboard** application Software



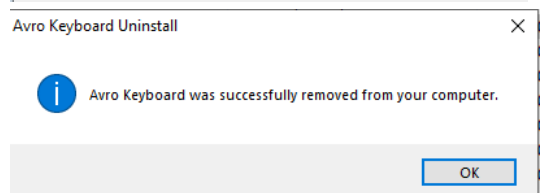
step 3 : Click on **Avro Keyboard** application Software -> then click **Uninstall** button



step 4 : Confirmation menu will be appeared, click on **Yes** button



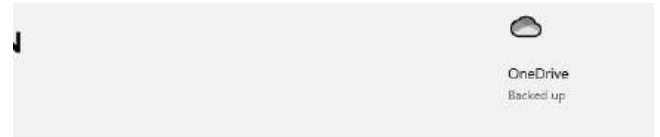
step 5 : After complete step-4, by clicking on **Yes** button, Avro Keyboard successfully Uninstall.





### 4.3 Check and Install/ uninstall Device Drivers

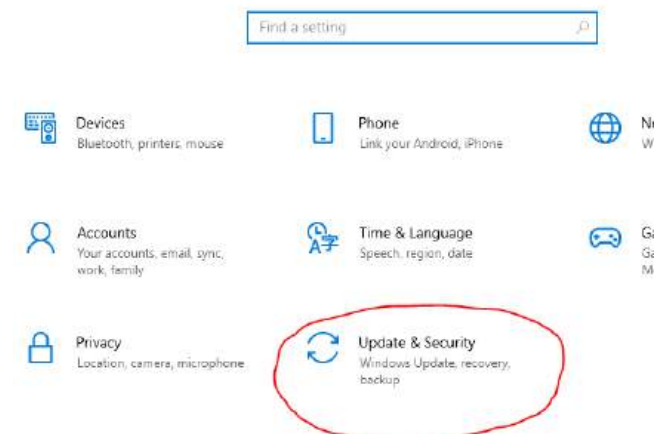
It's important to keep your software up-to-date because updates often include security patches and bug fixes. Updating software can also improve the compatibility and performance of your computer, as well as fix known bugs and issues. It's also important to note that some software may have specific update procedures; checking the vendor's website or documentation is recommended to know how to update them properly.



#### Using Windows Update

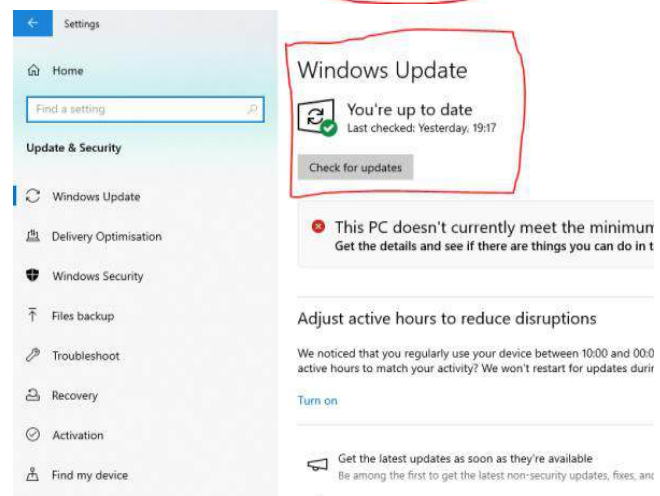
step 1 : From  Windows Menu go to your computer **settings** Menu

step 2 : Then click **Update & Security**



step 3 : click **Check for updates**

It may take a moment for Windows to search for updates. Once it does, if there are any updates available it will prompt you to install them.



It may take a while to install all the updates. It's safe to leave the computer and do something else while it finishes. Once it's done, Windows will probably prompt you to restart the computer. If you need to do anything else after this, Windows will prompt you; otherwise, you're up to date!

### Using the software vendor's website

You can check for software updates on the software vendor's website. Many vendors provide downloads and information about updates on their websites.

### Using a third-party tool

There are also third-party tools available that can scan your computer for outdated software and automatically update them for you. Some examples include SUMo, Patch My PC, and FileHippo Update Checker, Antivirus Software.

### Antivirus Software

Antivirus software shields your computer from harmful programs (malware) like viruses, worms, and spyware. It can prevent, detect, and remove malware, often offering real-time protection and additional features like website blocking and email scanning. Using it is essential to guard your device and data online.



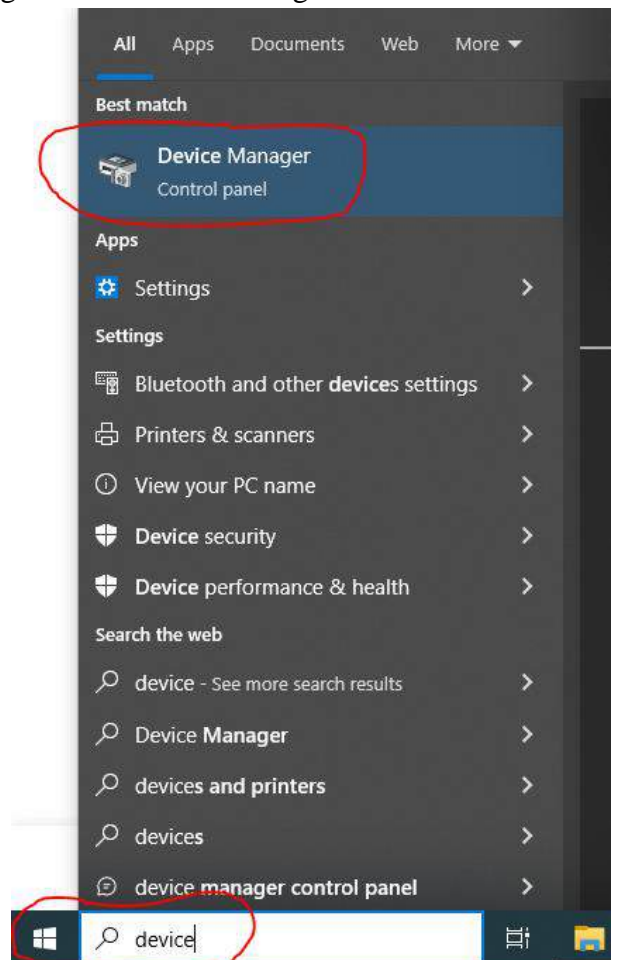
#### 4.4 Check and Install/ uninstall Device Drivers

By default in Windows 10, device drivers are automatically installed after connecting to the internet, to complete installation of driver's step, by step automatically. Windows 10 or any other old Windows operating system added hardware device work with the help of device driver.

ex, you have to install drivers for each device you use with your personal or business Windows 10 Computer. All the device driver settings you can get from settings and detail description about installed device drivers will get inside device manager

Open your computer and go to start menu search for device manager.

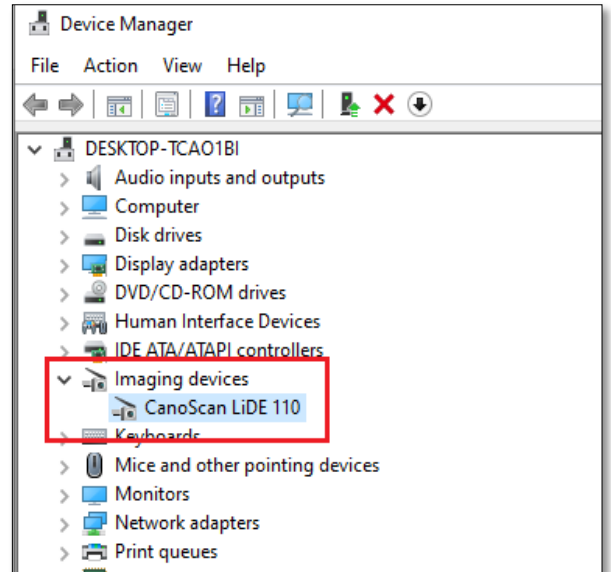
Now you will get results for device manager, click to open device manager page



You can see the list of drivers which is used with your computer device to run all the features and functionality.

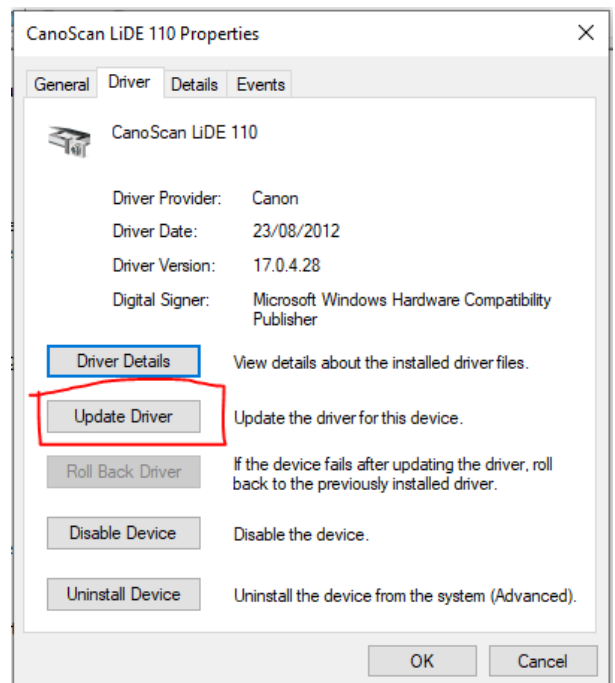
All the additional functionality you will get inside your device, it comes through the combination of drivers and device.

To check the detail about drivers and device version, need to double click on any device, such as looking for Imaging Devices, so

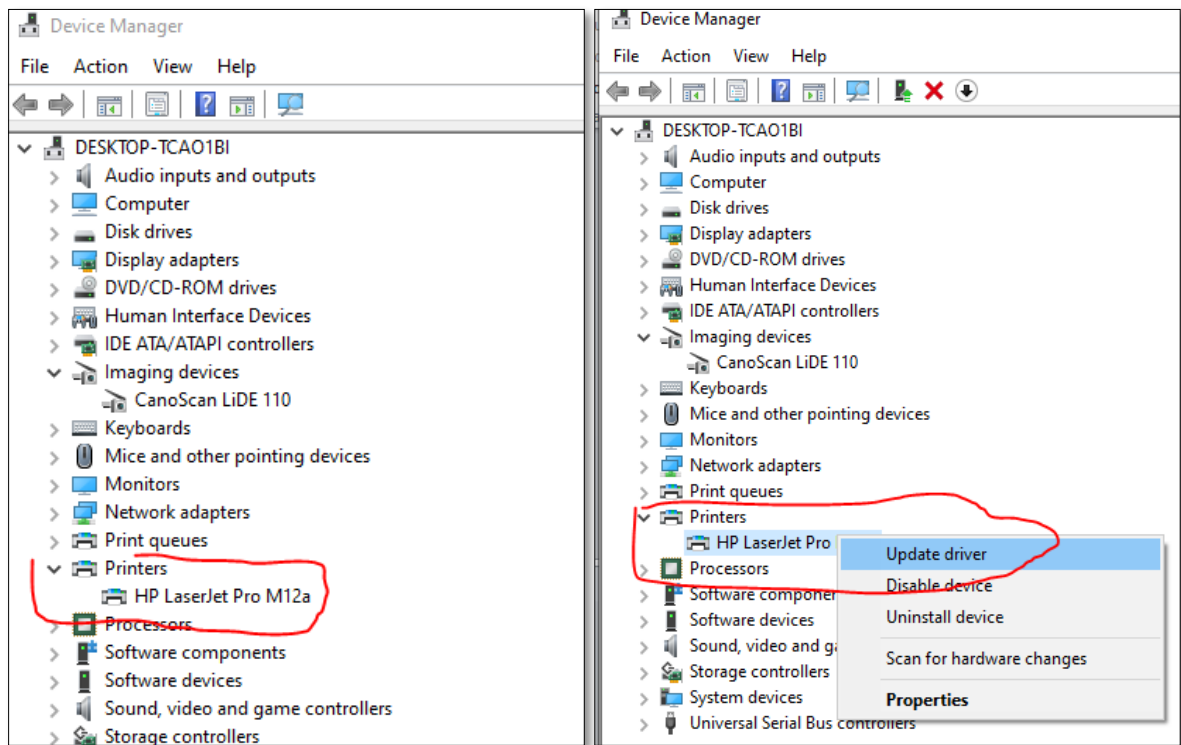


Click different tabs to see the info of device.

Tab driver, in which you can update, disable, uninstall device as per your requirement.



## Example of Printer



Now you can update webcam or any others driver or uninstall device as per your requirement.

## Self-Check Sheet 4

Question 1: What is the first step in dealing with software or font issues?

Answer:

Question 2: What actions are taken regarding application software and fonts?

Answer:

Question 3: What is done to ensure software is up to date?

Answer:

Question 4: How are device drivers managed?

Answer:

## **Answer key 4**

Question 01: What is the first step in dealing with software or font issues?

Answer: Identifying faulty software or fonts.

Question 02: What actions are taken regarding application software and fonts?

Answer: They are installed, uninstalled, or updated as necessary.

Question 03: What is done to ensure software is up to date?

Answer: Software is checked and updated if needed.

Question 04: How are device drivers managed?

Answer: Device drivers are checked, installed, or uninstalled based on the requirements.

## Activity Sheet 4:

Task Name: Fix application error.

### Working Procedure:

- 1 Note the specific error messages and symptoms that the application is displaying.
- 2 Record any error codes or descriptions provided by the application.
- 3 Try to reproduce the error to understand under what conditions it occurs.
- 4 Check for Corrupt or Missing Files:
- 5 Verify that all necessary files for the application are present and not corrupted.
- 6 Ensure that the application has the necessary permissions to access required files and folders.
- 7 Verify that the application is compatible with the operating system and meets the system requirements.
- 8 Ensure the system has sufficient resources (RAM, CPU, disk space) to run the application.
- 9 Uninstall the application using the system's application manager.
- 10 Delete any residual files or folders left after uninstallation.
- 11 Reinstall the application using the latest installer from the official source.
- 12 Identify and remove any corrupt or incompatible fonts.
- 13 Install any missing or necessary fonts for the application to function properly.
- 14 Check for updates within the application's settings or on the developer's website.
- 15 Download and install the latest updates or patches available.
- 16 Ensure the operating system is up-to-date with the latest patches and updates.
- 17 Device Drivers are Checked and Installed/Uninstalled as Required:
- 18 Identify any device drivers that might be causing conflicts with the application.
- 19 Update drivers to the latest versions from the manufacturer's website.
- 20 Uninstall problematic drivers using Device Manager.
- 21 Reinstall drivers to ensure they are correctly configured.
- 22 Use built-in diagnostic tools within the application to identify issues.
- 23 Utilize third-party diagnostic software to scan for and fix application errors.
- 24 Check for Malware or Conflicts:
- 25 Run a full system scan using reliable antivirus software to check for malware that might be affecting the application.
- 26 Identify and resolve conflicts with other installed software or services.
- 27 Adjust application settings to default or optimized configurations.
- 28 Change preferences that might be causing instability or errors.
- 29 Consult Documentation or Support:
- 30 Refer to the application's user manual or help files for troubleshooting steps.
- 31 Contact the application's customer support for further assistance if the issue persists.



## **Learning Outcome 5: Troubleshoot network connectivity**

### **Content:**

1. Network devices
  - a. Switch
  - b. Router
  - c. Ethernet Cable
  - d. Ethernet Port
  - e. RJ45 Connector
  - f. Wireless Adapter
  - g. Access Point

### **Assessment Criteria:**

- 4.1. Network devices are checked for connectivity.
- 4.2. Network connection are diagnosed
- 4.3. Network devices are Connected and disconnected for fixing network connection.
- 4.4. Unsolved issues are reported to the designated persons

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Training resources
- Training environment
- CBLM
- Handouts
- Laptop
- Multimedia projector
- Paper, pen, pencil, eraser
- Internet
- Whiteboard & Marker
- Audio, Video device

### **Methodologies**

- Discussion
- Presentation
- Demonstration
- Guided practice
- Individual practice
- Project work
- Problem solving
- Brainstorming

### **Assessment Methods**

- Written test
- Demonstration
- Oral questioning

## Learning Experience 5: Troubleshoot network connectivity

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

<b>Learning Steps</b>	<b>Resources specific instructions</b>
1. Student will ask the instructor about <b>Troubleshoot network connectivity</b>	1. Instructor will provide the learning materials “ <b>Troubleshoot network connectivity</b> ”
2. Read the Information sheet/s	2. Information Sheet No. 5: Troubleshoot network connectivity.
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No 5: Troubleshoot network connectivity. Answer key No. 5: Troubleshoot network connectivity.
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No 5: Troubleshoot network connectivity. Specification Sheet 5: Troubleshoot network connectivity.

## Information Sheet 5: Troubleshoot network connectivity

**Learning Objectives:** After completion of this information sheet, the learners will be able to explain, define and interpret the following contents:

- 5.1 Identify network devices
- 5.2 Check Network devices connectivity
- 5.3 Diagnose Network connections
- 5.4 Take step for Fix network device connect and disconnect
- 5.5 Report to designated persons for unsolved issues

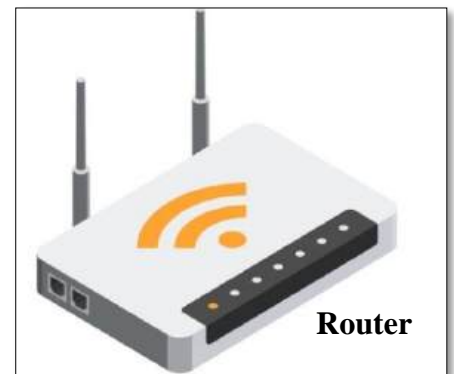
### 5.1 Identify network devices

A **network switch** is a device that connects network devices and forwards data to the intended recipient using MAC addresses. It's like a traffic director for your network ensuring data reaches the right device. They're commonly used in homes, businesses, and for creating secure virtual networks.



**network switch**

A **router** acts like a central hub, managing your network traffic and connecting you to the internet. It connects multiple devices to a single internet connection, directs data within your network, and acts as a gateway to the wider internet. Many routers also offer basic security features. There are wired routers for reliable wired connections and wireless routers (Wi-Fi) for cable-free convenience.



**Router**

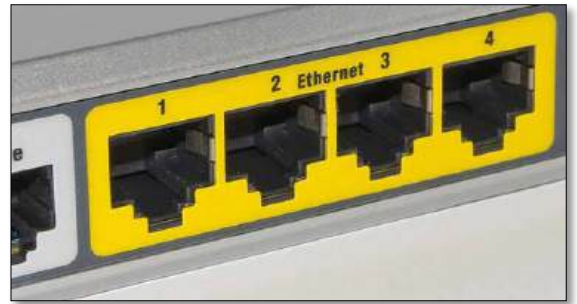
An **Ethernet cable** also known as a network cable or LAN cable, is a physical cable used to connect devices on a wired network. It allows devices like computers, routers, and switches to communicate with each other. Ethernet cables come in different categories, each with different speed and performance capabilities. The most common categories are Cat5e, Cat6, and Cat8. Cat6 and Cat8 are generally recommended for modern networks due to their ability to support higher speeds.



**Ethernet**

An Ethernet port, a rectangular opening on a device, connects an Ethernet cable for wired networking. Found on computers, routers, and more, it offers advantages over Wi-Fi:

- **Faster speeds & lower latency:** Ideal for tasks like gaming and streaming.
- **More reliable:** Less prone to interference and signal drops.
- **More secure:** Considered less susceptible to hacking than Wi-Fi



**Ethernet port**

The eight-pin **RJ45** connector is a standardised interface which often connects a computer to a Local Area Network (LAN). This type of connector was originally developed for telephone communications but is now used in a range of applications. The abbreviation RJ45 stands for **Registered Jack-45**. An RJ45 connector the plug on the end of an Ethernet cable connects devices on wired networks. This rectangular connector with eight pins comes in shielded and unshielded versions, each suited for specific environments.



**RJ45 Connector**

A **wireless adapter**, also known as a network interface card (NIC) or Wi-Fi dongle, is a device that allows your computer or laptop to connect to a wireless network. It acts as a bridge between your device and the Wi-Fi signal, enabling you to access the internet and other network resources without needing a physical cable. There are two main types of wireless adapters:

1. USB wireless adapters
2. PCI wireless adapters



**wireless adapter**

An access point (AP) is a device that creates a Wi-Fi network, allowing wireless devices to connect to a wired network or another wireless network. It extends Wi-Fi coverage, manages connections and often provides security features. They're commonly used in homes, offices, and public spaces to expand Wi-Fi availability.

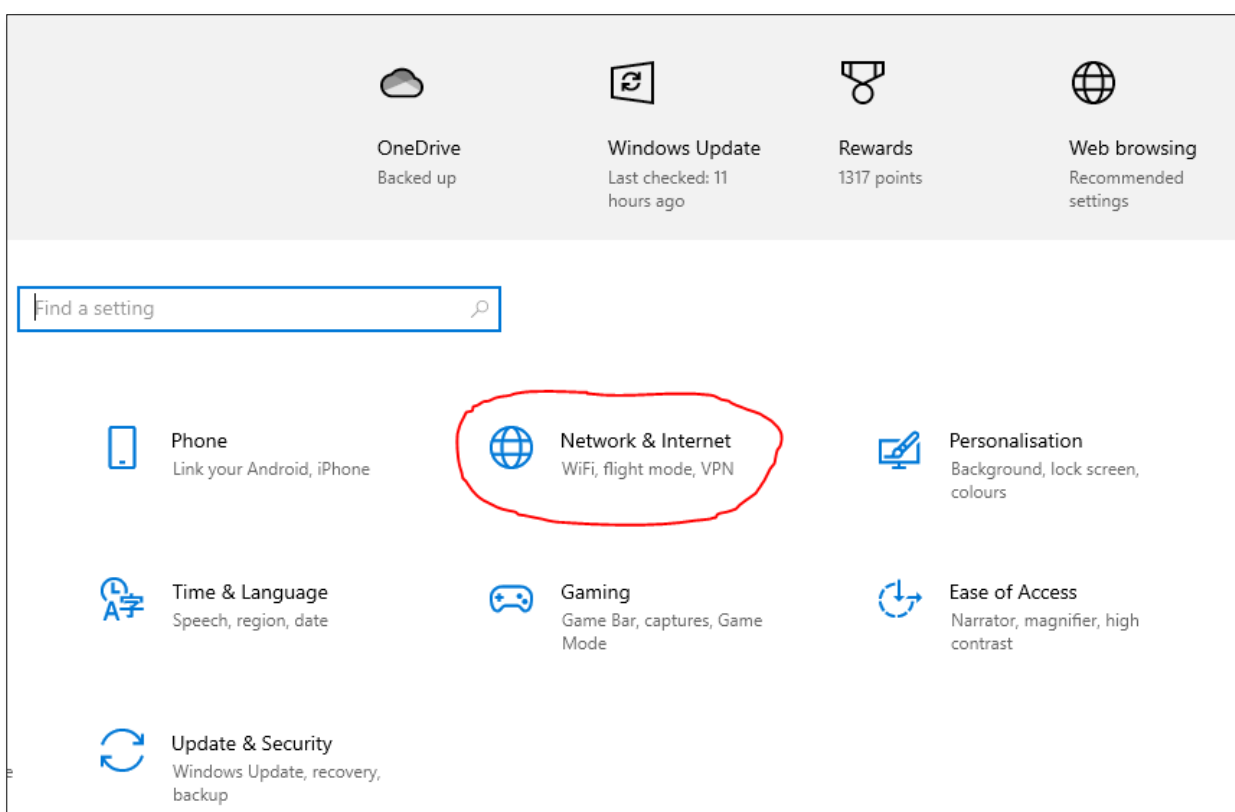


## 5.2 Check Network devices connectivity

From Windows Settings

Press Windows + I key to open Settings on your computer.

Select "Network & internet" on the left panel.

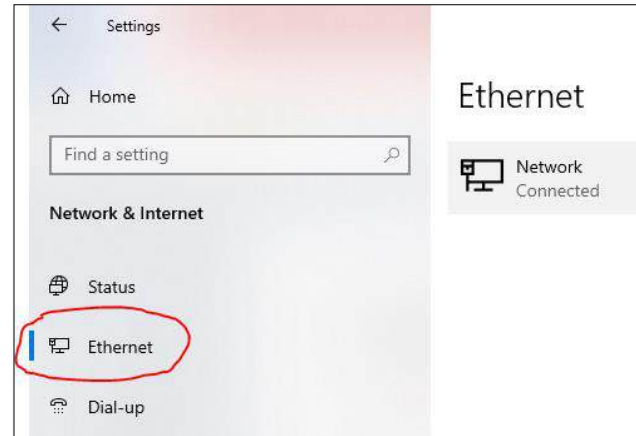


Go to either “Ethernet” or “Wi-Fi” on the right panel.

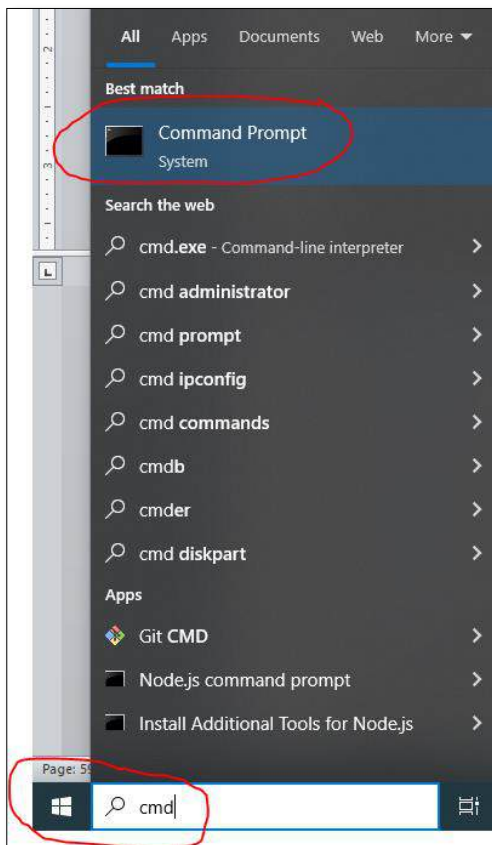
Choose your active network connection.

Check if it’s set to “Private” under the network profile type.

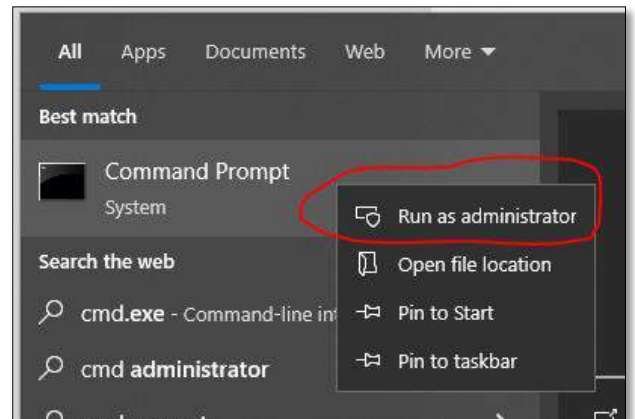
Open File Explorer and navigate to “Network” on the left. You should be able to see your devices.



### Command Prompt (CMD)



Type **CMD** in the search box and click “**Run as Administrator**” from the menu.



Enter the command “**net view**” to view devices connected to your network.

To see the IP addresses of the devices, use the command “**arp -a**” which lists the Internet address, physical address, and type of each device.

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>net view
System error 6118 has occurred.

The list of servers for this workgroup is not

C:\Windows\system32>
```

```
C:\Windows\system32>arp -a
Interface: ...
Internet Address      Physical Address      Type
...
C:\Windows\system32>
```

### 5.3 Diagnose Network connections

Many operating systems and devices offer built-in network troubleshooting utilities. Utilize these tools to diagnose and potentially rectify common network issues.

Verify DHCP functionality is enabled for automatic IP assignment.

Ensure Network Address Translation (NAT) is configured correctly.

Evaluate the Scope: Isolate the affected devices and determine if the issue is localized or widespread.

Symptom Analysis: Describe the specific network malfunction, such as complete connection loss, slow speeds or intermittent connectivity.

Verify Physical Connections: Ensure all network cables are securely plugged into devices, including power cords, Ethernet cables and any intermediary equipment.

### 5.4 Take step for Fix network device connect and disconnect

Network troubleshooting is the process of measuring, identifying and resolving network-related issues. It's also defined as a logical process network engineers follow to improve the overall network operations. Troubleshooting is a repetitive, rigorous and effective process that involves regular analysis and testing of individual network components to ensure smooth operations.

**Update Network Drivers:** Ensure network drivers are current to maintain compatibility and optimize performance.

**Review Firewall and Security Settings:** Temporarily disable firewalls or antivirus software to determine if they are causing connectivity issues then re-enable them after troubleshooting.

### **Advanced Troubleshooting (for technical users)**

**Verify IP Configuration:** Confirm that devices have valid IP addresses, subnet masks, default gateways, and DNS server addresses.

**Check for Duplicate IP Addresses:** Ensure no devices share the same IP address, which can lead to conflicts.

**Review Router Settings:** (Consult your router manual for specific instructions)

### **5.5 Report to designated persons for unsolved issues**

- If the aforementioned steps fail to resolve the issue, consider contacting your Internet Service Provider (ISP) for further assistance and potential network infrastructure troubleshooting or service outage investigation.
- If comfort level allows, consider professional assistance from IT support personnel for complex network troubleshooting scenarios.



## Self-Check Sheet 5

Question 01: What is done to ensure network devices have connectivity?

Answer:

Question 02: How are network connections diagnosed?

Answer:

Question 03: How are network connection issues typically addressed?

Answer:

Question 04: What is the protocol for unresolved network issues?

Answer:

## **Answer key 5**

Question 1: What is done to ensure network devices have connectivity?

Answer: Network devices are checked for connectivity.

Question 2: How are network connections diagnosed?

Answer: Network connections are diagnosed to identify any issues.

Question 3: How are network connection issues typically addressed?

Answer: Network devices are connected and disconnected as needed to fix network connections.

Question 4: What is the protocol for unresolved network issues?

Answer: Unsolved issues are reported to designated persons for further assistance.

## Activity Sheet 5

Task Name: Troubleshoot network connectivity.

### Working Procedure:

- 1 Check the physical condition of all network devices (routers, switches, modems, cables).
- 2 Ensure all cables are securely connected and there are no visible damages.
- 3 Power Status:
- 4 Verify that all network devices are powered on and indicator lights are functioning properly.
- 5 Ensure there are no power outages or issues with power supply to network devices.
- 6 Network Connection is Diagnosed:
- 7 Ping Test:
- 8 Use the ping command to test connectivity to the router, local devices, and external websites.
- 9 Check the IP configuration using the ipconfig (Windows) or ifconfig (Linux/Mac) command to ensure devices have valid IP addresses.
- 10 DNS Resolution:
- 11 Test DNS resolution using the lookup or dig command to ensure DNS servers are reachable and resolving correctly.
- 12 Use the tracert (Windows) or traceroute (Linux/Mac) command to identify where the connection is failing along the route.
- 13 Use built-in network diagnostics tools (e.g., Windows Network Diagnostics) to automatically detect and resolve issues.
- 14 Network Devices are Connected and Disconnected for Fixing Network Connection:
- 15 Power cycle (turn off and on) the router, modem, and other network devices.
- 16 Reset the network adapter on the computer.
- 17 Disconnect and reconnect cables to ensure a secure connection.
- 18 Switch ports on the router or switch to rule out port-specific issues.
- 19 Ensure network settings (IP address, gateway, DNS) are correctly configured.
- 20 Reset network settings to default and reconfigure as necessary.
- 21 Check for and install the latest firmware updates for routers, switches, and modems from the manufacturer's website.
- 22 Update network adapter drivers on the computer to the latest version available.
- 23 Wi-Fi Interference:
- 24 Identify and eliminate sources of Wi-Fi interference (e.g., other electronic devices, thick walls).
- 25 Ensure the device is within range of the Wi-Fi signal and the signal strength is adequate.
- 26 Check Firewall and Security Settings:
- 27 Ensure that firewall settings are not blocking network connectivity.
- 28 Verify that antivirus or security software is not interfering with the network connection.

**Job Sheet for Computer operation, Level - III**  
**Job-1: Perform Basic maintenance and troubleshooting**

**Working Procedure:**

1. Verify the reported issues with the client for both the computer and printer.
2. Check for any visible physical damages or irregularities.
3. Ensure both the computer and printer are powered off and disconnected from the power source.
2. Use anti-static measures when handling computer components.
3. Handle printer components with care to avoid damage.
4. Inspect all external cables and connections for damage or looseness.
5. Check for dust buildup on vents, fans, and other openings.
6. Examine the exterior of the computer for physical damage.
7. Inspect printer cables and connections for any damage or loose connections.
8. Check for paper jams, ink/toner levels, and any visible obstructions.
9. Inspect the printer's exterior for any physical damage or signs of wear.
10. Open the computer case (if applicable) and inspect internal components.
11. Check for dust accumulation on internal components such as the CPU, GPU, and RAM.
12. Ensure all internal cables and connections are securely attached.
13. Power on the computer and observe its startup sequence.
14. Run built-in diagnostic tools or software utilities to check hardware components (e.g., memory tests, disk checks).
15. Use system monitoring tools to check for overheating or performance issues.
16. Troubleshoot software-related issues by booting into safe mode and checking for malware or viruses.
17. Update device drivers and operating system to the latest versions.
18. Address any identified hardware issues by testing each component individually and replacing faulty parts if necessary.
19. Power on the printer and observe its startup sequence.
20. Check for error messages on the printer's display panel.
21. Run diagnostic tests through the printer's control panel or software utility to identify any hardware issues.

22. Clear any paper jams and remove any obstructions from the printer's paper path.
23. Clean the printer's rollers and other components using a lint-free cloth and appropriate cleaning solution.
24. Replace ink/toner cartridges if they are low or empty, ensuring compatibility with the printer model.
25. Perform necessary repairs or replacements based on diagnostic results for both the computer and printer.
26. Clean internal components of the computer using compressed air to remove dust buildup.
27. Replace faulty hardware components in the computer or printer with new ones from reliable sources.
28. Power on both the computer and printer and test their functionality after repairs or replacements.
29. Print test pages from the printer to ensure proper printing quality and functionality.
30. Check all peripherals and ports on the computer for proper functioning.
31. Document all actions taken during maintenance and troubleshooting for both the computer and printer.

## Specification Sheet for Computer operation, Level – III

**Conditions for the job:** Work must be carried out in a safe manner and according to Computer operation in ICT Sector, Level- III standards.

**Resources Required:**

<b>Tools, Equipment, and furniture</b>	<ol style="list-style-type: none"><li>1. Personal Computer – 1 set</li><li>2. Printer – 1 No</li><li>3. USB/Pen drive – 1 No</li><li>4. Ergonomic Chair and Table – 1 Pc</li></ol>
<b>Software/apps</b>	<ol style="list-style-type: none"><li>1. Operating Software – Windows</li></ol>
<b>PPE</b>	<ol style="list-style-type: none"><li>1. Rubber sole Shoes/Sandal – 1 pair or insulated floor mat.</li></ol>

## Review of Competency

Below is yourself assessment rating for module “**Performing Basic Maintenance and Troubleshooting**”

Sl no	Assessment of performance Criteria	Yes	No
1.	Workspace, furniture and equipment are adjusted to suit user ergonomic requirements.		
2.	Work arrangements are ensured to meet organizational and Occupational Safety and Health (OSH) requirements for computer operation.		
3.	Personal Computer and all the Peripherals are checked and ensured operational as per job requirement.		
4.	Computer is started or logged on according to user procedures.		
5.	Basic functions and features are identified using system information.		
6.	Common applications of OS are accessed.		
7.	Help functions are used as required.		
8.	Correct desktop icons are selected, opened, closed and accessed features.		
9.	Multiple windows are opened, resized and closed		
10.	Desktop personalization is performed.		
11.	Start menu and taskbar are customized		
12.	3.1 Existing user account is manipulated.		
13.	3.2 New user account is created and managed		
14.	4.1 Folders are created with appropriate name		
15.	4.2 Files are organized in appropriate folders		
16.	4.3 Rename and move folders and files as required		
17.	4.4 Identify folder and file attributes		
18.	4.5 Move folders and files using cut and paste, and drag and drop techniques		
19.	4.6 Save folders and files to appropriate media where necessary		
20.	4.7 Folders and files are searched		
21.	4.8 Deleted folder and files are restored as necessary		
22.	5.1 Naming convention is followed for files and folders.		
23.	5.2 Documents are saved in regular intervals		
24.	5.3 Backup is performed for documents in a regular interval.		
25.	5.4 All open applications are closed before shutdown or leaving workstation.		
26.	5.5 Shut down the Personal Computer and associated peripherals according to Standard Operating Procedure (SOP).		

I now feel ready to undertake my formal competency assessment.

Signed:

Date:

## Development of CBLM

The Competency based Learning Material (CBLM) of ‘**Performing Basic Maintenance and Troubleshooting**’ (Occupation: **Computer Operation, Level-3**) for National Skills Certificate is developed by NSDA with the assistance of SIMEC System Ltd., ECF Consultancy & SIMEC Institute of Technology JV (Joint Venture Firm) in the month of June, 2024 under the contract number of package SD-9B dated 15th January 2024.

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