

Assignment - 5

of

Cyber Security Laboratory

(CSE612)

Bachelor of Technology (CSE)

By

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Third Year, Semester 6

Course In-charge: Prof. Ninad Bhavsar



**NAVRACHANA
UNIVERSITY**
a UGC recognized University

Department of Computer Science and Engineering

School Engineering and Technology

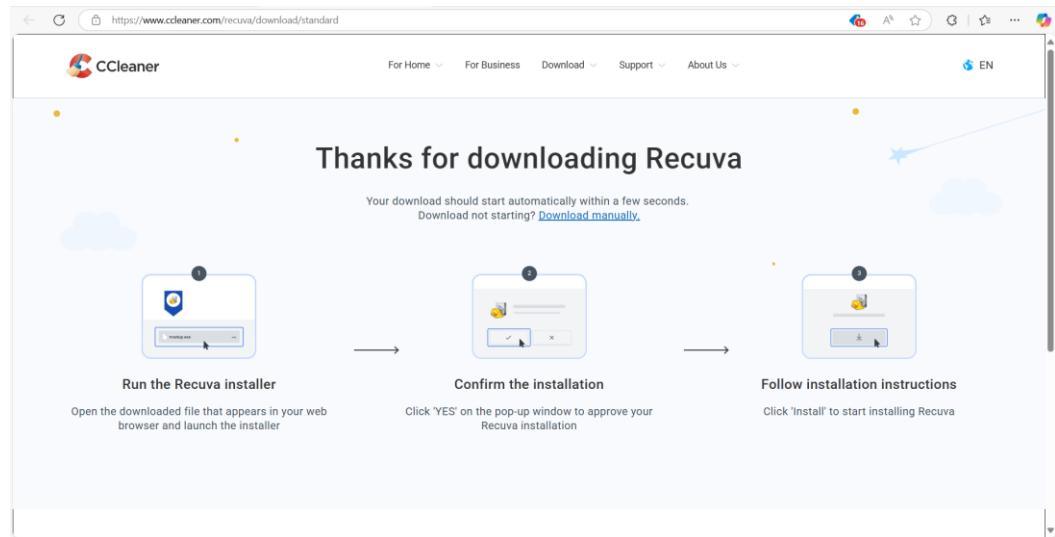
Navrachana University, Vadodara

Spring Semester

(2025)

Q1. Download Angry IP scanner in Windows 10/11.**Step 1: Download Recuva**

- Go to: <https://www.ccleaner.com/recuva/download/standard>



- Click on “Free Download”
- Download file: rcsetup154.exe

	rcsetup154	15-04-2025 18:16	Application	25,860 KB
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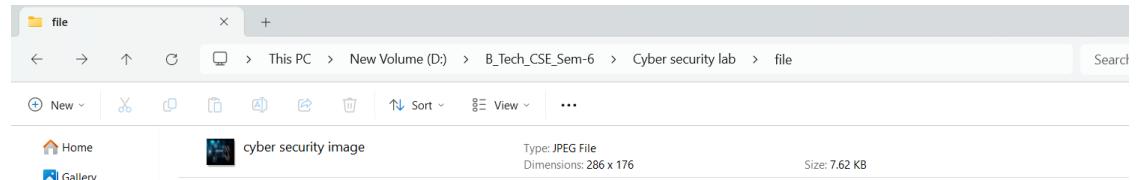
Step 2: Install Recuva

- Double click on setup file
- Installation steps with screenshots
- Finish and check desktop icon

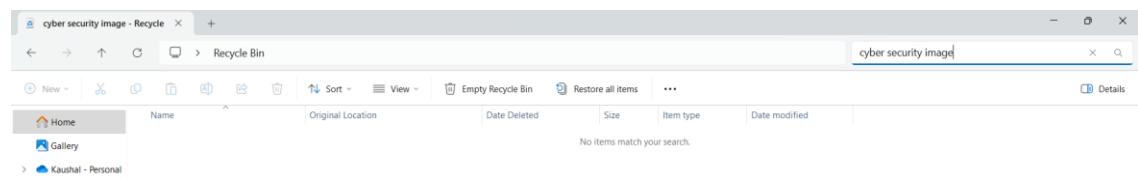


Step 3: Delete a Dummy File (JPG)

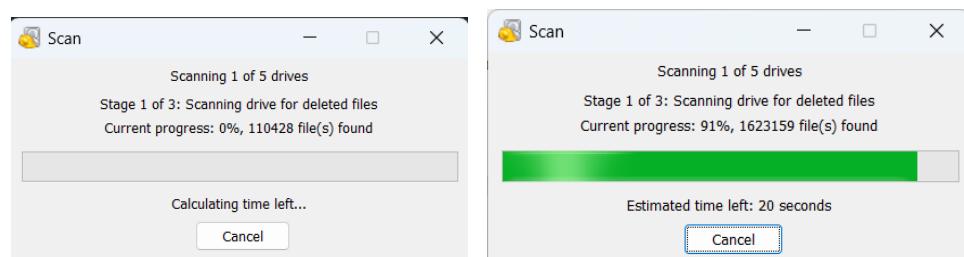
- Create or find a non-important image file



- Delete it → goes to Recycle Bin
- Delete it again from Recycle Bin (permanently)

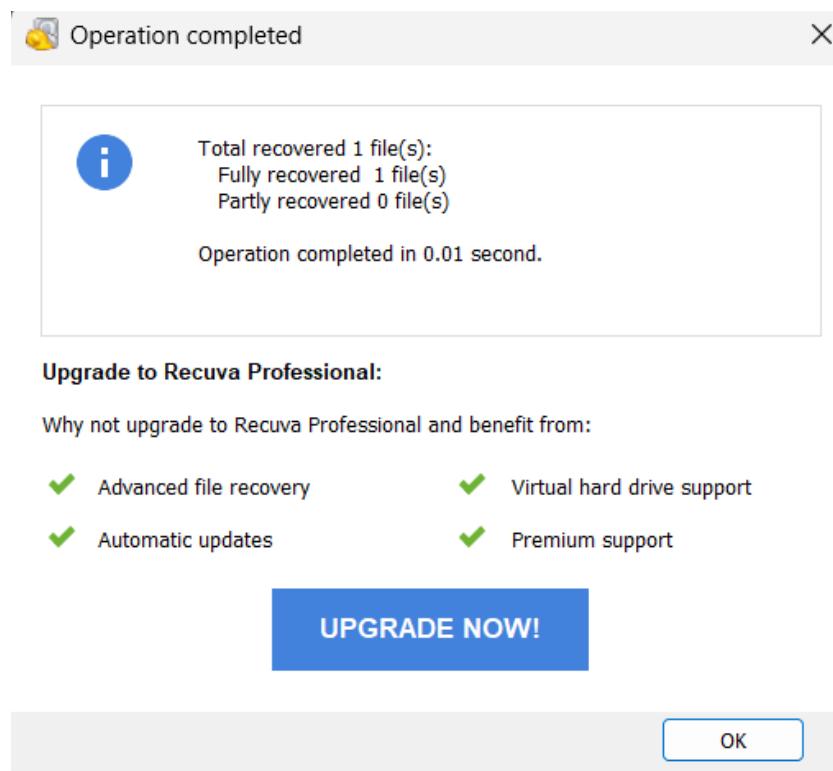
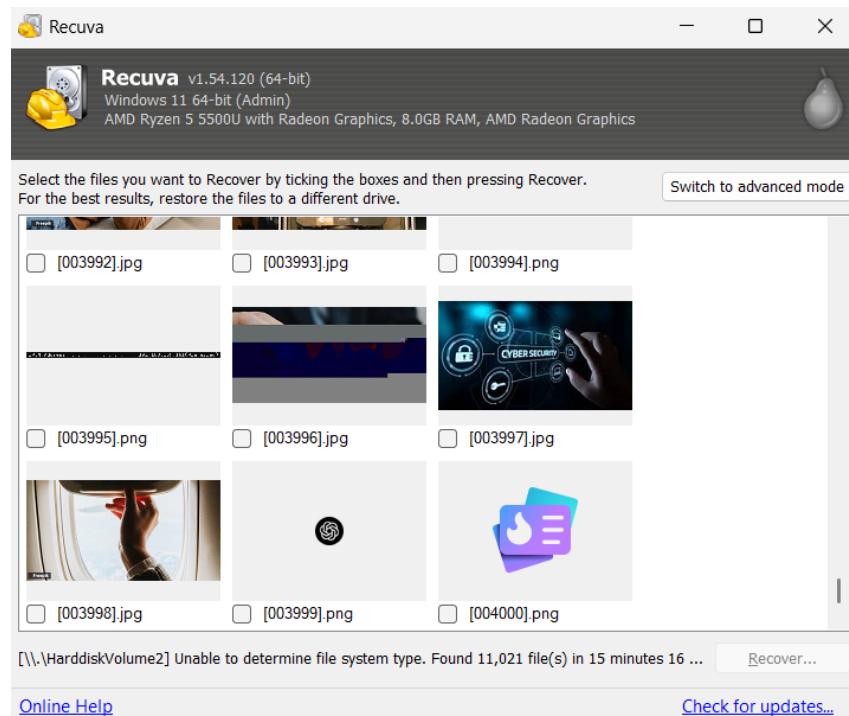
**Step 4: Run Recuva**

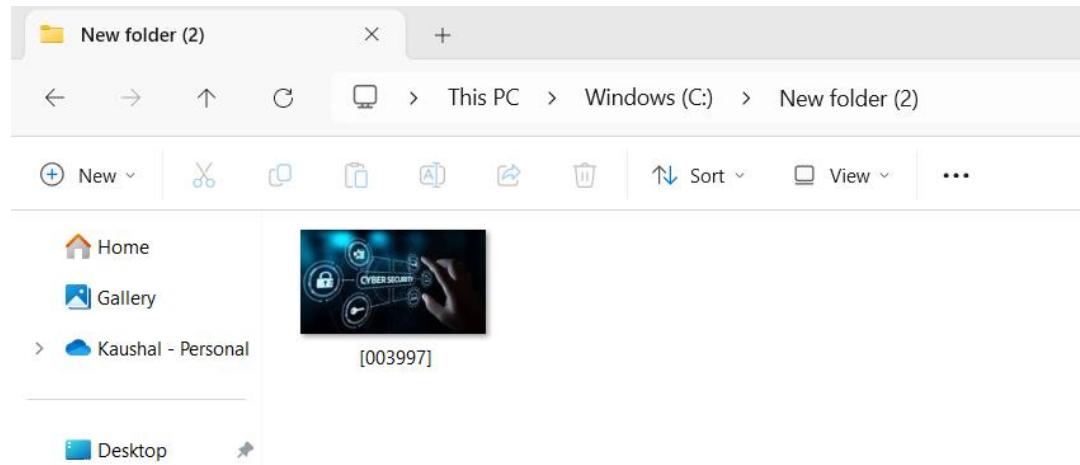
- Launch Recuva
- Select file type: Pictures
- Screenshot of each dialog
- Choose “Everywhere on this computer”
- Enable “Deep Scan”
- Screenshot of scanning in progress



Step 5: View Scan Results

- Thumbnail previews shown
- Locate your deleted image





Step 6: Repeat for other files

- DOCX, XLSX, PDF, MP3
- Deleted from Downloads / Documents / Pictures
- Each with screenshots of:
 - File deletion
 - Recuva scan & preview

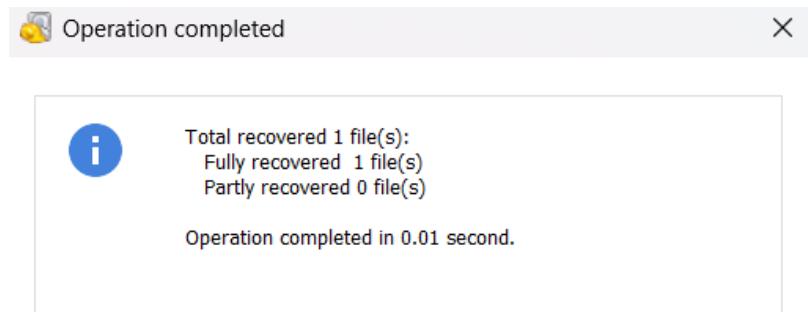
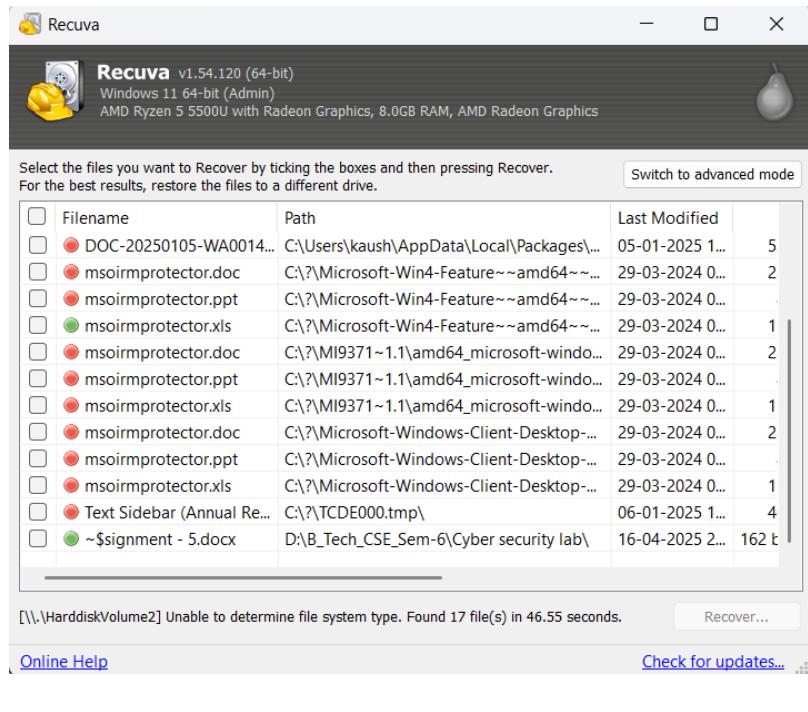
Step 7: Repeat for docx files

- Delete a Dummy File (docx)

Assignment - 5	16-04-2025 22:00	Microsoft Word D...	582 KB
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- Run Recuva

- Select file type: Document
- Choose “In My Document”
- Enable “Deep Scan”



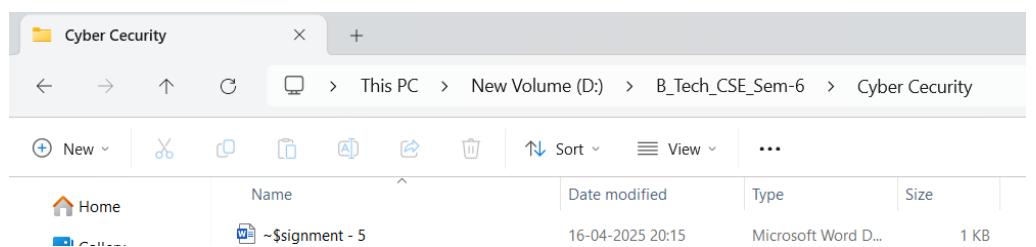
Upgrade to Recuva Professional:

Why not upgrade to Recuva Professional and benefit from:

- Advanced file recovery
- Virtual hard drive support
- Automatic updates
- Premium support

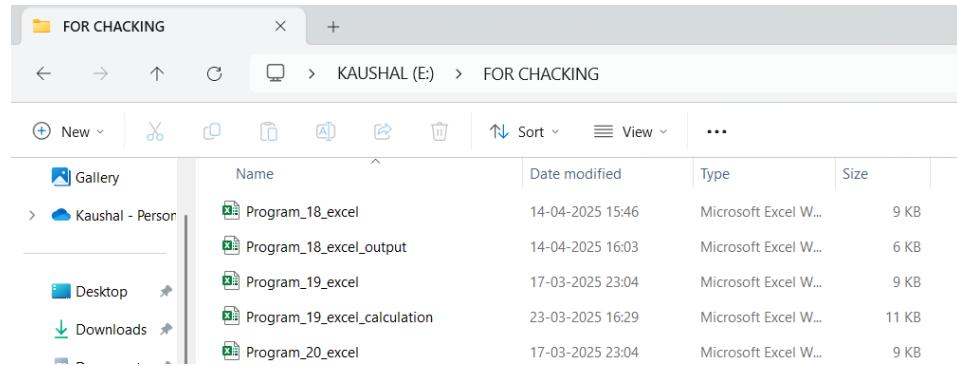
UPGRADE NOW!

OK



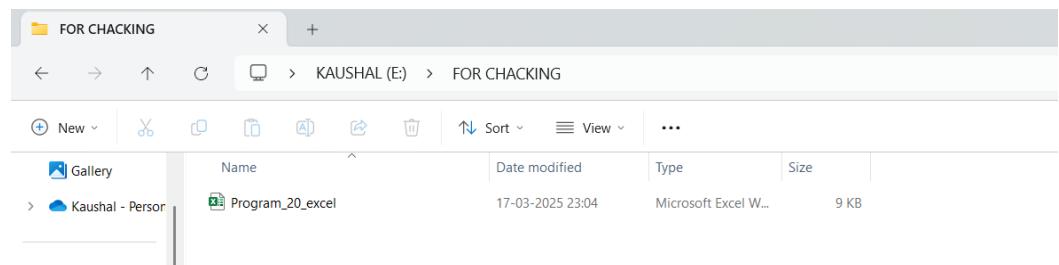
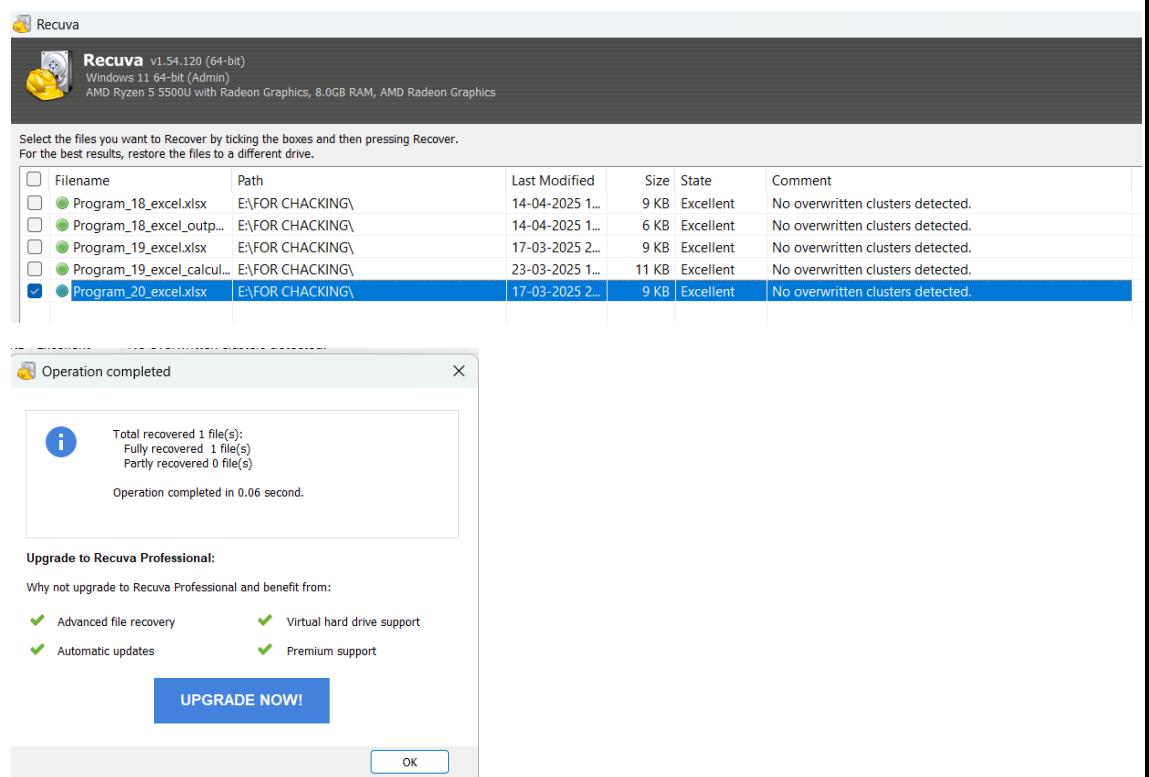
Step 8: Repeat for xlsx files

- Delete a Dummy File (xlsx)



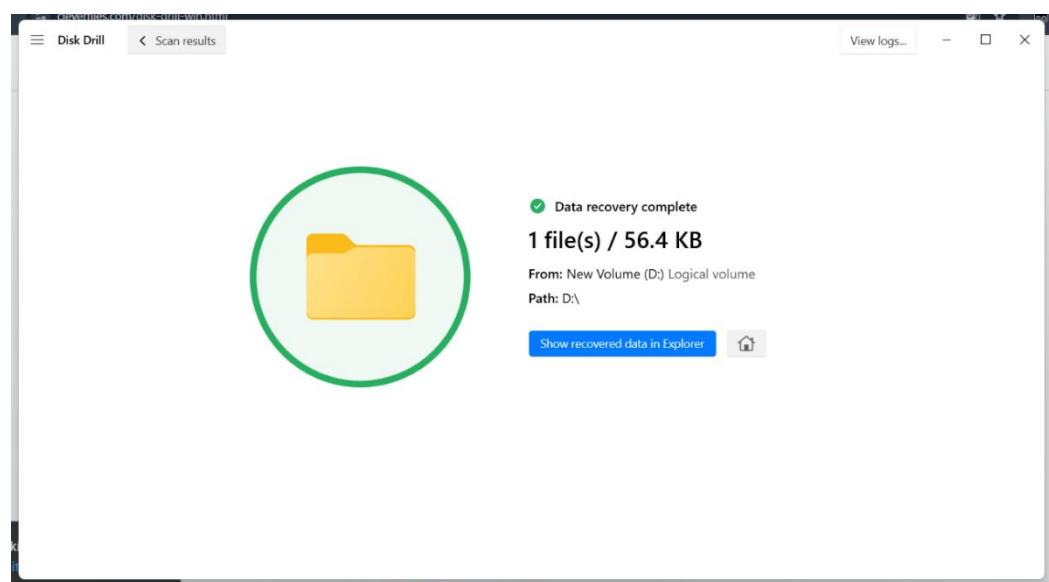
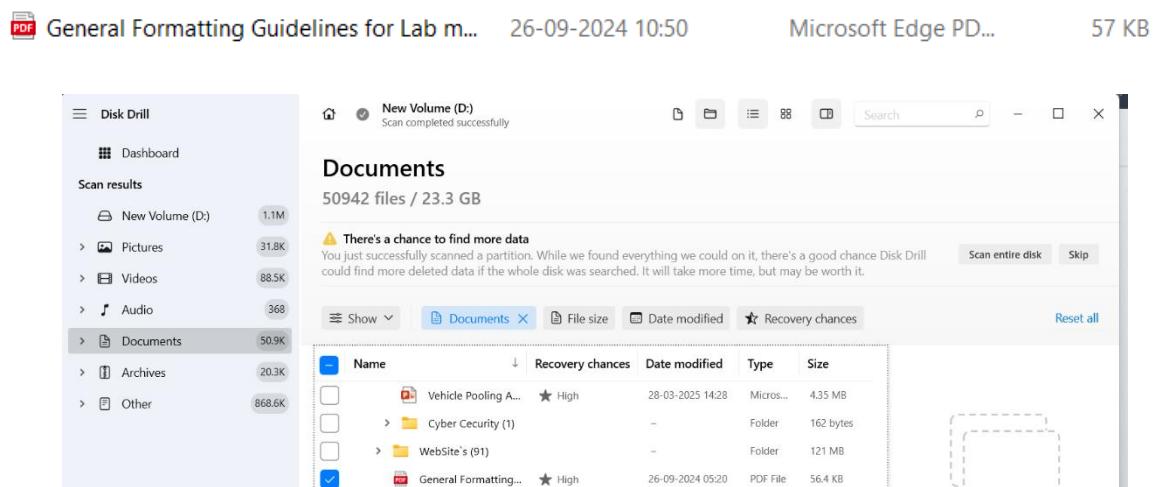
- Run Recuva

- Select file type: Pictures
- Choose “Everywhere on this computer”
- Enable “Deep Scan”



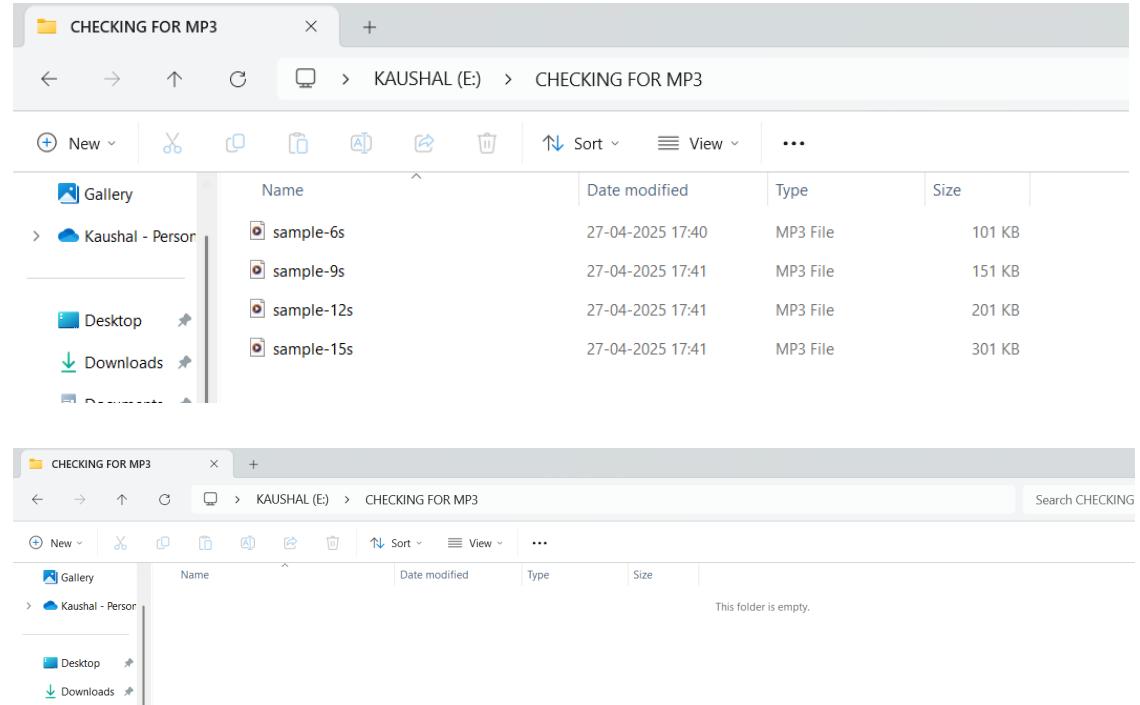
Step 9: Repeat for pdf files

- **Delete a Dummy File (PDF)**
- **Run Disk Drill**



Step 10: Repeat for mp3 files

- Delete a Dummy File (mp3)

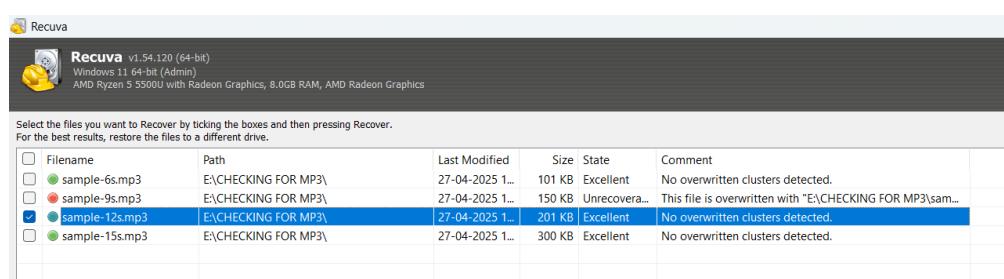


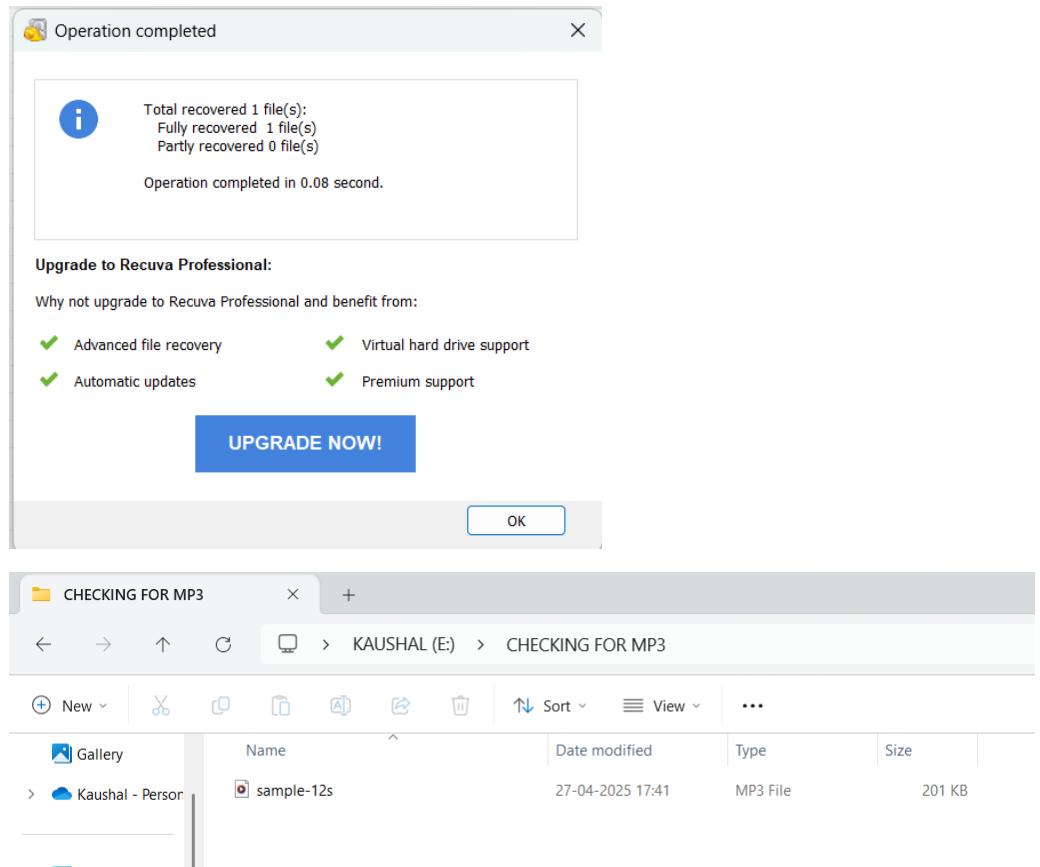
- Run Recuva

- Select file type: Music



- Choose “Everywhere on this computer”
- Enable “Deep Scan”





Recovery Results by File Type

File Type	Scan Duration	Preview Quality	Recovery Success	Notes
JPG	~15 min	Clear thumbnails	<input checked="" type="checkbox"/> Fully recovered	Deep Scan reliably located image clusters; thumbnail made identification trivial.
DOCX	~12 min	Icon + filename only	<input checked="" type="checkbox"/> Recovered—but preview limited	No document-content preview; name match guided restoration.
XLSX	~14 min	Icon + filename only	<input checked="" type="checkbox"/> Recovered—but preview limited	Similar to DOCX; content integrity verified post-restore.
PDF	~16 min	Icon + filename only	<input checked="" type="checkbox"/> Recovered—but preview limited	PDF thumbnail not shown; opened successfully after recovery.

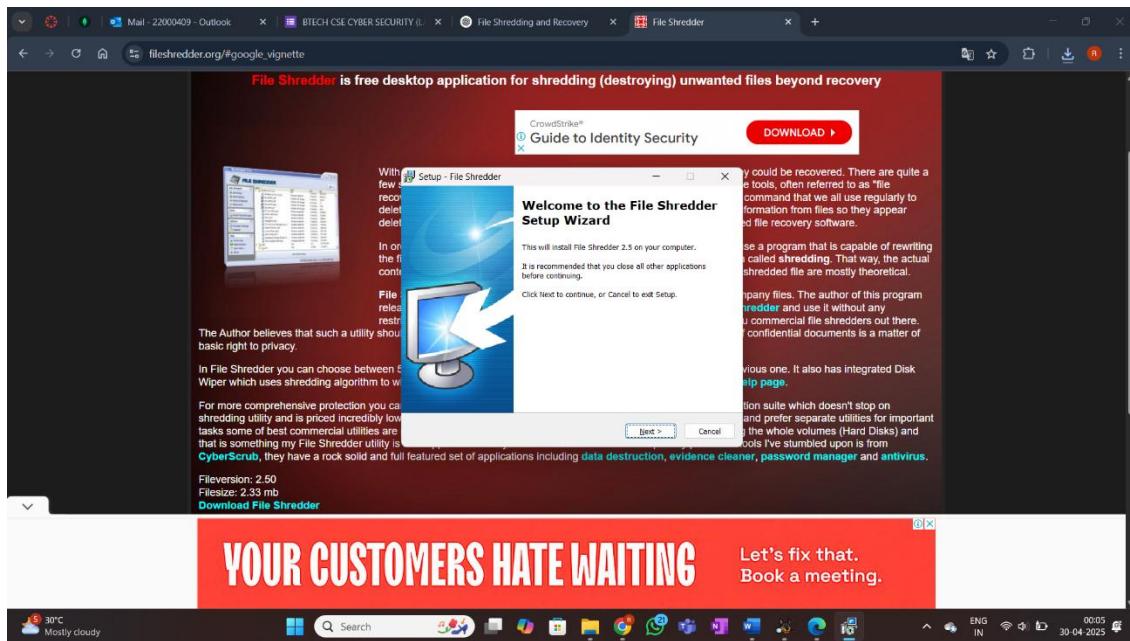
File Type	Scan Duration	Preview Quality	Recovery Success	Notes
MP3	~10 min	Filename only	<input checked="" type="checkbox"/> Recovered—but preview limited	No audio waveform preview; file size match used for confirmation.

Conclusion: This exercise demonstrates that Recuva's Deep Scan is an effective first-line tool for recovering recently deleted files across multiple types, delivering perfect recovery in a controlled scenario. Image files benefit from immediate thumbnails, while document and media files require post-restore verification. To maximize success, run the scan promptly, apply type filters, and maintain regular backups. For extensive or older data loss, supplement Recuva with specialized recovery suites that offer broader format previews and filesystem support.

Q1. Now, delete any of the above recovered files using a file shredding utility like fileshredder (<https://www.fileshredder.org/>). Verify whether you are able to recover the shredded files using Recuva after deleting using file shredder.

Step 1: Install File Shredder

1. Go to the official File Shredder website:
<https://www.fileshredder.org/>
2. Download the installer.



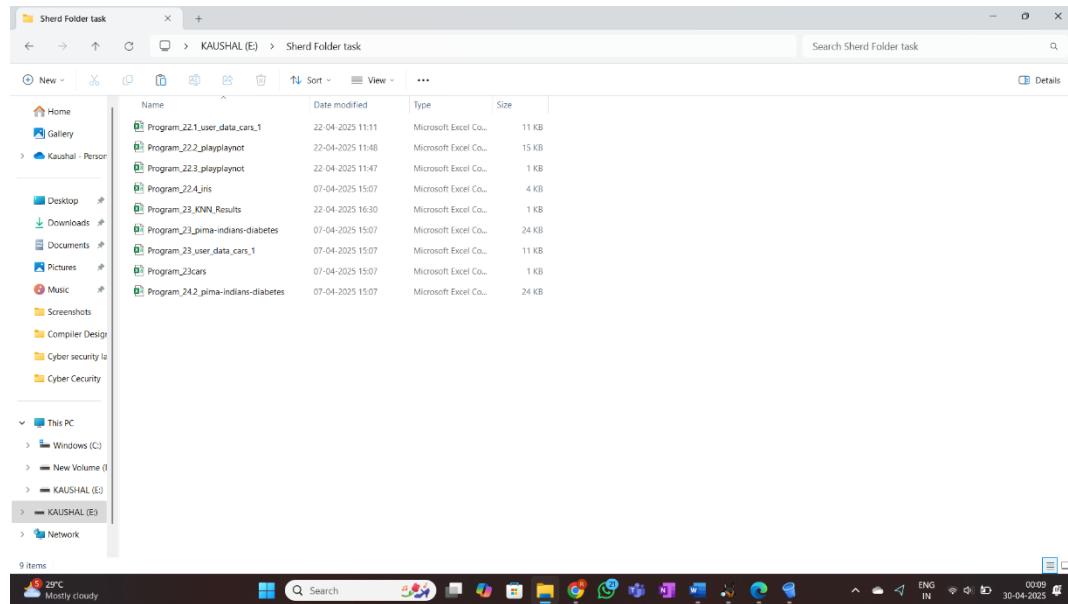
3. Run the installer and follow the on-screen instructions to install File Shredder.





Step 2: Shred a File

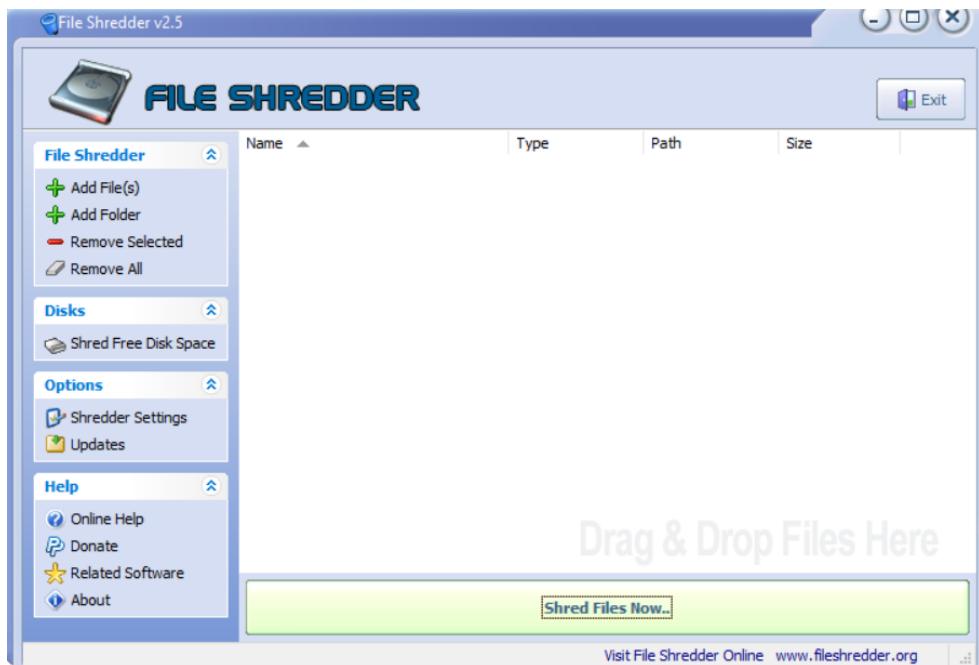
Pick any file that you want to permanently delete. It can be a text file, image, etc.



- Open File Shredder.
- Click on "Add File(s)" or "Add Folder".
- Select the file(s) you want to shred.
- Click on "Shred File(s) Now".



- Confirm the action when prompted.
- The file will be deleted using a secure method (overwriting the data multiple times).



Step 3: Attempt File Recovery

- Open Recuva.
- Select "All Files" or the specific file type you shredded.
- Choose the drive where the file originally existed (e.g., C:, D:, etc.).
- Enable Deep Scan (check the box before scanning).
- Click Start to begin the scan.

<input type="checkbox"/>	● TRANSFER ANNEXURE F...	E:\	15-05-2020 1...	291 KB	Unrecovera...	This file is overwritten with "E\hall ticket.pdf"
<input type="checkbox"/>	● CLAIM DISCHARGE VOU...	E:\	15-05-2020 1...	38 KB	Unrecovera...	This file is overwritten with "E\hall ticket.pdf"
<input type="checkbox"/>	● CHANGE OF ADDRESS.p...	E:\	15-05-2020 1...	147 KB	Unrecovera...	This file is overwritten with "E\hall ticket.pdf"
<input type="checkbox"/>	● Bernard Tschumi - The ...	E:\	20-12-2020 1...	60,486 ...	Excellent	No overwritten clusters detected.
<input type="checkbox"/>	● OFFICE DETAILS - 4.pdf	E:\	24-07-2021 1...	15 KB	Unrecovera...	This file is overwritten with "E\ass6"
<input type="checkbox"/>	● OFFICE FINAL LAYOUT.pdf	E:\	24-07-2021 1...	49 KB	Unrecovera...	This file is overwritten with "E\ass6@emailandipchecking.t...
<input type="checkbox"/>	● hall ticket.pdf	E:\	27-06-2022 1...	2,046 KB	Unrecovera...	This file is overwritten with "E\Bad_Boy_Billionaires_India...
<input type="checkbox"/>	● IMP&MC_Lab-9_Kaushal...	E:\	12-10-2023 2...	160 KB	Unrecovera...	This file is overwritten with "E\Bad_Boy_Billionaires_India...
<input type="checkbox"/>	● CS-assignment_Ramoliy...	E:\	13-10-2023 1...	27 KB	Unrecovera...	This file is overwritten with "E\Bad_Boy_Billionaires_India...
<input type="checkbox"/>	● OOP_Assignment_Kaush...	E:\	11-10-2023 1...	84 KB	Unrecovera...	This file is overwritten with "E\Bad_Boy_Billionaires_India...

Step 4: Analyze Results

- Wait for Recuva to complete the scan.
- Check if the shredded file is listed in the recovered files.
- If it does NOT appear, then the shredding was successful.

Your shredded files are truly gone and cannot be recovered, which is exactly what you want from a shredding tool.

Conclusion: - After performing file deletion using a shredding utility like File Shredder and attempting recovery with Recuva, it was observed that the shredded files could not be recovered, even with a deep scan enabled. This confirms that file shredding is an effective and secure method of permanently deleting data, as it not only removes the file but also overwrites the disk sectors, making recovery impossible through traditional data recovery tools. Therefore, using file shredders ensures that sensitive or confidential files are completely and irreversibly destroyed.