

RACHIT TANWAR

<https://curious-cat.pages.dev>

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Education

Chandigarh Engineering College, CGC Landran

Bachelor of Technology in Computer Science

Aug. 2023 – Present

Mohali, Punjab

Kendriya Vidyalaya No. - 3

XII

2021 – 2022

Delhi Cantt., Delhi

Projects

VulnScan | *Python*

- Created an automated vulnerability scanner in Python to identify security weaknesses in local environments, focusing on open ports, outdated services, and system misconfigurations.
- Integrated networking libraries and APIs to perform service fingerprinting and cross-reference identified services against known CVE databases for real-time risk assessment.
- Built a modular scanning engine that allows for extensible security checks, including credential strength testing and network based vulnerability detection using multithreading for increased speed.

Papyrus | *C*

- Developed a lightweight terminal based text editor from scratch in C, utilizing low-level system calls and standard VT100 escape sequences to manage terminal I/O and screen redrawing.
- Implemented core editing features including real-time cursor navigation, text insertion, deletion, and file I/O operations, ensuring high performance and minimal memory overhead.
- Managed terminal state and raw mode configuration using termios to handle keyboard events and signals, providing a seamless user interface in the terminal.
- Optimized data handling by implementing efficient string manipulation and buffer management techniques to handle multi-line text files effectively.

Keeb | *Python, Curses, Tabulate*

- Developed a terminal-based Typing Speed Test application using Python and curses for real-time, text-based user interaction.
- Created a CSV-based history log storing test results (WPM, accuracy, mistakes, etc.), with a built-in history viewer using the tabulate library.
- Integrated clean retry logic, CLI prompts, and tabular result presentation to enhance user experience.
- Implemented WPM, accuracy, mistake tracking, and dynamic timing with user-selectable time limits (15, 30, 60 seconds).

Hardware Cyber-Security Tools

- Built and configured a **Pwnagotchi-based** wireless security assessment device for automated Wi-Fi reconnaissance, handshake capture, and cybersecurity research.
- Developed and deployed a **Bjorn** network scanner for automated network discovery, host enumeration, and vulnerability assessment.
- Designed and programmed a custom **BadUSB** device to demonstrate USB attack vectors, endpoint security risks, and defensive detection.
- Configured and customized a **LAN Turtle** platform for network monitoring, remote administration, and penetration testing.

Technical Skills

Languages: Python, C, C++, Go, HTML, CSS, SQL, Bash

Technologies/Frameworks: Linux, MySQL, SQLite, Flask, Ollama, Langflow

Developer Tools: Neovim, Git, Github

Certifications

- Python for Data Science - NPTEL
- Automate the Boring Stuff with Python Programming
- Rust for Beginners

Leadership / Extracurricular

- **Co-Admin, Delhi Chess Club** : Manage a 200+ member chess community, organizing monthly online tournaments on Lichess and coordinating regular offline meetups.
- **Event Management Lead, Department Club** : Led the planning, coordination, and execution of multiple departmental events in college, managing participant engagement and collaborating with faculty, mentors, and organizing teams to ensure successful delivery.