GUI BASED NETWORK PACKET SNIFFER

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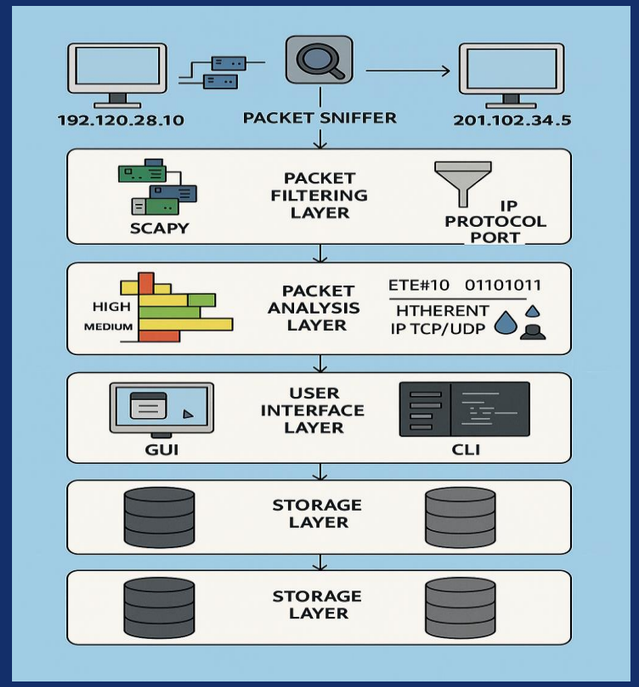
OBJECTIVES

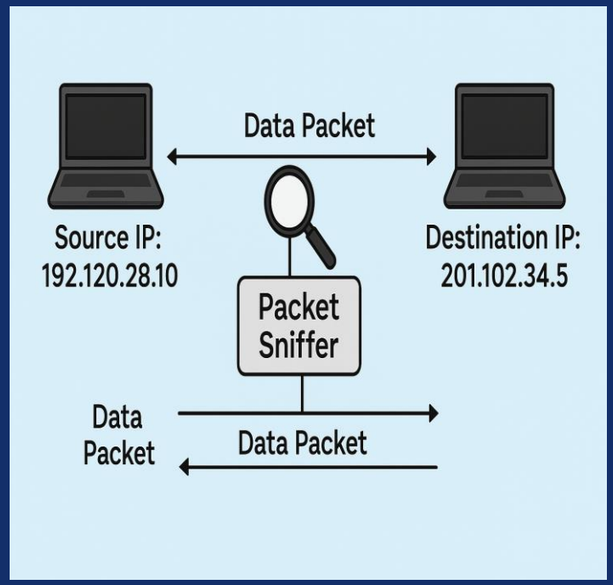
- To design and develop a real time packet sniffing tool with Graphical User Interface
- To capture live network traffic and display detailed protocol and IP level information
- To analyze and categorize captured packets based on protocols such as TCP, UDP, and ICMP.
- To enable users to monitor and inspect packets in an organized and user friendly format.
- To build a foundation for future features like automated alerts and threat detection.

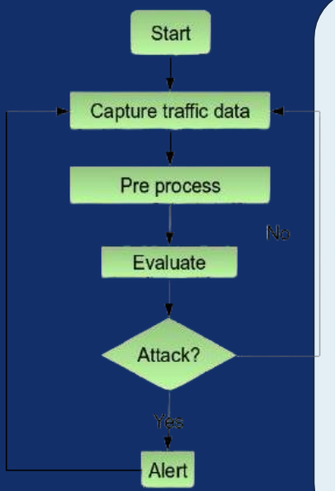
INTRODUCTION

With the exponential increase in internet usage and proliferation of connected devices , the need for the monitoring tools has become more critical than ever.Network traffic Sniffing plays a vital role in identifying vulnerabilities, diagnosing performance issues and detecting potential cyber threats. A network packet sniffer captures data packets as they travel across a network allowing users to inspect protocols, ip addresses, ports and traffic patterns in real time.

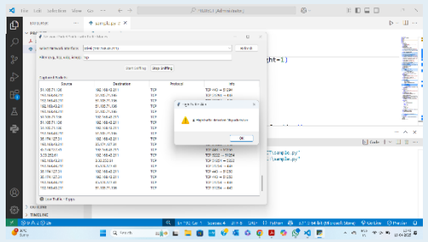
The GUI Based Network Packet Sniffer is a Python based application developed to enhance the process of network monitoring through an intuitive GUI. It uses the Scapy library for low level packet sniffing and analysis, and Tkinter to provide a user-friendly interface for interacting with live traffic data. The tool allows users to view real time protocol level breakdowns and packet metadata without CLI.



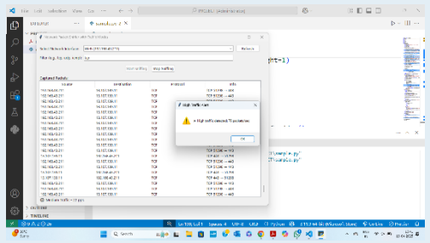


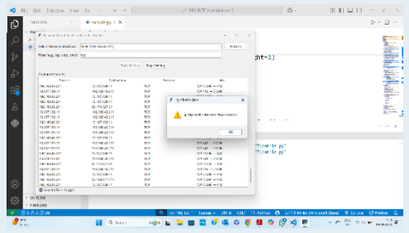


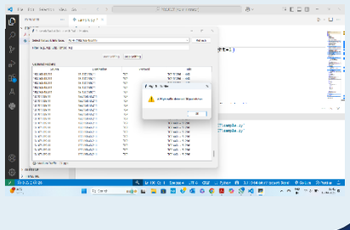
RESULTS



The GUI Based Network Packet Sniffer successfully captured and analysed real time network packets using Scapy. The Tkinter based GUI allowed users to easily view protocol details, IP addresses, ports and time stamps and detect traffic modes [high, low, medium]. The tool enabled live monitoring of network activity, helping detect abnormal traffic patterns and suspicious packets. It proved effective for basic threat detection through packet level inspection. Overall the system was reliable, responsive and user friendly for network analysis tasks







CONCLUSION

The GUI Based Network Packet Sniffer project successfully utilizes Python Scapy and Tkinter to deliver a lightweight yet effective tool for real time packet monitoring . The application allows users to sniff and inspect the network traffic providing essential protocol-level insights such as TCP, UDP, and ICMP packet analysis.With an intuitive graphical interface the tool simplies network monitoring.

Key findings

The packet sniffer effectively captured live network traffic enabling real time inspection of data packets based on protocols such as TCP, UDP, ICMP. It highlighted how protocol based classification and IP level tracking can assist in identifying communication patterns and potential abnormalities.

Overall, this project successfully idemonstrates how a simple yet powerful tool can enhance understanding of network behaviour. With future enhancements like storage capabilities and threat alert modules. It holds promise for extended use in network diagnostic scenarios

REFERENCES

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Garg, S., & Nia, M. M. (2018). *Scapy-based packet sniffing and analysis for cybersecurity.* International Journal of Computer Science and Information Security (IJCSIS), 16(5), 138–144. . Relevant for implementing packet sniffing using Scapy.