

# PERSONAL FIREWALL USING PYTHON - PROJECT REPORT

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## **INTRODUCTION:**

In the current digital age personal cybersecurity is important. one of the basic protections is a firewall which watches and controls network traffic based on set rules this project is about making a simple personal firewall using python meant for linux systems like kali it lets users check and filter incoming and outgoing packets log anything suspicious and apply rules directly at the system level using iptables

## **ABSTRACT:**

This firewall uses python and scapy to watch live network traffic it looks at each packet and checks if it matches any block rules like certain IP addresses ports or protocols if a match is found it logs it into a file for checking later to make it stronger iptables is also used so matching packets are blocked by the system itself the project is made to run from the terminal with no need for GUI and works well on any linux system with root access

## **TOOLS USED:**

- python 3: for writing the firewall script
- scapy: for sniffing and handling network packets
- iptables: to apply system level blocking rules
- kali linux: used for testing and running the firewall
- text file: to log blocked packets

## **STEPS INVOLVED IN BUILDING THE PROJECT:**

1. Packet sniffing was set up using scapy to capture live traffic
2. A dictionary was used to define block rules like specific ips ports and protocols
3. When a packet is captured it is checked against the rules if it matches it is blocked
4. Every blocked packet is logged in a file with a timestamp and details
5. iptables was used through a python subprocess module to apply system-level blocking
6. The final script is simple to run from terminal and doesn't need any GUI

**CONCLUSION:**

This project shows how to make a basic but useful personal firewall using only open source tools it combines packet inspection using scapy with actual system-level blocking using iptables also it is lightweight and gives users control over what traffic they want to allow or block the project helped in learning both low level packet handling and linux firewall rules and is a good starting point for more advanced network security tools