Security Alert Monitoring Report – Splunk SIEM

(Internship Simulation Task)

Project Title:

Security Incident Detection and Analysis Using Splunk SIEM

Internship Program:

Future Interns – Cybersecurity Internship
Conducted by Future Interns

Intern Name:

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Tools & Technologies Used:

- Splunk Enterprise (Local Setup – Windows)
- Log Sources: Authentication, System, Network & Application Logs
- Screenshots captured from Splunk Search & Reporting
- Report compiled using Microsoft Word

Test Environment:

- Host Machine: Windows 11
- Splunk Index Source: Manually uploaded log files (Application, Syslog, Network, Auth)
- Environment: Local (Standalone Analysis)

Executive Summary

This report summarizes a Security Operations Center (SOC) simulation exercise conducted using Splunk Enterprise.
The purpose was to monitor and analyze security alerts generated from multiple log sources — including authentication,
system, and network logs — to identify potential security threats. The project demonstrates hands-on SOC analyst activities
such as log ingestion, searching, alert triage, and incident reporting.

Scope of Assessment

The objective of this project was to simulate a SOC environment and perform:
• Log ingestion and parsing in Splunk
• Searching for suspicious patterns (failed logins, firewall changes, USB drivers)
• Classifying and prioritizing alerts
• Preparing an incident response summary

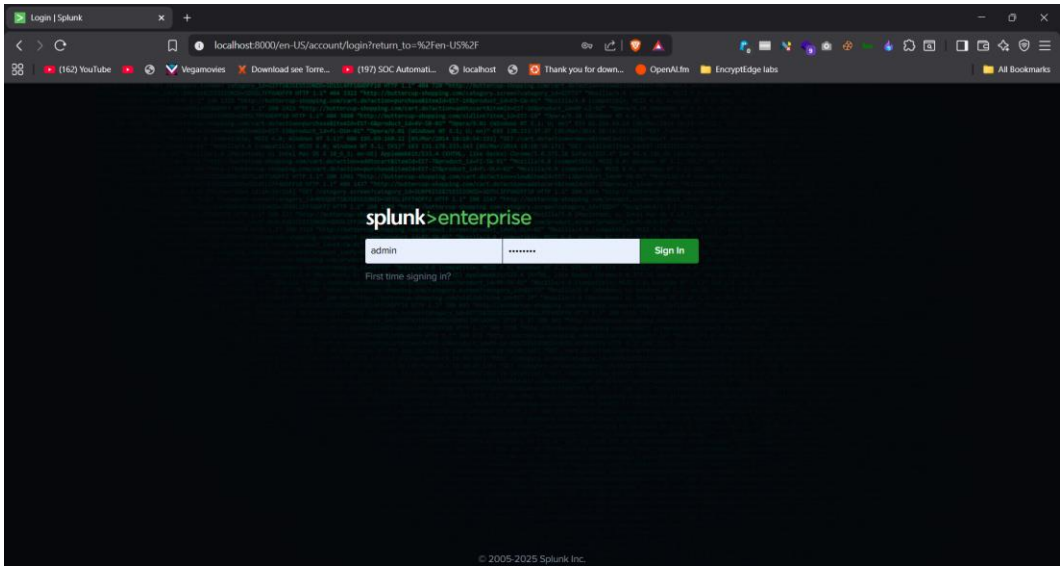
Logs Used:

• Application.txt – Application errors and runtime failures
• syslog.txt – System-level events and driver installations
• Network Logs.txt – Firewall changes and network activity
• auth.log – Authentication attempts and failed logins

Incident Summary Table

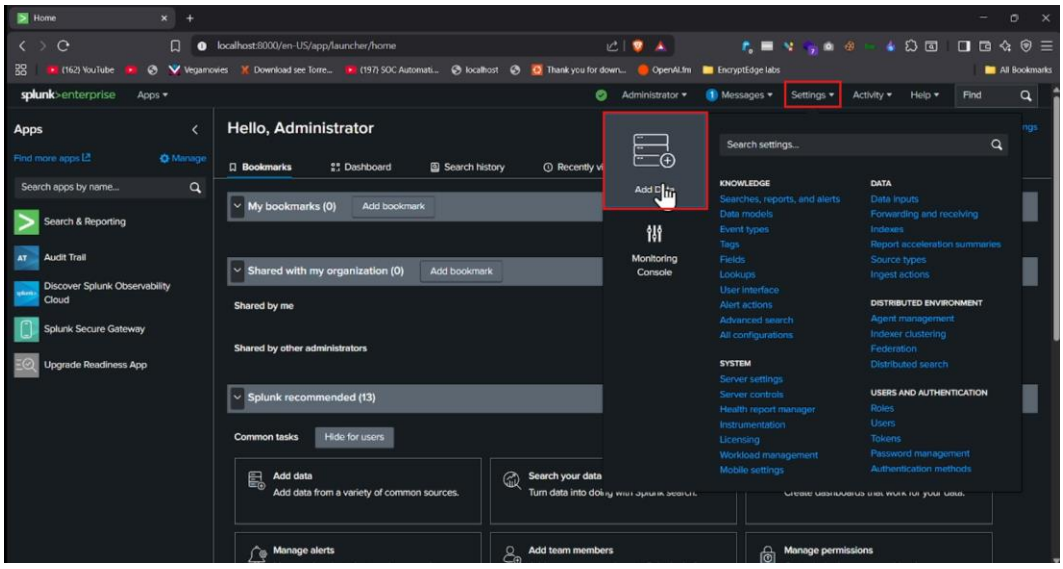
Incident #	Type of Alert	Severity	Description	Recommended Action
1	Firewall Rule Modified	High	Firewall rule added/deleted in logs	Verify if rule was authorized, reset to default
2	Failed Login Attempts	High	Multiple failed passwords in auth.log	Check source IP, enable account lockout
3	Unrecognized USB Driver	Medium	USBPcap driver detected	Remove unauthorized drivers, inspect device
4	Application Errors (.NET)	Low	Repeated runtime errors	Investigate for tampering or crashes

🔍 Detailed Findings



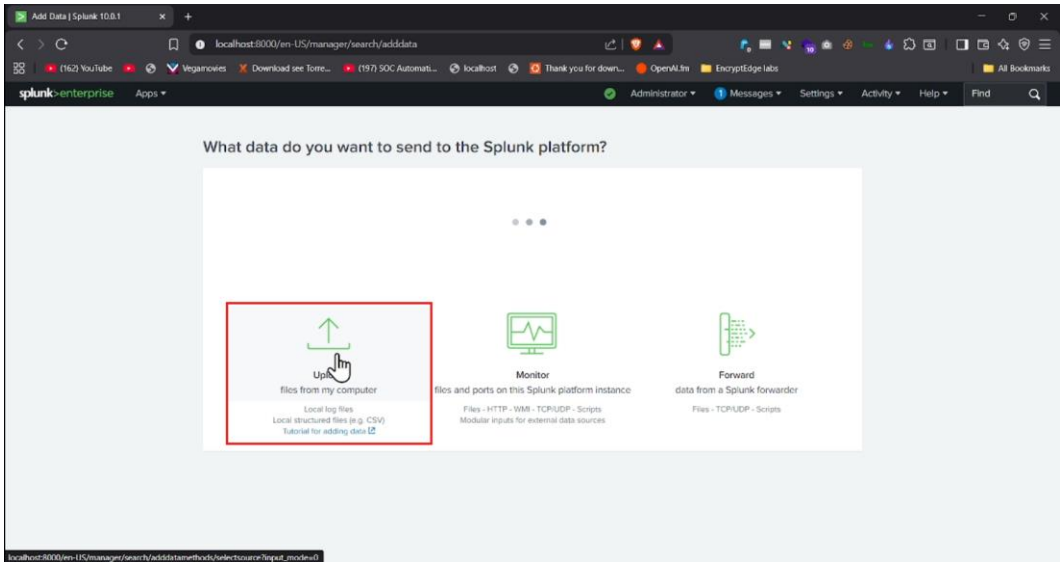
1.png – Splunk Login Page

This is the Splunk Enterprise login screen where the user logs in using admin credentials. It is the first step to access Splunk to perform log analysis.



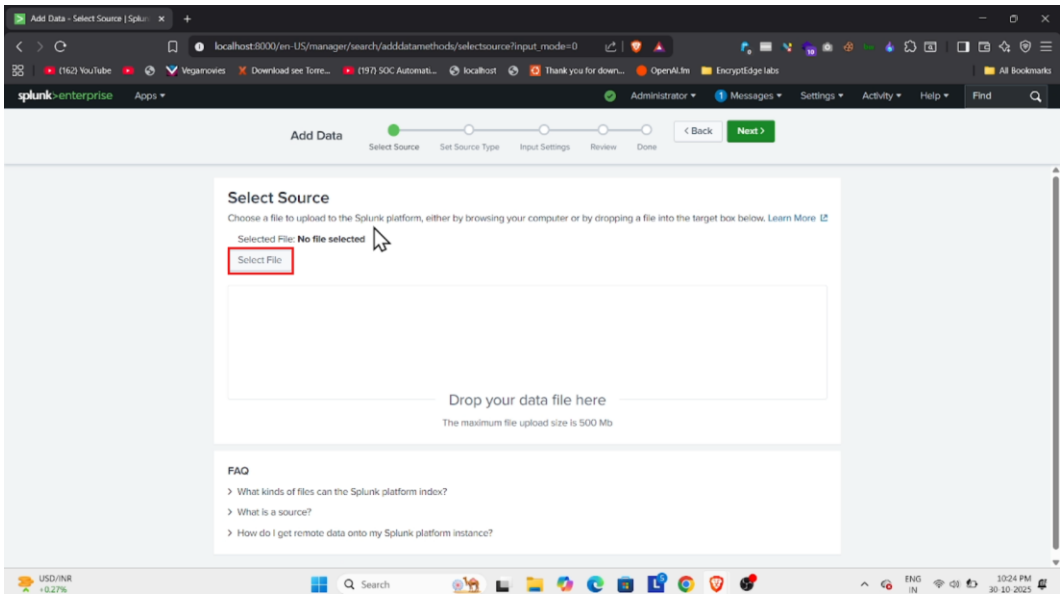
2.png – Splunk Home Dashboard

After login, this is the main Splunk dashboard where you can manage apps, add data, search logs, and view dashboards.



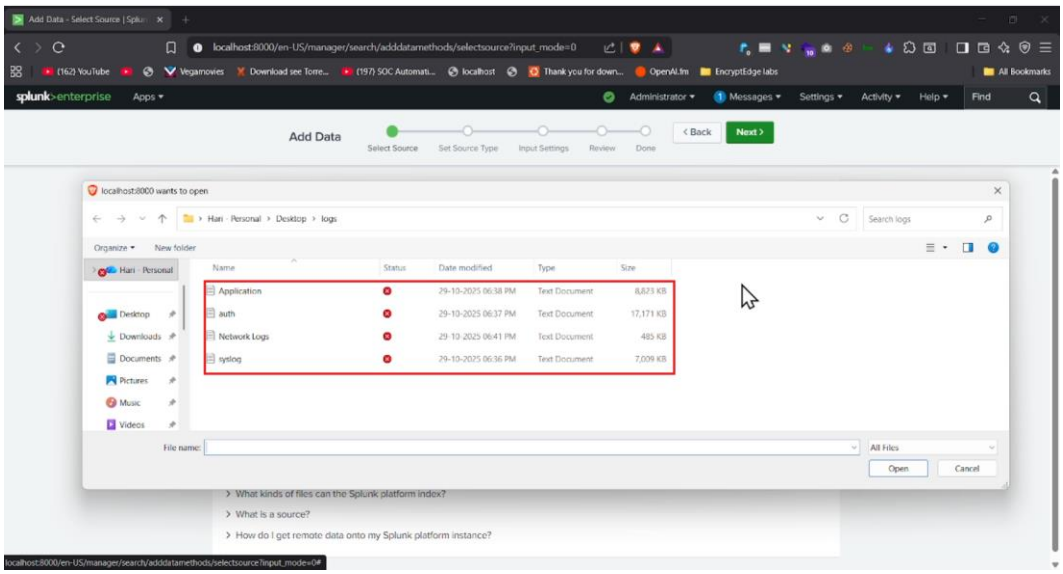
3.png – Add Data Options

The user selects 'Upload files from my computer' to ingest the log files (Application.txt, syslog.txt, Network Logs.txt, auth.log) for analysis.



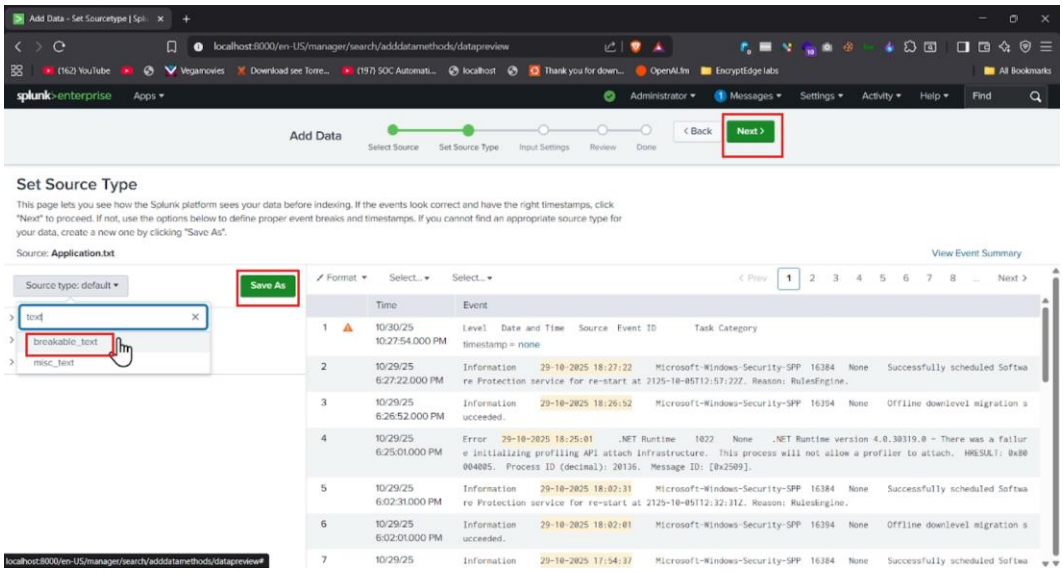
4.png – Upload Log Files

This step shows uploading local log files into Splunk, preparing them for indexing and searching.



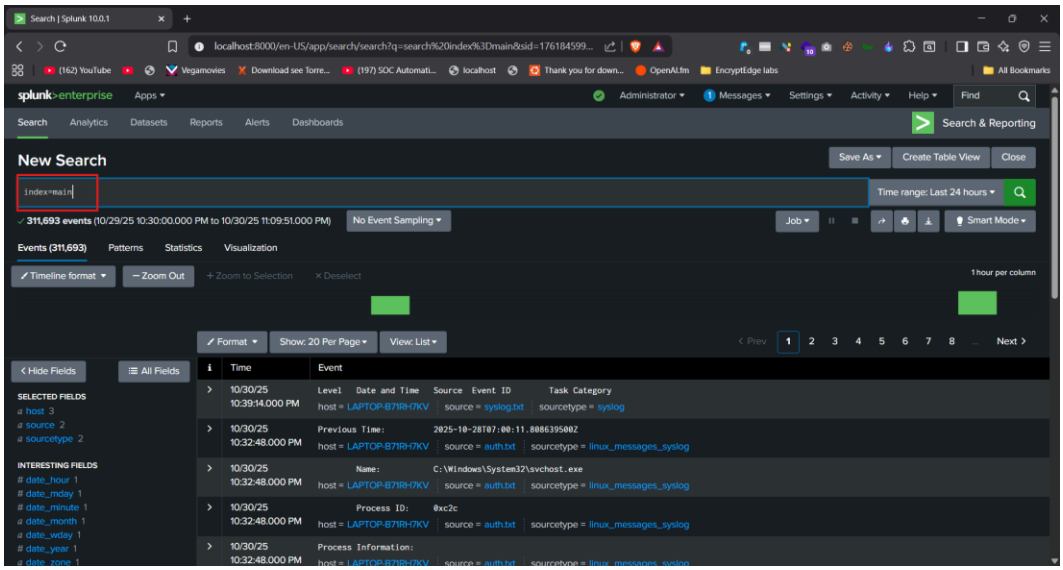
5.png – Selecting Log Files

This screenshot displays the file selection window for the log sources used in this SOC task.



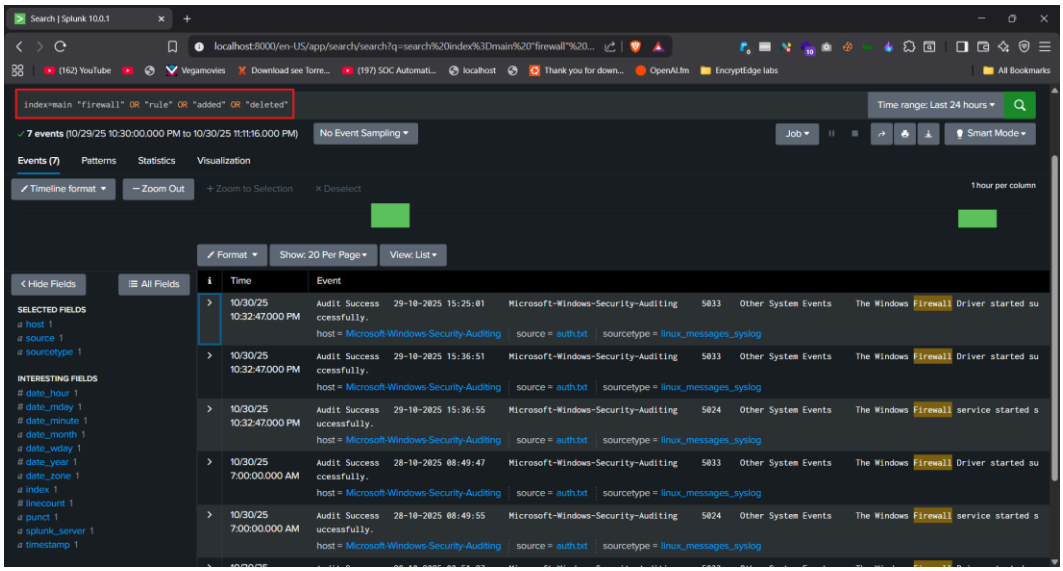
6.png – Set Source Type

Here, the source type (plain text) is assigned to help Splunk interpret and index the logs correctly.



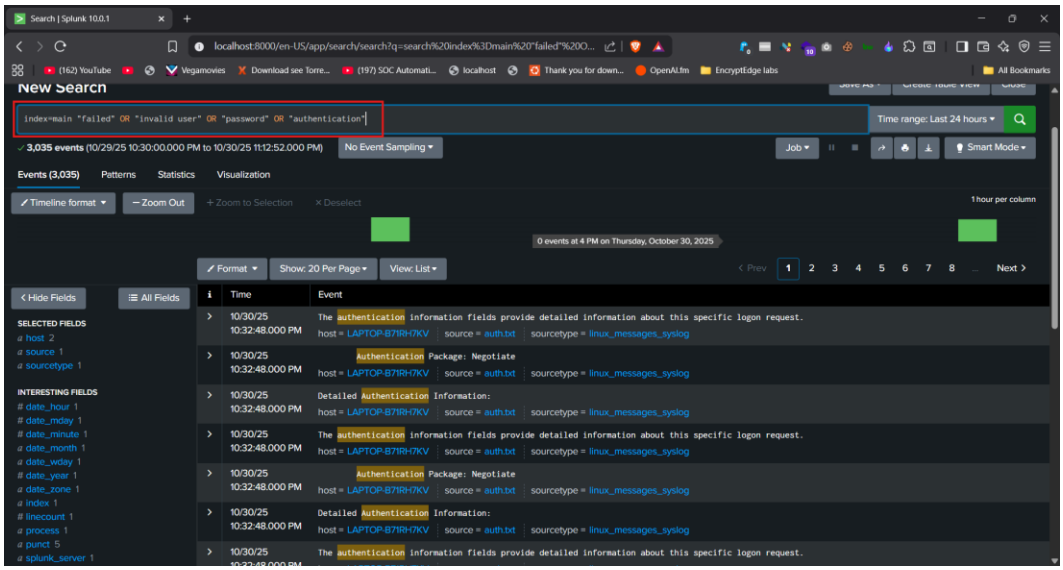
7.png – Viewing Indexed Logs

After indexing, 'index=main' displays all ingested events, which can then be filtered for suspicious activity.



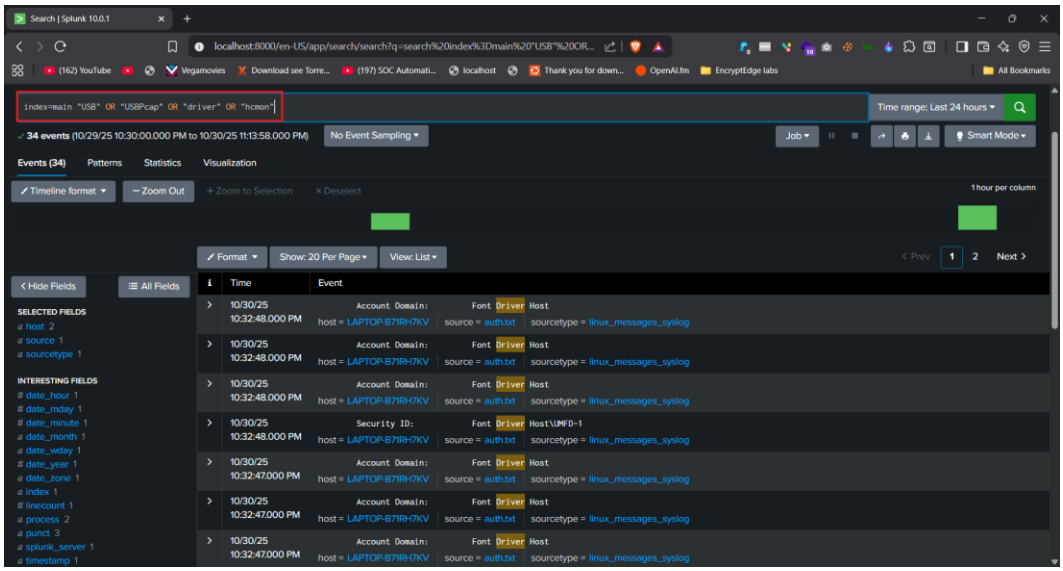
8.png – Firewall Log Search

The search query filters firewall-related logs to detect any unauthorized rule changes.



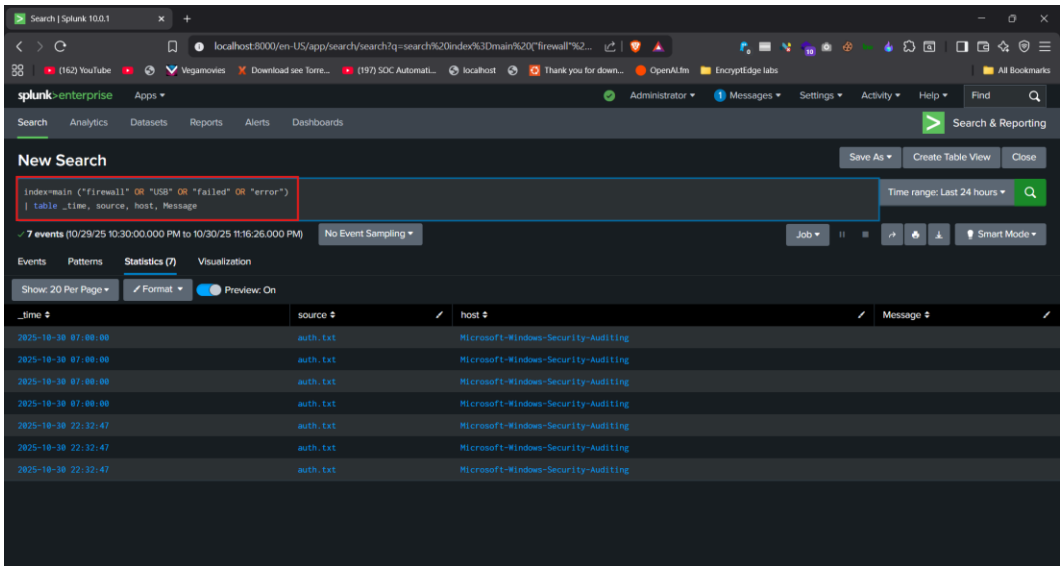
9.png – Authentication Failure Search

A search query to identify failed or invalid login attempts indicating brute-force or unauthorized access attempts.



10.png – USB and Driver Events

Detects logs mentioning USBPcap or unrecognized drivers, which could mean data exfiltration or local packet capture.



11.png – Combined Query Results

Shows a combined search of multiple log sources for suspicious indicators, giving a complete threat overview.

✅Conclusion

This SOC simulation project successfully demonstrated real-world SIEM operations using Splunk.
The intern effectively monitored logs, detected incidents, and prepared a structured response report —
developing practical SOC skills in alert analysis, triage, and reporting.