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DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING
ETHICAL HACKING - CSHO331CSP

**ASSIGNMENT 17 – BASH SCRIPT FOR AUTO
PING AND LOG**

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Website Monitoring System:

Objective:

The goal of this project is to develop an automated monitoring system that checks if a website is online and records how quickly it responds. This is essential for identifying outages, latency issues, or cyberattacks such as DDoS.

Implementation:

A **Bash script** (`monitor.sh`) was written to ping a domain every 5 minutes and log the results to a CSV file with timestamps. If the ping is successful, it records the response time in milliseconds. If the server is unreachable, it records "DOWN".

Script:

```
bash
#!/bin/bash

DOMAIN="google.com"
LOG_FILE="ping_log.csv"

# Initialize CSV header
if [ ! -f "$LOG_FILE" ]; then
    echo "Timestamp,Domain,ResponseTime(ms)" > "$LOG_FILE"
fi

while true; do
    TIMESTAMP=$(date '+%Y-%m-%d %H:%M:%S')
    PING_OUTPUT=$(ping -c 1 -W 2 $DOMAIN)
    if echo "$PING_OUTPUT" | grep "time=" > /dev/null; then
        RESPONSE_TIME=$(echo "$PING_OUTPUT" | grep "time=" | sed -n
's/.*time=\.*) ms/1/p')
    else
        RESPONSE_TIME="DOWN"
    fi
    echo "$TIMESTAMP,$DOMAIN,$RESPONSE_TIME" >> "$LOG_FILE"
    sleep 300 # Wait for 5 minutes
```

done

Sample CSV Output:

	Standard	Standard	Standard
1	Timestamp	Domain	ResponseTime (ms)
2	2025-07-31 15:15:49	google.com	22.8
3	2025-07-31 15:20:49	google.com	9.93
4	2025-07-31 15:25:49	google.com	188
5	2025-07-31 15:30:49	google.com	DOWN
6	2025-07-31 15:35:58	google.com	322
7	2025-07-31 15:40:59	google.com	206
8	2025-07-31 15:46:01	google.com	31.7
9	2025-07-31 15:51:03	google.com	10.4
10	2025-07-31 15:56:04	google.com	14.3
11	2025-07-31 16:01:07	google.com	1351
12	2025-07-31 16:06:11	google.com	320
13	2025-07-31 16:11:17	google.com	68.2
14	2025-07-31 16:16:21	google.com	77.4

Security Monitoring Benefits:

- **Uptime tracking:** Identifies if/when a website goes offline
 - **Latency analysis:** Detects slow server responses
 - **DDoS detection:** Sudden frequent “DOWN” entries could indicate attacks
 - **Audit logging:** The CSV log serves as a timeline of network behavior
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Conclusion:

This system offers a lightweight and reliable way to continuously monitor website performance, support early problem detection, and enhance network resilience. It can be expanded with email alerts, web dashboards, or integration into enterprise monitoring tools.

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