**Write a awk script to**

1. **Count how many packets use each protocol (TCP, UDP, ICMP)**

BEGIN { FS="," }

NR > 1 {

protocols[$4]++

}

END {

for (protocol in protocols) {

print protocol ": " protocols[protocol]

}

}

1. **Filter and print only the dropped packets**

BEGIN { FS="," }

NR > 1 && $8 == "Dropped" {

print $0

}

1. **Print the Timestamp, Source\_IP, Destination\_IP, and Packet\_Size for packets that have a size greater than 1000 bytes**

BEGIN { FS="," }

NR > 1 && $7 > 1000 {

print $1 "," $2 "," $3 "," $7

}

1. **Display traffic that is directed to destination port 443**

BEGIN { FS="," }

NR > 1 && $6 == 443 {

print $0

}

1. **Print all unique Source\_IP addresses from the network\_traffic.csv file**

BEGIN { FS="," }

NR > 1 {

if (!($2 in seen)) {

seen[$2] = 1

print $2

}

}

1. **Filter only TCP traffic and calculate the average packet size**

BEGIN { FS="," }

NR > 1 && $4 == "TCP" {

sum += $7

count++

}

END {

if (count > 0) {

print "Average TCP packet size: " sum/count

} else {

print "No TCP packets found"

}

}

1. **Count invalid records**

BEGIN { FS="," }

NR > 1 && NF != 8 {

invalid++

}

END {

print "Invalid records: " invalid

}

1. **Extract and print all rows where the Source\_IP is in the 192.168.x.x range**

BEGIN { FS="," }

NR > 1 && $2 ~ /^192\.168\./ {

print $0

}

1. **Match traffic directed to either port 80 (HTTP) or port 443 (HTTPS)**

BEGIN { FS="," }

NR > 1 && ($6 == 80 || $6 == 443) {

print $0

}

1. **Filter out rows where the Destination\_Port contains any alphanumeric characters (letters or numbers)**

BEGIN { FS="," }

NR > 1 && $6 ~ /^[0-9]+$/ {

print $0

}

1. **Filter out traffic where the protocol is TCP AND the destination port is 443 (HTTPS traffic)**

BEGIN { FS="," }

NR > 1 && !($4 == "TCP" && $6 == 443) {

print $0

}

1. **Filter out and print traffic where the Packet\_Size is greater than 1000 OR the Status is Dropped**

BEGIN { FS="," }

NR > 1 && ($7 > 1000 || $8 == "Dropped") {

print $0

}

1. **Print traffic NOT originating from 192.168.x.x IP addresses**

BEGIN { FS="," }

NR > 1 && $2 !~ /^192\.168\./ {

print $0

}

1. **Filter rows where both Source\_IP and Destination\_IP are within the 192.168.x.x range**

BEGIN { FS="," }

NR > 1 && $2 ~ /^192\.168\./ && $3 ~ /^192\.168\./ {

print $0

}

1. **Filter out traffic where the destination port is 22 OR the packet size is less than 100 bytes**

BEGIN { FS="," }

NR > 1 && !($6 == 22 || $7 < 100) {

print $0

}