NETWORKING ASSIGNMENT 1

NETCAT :

* This tool can be used for creating any connections over TCP or UDP protocol which makes it an excellent debugging tool.
* It helps the user investigate connections directly by connecting to them.
* The Netcat nc command is a command-line utility for reading and writing data between two computer networks.

sumaM@GQNTJM3:~$ nc en.wikipedia.org 80

hi

* Let’s try to send something to the server.
* Type in some text after the output texts shown above and **hit Enter twice** (this is because some requests require multiple lines, so the first Enter is a newline, and the second one it sends the request). It can be any text. I’ll just write hi.
* We do not get any response because this message is not the way we write a request to the server. We have to write the request in a way the server could understand.
* To find the way in which we can send the request, we can use the curl command to ping the server. It sends a request in proper way and takes the response. We would copy the format of the request and try to communicate wuth our server.

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sumaM@GQNTJM3:~$ nc en.wikipedia.org 80

HEAD / HTTP/1.1

Host: en.wikipedia.org

HTTP/1.1 301 TLS Redirect

Date: Wed, 21 Sep 2022 10:13:19 GMT

Server: Varnish

X-Varnish: 207956334

X-Cache: cp5012 int

X-Cache-Status: int-front

Server-Timing: cache;desc="int-front", host;desc="cp5012"

Permissions-Policy: interest-cohort=()

Set-Cookie: WMF-Last-Access=21-Sep-2022;Path=/;HttpOnly;secure;Expires=Sun, 23 Oct 2022 00:00:00 GMT

Set-Cookie: WMF-Last-Access-Global=21-Sep-2022;Path=/;Domain=.wikipedia.org;HttpOnly;secure;Expires=Sun, 23 Oct 2022 00:00:00 GMT

X-Client-IP: 2405:201:c001:a09b:ec6b:fe5e:b508:3b39

Location: https://en.wikipedia.org/

Content-Length: 0

Connection: keep-alive

* Through the curl command, we found its way of sending a request and we have now sent the request in the same way. Now we get the response from the server wikipedia.

sumaM@GQNTJM3:~$

sumaM@GQNTJM3:~$ printf 'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n' | nc en.wikipedia.org 80

HTTP/1.1 301 TLS Redirect

Date: Wed, 21 Sep 2022 10:15:06 GMT

Server: Varnish

X-Varnish: 204549026

X-Cache: cp5012 int

X-Cache-Status: int-front

Server-Timing: cache;desc="int-front", host;desc="cp5012"

Permissions-Policy: interest-cohort=()

Set-Cookie: WMF-Last-Access=21-Sep-2022;Path=/;HttpOnly;secure;Expires=Sun, 23 Oct 2022 00:00:00 GMT

Set-Cookie: WMF-Last-Access-Global=21-Sep-2022;Path=/;Domain=.wikipedia.org;HttpOnly;secure;Expires=Sun, 23 Oct 2022 00:00:00 GMT

X-Client-IP: 2405:201:c001:a09b:ec6b:fe5e:b508:3b39

Location: https://en.wikipedia.org/

Content-Length: 0

Connection: keep-alive

* So, Instead of manually entering the 2 lines of request every time, we have included those lines in printf and this printf should have control characters like \r and \n to make those into 2 seperate lines and simply giving a proper formatting to the print output.
* Next, the output of the print statement will be piped as an input to the netcat command and thus a proper request is sent and the required response is obtained.