

Networking Assignment

Question 1: Explain what and how the below command does what it does:

```
printf 'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n' | nc en.wikipedia.org 80
```

(10 Points)

Answer 1: In the above program, we gave a command line input to printf, which upon formatting accordingly turns out to be an HTTP request. Netcat or nc takes that as its input and connects to the address and port 80 (http) i.e. en.wikipedia.org web server and sends the formatted string over which is an HTTP request HEAD, hence we get the HTTP response on our terminal back from the server. We can store the output directly appending it in a file through >> filename.

```
zadmin@zadmin:~/temp$ printf 'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n' | nc e
n.wikipedia.com 80
HTTP/1.1 301 TLS Redirect
Date: Fri, 07 Feb 2020 06:00:28 GMT
Server: Varnish
X-Varnish: 93032793
X-Cache: cp5011 int
X-Cache-Status: int-front
Server-Timing: cache;desc="int-front"
Set-Cookie: WMF-Last-Access=07-Feb-2020;Path=/;HttpOnly;secure;Expires=Tue, 10 M
ar 2020 00:00:00 GMT
Set-Cookie: WMF-Last-Access-Global=07-Feb-2020;Path=/;Domain=.wikipedia.org;Http
Only;secure;Expires=Tue, 10 Mar 2020 00:00:00 GMT
X-Client-IP: 183.82.101.16
Location: https://en.wikipedia.org/
Content-Length: 0
Via: HTTP/1.1 forward.http.proxy:3128
Connection: keep-alive
^C
```

Question 2: How will you modify the above command to fetch the contents of www.rediff.com?
(10 Points)

Answer 2: We should change the destination as well as HOST header of the HTTP request to www.rediff.com. And also to get the body, use the GET method which is also safe. So the final command would be:

```
$ printf 'GET / HTTP/1.1\r\nHost: www.rediff.com\r\n\r\n' | nc www.rediff.com 80
```

This was the output, shown below.

```
zadmin@zadmin:~/temp$ printf 'GET / HTTP/1.1\r\nHost: www.rediff.com\r\n\r\n' |  
nc www.rediff.com 80  
HTTP/1.1 301 Moved Permanently  
Server: AkamaiGHost  
Content-Length: 0  
Location: https://www.rediff.com/  
Date: Fri, 07 Feb 2020 06:55:36 GMT  
Via: HTTP/1.1 forward.http.proxy:3128  
Connection: keep-alive  
  
^C  
zadmin@zadmin:~/temp$
```