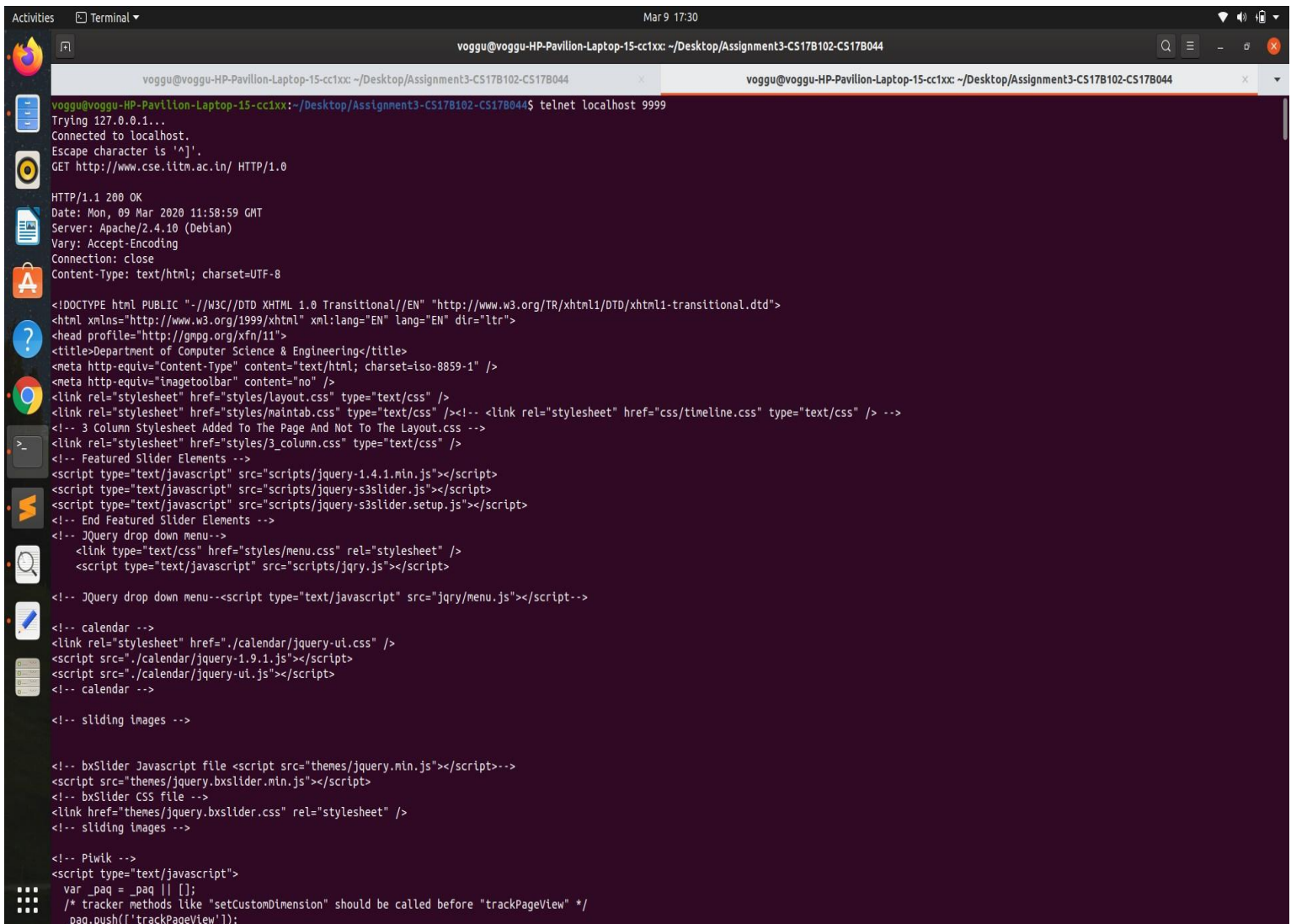


Implementing HTTP Web Proxy

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Experiment 1: One Client (Single Terminal)



```
voggu@voggu-HP-Pavilion-Laptop-15-cc1xx: ~/Desktop/Assignment3-CS17B102-CS17B044
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^['.
GET http://www.cse.iitm.ac.in/ HTTP/1.0

HTTP/1.1 200 OK
Date: Mon, 09 Mar 2020 11:58:59 GMT
Server: Apache/2.4.10 (Debian)
Vary: Accept-Encoding
Connection: close
Content-Type: text/html; charset=UTF-8

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en" dir="ltr">
<head profile="http://gmpg.org/xfn/11">
<title>Department of Computer Science & Engineering</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<meta http-equiv="imagetoolbar" content="no" />
<link rel="stylesheet" href="styles/layout.css" type="text/css" />
<link rel="stylesheet" href="styles/maintab.css" type="text/css" /><!-- <link rel="stylesheet" href="css/timeline.css" type="text/css" /> -->
<!-- 3 Column Stylesheet Added To The Page And Not To The Layout.css -->
<link rel="stylesheet" href="styles/3_column.css" type="text/css" />
<!-- Featured Slider Elements -->
<script type="text/javascript" src="scripts/jquery-1.4.1.min.js"></script>
<script type="text/javascript" src="scripts/jquery-s3slider.js"></script>
<script type="text/javascript" src="scripts/jquery-s3slider.setup.js"></script>
<!-- End Featured Slider Elements -->
<!-- JQuery drop down menu-->
<link type="text/css" href="styles/menu.css" rel="stylesheet" />
<script type="text/javascript" src="scripts/jqry.js"></script>

<!-- JQuery drop down menu--<script type="text/javascript" src="jqry/menu.js"></script-->

<!-- calendar -->
<link rel="stylesheet" href="./calendar/jquery-ui.css" />
<script src="./calendar/jquery-1.0.1.js"></script>
<script src="./calendar/jquery-ui.js"></script>
<!-- calendar -->

<!-- sliding images -->

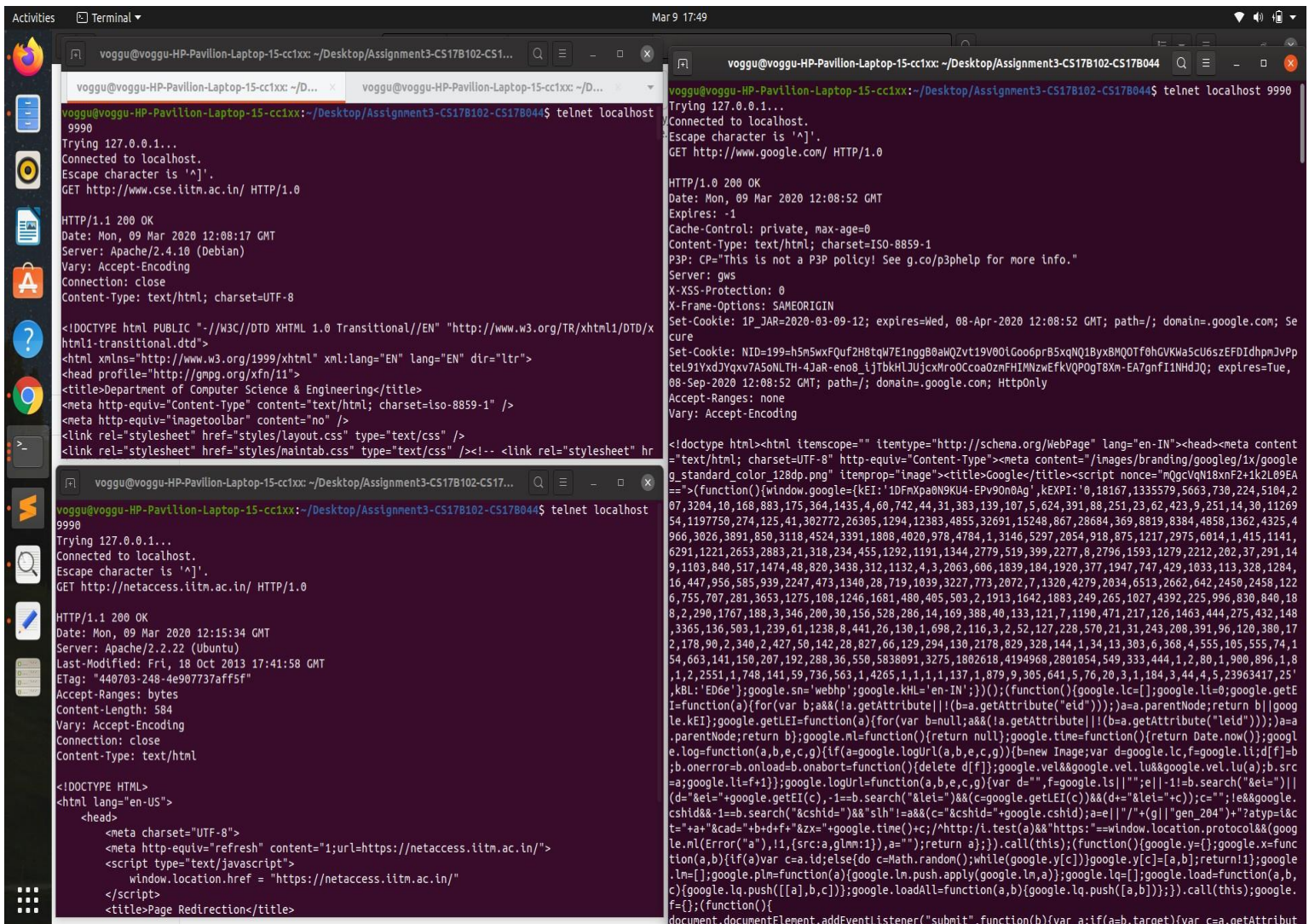
<!-- bxSlider Javascript file <script src="themes/jquery.min.js"></script-->
<script src="themes/jquery.bxslider.min.js"></script>
<!-- bxSlider CSS file -->
<link href="themes/jquery.bxslider.css" rel="stylesheet" />
<!-- sliding images -->

<!-- Piwik -->
<script type="text/javascript">
var _paq = _paq || [];
/* tracker methods like "setCustomDimension" should be called before "trackPageView" */
_paq.push(['trackPageView']);
```

Analysis:

Our experiment is working fine if we send request from one client as we can clearly see we got reply “200 OK” from receiver end we have used port number as 9999 here.

Experiment 2: Simultaneous more than one client



The image displays three terminal windows running on a Linux system, each showing a telnet connection to localhost 9990. The windows are titled 'voggu@voggu-HP-Pavilion-Laptop-15-cc1xx: ~/Desktop/Assignment3-CS17B102-CS17B044\$ telnet localhost 9990'. The first terminal shows a successful connection to 127.0.0.1, receiving an HTTP 1.1 200 OK response from a server running Apache/2.4.10 (Debian). The second terminal shows a similar connection, but the response is truncated. The third terminal shows a connection to 127.0.0.1, receiving an HTTP 1.1 200 OK response from a server running Apache/2.2.22 (Ubuntu). The response is a full HTML document with a meta charset of 'UTF-8' and a script type of 'text/javascript'.

```
voggu@voggu-HP-Pavilion-Laptop-15-cc1xx: ~/Desktop/Assignment3-CS17B102-CS17B044$ telnet localhost 9990
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^['.
GET http://www.cse.iitn.ac.in/ HTTP/1.0

HTTP/1.1 200 OK
Date: Mon, 09 Mar 2020 12:08:17 GMT
Server: Apache/2.4.10 (Debian)
Vary: Accept-Encoding
Connection: close
Content-Type: text/html; charset=UTF-8

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en" dir="ltr">
<head profile="http://gmpg.org/xfn/11">
<title>Department of Computer Science & Engineering</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<meta http-equiv="imagetoolbar" content="no" />
<link rel="stylesheet" href="styles/layout.css" type="text/css" />
<link rel="stylesheet" href="styles/main.css" type="text/css" /><!-- <link rel="stylesheet" href="styles/main.css" type="text/css" />-->
</html>

voggu@voggu-HP-Pavilion-Laptop-15-cc1xx: ~/Desktop/Assignment3-CS17B102-CS17B044$ telnet localhost 9990
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^['.
GET http://netaccess.iitn.ac.in/ HTTP/1.0

HTTP/1.1 200 OK
Date: Mon, 09 Mar 2020 12:15:34 GMT
Server: Apache/2.2.22 (Ubuntu)
Last-Modified: Fri, 18 Oct 2013 17:41:58 GMT
ETag: "440703-248-4e907737aff5f"
Accept-Ranges: bytes
Content-Length: 584
Vary: Accept-Encoding
Connection: close
Content-Type: text/html

<!DOCTYPE HTML>
<html lang="en-US">
<head>
<meta charset="UTF-8">
<meta http-equiv="refresh" content="1;url=https://netaccess.iitn.ac.in/">
<script type="text/javascript">
window.location.href = "https://netaccess.iitn.ac.in/"
</script>
<title>Page Redirection</title>

voggu@voggu-HP-Pavilion-Laptop-15-cc1xx: ~/Desktop/Assignment3-CS17B102-CS17B044$ telnet localhost 9990
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^['.
GET http://www.google.com/ HTTP/1.0

HTTP/1.0 200 OK
Date: Mon, 09 Mar 2020 12:08:52 GMT
Expires: -1
Cache-Control: private, max-age=0
Content-Type: text/html; charset=ISO-8859-1
P3P: CP="This is not a P3P policy! See g.co/p3phelp for more info."
Server: gws
X-XSS-Protection: 0
X-Frame-Options: SAMEORIGIN
Set-Cookie: 1P_JAR=2020-03-09-12; expires=Wed, 08-Apr-2020 12:08:52 GMT; path=/; domain=.google.com; Secure
Set-Cookie: NID=199=h5m5wF0uf2H8tqW7EingB0aQZv19V001Goo6prB5xqN1Q1bxBMQ0Tf0hGVKwa5cU6szEFDIdhpnJvPp
tel91YxdJYqyv7ASoNLTH-4JaR-eno8_lijTbkHLJUjcxMrOCCoaoZmFHMWzWefkVQP0gT8Xm-EA7gnf1INHdJQ; expires=Tue,
08-Sep-2020 12:08:52 GMT; path=/; domain=.google.com; HttpOnly
Accept-Ranges: none
Vary: Accept-Encoding

<doctype html><html itemscope="" itemtype="http://schema.org/WebPage" lang="en-IN"><head><meta content
="text/html; charset=UTF-8" http-equiv="Content-Type"><meta content="/images/branding/google/1x/google
g_standard_color_128dp.png" itemprop="image"><title>Google</title><script nonce="m0gcVqN18xf2+1k2L09EA
==">(function(){window.google={kEI:"1DFmXpa0N9KU4-EPv90N8Ag",kEXPI:"0,18167,1335579,5663,730,224,5104,2
07,3204,10,169,883,175,364,1435,4,60,742,44,31,383,139,107,5,624,391,88,251,23,62,423,9,251,14,30,11269
54,119750,274,125,41,302772,26305,1294,12383,4855,32691,15248,867,28684,369,8819,8384,4858,1362,4325,4
966,3026,3891,850,3118,4524,3391,1808,4020,978,4784,1,3146,5297,2054,918,875,1217,2975,6014,1,415,1141,
6291,1221,2653,2883,21,318,234,455,1292,1191,1344,2779,519,399,2277,8,2796,1593,1279,2212,202,37,291,14
9,1103,840,517,1474,48,820,3438,312,1132,4,3,2063,606,1839,184,1920,377,1947,747,429,1033,113,328,1284,
16,447,956,585,939,2247,473,1340,28,719,1039,3227,773,2072,7,1320,4279,2034,6513,2662,642,2450,2458,122
6,755,707,281,3653,1275,108,1246,1681,480,405,503,2,1913,1642,1883,249,265,1027,4392,225,996,830,840,18
0,2,290,1767,189,3,346,200,30,156,528,286,14,169,388,40,133,121,7,1190,471,217,126,1463,444,275,432,148
,3365,136,503,1,239,61,1238,8,441,26,130,1,698,2,116,3,2,52,127,228,570,21,31,243,208,391,96,120,380,17
2,178,90,2,340,2,427,50,142,28,827,66,129,294,130,2178,829,328,144,1,34,13,303,6,368,4,555,105,555,74,1
54,663,141,150,207,192,288,36,550,5838091,3275,1802618,4194968,2801054,549,333,444,1,2,80,1,900,896,1,8
,1,2,2551,1,748,141,59,736,563,1,4265,1,1,1,1,137,1,879,9,305,641,5,76,20,3,1,184,3,44,4,5,23963417,25'
,kBL:'ED6e'};google.sn='webhp';google.kHL='en-IN'});(function(){google.lc=[];google.li=0;google.getE
I=function(a){for(var b;a&&(a.getAttribute)||!(b=a.getAttribute("eid")));a=a.parentNode;return b}[goog
le.kEI];google.getLEI=function(a){for(var b=null;a&&(a.getAttribute)||!(b=a.getAttribute("leid")));a=a
.parentNode;return b}[google.ml=function()](return null);google.time=function()](return Date.now());goog
le.log=function(a,b,e,c,g){if(a=google.logUrl(a,b,e,c,g)){b=new Image;var d=google.lc,f=google.li;d[f]=b
;b.onerror=b.onload=b.onabort=function(){delete d[f];google.vel&&google.vel.lu&&google.vel.lu(a);b.src
=a;google.li=f+1}};google.logUrl=function(a,b,e,c,g){var d="",f=google.ls[""];e||-1!=b.search("&ei=")||
(d+"&ei="+google.getEI(c),-1==b.search("&ei=")&&(c=google.getEI(c))&&(d+="&ei="+c));c="";le&&google.
cshid&&-1==b.search("&cshid=")&&"sih"!=a&&(c+"&cshid="+google.cshid;a=e||"/"+(g||"gen_204")+"?atyp=l&c
t="+a+"&cad="+b+d+f+"&z="+google.time()+c;/http://i.test(a)&&"https"==window.location.protocol&&(goog
le.m(Error("a"),1,{src:a,glmm:1}),a="");return a}}).call(this);(function(){google.y=[];google.x=func
tion(a,b){if(a)var c=a.id;else{do c=Math.random();while(google.y[c])}google.y[c]=[a,b];return1};goog
le.ln=[];google.pln=function(a){google.ln.push.apply(google.ln,a)};google.lq=[];google.load=function(a,b,
c){google.lq.push([[a,b,c]]);google.loadAll=function(a,b){google.lq.push([a,b]);}).call(this);goog
le.f={};(function(){
document.documentElement.addEventListener("submit",function(b){var a;if(a=b.target){var c=a.getAttribut
```

Analysis:

Our experiment is working fine even if we send requests from more than one client here we have used 3 clients and sent 3 different requests to server and got “OK” replies from each of them in above picture 3 different terminals imply 3 different clients sending requests and they are handled properly.

Summary:

We've learnt what is socket programming and how it works to a good extent and implemented a model analogous to HTTP proxy server and clearly understood how messages are sent and received at both client and server ends and how proxy manages them. Our proxy acted as client for actual server and server for actual client which mediates the process of sending server request from client to server and received reply from server to client. Basically we have parsed server request from client and sent parsed request to server and collected reply from server and sent it to client using sockets. Mainly we have learnt how HTTP proxy server works and how socket programming works. Experiment was beneficial in learning about HTTP Proxy server works.