Kojo Acquah
A00384405

Assignment 3

1.

    a. Access to the locally stored data by third party and the ability to track user's information like behaviour on sites.

    b. Most current web browsers have a "private" browsing feature that allows the user to browser while actively blocking unwanted cookies and also clears the user's usage history after the browsing session ends.

2. This is explained by DNS's load distribution feature. The company likely has it's website replicated on at least 8 different servers, each with a unique IP address but all associated with www.example.com in the DNS directory. Thus, when a query is made to the host example.com, the DNS sends back the entire list of server addresses associated with the alias but rotates the list in an attempt to distribute the incoming traffic across all the servers.

3. While our connections are more reliable, UDP's lack of a congestion control feature would cause significant packet loss. It wouldn't be a surprise if an email attachment, as small as it was, was opened only to find incoherent text because data loss corrupted the file type rendering it useless. With applications such as email, we wouldn't have any way to confirm the success of transmission and can only count on the response from the recipient to confirm message delivery.

   Error response code in HTTP would then be harder to implement as a result of this same design flaw as they wouldn't be reliable. That means 404 error not found would be a thing of the past (or never) and when a server was not able to respond to a client's request, users would be left with silence with no idea what the underlying cause was. UDP also eliminates http's ability to establish persistent connection ...

4. This example assumes Alice and Bob's emails are on different email servers, mail **A** and mail **B**. Alice uses her email agent/client program to access her mailbox on server **A** (she may need to validate her identity using a username and password). She then uses the email agent to generate a new message and provides Bob's address as the recipient. The mail agent uses SMTP to send the message to mailserver **A** which also uses SMTP to forward the message to Bob's mailserver **B** which then places Alice's message into Bob's mailbox. In order for Bob to see the message on his host computer, he launches his mail client/agent and provides his credentials to access his mailbox on server **B**. Since Bob is using POP3, his mail agent downloads Alice's message from the message and the server deletes the online copy after this.

5. The link click will create the following chain of events: lookup the DNS for the server ($RTT_1...RTT_n$) (DNS Lookup) => use IP obtained from lookup to connect to server (handshake) => request the html object from the server (request resource) => look at the object and request each of the 8 objects referenced in it

    a. dns lookup + handshake + request html object + dns lookup + handshake + request ref obj 1 + dns lookup + handshake + ref obj 2 + dns lookup + handshake + ref obj 3 + dns lookup + handshake + ref obj 4 + dns lookup + handshake + ref obj 5 + dns lookup + handshake + ref obj 6 + dns lookup + handshake + ref obj 7 + dns lookup + handshake + ref obj 8

    $RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 = \underline{9(RTT_1...RTT_n + 2RTT_0)}$

    b. dns lookup + handshake + html object + dns lookup + handshake + ref obj (for 1-5) + dns lookup + handshake + ref obj (6-8)

    $RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_1...RTT_n + RTT_0 + RTT_0 = 3(RTT_1...RTT_n + 2RTT_0)$

    c. dns lookup + handshake + request html object + ref obj 1-8

    $RTT_1...RTT_n + RTT_0 + RTT_0 + RTT_0 =$

    $RTT_1...RTT_n + 3RTT_0$

6.

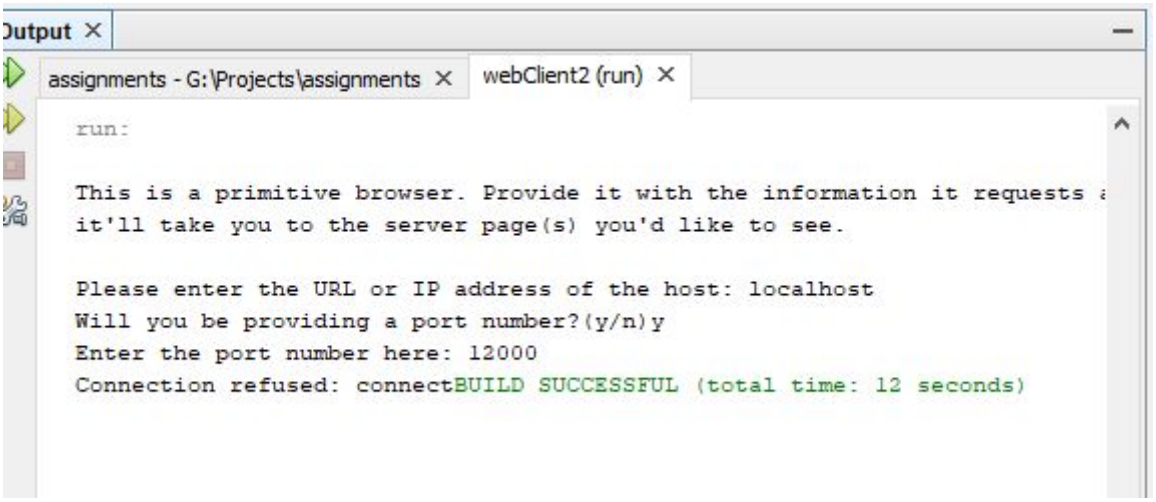
a. Wikipedia.org test, success

```
Output ×
assignments - G:\Projects\assignments ×   webClient2 (run) ×

run:

This is a primitive browser. Provide it with the information it requests and
it'll take you to the server page(s) you'd like to see.

Please enter the URL or IP address of the host: wikipedia.org
Will you be providing a port number?(y/n)n

The server is running on mw1244.eqiad.wmnet
<!DOCTYPE html>
<html lang="mul" class="no-js">
<head>
<meta charset="utf-8">
<title>Wikipedia</title>
<meta name="description" content="Wikipedia is a free online encyclopedia, created and edited by volunteers around t
<![if gt IE 7]>
<script>
document.documentElement.className = document.documentElement.className.replace( /(^|\s)no-js(\s|$)/, "$1js-enabled$
</script>
<![endif]>
<!--[if lt IE 7]><meta http-equiv="imagetoolbar" content="no"><![endif]-->
<meta name="viewport" content="initial-scale=1,user-scalable=yes">
<link rel="apple-touch-icon" href="/static/apple-touch/wikipedia.png">
<link rel="shortcut icon" href="/static/favicon/wikipedia.ico">
<link rel="license" href="//creativecommons.org/licenses/by-sa/3.0/">
<style>
.sprite{background-image:url(portal/wikipedia.org/assets/img/sprite-556af1a5.png);background-image:linear-gradient(t
</style>
<style>
/*!
```

www.smu.ca connection test, success

```
Output ×
assignments - G:\Projects\assignments ×   webClient2 (run) ×

run:

This is a primitive browser. Provide it with the information it requests and
it'll take you to the server page(s) you'd like to see.

Please enter the URL or IP address of the host: www.smu.ca
Will you be providing a port number?(y/n)n

The server is running on Apache/2.2.15 (Red Hat)
<!doctype html>
<!-- HTML5 Boilerplate -->
<!--[if lt IE 7]><html class="no-js lt-ie9 lt-ie8 lt-ie7" lang="en"> <![endif]-->
<!--[if (IE 7)&!(IEMobile)]><html class="no-js lt-ie9 lt-ie8" lang="en"><![endif]-->
<!--[if (IE 8)&!(IEMobile)]><html class="no-js lt-ie9" lang="en"><![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en"><!--<![endif]-->

<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta charset="utf-8">

<title>Saint Mary's University | Home</title>

<!-- metatags -->
<meta name="description" content="">

<meta name="HandheldFriendly" content="True">
<meta name="MobileOptimized" content="320">
```

Private server, localhost:12000, refused



The output received is the content of the html file, usually names index.html.

Self-Evaluation

1. Yes. Roughly 80%

2. Question 5 was a bit confusing regarding factoring in the handshake but after referring to the text I concluded it was best to include it in the whole calculation. The next issue was I wasn't able to complete my webserver from the previous assignment so I had to improvise with the code provided in the text however it wasn't able to accept http requests. The final task was also not clear

3. I forgot to start tracking any of this. My strategy was to try following the class and answer the questions after each lecture.