Linnéuniversitetet
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Report

Assignment 1

1DV701

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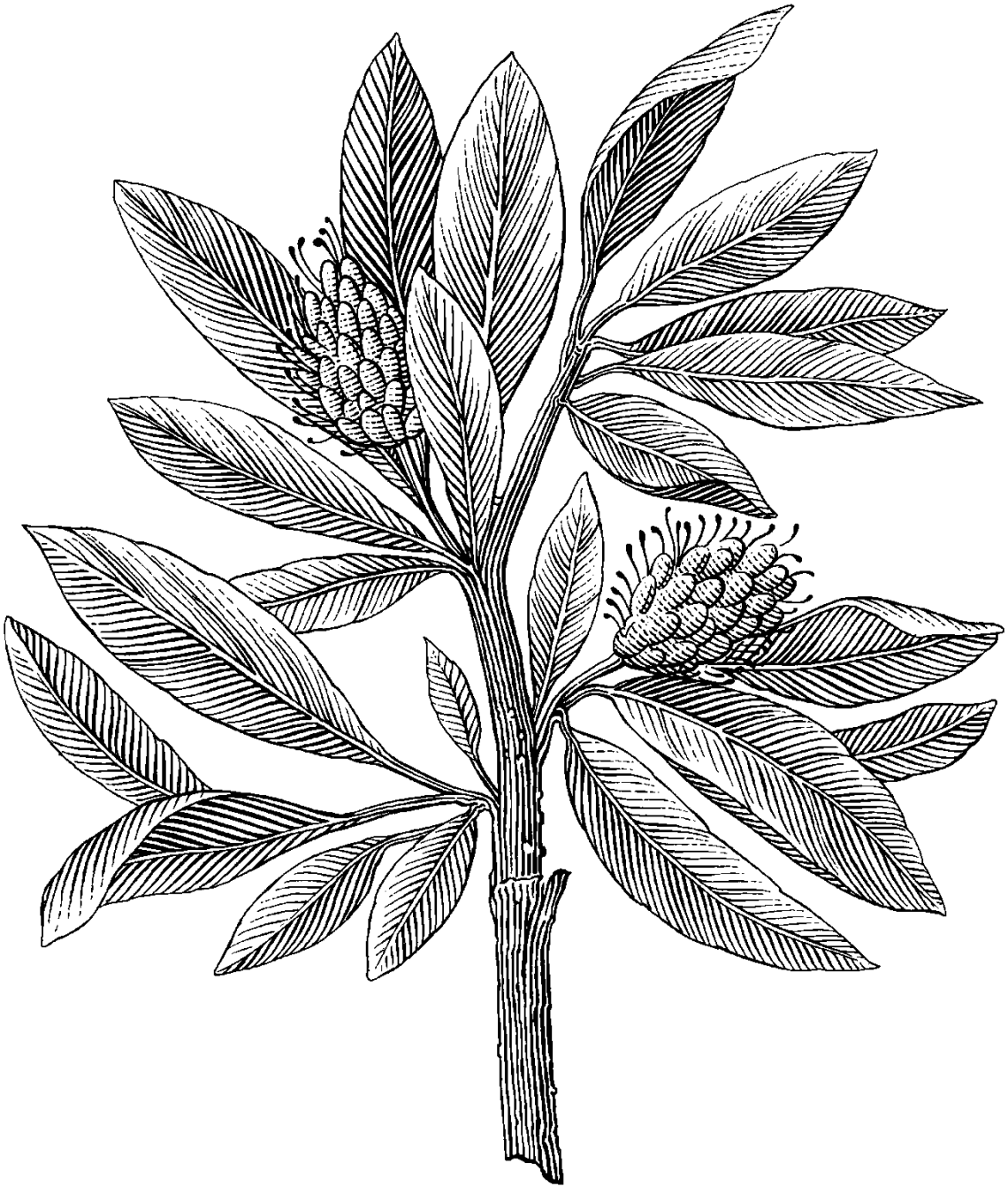

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1 Problem 1

T1_1:

- TCP: Transmission Control Protocol: is a standard that explains how to set up and protect a network conversation by where applications can transfer data. It is a safer way to transfer data to ensure that the data is delivered.
- DNS: Domain name system protocol is used to us by converting the websites from numerical Ip addresses to letter so we can read it.
- TLSv1.2: “Transport layer security” it helps the client and the server to communicate over a secured layer, where data transformation is encrypted and can only be understood by the involved parties not by intrusions.
- ARP: address resolution protocol, it shows the Ip address and mac address and even the type of connection.

T1_2:

The reason why there are different amounts of ipv4 and ipv6 is some of the websites do not support ipv6 and the most commonly used Ip is ipv4. the Ip address of the DNS I was connected to is 172.27.129.124

T1-3:

The protocols that are used in UDP are DNS and QUIC.

- DNS: Domain name system protocol is used to us by converting the websites from numerical Ip addresses to letter so we can read it.
- QUIC: “Quick UDP Internet Connections “ it is a transport layer designed by google and the its goal is to reduce latency.
- UDP: “user datagram protocol” it is a transport layer used to maintain low latency and loss tolerating connections between applications and the internet. UDP is also stateless protocol i.e., it doesn’t acknowledge if the packets that have been sent has been received

2 Problem 2

T2-1

My machine IP address is 172.27.134.47 and the destination’s address is 209.197.3.8.
I observe that the HTTP request message happens once at a time and that it first connects to a server as it the “path” and then it does the query which it is the message.

T2-2

As I see, the status code is 206 and the content length is 65536 bytes and last-modified: Thu, 26 May 2022 21:33:42 GMT\r\n.
The status code is a response from the server to the client and content length is the length of the message and when it is modified last time.

3 Problem 3

T3-1

I see that GET requests have different lengths but also not that big difference. As for the response messages I see that most of them have the same status code but also there are multiple RMs that have another code such as 404, 200.
I think what is happening is that when I try to connect to the destination server, I don't always find my "request" and sometimes I do.

4 Problem 4

T4-1

There is only one request[1].
It is one packet; the total packet size is 554 bytes which referred to "Frame" and the reason for that is that the internet protocol has 550 of which means that the frame header has size of 14 bytes and the headers been added from the application layer up to the link layer and each layer's header adds it size to the previous layer [2].

T4-2

We know that TCP checks during transferring where the packets have arrived or not so in long files the TCP keep requesting them in case it goes missing and makes sure the whole file arrives. The grounds that HTTP is layered directly on TCP, it makes HTTP transactions performance seriously dependent on underlying TCP's performance.

T4-3

In my case I've got http status code 200 and 404. Status code 200 indicates that the client has requested packets from the server and that the server has replied to the client and given it the packets without disruption, it called *successful responses*, and it goes from 200- 299. Code 404 *not found*, it means that the server wasn't able to find the requested resources, it has different appearance meanings for instance in browser it means that the URL was not recognized.

5 Problem 5

T5-1

As I see at first when I clicked on the link, I got 401 status code which means unauthorized i.e. I don't have access to reach the resource on that server, at the second attempt when I entered the correct username and password, I got access and got status code 200 which means access granted. As I did the previous steps, I noticed that the server was protected properly, and I don't see any problems with this password protection.

[1] See image 2
[2] See image 1

Image

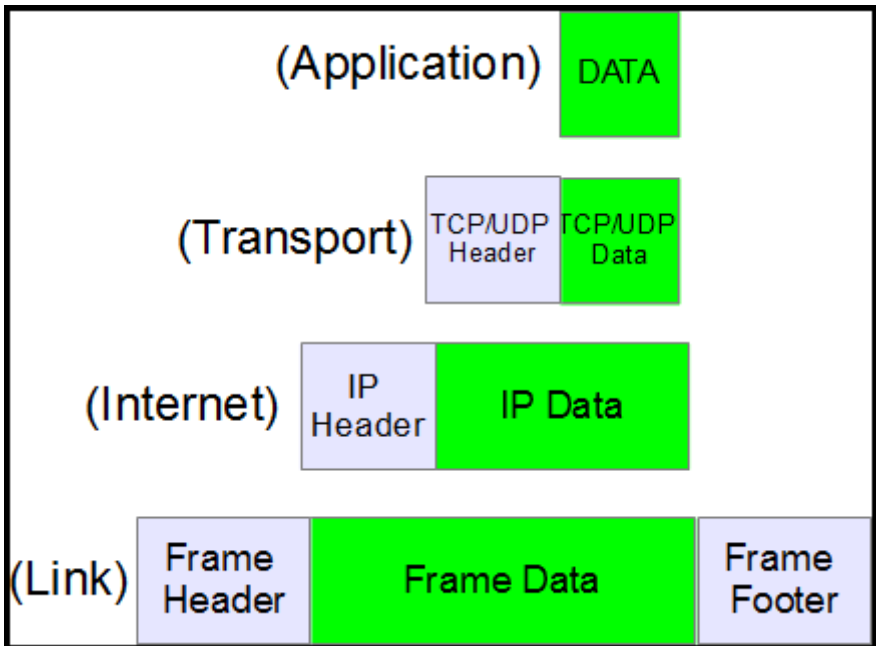

image 1

No.	Time	Source	Destination	Protocol	Length	Info
7	0.119202	172.27.134.47	128.119.245.12	HTTP	554	GET /wireshark-labs/HTTP-wireshark-file3.html HTT
13	0.240748	128.119.245.12	172.27.134.47	HTTP	826	HTTP/1.1 200 OK (text/html)

image 2

Reference

- What is User Datagram Protocol (UDP)? Definition from SearchNetworking (techtarget.com)
- QUIC (Quick UDP Internet Connections) (es.net)
- All you need to know about TLSv1.2 (oracle.com)
- What is Transmission Control Protocol (TCP)? Definition from SearchNetworking (techtarget.com)