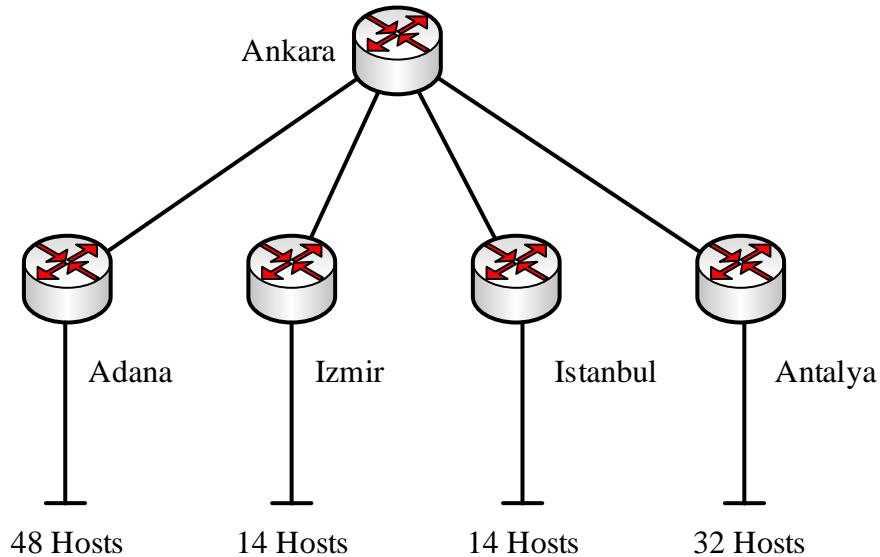




EXERCISE SHEET 4 – VLSM and TCP Connection Management

Task 1

The IT department of a company has received a class C network with the network address 196.15.1.0 for structuring the network, the requirement profile of which is illustrated in the following figure:



Note: Do not use a calculator to solve this problem!

Design an addressing scheme using VLSM (Variable Length Subnet Mask) considering all subnetworks (including router-router connections). Fill out the table below.

Assumption: The subnet in which all additional network bits have the bit value 0 can be used.

Subnet ID	Subnet address	Address range for stations	Broadcast address
Ankara			
Adana			
Izmir			
Istanbul			
Antalya			
Ankara ⇄ Adana			
Ankara ⇄ Izmir			
Ankara ⇄ Istanbul			
Ankara ⇄ Antalya			



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Task 2

The following message exchange of a connection between an HTTP server and an HTTP client is given:

Nr.	Data Length	Src. Port	Dst. Port	Seq. Nr.	Ack. Nr.	Flags
1	0	1000	80	3459	0	SYN
2	0	80	1000	8656	3460	ACK SYN
3	0	1000	80	3460	8657	ACK
4	676	1000	80	3460	8657	ACK PSH
5	0	80	1000	8657	4136	ACK
6	247	80	1000	8657	4136	ACK PSH
7	0	1000	80	4136	8904	ACK
8	171	80	1000	8904	4136	ACK PSH
9	0	80	1000	9075	4136	ACK FIN
10	0	1000	80	4136	9076	ACK
11	0	1000	80	4136	9076	ACK FIN
12	0	80	1000	9076	4137	ACK

Follow the exchange of messages in the table above using the state transition diagram for client and server. Assume that the client and server are initially in the closed state, the server receives the passive OPEN command and the client receives the active OPEN command.

To do this, create a table for the client and server with the columns “Status”, “Input”, “Output”, and “Subsequent Status” (indicate the number of the sent / received message in brackets).