

Roll Number	20ECR071	Course Code	20ECL62
Name	KARTEESWAR K P	Course Name	Data Communication and Internetworking Laboratory
Experiment No.	3 b	Experiment Name	SUBNETTING USING IPV4
Image caption	IPV4 Class A subnetting.		

IPV4 Addressing - Subnetting

Mode

☒ Sample

☐ User

Input

☒ Class A

☐ Class B

☐ Class C

Network Address . . .

No. of Subnets

Host IP Address 1. . .

Action

Run

Refresh

Step 1 : Calculation of Subnet Mask

Default Mask : 255.0.0.0 ->

Subnet Mask Bit $\lceil \log(\text{No. of subnets}) / \log(2) \rceil = 2$ So, replace 2 zerobits in the host p

Subnet Mask : 255.192.0.0 ->

Step 2 : Calculation of No. of hosts in each subnet

Number of zeros in the host portion of the subnet mask : 22

Number of Hosts in each Subnet : $2^{22-2} \rightarrow 4194302$

Step 3: Address Allocation in each subnet

Subnet No	Subnet Address	Starting Address	Ending Address
1	1.0.0.0	1.0.0.1	1.63.255.254
2	1.64.0.0	1.64.0.1	1.127.255.254
3	1.128.0.0	1.128.0.1	1.191.255.254
4	1.192.0.0	1.192.0.1	1.255.255.254

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Image caption	IPV4 Class B subnetting.		

IPV4 Addressing - Subnetting

Mode

☒ Sample ☐ User

Input

☐ Class A ☒ Class B ☐ Class C

Network Address . . 0 . 0

No. of Subnets

Host IP Address . . .

Action

Run

Refresh

Step 1 : Calculation of Subnet Mask

Default Mask : 255.255.0.0 -> Network Portion

Subnet Mask Bit $\lceil \log(\text{No. of subnets}) / \log(2) \rceil = 2$ So, replace 2 zerobits in the

Subnet Mask : 255.255.192.0 -> Network Portion

Step 2 : Calculation of No. of hosts in each subnet

Number of zeros in the host portion of the subnet mask : 14

Number of Hosts in each Subnet : $2^{14}-2$ -> 16382

Step 3: Address Allocation in each subnet

Subnet No	Subnet Address	Starting Address	Ending Address
1	130.1.0.0	130.1.0.1	130.1.63.254
2	130.1.64.0	130.1.64.1	130.1.127.254
3	130.1.128.0	130.1.128.1	130.1.191.254
4	130.1.192.0	130.1.192.1	130.1.255.254

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Image caption	IPv4 Class C subnetting.		

Mode

Sample

User

Input

Class A

Class B

Class C

Network Address

194

.

1

.

1

.

0

No. of Subnets

4

Host IP Address

194.

1.

1.

4

Action

Run

Refresh

Step 1 : Calculation of Subnet Mask

Default Mask

:

255.255.255.0

->

11111111 11111111 11111111

Subnet Mask Bit

[log(No. of subnets)/log(2)]

=

2

So , replace

2

zerobits in the

Subnet Mask

:

255.255.255.192

->

11111111 11111111 11111111 11

Step 2 : Calculation of No. of hosts in each subnet

Number of zeros in the host portion of the subnet mask :

6

Number of Hosts in each Subnet

:

$2^6 - 2$

->

62

Step 3: Address Allocation in each subnet

Subnet No	Subnet Address	Starting Address	Ending Address
1	194.1.1.0	194.1.1.1	194.1.1.62
2	194.1.1.64	194.1.1.65	194.1.1.126
3	194.1.1.128	194.1.1.129	194.1.1.190
4	194.1.1.192	194.1.1.193	194.1.1.254