**COMPUTER NETWORKS**

**Lab 7**

**Subnetting (FLSM & VLSM)**



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**Problem No.1 /30**

For the given IPs fill the following table for first 4 subnets.

1. **IP = 85.0.0.0 for 770 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 770 | 85.0.0.0 | 255.255.192.0 | 85.0.0.1 | 85.0.0.2 | 85.0.63.254 | 85.0.63.255 |
| 770 | 85.0.64.0 | 255.255.192.0 | 85.0.64.1 | 85.0.64.2 | 85.0.127.254 | 85.0.127.255 |
| 770 | 85.0.128.0 | 255.255.192.0 | 85.0.128.1 | 85.0.128.2 | 85.0.191.254 | 85.0.191.255 |
| 770 | 85.0.192.0 | 255.255.192.0 | 85.0.192.1 | 85.0.192.2 | 85.0.255.254 | 85.0.255.255 |

1. **IP = 188.88.0.0 for 300 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 300 | 188.88.0.0 | 255.255.255.128 | 188.88.0.1 | 188.88.0.2 | 188.88.0.126 | 188.88.0.127 |
| 300 | 188.88.0.128 | 255.255.255.128 | 188.88.0.129 | 188.88.0.130 | 188.88.255.255 | 188.88.1.0 |
| 300 | 188.88.1.0 | 255.255.255.128 | 188.88.1.1 | 188.88.1.2 | 188.88.1.126 | 188.88.1.127 |
| 300 | 188.88.1.128 | 255.255.255.128 | 188.88.1.129 | 188.88.1.130 | 188.88.1.254 | 188.88.1.255 |

1. **IP = 207.13.137.0 for 4 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 4 | 207.13.137.0 | 255.255.255.192 | 207.13.137.1 | 207.13.137.2 | 207.13.137.62 | 207.13.137.63 |
| 4 | 207.13.137.64 | 255.255.255.192 | 207.13.137.65 | 207.13.137.66 | 207.13.137.126 | 207.13.137.127 |
| 4 | 207.13.137.128 | 255.255.255.192 | 207.13.137.129 | 207.13.137.130 | 207.13.137.190 | 207.13.137.191 |
| 4 | 207.13.137.192 | 255.255.255.192 | 207.13.137.193 | 207.13.137.194 | 207.13.137.254 | 207.13.137.255 |

**Problem No.2 /30**

For the following IPs do the subnetting as per the no. of hosts given and fill the following table.

1. **IP = 19.0.0.0 for 40000, 212000 , 66000 , 90000 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **212000** | 19.0.0.0 | 255.252.0.0 | 19.0.0.1 | 19.0.0.2 | 19.3.255.254 | 19.3.255.255 | 262144 |
| **90000** | 19.4.0.0 | 255.254.0.0 | 19.4.0.1 | 19.4.0.2 | 19.5.255.254 | 19.5.255.255 | 131072 |
| **66000** | 19.6.0.0 | 255.254.0.0 | 19.6.0.1 | 19.6.0.2 | 19.7.255.254 | 19.7.255.255 | 131072 |
| **40000** | 19.8.0.0 | 255.255.0.0 | 19.8.0.1 | 19.8.0.2 | 19.8.255.254 | 19.8.255.255 | 65536 |

1. **IP = 162.97.0.0 for 8000 , 17000 , 6000 , 500 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **17000** | 162.97.0.0 | 255.255.128.0 | 162.97.0.1 | 162.97.0.2 | 162.97.127.254 | 162.97.127.255 | 32768 |
| **8000** | 162.97.128.0 | 255.255.224.0 | 162.97.128.1 | 162.97.128.2 | 162.97.149.254 | 162.97.149.255 | 8192 |
| **6000** | 162.97.160.0 | 255.255.224.0 | 162.97.160.1 | 162.97.160.2 | 162.97.191.254 | 162.97.191.255 | 8192 |
| **500** | 162.97.192.0 | 255.255.254.0 | 162.97.192.1 | 162.97.192.2 | 162.97.193.254 | 162.97.193.255 | 512 |

1. **IP = 200.113.12.0 for 5 , 41, 21 , 18 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **41** | 200.113.12.0 | 255.255.255.192 | 200.113.12.1 | 200.113.12.2 | 200.113.12.62 | 200.113.12.63 | 64 |
| **21** | 200.113.12.64 | 255.255.255.224 | 200.113.12.65 | 200.113.12.66 | 200.113.12.94 | 200.113.12.95 | 32 |
| **18** | 200.113.12.96 | 255.255.255.224 | 200.113.12.97 | 200.113.12.98 | 200.113.12.126 | 200.113.12.127 | 32 |
| **5** | 200.113.12.128 | 255.255.255.248 | 200.113.12.129 | 200.113.12.130 | 200.113.12.134 | 200.113.12.135 | 8 |

**Once you’re done with exercise, make submission on google classroom ☺**