Lab Work 05 Report:  
IPv4 Subnetting (Classes, CIDR, VLSM).

|  |  |  |
| --- | --- | --- |
| **Student Name Surname** | **Student ID** | **Date** |
|  |  |  |

3.1. Create your variant of the tasks

**3.1.1. Generate the node IP-address / subnet prefix for tasks 2.2 and 2.3.**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Step description** | |
| a) |  | |
| b) |  | |
| c) |  | |
| d) |  | |
| e) |  | |
| f) |  | |
|  | Your variant IP/prefix: |  |

**3.1.2. Generate the variant for task 2.4 (table 1).**

|  |  |  |
| --- | --- | --- |
|  | Your variant Nr: |  |

3.2. Find the basic parameters of the specified subnet.

**Your IP/prefix:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Nr** | **Parameters** | **Value of Dot-Dec** | **Value of Dot-Bin** |
| 1. a | 1. Address: |  |  |
| 1. b | 1. Class: |  |  |
| 1. c | 1. Netmask: |  |  |
| 1. d | 1. Wildcard: |  |  |
| 1. e | 1. Hosts: |  |  |
| 1. f | 1. Network: |  |  |
| g | 1. Gateway: |  |  |
| 1. h | 1. Host Min: |  |  |
| 1. i | Host Max: |  |  |
| 1. j | 1. Broadcast: |  |  |

3.3. Verify that the subnet parameters are correct.

**Screenshot IP Calculator Window with your variant data**

3.4. Split the enterprise network into subnets.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variant** | **Origin network (addresses block)** | **Number of computers in departments** | | |
| **A** | **B** | **C** |
|  |  |  |  |  |

**3.4.1. Make the optimal network splitting to the subnets.**

**The Result of Subnetting:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Blocks** | **Need IP** | **S** | **H** | **IP/prefix** | **Remain** | **Possible IP** |
| 1. Subnet A |  |  |  |  |  |  |
| 1. Subnet B |  |  |  |  |  |  |
| 1. Subnet C |  |  |  |  |  |  |
| 1. Subnet D |  |  |  |  |  |  |
| 1. Subnet E |  |  |  |  |  |  |
| 1. Subnet F |  |  |  |  |  |  |
| 1. Subnet G |  |  |  |  |  |  |
| 1. Reserved block 1 |  |  |  |  |  |  |
| 1. Reserved Block 2 |  |  |  |  |  |  |
| 1. … |  |  |  |  |  |  |

**Summary diagram of the enterprise network with labelled subnets.**

**3.4.2. Describe the following parameters for each of the 7 subnets:**

**Subnet A**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet B**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet C**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet D**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet E**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet F**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**Subnet G**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Subnet Address BIN: |  |
| 1. b | 1. Subnet Address DEC: |  |
| 1. c | 1. Subnet Prefix: |  |
| 1. d | 1. Subnet Mask BIN: |  |
| 1. e | 1. Subnet Mask DEC: |  |
| 1. f | 1. Subnet Broadcast: |  |
| 1. g | 1. Subnet Gateway: |  |
| 1. h | Subnet Host Count Pos: |  |
| 1. i | 1. Subnet Host Count Use: |  |
| 1. j | 1. Subnet Host Count Free: |  |

**3.4.3. Describe the enterprise allocated address space:**

|  |  |  |
| --- | --- | --- |
| **Nr** | **Parameters** | **Value** |
| 1. a | 1. Enterprise All IP Count: |  |
| 1. b | 1. Enterprise Used IP Count: |  |
| 1. c1 | 1. Enterprise Reserved Block 1 (IP/prefix): |  |
| 1. c2 | 1. Enterprise Reserved Block 2 (IP/prefix): |  |
| 1. … |  |  |
| 1. cN |  |  |
| 1. d | 1. Department A, B, C Free IP: |  |
| 1. e | 1. Enterprise Used / Free / Reserved: |  |
| 1. f | 1. Loss IP Count by an enterprise due to subnetting, quantity: |  |
| 1. g | 1. Loss IP % by an enterprise due to subnetting, percent: |  |