Data Communication Networking

PROJECT REPORT

Project Name:

IP Calculator

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Flow of Project:

First the program will let user choose which addressing you want to do

- Classful
- Classless.

Classful:

In Classful program, you have to give IP Address and number of networks required as input. After that calculations will be performed. As an output you will get class of the IP, network address, first & last host address and broadcast address of that Ip address that we use as an input. Moreover, it will also give other network address within the range of Ip. As user is using classful, default subnet mask of the Ip address will be used for all calculations.

Classless:

In Classless program will take IP Address and variable subnet. As user is using Classless so all the calculations will be performed with respect to given subnet mask. As a result, program will give network address of IP, first & last address and broadcast address and calculated subnet mask with respect to given Ip.

Flow of Coding:

After taking all inputs, program will separate the 4 octets of given IP and first it will go for the IP class by checking value of 1st Octet. then all 4 octets are sent for further calculation.

Classful using FLSM:

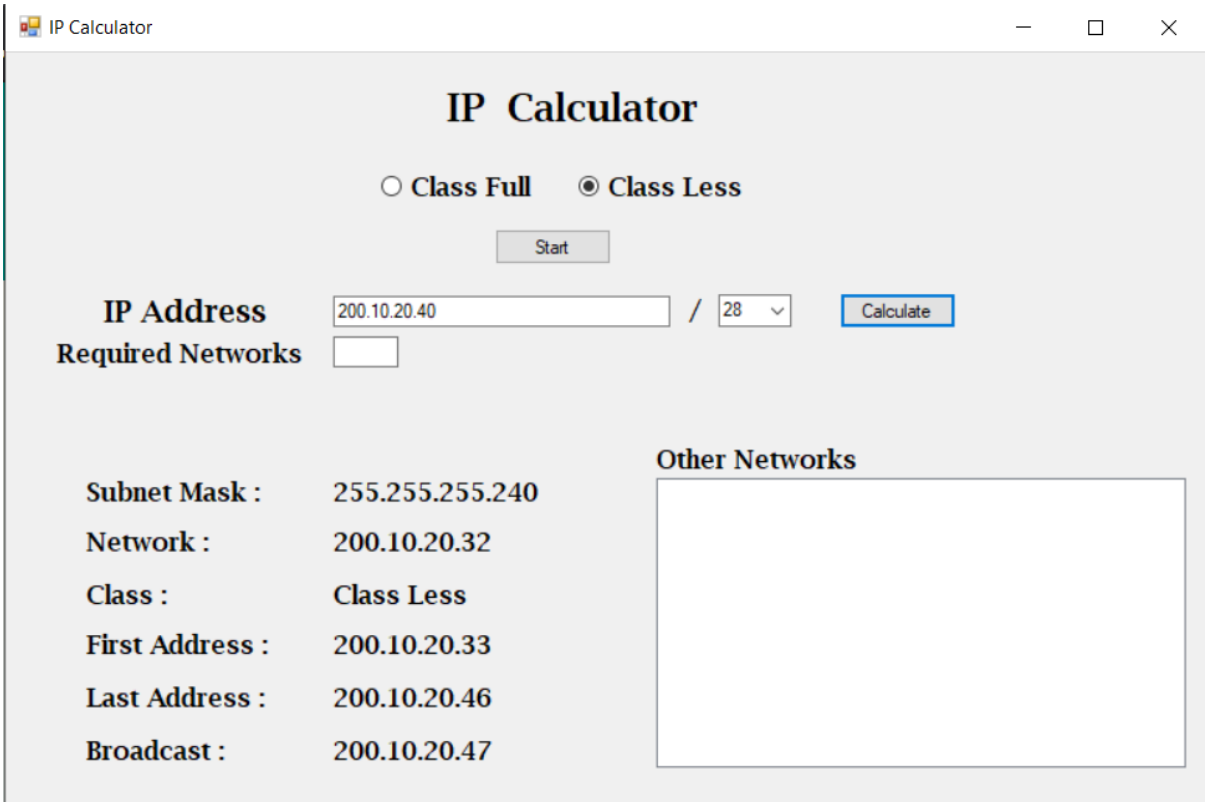
In Classful addressing program will take the octets (with respect to the Ip class for hosts). Convert them into binary. It will check n in 2^n w.r.t the required number of networks exists and will give the no of hosts(bits of octets of hosts) like if we require 5 networks so we will take 3 as power of 2 so it will leave 3 bits of octet of hosts and then it will make combinations of 3 bits like 000,001,010,011,..... and by taking each combination it will first set all the remaining bits to zero to calculate network address of the Ip then set the last bit to 1 to calculate 1st host address and set all remaining bits to 1 except last bit to calculate last address and then set all bits to 1 to calculate broadcast address. The calculation will be done by the power of 2 to each bit of octet. it will calculate subnet mask. The power of 2 start from 7 to 0. The 7 power of 2 in applied on 1st bit from left and decreased by applying on each bit of octet.

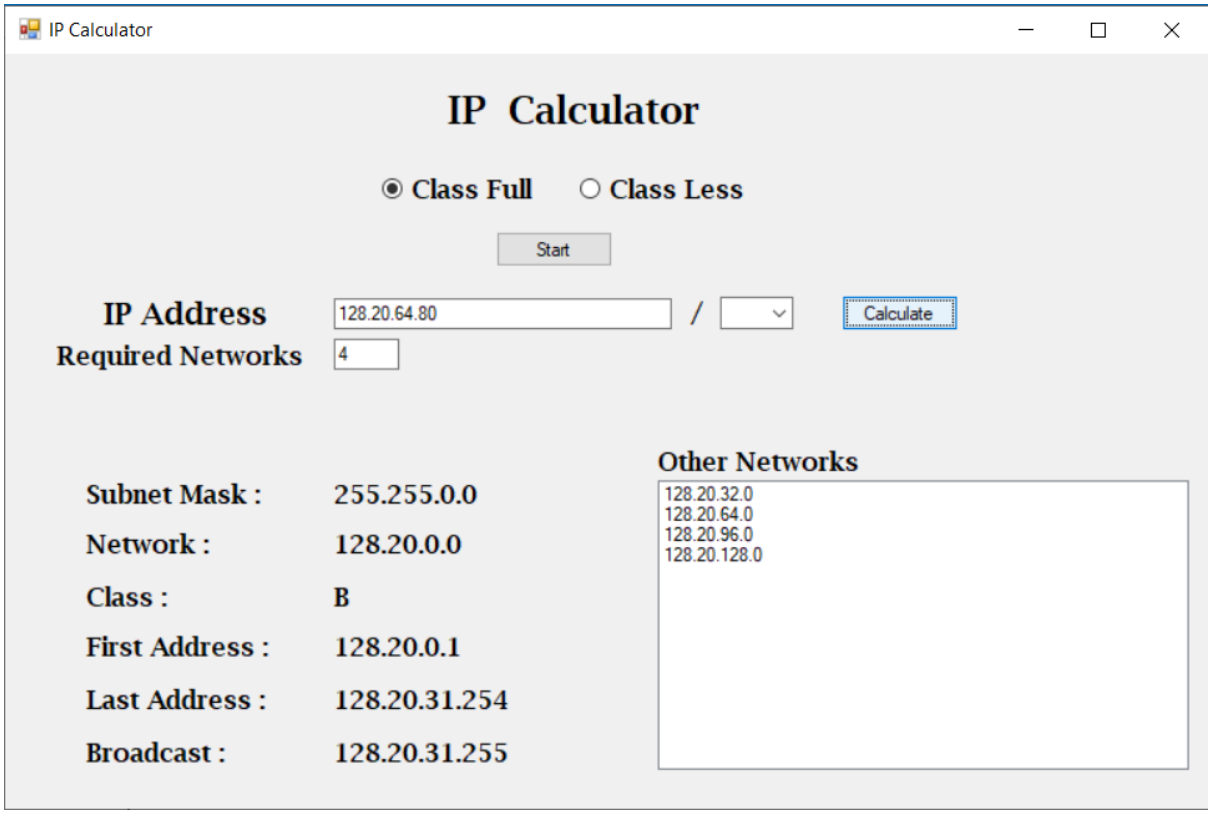
Classless using VLSM:

In Classless addressing program will take the octets which are for hosts by checking class of IP and convert it into binary. Now program will calculate the difference between the fixed length of class of IP and the given subnet and will give number of bits of octets of hosts. Now it will first set all the remaining bits to zero to calculate network of IP and then set the last bit to 1 to calculate 1st address and then set all remaining bits to 1 except last bit to calculate last address and then set all bits to 1 to calculate

broadcast address. The calculation will done by the power of 2 to each bit of octet. Then by applying the power of 2 on the bits which it leaves, it will calculate subnet mask.

Snapshots:




IP Calculator
IP Calculator
Class Full
Class Less
Start
IP Address
128.20.64.80
/
Calculate
Required Networks
4
Other Networks
128.20.32.0
128.20.64.0
128.20.96.0
128.20.128.0
Subnet Mask :
255.255.0.0
Network :
128.20.0.0
Class :
B
First Address :
128.20.0.1
Last Address :
128.20.31.254
Broadcast :
128.20.31.255