

BCSE 308 P -COMPUTER NETWORKS LAB

Register Number	21BCE1955	Subject Code	BCSE 308P
Name of the Student	VAIBHAV BANKA	Subject Name	COMPUTER NETWORKS LAB
Programme	BTECH	Slot	L1+L2
Course	CSE	Semester	IV

Ex No : 8

CODE

```
a=input("Enter the IP address: ")
l=a.split(".")
print(l)
flag=1
afa=a.split(".")
ala=a.split(".")
if (len(l)==4):
    for i in range(len(l)):
        if(0<=int(l[i])<=255):
            flag=1
        else:
            flag=0
            break
if(flag==1):
    print("Valid")
    if("0"<=l[0]<="127"):
        print("Class A")
        l[0]="255"
        l[1]=l[2]=l[3]="0"
        print("No of hosts:",2**24)
        print("Mask is:",l)
        print("\n\n")
        user=int(input("Enter the number of sub-networks: "))
        u=user
        count=0
        while(user!=1):
            user=user/2
            count+=1
        hosts=24-count
        print("No of hosts:",2^hosts)
        for i in range(0,u):
            print("Subnet network ",i)
            afa[1]=str((256*i)/u)
            afa[2]=afa[3]=str(0)
```

```

        print("    First Address: ",afa)
        ala[1]=str((256*(i+1)/u)-1)
        ala[2]=ala[3]=str(255)
        print("    Last Address: ",ala)
elif("128"<=l[0]<="191"):
    print("Class B")
    l[0]=l[1]="255"
    l[2]=l[3]="0"
    print("No of hosts:",2**16)
    print("Mask is:",l)
    print("\n\n")
    user=int(input("Enter the number of sub-networks: "))
    u=user
    count=0
    while(user!=1):
        user=user/2
        count+=1
    hosts=16-count
    print("NO of hosts:",2^hosts)
    for i in range(0,u):
        print("Subnet network ",i)
        afa[2]=str((256*i)/u)
        afa[3]=str(0)
        print("    First Address: ",afa)
        ala[2]=str(((256*(i+1))/u)-1)
        ala[3]=str(255)
        print("    Last Address: ",ala)
elif("192"<=l[0]<="223"):
    print("Class C")
    l[0]=l[1]=l[2]="255"
    print("No of hosts:",2**8)
    l[3]="0"
    print("Mask is:",l)
    print("\n\n")
    user=int(input("Enter the number of sub-networks: "))
    u=user
    count=0
    while(user!=1):
        user=user/2
        count+=1
    hosts=8-count
    print("No of hosts:",2^hosts)
    for i in range(0,u):
        print("Subnet network ",i)
        afa[3]=str((256*i)/u)
        print("    First Address: ",afa)
        ala[3]=str(((256*(i+1))/u)-1)
        print("    Last Address: ",ala)

```

```
elif("224"<=l[0]<="239"):  
    l[0]=l[1]=l[2]=l[3]="255"  
    print("Mask is:",l)  
    print("Class D")  
elif("240"<=l[0]<="255"):  
    print("Class E")  
else:  
    print("Invalid IP Address")  
else:  
    print("Invalid IP Address")
```

OUTPUTS

- a) Write a program to find the validity, class, subnet mask and the number of hosts in the network from the given IP address.

```
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 120.18.45.12
['120', '18', '45', '12']
Valid
Class A
No of hosts: 16777216
Mask is: ['255', '0', '0', '0']
```

```
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 151.12.18.09
['151', '12', '18', '09']
Valid
Class B
No of hosts: 65536
Mask is: ['255', '255', '0', '0']
```

```
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 256.32.12.14.32
['256', '32', '12', '14', '32']
Invalid IP Address
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 256.32.32.1456
['256', '32', '32', '1456']
Invalid IP Address
PS C:\Users\vaibh\OneDrive\Desktop\check> █
```

- b) Write a program to create 'n' sub networks from the given IP address and Display all Subnet addresses with the first and last addresses in the subnet block.

```
PS C:\Users\vaibh> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 200.12.09.18
['200', '12', '09', '18']
Valid
Class C
No of hosts: 256
Mask is: ['255', '255', '255', '0']
```

```
Enter the number of sub-networks: 16
No of hosts: 6
Subnet network 0
  First Address: ['200', '12', '09', '0.0']
  Last Address: ['200', '12', '09', '15.0']
Subnet network 1
  First Address: ['200', '12', '09', '16.0']
  Last Address: ['200', '12', '09', '31.0']
Subnet network 2
  First Address: ['200', '12', '09', '32.0']
  Last Address: ['200', '12', '09', '47.0']
Subnet network 3
  First Address: ['200', '12', '09', '48.0']
  Last Address: ['200', '12', '09', '63.0']
Subnet network 4
  First Address: ['200', '12', '09', '64.0']
  Last Address: ['200', '12', '09', '79.0']
Subnet network 5
  First Address: ['200', '12', '09', '80.0']
  Last Address: ['200', '12', '09', '95.0']
Subnet network 6
  First Address: ['200', '12', '09', '96.0']
  Last Address: ['200', '12', '09', '111.0']
Subnet network 7
  First Address: ['200', '12', '09', '112.0']
  Last Address: ['200', '12', '09', '127.0']
Subnet network 8
  First Address: ['200', '12', '09', '128.0']
  Last Address: ['200', '12', '09', '143.0']
```

```
Subnet network 9
  First Address: ['200', '12', '09', '144.0']
  Last Address: ['200', '12', '09', '159.0']
Subnet network 10
  First Address: ['200', '12', '09', '160.0']
  Last Address: ['200', '12', '09', '175.0']
Subnet network 11
  First Address: ['200', '12', '09', '176.0']
  Last Address: ['200', '12', '09', '191.0']
Subnet network 12
  First Address: ['200', '12', '09', '192.0']
  Last Address: ['200', '12', '09', '207.0']
Subnet network 13
  First Address: ['200', '12', '09', '208.0']
  Last Address: ['200', '12', '09', '223.0']
Subnet network 14
  First Address: ['200', '12', '09', '224.0']
  Last Address: ['200', '12', '09', '239.0']
Subnet network 15
  First Address: ['200', '12', '09', '240.0']
  Last Address: ['200', '12', '09', '255.0']
PS C:\Users\vaibh>
```

```
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 151.32.52.36
['151', '32', '52', '36']
Valid
Class B
No of hosts: 65536
Mask is: ['255', '255', '0', '0']
```

```
Enter the number of sub-networks: 8
No of hosts: 15
Subnet network 0
  First Address: ['151', '32', '0.0', '0']
  Last Address: ['151', '32', '31.0', '255']
Subnet network 1
  First Address: ['151', '32', '32.0', '0']
  Last Address: ['151', '32', '63.0', '255']
Subnet network 2
  First Address: ['151', '32', '64.0', '0']
  Last Address: ['151', '32', '95.0', '255']
Subnet network 3
  First Address: ['151', '32', '96.0', '0']
  Last Address: ['151', '32', '127.0', '255']
Subnet network 4
  First Address: ['151', '32', '128.0', '0']
  Last Address: ['151', '32', '159.0', '255']
Subnet network 5
  First Address: ['151', '32', '160.0', '0']
  Last Address: ['151', '32', '191.0', '255']
Subnet network 6
  First Address: ['151', '32', '192.0', '0']
  Last Address: ['151', '32', '223.0', '255']
Subnet network 7
  First Address: ['151', '32', '224.0', '0']
  Last Address: ['151', '32', '255.0', '255']
PS C:\Users\vaibh\OneDrive\Desktop\check>
```

```
PS C:\Users\vaibh\OneDrive\Desktop\check> python -u "c:\Users\vaibh\OneDrive\Desktop\check\cnlab8a.py"
Enter the IP address: 200.9.18.12
['200', '9', '18', '12']
Valid
Class C
No of hosts: 256
Mask is: ['255', '255', '255', '0']
```

```
Enter the number of sub-networks: 4
No of hosts: 4
Subnet network 0
  First Address: ['200', '9', '18', '0.0']
  Last Address: ['200', '9', '18', '63.0']
Subnet network 1
  First Address: ['200', '9', '18', '64.0']
  Last Address: ['200', '9', '18', '127.0']
Subnet network 2
  First Address: ['200', '9', '18', '128.0']
  Last Address: ['200', '9', '18', '191.0']
Subnet network 3
  First Address: ['200', '9', '18', '192.0']
  Last Address: ['200', '9', '18', '255.0']
PS C:\Users\vaibh\OneDrive\Desktop\check>
```