**LAB ASSIGNMENT – 3**

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**Q1. First Address and Last Address of an IP Address**

**Code –**

#include <bits/stdc++.h>

using namespace std;

int binaryToDecimal(int n[])

{

int i,num=0,base=1;

for(i=7;i>=0;i--)

{

num = num + base\*n[i];

base = base \* 2;

}

return num;

}

int main()

{

int ip[4],n,i,num1,num2,mask;

cout<<"\nEnter the ip address seperated by a space: ";

for(i=0;i<4;i++)

cin>>ip[i];

cout<<"\nEnter the mask: ";

cin>>mask;

int temp1=ip[3];

int bNum1[32];

int start=0,end=7;

i=0;

for(int k=0;k<8;k++)

{

if(temp1>0)

{

bNum1[i] = temp1 % 2;

temp1 = temp1 / 2;

i++;

}

else

{

bNum1[i]=0;

i++;

}

}

while (start < end)

{

int temp = bNum1[start];

bNum1[start] = bNum1[end];

bNum1[end] = temp;

start++;

end--;

}

int m = 32 - mask;

int temp2[32],temp3[32];

for(i=0;i<7;i++)

{

temp2[i]=bNum1[i];

temp3[i]=bNum1[i];

}

for(i=7;i>=m;i--)

{

temp2[i]=0;

}

for(i=7;i>=m;i--)

{

temp3[i]=1;

}

num1=binaryToDecimal(temp2);

num2=binaryToDecimal(temp3);

cout<<"\nFirst Address is ";

for(i=0;i<3;i++)

cout<<ip[i]<<".";

cout<<num1;

cout<<"\nLast Address is ";

for(i=0;i<3;i++)

cout<<ip[i]<<".";

cout<<num2;

return 0;

}

**Output –**

