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Experiment- 1

Aim:

1. Write a program to take IP address in decimal notation convert it into BINARY notation or vice-versa.
2. Write a program to take IP address in decimal notation convert it into OCTAL notation or vice-versa

Language Used: Python

Theory:

An IP address is a unique address that identifies a device on the internet or a local network.
An IP address is a string of numbers separated by periods. IP addresses are expressed as a set of four numbers — an example address might be 192.158.1.38.
The common dotted representation is in decimal format, but can also be represented as 32-bit binary number or in Octal format by converting each octet in decimal dotted notation to its binary or octal counterpart.

Code:

1.

```
print("1. Bin to Dec\n2. Dec to Bin")
n = input("Choose an option: ")
ip = input("Enter the ip address: ")
if n=='1':
    ip_split = [ip[i:i+8] for i in range(0,25,8)]
    ip_split = [str(int(x,2)) for x in ip_split]
    print("Ip address in Decimal:",'.'.join(ip_split))
elif n=='2':
    ip_split = [int(x) for x in ip.split('.')]
    ip_split = [bin(num)[2:] for num in ip_split]
    ip_split = [x.zfill(8) for x in ip_split]
    print("Ip address in Binary:",''.join(ip_split))
else:
    print("Wrong Choice")
```

2.

```
print("1. Oct to Dec\n2. Dec to Oct")
n = input("Choose an option: ")
ip = input("Enter the ip address: ")

if n=="1":
    ip_split = ip.split('.');
    ip_split = [str(int(x,8)) for x in ip_split]
    print("Ip address in Decimal:",'.'.join(ip_split))
elif n=='2':
    ip_split = [int(x) for x in ip.split('.')]
    ip_split = [oct(num)[2:] for num in ip_split]
```

```
        print("Ip address in Octal:",'.'.join(ip_split))
    else:
        print("Wrong Choice")
```

Output:

1.

```
1. Bin to Dec
2. Dec to Bin
Choose an option:  1
Enter the ip address:  11000000110000001010101011000011
Ip address in Decimal: 192.192.170.195
```

```
1. Bin to Dec
2. Dec to Bin
Choose an option:  2
Enter the ip address:  192.111.100.000
Ip address in Binary: 11000000011011110110010000000000
```

2.

```
1. Oct to Dec
2. Dec to Oct
Choose an option:  2
Enter the ip address:  142.32.41.101
Ip address in Octal: 216.40.51.145
```

```
1. Oct to Dec
2. Dec to Oct
Choose an option:  1
Enter the ip address:  216.40.51.145
Ip address in Decimal: 142.32.41.101
```