18CSC302J (Computer Networks Lab)
Lab session - ARP Implementation Using UDP

Name :- Puneet Sharma

Reg. No. :- RA1911003010331
Class :-CSE F1

Code:-

```
#include<sys/socket.h>
#include<net/if_arp.h>
#include<sys/ioctl.h>
#include<stdio.h>
#include<string.h>
#include<unistd.h>
#include<math.h>
#include<complex.h>
#include<arpa/inet.h>
#include<netinet/in.h>
#include<netinet/if_ether.h>
#include<net/ethernet.h>
#include<stdlib.h>

int main()
{
        struct sockaddr_in sin={0};
        struct arpreq myarp={{0}};
        unsigned char *ptr;
        int sd;
        sin.sin_family=AF_INET;
        printf("Enter IP address: ");
        char ip[20];
        scanf("%s", ip);
        if(inet_pton(AF_INET,ip,&sin.sin_addr)==0)
        {
```

```
        printf("IP address Entered '%s' is not valid \n",ip);
        exit(0);
    }
    memcpy(&myarp.arp_pa,&sin,sizeof(myarp.arp_pa));
    strcpy(myarp.arp_dev,"echo");
    sd=socket(AF_INET,SOCK_DGRAM,0);
    printf("\nSend ARP request\n");
    if(ioctl(sd,SIOCGARP,&myarp)==1)
    {
        printf("No Entry in ARP cache for '%s'\n",ip);
        exit(0);
    }
    ptr=&myarp.arp_pa.sa_data[0];
    printf("Received ARP Reply\n");
    printf("\nMAC Address for '%s' : ",ip);
    printf("%p:%p:%p:%p:%p:%p\n",ptr,(ptr+1),(ptr+2),(ptr+3),(ptr+4),(ptr+5));
    return 0;
}
```

Output:-

ARP_using_UDP.c

```c
#include<sys/socket.h>
#include<net/if_arp.h>
#include<sys/ioctl.h>
#include<stdio.h>
#include<string.h>
#include<unistd.h>
#include<math.h>
#include<complex.h>
#include<arpa/inet.h>
#include<netinet/in.h>
#include<netinet/if_ether.h>
#include<net/ethernet.h>
#include<stdlib.h>

int main()
{
        struct sockaddr_in sin={0};
        struct arpreq myarp={{0}};
        unsigned char *ptr;
        int sd;
        sin.sin_family=AF_INET;
        printf("Enter IP address: ");
        char ip[20];
        scanf("%s", ip);
        if(inet_pton(AF_INET,ip,&sin.sin_addr)==0)
        {
                printf("IP address Entered '%s' is not valid \n",ip);
                exit(0);
        }
        memcpy(&myarp.arp_pa,&sin,sizeof(myarp.arp_pa));
        strcpy(myarp.arp_dev,"echo");
        sd=socket(AF_INET,SOCK_DGRAM,0);
        printf("\nSend ARP request\n");
        if(ioctl(sd,SIOCGARP,&myarp)==1)
        {
                printf("No Entry in ARP cache for '%s'\n",ip);
                exit(0);
        }
        ptr=&myarp.arp_pa.sa_data[0];
        printf("Received ARP Reply\n");
        printf("\nMAC Address for '%s' : ",ip);
```

331/ARP_using_UDI

Run | Run Config Name | Command: 331/ARP_using_UDP.c

```
Running /home/ubuntu/environment/331/ARP_using_UDP.c
Enter IP address: 192.16.10.3

Send ARP request
Received ARP Reply

MAC Address for '192.16.10.3' : 0x7ffc13ebe972:0x7ffc13ebe973:0x7ffc13ebe974:0x7ffc13ebe975:0x7ffc13ebe976:0x7ffc13ebe977


Process exited with code: 0
```