Ex.No:10	ARP IMPLEMENTATION USING UDP
Date:	

Aim :

There is a single host. The IP address of any Client in the network is given as input and the corresponding hardware address is got as the output.

TECHNICAL OBJECTIVE:

Address Resolution Protocol (ARP) is implemented through this program. The IP address of any Client is given as the input. The ARP cache is looked up for the corresponding hardware address. This is returned as the output. Before compiling that Client is pinged.

METHODOLOGY:

- Start
- Declare the variables and structure for the socket
- Specify the family, protocol, IP address and port number
- Create a socket using socket() function
- Call memcpy() and strcpy functions
- Display the MAC address
- Stop.

Code:

```
#include<sys/types.h>
#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");
d=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:

Result :

Henceforth, Address Resolution Protocol (ARP) is implemented using UDP