

```
1  #include <stdio.h>
2  #include <string.h>
3  #define MAX_ENTRIES 5
4
5  struct ARPEntry {
6      char ip[16];
7      char mac[18];};
8  struct ARPEntry arpTable[MAX_ENTRIES];
9  int arpCount = 0;
10 void addEntry(char *ip, char *mac) {
11     if (arpCount < MAX_ENTRIES) {
12         strcpy(arpTable[arpCount].ip, ip);
13         strcpy(arpTable[arpCount].mac, mac);
14         arpCount++;
15     }
16 }
17 char* lookupMAC(char *ip) {
18     for (int i = 0; i < arpCount; i++) {
19         if (strcmp(arpTable[i].ip, ip) == 0)
20             return arpTable[i].mac;
21     }
22     return NULL;
23 }
24 int main() {
25     char ip[16];
26     char *mac;
27     addEntry("192.168.1.2", "AA:BB:CC:DD:EE:01");
28     addEntry("192.168.1.3", "AA:BB:CC:DD:EE:02");
29     addEntry("192.168.1.4", "AA:BB:CC:DD:EE:03");
30
31     printf("ARP Simulation\n");
32     printf("Enter IP to find MAC address: ");
33     scanf("%15s", ip);
34
35     mac = lookupMAC(ip);
36     if (mac != NULL) {
37         printf("ARP Reply: IP %s -> MAC %s\n", ip, mac);
38     } else {
39         printf("ARP Request: IP %s not in table, broadcasting...\n", ip);
40         printf("ARP Reply: MAC address not found in network\n");
41     }
42     return 0;
43 }
```

Last login: Sun Dec 7 00:23:17 on ttys000

moshika@Moshikas-MacBook-Air ~ % cd desktop

moshika@Moshikas-MacBook-Air desktop % gcc arp\_sim.c -o arp\_sim

moshika@Moshikas-MacBook-Air desktop % ./arp\_sim

ARP Simulation

Enter IP to find MAC address: 192.168.1.3

ARP Reply: IP 192.168.1.3 -> MAC AA:BB:CC:DD:EE:02

moshika@Moshikas-MacBook-Air desktop %