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1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <unistd.h>
4  #include <string.h>
5  #include <sys/socket.h>
6  #include <arpa/inet.h>
7  #include <time.h>
8  #include <sys/time.h>
9
10 #define BUFFER_SIZE 512
11 #define PORT 8888
12
13 void die(char* error_message){
14     perror(error_message);
15     exit(1);
16 }
17
18 int main(){
19     float NUM_TESTS = 0.0;
20     float NUM_WINS = 0.0;
21     struct sockaddr_in server_address, client_address;
22     int server_socket;
23     int client_address_length = sizeof(client_address);
24     int received_length;
25     char buffer[BUFFER_SIZE];
26     char* days_of_the_week[7] = {"Sunday", "Monday", "Tuesday", "Wednesday",
"Thursday", "Friday", "Saturday"};
27     const char match_message[] = "Match";
28     const char unmatched_message[] = "Unmatch";
29     time_t t;
30     srand((unsigned) time(&t));
31     int guess;
32
33     if((server_socket = socket(AF_INET, SOCK_DGRAM, IPPROTO_UDP)) == -1){
34         die("socket()");
35     }
36     memset((char*) &server_address, 0, sizeof(server_address));
37     server_address.sin_family = AF_INET;
38     server_address.sin_port = htons(PORT);
39     server_address.sin_addr.s_addr = htonl(INADDR_ANY);
40
41     if(bind(server_socket, (struct sockaddr*) &server_address,
sizeof(server_address)) == -1){
42         die("bind()");
43     }
44     while(1){
45         printf("Waiting for data...\n");
46         fflush(stdout);
47         memset(buffer, 0, BUFFER_SIZE);
48         if((received_length = recvfrom(server_socket, buffer, BUFFER_SIZE, 0,
(struct sockaddr*) &client_address, &client_address_length)) == -1){
49             die("recvfrom()");
50         }
51         buffer[received_length - 1] = '\0';
52         if(strcmp(buffer, "over") == 0){
53             printf("Done receiving from %s:%d\n",
inet_ntoa(client_address.sin_addr), ntohs(client_address.sin_port));
54             if(sendto(server_socket, "over", strlen("over"), 0, (struct
sockaddr*) &client_address, client_address_length) == -1){
55                 die("send_to()");
56             }
57             continue;
58         }
59         if(strcmp(buffer, "all over") == 0){
60             printf("Done receiving\n");
61             if(sendto(server_socket, "Completed successfully",
strlen("Completed successfully"), 0, (struct sockaddr*) &client_address,
client_address_length) == -1){
62                 die("send_to()");

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63         }
64         break;
65     }
66     NUM_TESTS += 1;
67     guess = rand()%6;
68     printf("Receiving from %s:%d\n", inet_ntoa(client_address.sin_addr),
ntohs(client_address.sin_port));
69     printf("Server\tClient\tResult\n");
70
71     printf("%s\t", days_of_the_week[guess]);
72     printf("%s\t", buffer);
73     if(strcmp(buffer, days_of_the_week[guess]) == 0){
74         printf("Match!\n");
75         NUM_WINS += 1;
76         if(sendto(server_socket, match_message, strlen(match_message), 0,
(struct sockaddr*) &client_address, client_address_length) == -1){
77             die("send_to()");
78         }
79     }
80     else{
81         printf("Differ!.\n");
82         if(sendto(server_socket, unmatched_message, strlen(unmatched_message),
0, (struct sockaddr*) &client_address, client_address_length) == -1){
83             die("send_to()");
84         }
85     }
86 }
87 float percentage = NUM_WINS/NUM_TESTS*100.0;
88 printf("Match percentage = %.2f\n", percentage);
89 }

```