

**TCP Connection Echo Program**

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**Server Side Code:**

#include <stdio.h>  
#include <stdlib.h>  
#include <unistd.h>   
#include <arpa/inet.h>   
#include <string.h>  
  
int main(int argc, char const \*argv[]) {  
  
 int serverFd, clientFd;  
 struct sockaddr\_in server, client;  
 int len;  
 int port = 1234;  
 char buffer[1024];  
 if (argc == 2) {  
 port = atoi(argv[1]);  
 }  
 serverFd = socket(AF\_INET, SOCK\_STREAM, 0);  
 if (serverFd < 0) {  
 perror("Cannot create socket");  
 exit(1);  
 }  
 server.sin\_family = AF\_INET;  
 server.sin\_addr.s\_addr = INADDR\_ANY;  
 server.sin\_port = htons(port);  
 len = sizeof(server);  
 if (bind(serverFd, (struct sockaddr \*)&server, len) < 0) {  
 perror("Cannot bind sokcet");  
 exit(2);  
 }  
 if (listen(serverFd, 10) < 0) {  
 perror("Listen error");  
 exit(3);  
 }  
 while (1) {  
 len = sizeof(client);  
 printf("waiting for clients\n");  
 if ((clientFd = accept(serverFd, (struct sockaddr \*)&client, &len)) < 0) {  
 perror("accept error");  
 exit(4);  
 }  
 char \*client\_ip = inet\_ntoa(client.sin\_addr);  
 printf("Accepted new connection from a client %s:%d\n", client\_ip, ntohs(client.sin\_port));  
 memset(buffer, 0, sizeof(buffer));  
 int size = read(clientFd, buffer, sizeof(buffer));  
 if ( size < 0 ) {  
 perror("read error");  
 exit(5);  
 }  
 printf("received %s from client\n", buffer);  
 if (write(clientFd, buffer, size) < 0) {  
 perror("write error");  
 exit(6);  
 }  
 close(clientFd);  
 }  
 close(serverFd);  
 return 0;  
}

**Client Side Code:**

#include <stdio.h>   
#include <stdlib.h>  
#include <unistd.h>  
#include <arpa/inet.h>  
#include <string.h>  
  
const char message[] = "Hello sockets world\n";  
  
int main(int argc, char const \*argv[]) {  
  
 int serverFd;  
 struct sockaddr\_in server;  
 int len;  
 int port = 1234;  
 char \*server\_ip = "127.0.0.1";  
 char \*buffer = "hello server";  
 if (argc == 3) {  
 server\_ip = argv[1];  
 port = atoi(argv[2]);  
 }  
 serverFd = socket(AF\_INET, SOCK\_STREAM, 0);  
 if (serverFd < 0) {  
 perror("Cannot create socket");  
 exit(1);  
 }  
 server.sin\_family = AF\_INET;  
 server.sin\_addr.s\_addr = inet\_addr(server\_ip);  
 server.sin\_port = htons(port);  
 len = sizeof(server);  
 if (connect(serverFd, (struct sockaddr \*)&server, len) < 0) {  
 perror("Cannot connect to server");  
 exit(2);  
 }  
  
 if (write(serverFd, buffer, strlen(buffer)) < 0) {  
 perror("Cannot write");  
 exit(3);  
 }  
 char recv[1024];  
 memset(recv, 0, sizeof(recv));  
 if (read(serverFd, recv, sizeof(recv)) < 0) {  
 perror("cannot read");  
 exit(4);  
 }  
 printf("Received %s from server\n", recv);  
 close(serverFd);  
 return 0;  
}

**Output:**





