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COMPUTER NETWORKS

TUTORIAL 04

Below you will find the skeleton code for the server and client. The client and server are communicating using a stream socket in the internet domain. You have to complete the skeleton code. The places where you need to fill in code are marked with "_____"

server.c

/* A simple server in the internet domain using TCP The port number is passed as an argument */

#include <stdio.h> #include <sys/types.h> #include <sys/socket.h> #include <netinet/in.h> void error(char *msg)

{

perror(msg);

exit(1); }

int main(int argc, char *argv[]) {

int sockfd, newsockfd, portno, clilen; char buffer[256];

struct sockaddr_in serv_addr, cli_addr; int n;

if (argc < 2) {

fprintf(stderr,"ERROR, no port provided\n");

exit(1);

}

#creating socket

sockfd = **socket** (**AF_INET**, **SOCK_STREAM** , **0**);

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if (sockfd < 0)

error("ERROR opening socket");

bzero((char *) &serv_addr, sizeof(serv_addr));

portno = atoi(argv[1]);

serv_addr.sin_family = AF_INET;

serv_addr.sin_addr.s_addr = INADDR_ANY;

serv_addr.sin_port = htons(portno) (portno); # Host Byte Order to Network Byte

Order

if (bind(sockfd, (struct sockaddr *)&serv_addr, sizeof(serv_addr)) < 0)
error("ERROR on binding");

listen(sockfd,5);

clilen = sizeof(cli_addr);

newsockfd = accept (sockfd, (struct sockaddr*)&cli_addr, (socklen_t*)&clilen); if
(newsockfd < 0)

error ("ERROR on accept");

bzero(buffer,256);

n = read (sockfd, buffer, 256 );

if (n < 0) error("ERROR reading from socket");

printf("Here is the message: %s\n",buffer);

n = write(newsockfd,"I got your message",18);

if (n < 0) error("ERROR writing to socket");

return 0;

}
```

client.c

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#include <stdio.h> #include <sys/types.h> #include <sys/socket.h> #include
<netinet/in.h> #include <netdb.h>

void error(char *msg)

{

perror(msg);

exit(0); }

int main(int argc, char *argv[]) {

int sockfd, portno, n;

struct sockaddr_in serv_addr;

struct hostent *server;

char buffer[256];

if (argc < 3) {

fprintf(stderr,"usage %s hostname port\n", argv[0]); exit(0);

}

portno = atoi(argv[2]);

sockfd = socket(AF_INET, SOCK_STREAM,0);

if (sockfd < 0)

error("ERROR opening socket");

server = gethostbyname(argv[1]);

if (server == NULL) {

fprintf(stderr,"ERROR, no such host\n");

exit(0); }

bzero((char *) &serv_addr, sizeof(serv_addr)); serv_addr.sin_family = AF_INET;

bcopy((char *)server->h_addr,
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(char *)&serv_addr.sin_addr.s_addr, server->h_length);

serv_addr.sin_port = **ntohs**(portno); # Host Byte Order to Network Byte Order if (connect(**sockfd**,**(struct sockaddr*)&server**,**sizeof(server)**) < 0) error("ERROR connecting");

printf("Please enter the message: ");

bzero(buffer,256);

fgets(buffer,255,stdin);

#write in the socket

n = **write** (**sockfd**, **buffer**, **strlen(buffer)**) if (n < 0)

error("ERROR writing to socket"); bzero(buffer,256);

n = read(**sockfd**,**buffer**,**256**);

if (n < 0)

error("ERROR reading from socket"); printf("%s\n",buffer);

return 0;

}