**Registration Number: 19BCE2119**

**Name: Gaurav Kumar Singh**

**Course: Network and Communication CSE1004**

**Digital Assignment 5**

**TCP**

**CODE-> SERVER**

#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);

}

sockfd = socket(AF\_INET, SOCK\_STREAM, 0);

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);

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, &clilen);

if (newsockfd < 0){

error("ERROR on accept");

}

bzero(buffer,256);

n = read(newsockfd,buffer,255);

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;

}

**CODE-> CLIENT**

#include <stdio.h>

#include <sys/types.h>

#include <sys/socket.h>

#include <netinet/in.h>

#include <netdb.h>

#include <string.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,(char\*)&serv\_addr.sin\_addr.s\_addr,server->h\_length);

serv\_addr.sin\_port=htons(portno);

if (connect(sockfd, &serv\_addr, sizeof(serv\_addr))<0){

error("ERROR connecting");

}

printf("Enter the message: ");

bzero(buffer,256);

fgets(buffer,255,stdin);

n=write(sockfd,buffer,strlen(buffer));

if (n<0){

error("ERROR writing to socket");

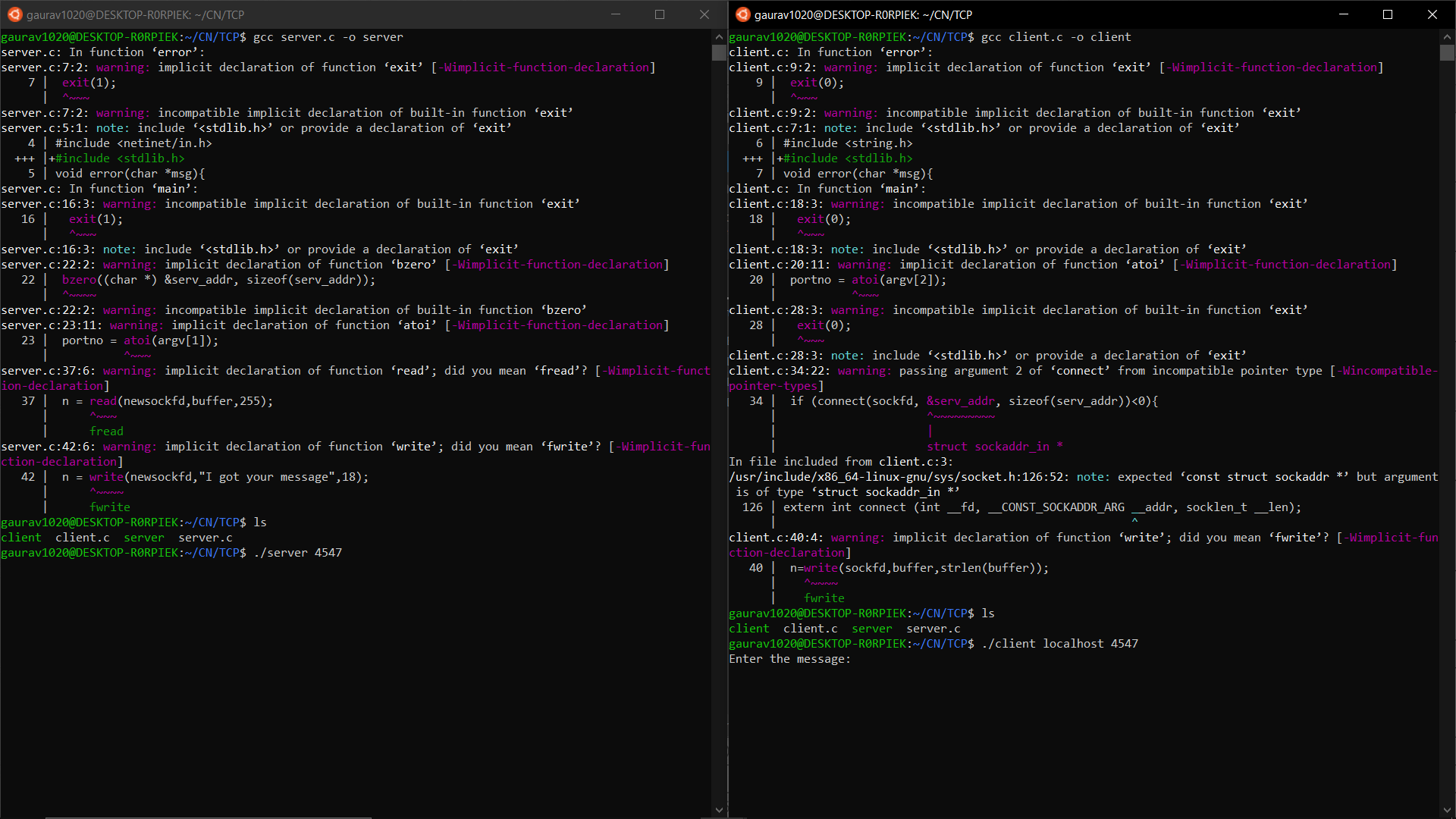
}

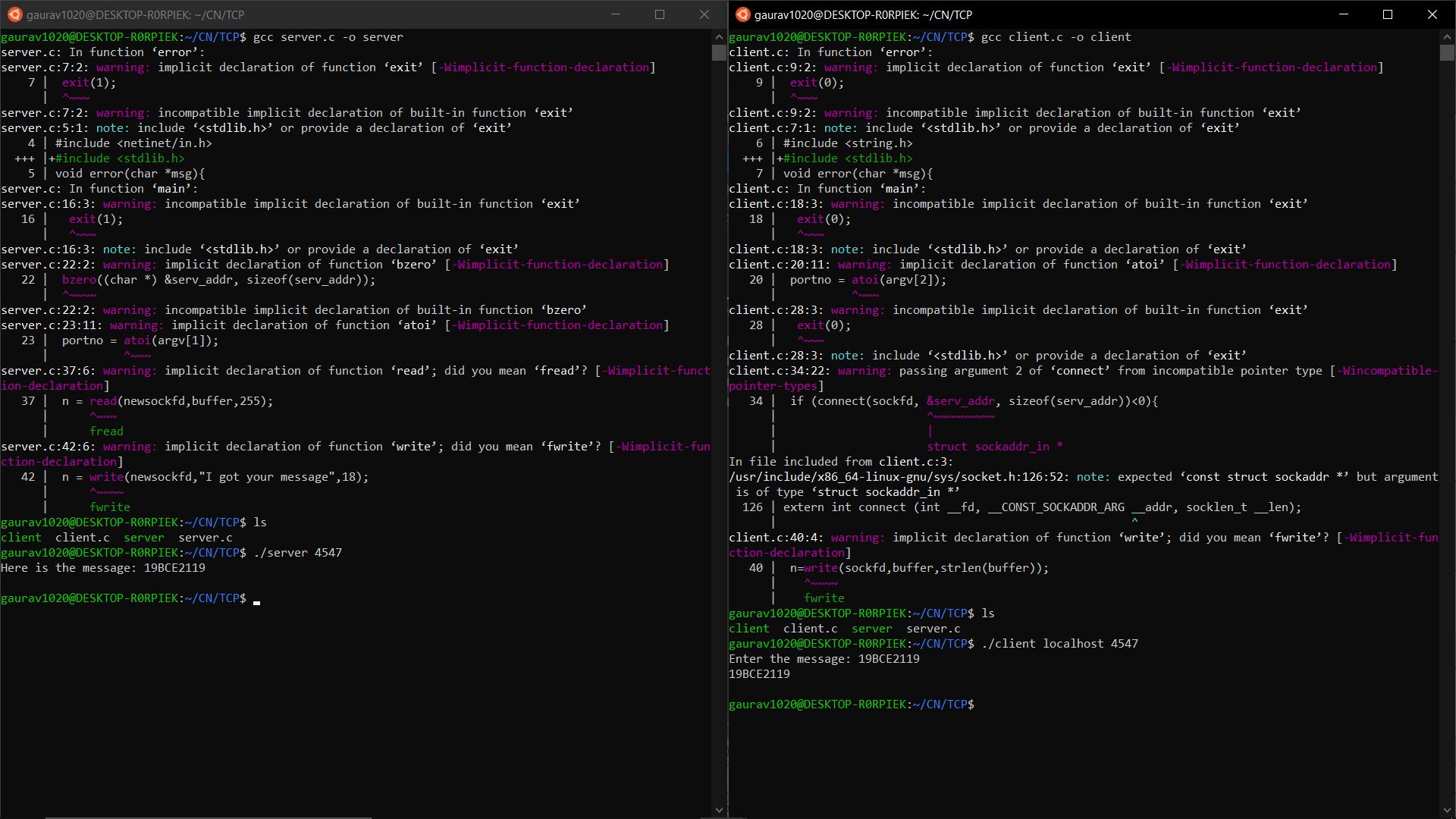
printf("%s\n",buffer);

return 0;

}

**SCREENSHOTS**





**UDP**

**CODE-> SERVER**

#include <stdio.h>

#include <sys/types.h>

#include <sys/socket.h>

#include <netinet/in.h>

#include <netdb.h>

#include <string.h>

#include <stdlib.h>

void error(char \*msg){

perror(msg);

exit(0);

}

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

int sock, length, fromlen, n;

struct sockaddr\_in server;

struct sockaddr\_in from;

char buf[1024];

if (argc < 2){

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

exit(0);

}

sock=socket(AF\_INET, SOCK\_DGRAM, 0);

if (sock < 0){

error("Opening socket");

}

length = sizeof(server);

bzero(&server,length);

server.sin\_family=AF\_INET;

server.sin\_addr.s\_addr=INADDR\_ANY;

server.sin\_port=htons(atoi(argv[1]));

if (bind(sock,(struct sockaddr \*)&server,length)<0){

error("binding");

}

fromlen = sizeof(struct sockaddr\_in);

while (1){

n = recvfrom(sock,buf,1024,0,(struct sockaddr \*)&from,&fromlen);

if (n < 0)

{

error("recvfrom");

}

write(1,"Received a datagram: ",21);

write(1,buf,n);

n = sendto(sock,"Got your message\n",17,0,(struct sockaddr \*)&from,fromlen);

if (n < 0){

error("sendto");

}

}

return 0;

}

**CODE-> CLIENT**

#include <stdio.h>

#include <sys/types.h>

#include <sys/socket.h>

#include <netinet/in.h>

#include <netdb.h>

#include <string.h>

#include <stdlib.h>

void error(char \*msg){

perror(msg);

exit(0);

}

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

int sock, length, n;

struct sockaddr\_in server, from;

struct hostent \*hp;

char buffer[256];

if (argc != 3){

printf("Usage: server port\n");

exit(1);

}

sock= socket(AF\_INET, SOCK\_DGRAM, 0);

if (sock<0){

error("ERROR socket");

}

server.sin\_family=AF\_INET;

hp=gethostbyname(argv[1]);

if(hp==0){

error("Unknown host");

}

bcopy((char\*)hp->h\_addr, (char\*)&server.sin\_addr,hp->h\_length);

server.sin\_port = htons(atoi(argv[2]));

length=sizeof(struct sockaddr\_in);

printf("Please enter the message: ");

bzero(buffer,256);

fgets(buffer,255,stdin);

n=sendto(sock,buffer,strlen(buffer),0,&server,length);

if (n < 0){

error("ERROR Sendto");

}

n = recvfrom(sock,buffer,256,0,&from, &length);

if (n < 0){

error("ERROR recvfrom");

}

write(1,"Got an ack: ",12);

write(1,buffer,n);

return 0;

}

**SCREENSHOTS**

