**Kalinga Institute of Industrial Technology**

**CN LAB-4.8.21**

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**1.TCP SOCKET CLIENT WILL SEND AN INTEGER ARRAY, AND RECEIVE SORTED ARRAY SERVER.**

Server.c

**#include<stdio.h>**

**#include<sys/types.h>**

**#include<sys/socket.h>**

**#include<netinet/in.h>**

**#include<arpa/inet.h>**

**#include<fcntl.h>**

**#include<string.h>**

**#include<unistd.h>**

**int main()**

**{**

**int sockfd\_534,fd1\_534, length\_534,i\_534,buf\_534[100],n\_534;**

**struct sockaddr\_in sa\_addr\_534,cl\_addr\_534;**

**sockfd\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sa\_addr\_534.sin\_family=AF\_INET;**

**sa\_addr\_534.sin\_addr.s\_addr=INADDR\_ANY;**

**sa\_addr\_534.sin\_port=htons(6000);**

**i\_534=bind(sockfd\_534,(struct sockaddr \*)&sa\_addr\_534,sizeof(sa\_addr\_534));**

**printf("test %d%d\n",sockfd\_534,i\_534);**

**listen(sockfd\_534,5);**

**length\_534=sizeof(cl\_addr\_534);**

**fd1\_534=accept(sockfd\_534, (struct sockaddr \*) &cl\_addr\_534,&length\_534);**

**for(i\_534=0; i\_534 < 100; i\_534++) buf\_534[i\_534] = 0;**

**recv(fd1\_534, buf\_534, 100, 0);**

**recv(fd1\_534, &n\_534 , sizeof(n\_534), 0);**

**for(int i\_534=0; i\_534<n\_534-1; i\_534++)**

**{**

**for(int j\_534=0; j\_534<n\_534-i\_534-1; j\_534++)**

**{**

**if(buf\_534[j\_534]>buf\_534[j\_534+1])**

**{**

**int temp\_534=buf\_534[j\_534];**

**buf\_534[j\_534]=buf\_534[j\_534+1];**

**buf\_534[j\_534+1]=temp\_534;**

**}**

**}**

**}**

**send(fd1\_534, buf\_534, 100, 0);**

**close(fd1\_534);**

**}**

Client.c

**#include<stdio.h>**

**#include<sys/types.h>**

**#include<sys/socket.h>**

**#include<netinet/in.h>**

**#include<arpa/inet.h>**

**#include<fcntl.h>**

**#include<string.h>**

**#include<unistd.h>**

**int main()**

**{**

**int i\_534,sockfd\_534,buf\_534[100],n\_534;**

**struct sockaddr\_in sa\_addr\_534;**

**sockfd\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sa\_addr\_534.sin\_family=AF\_INET;**

**sa\_addr\_534.sin\_addr.s\_addr=inet\_addr("127.0.0.1"); *//Loop back IP address***

**sa\_addr\_534.sin\_port=htons(6000);**

**memset(sa\_addr\_534.sin\_zero, '\0', sizeof sa\_addr\_534.sin\_zero);**

**i\_534=connect(sockfd\_534,(struct sockaddr \*)&sa\_addr\_534,sizeof(sa\_addr\_534));**

**printf("utkarsh , Enter the size of the array\n");**

**scanf("%d",&n\_534);**

**printf("utkarsh , Enter the input into the array\n");**

**for(int i\_534=0; i\_534<n\_534; i\_534++)**

**{**

**scanf("%d",&buf\_534[i\_534]);**

**}**

**send(sockfd\_534, buf\_534, 100, 0);**

**send(sockfd\_534, &n\_534, sizeof(n\_534),0);**

**recv(sockfd\_534, buf\_534, 100, 0);**

**for(int i\_534=0; i\_534<n\_534; i\_534++)**

**{**

**printf("%d ",buf\_534[i\_534]);**

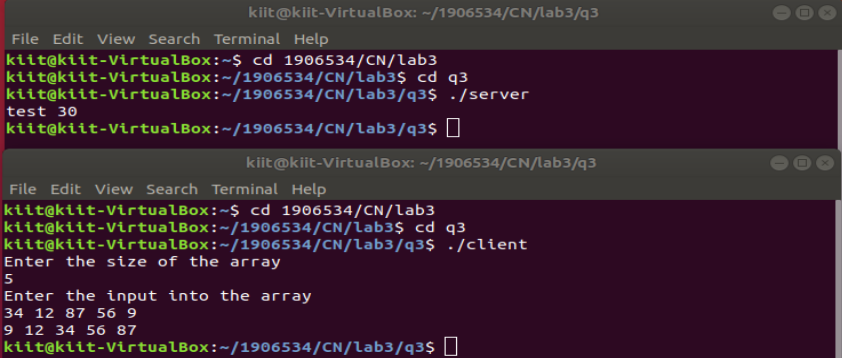
**}**

**printf("\n");**

**close(sockfd\_534);**

**}**

**OUTPUT:**

****

1. **TCP SOCKET SERVER DEAL WITH TWO CLIENT TO EXCHANGE NUMBER**

Server.c

**#include<stdio.h>**

**#include<sys/types.h>**

**#include<sys/socket.h>**

**#include<netinet/in.h>**

**#include<arpa/inet.h>**

**#include<fcntl.h>**

**#include<string.h>**

**#include<unistd.h>**

**int main()**

**{**

**int sockfd\_534,sockfd1\_534,fd1\_534,fd2\_534, length\_534,length1\_534,i\_534,j\_534;**

**int buf\_534,buf1\_534;**

**struct sockaddr\_in sa\_addr1\_534,cl\_addr1\_534;**

**struct sockaddr\_in sa\_addr\_534,cl\_addr\_534;**

**sockfd\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sockfd1\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sa\_addr\_534.sin\_family=AF\_INET;**

**sa\_addr1\_534.sin\_family=AF\_INET;**

**sa\_addr\_534.sin\_addr.s\_addr=INADDR\_ANY;**

**sa\_addr1\_534.sin\_addr.s\_addr=INADDR\_ANY;**

**sa\_addr\_534.sin\_port=htons(3000);**

**sa\_addr1\_534.sin\_port=htons(2995);**

**memset(sa\_addr\_534.sin\_zero, '\0', sizeof sa\_addr\_534.sin\_zero);**

**memset(sa\_addr1\_534.sin\_zero, '\0', sizeof sa\_addr1\_534.sin\_zero);**

**i\_534=bind(sockfd\_534,(struct sockaddr \*)&sa\_addr\_534,sizeof(sa\_addr\_534));**

**j\_534=bind(sockfd1\_534,(struct sockaddr \*)&sa\_addr1\_534,sizeof(sa\_addr1\_534));**

**printf("test %d%d\n",sockfd\_534,i\_534);**

**printf("test %d%d\n",sockfd1\_534,j\_534);**

**listen(sockfd\_534,5);**

**listen(sockfd1\_534,5);**

**length\_534=sizeof(cl\_addr\_534);**

**length\_534=sizeof(cl\_addr1\_534);**

**fd1\_534=accept(sockfd\_534, (struct sockaddr \*) &cl\_addr\_534,&length\_534);**

**fd2\_534=accept(sockfd1\_534, (struct sockaddr \*) &cl\_addr1\_534,&length1\_534);**

**recv(fd1\_534, &buf\_534, sizeof(buf\_534),0);**

**printf("%d",buf\_534);**

**recv(fd2\_534, &buf1\_534,sizeof(buf1\_534),0);**

**printf("%d",buf1\_534);**

**send(fd1\_534, &buf1\_534, sizeof(buf\_534),0);**

**send(fd2\_534, &buf\_534,sizeof(buf1\_534),0);**

**close(fd1\_534);**

**close(fd2\_534);**

**}**

Client1.c

**#include<stdio.h>**

**#include<sys/types.h>**

**#include<sys/socket.h>**

**#include<netinet/in.h>**

**#include<arpa/inet.h>**

**#include<fcntl.h>**

**#include<string.h>**

**#include<unistd.h>**

**int main()**

**{**

**int i\_534,sockfd\_534;**

**int buf\_534;**

**struct sockaddr\_in sa\_addr\_534;**

**sockfd\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sa\_addr\_534.sin\_family=AF\_INET;**

**sa\_addr\_534.sin\_addr.s\_addr=inet\_addr("127.0.0.1");**

**sa\_addr\_534.sin\_port=htons(2995);**

**memset(sa\_addr\_534.sin\_zero, '\0', sizeof sa\_addr\_534.sin\_zero);**

**i\_534=connect(sockfd\_534,(struct sockaddr \*)&sa\_addr\_534,sizeof(sa\_addr\_534));**

**printf("Enter the number\n");**

**scanf("%d",&buf\_534);**

**send(sockfd\_534, &buf\_534, sizeof(buf\_534), 0);**

**recv(sockfd\_534, &buf\_534, sizeof(buf\_534), 0);**

**printf("%d\n", buf\_534);**

**close(sockfd\_534);**

**}**

Client2.c

**#include<stdio.h>**

**#include<sys/types.h>**

**#include<sys/socket.h>**

**#include<netinet/in.h>**

**#include<arpa/inet.h>**

**#include<fcntl.h>**

**#include<string.h>**

**#include<unistd.h>**

**int main()**

**{**

**int i\_534,sockfd\_534;**

**int buf\_534;**

**struct sockaddr\_in sa\_addr\_534;**

**sockfd\_534=socket(AF\_INET,SOCK\_STREAM,0);**

**sa\_addr\_534.sin\_family=AF\_INET;**

**sa\_addr\_534.sin\_addr.s\_addr=inet\_addr("127.0.0.1");**

**sa\_addr\_534.sin\_port=htons(3000);**

**memset(sa\_addr\_534.sin\_zero, '\0', sizeof sa\_addr\_534.sin\_zero);**

**i\_534=connect(sockfd\_534,(struct sockaddr \*)&sa\_addr\_534,sizeof(sa\_addr\_534));**

**printf("Enter the number\n");**

**scanf("%d",&buf\_534);**

**send(sockfd\_534, &buf\_534, sizeof(buf\_534), 0);**

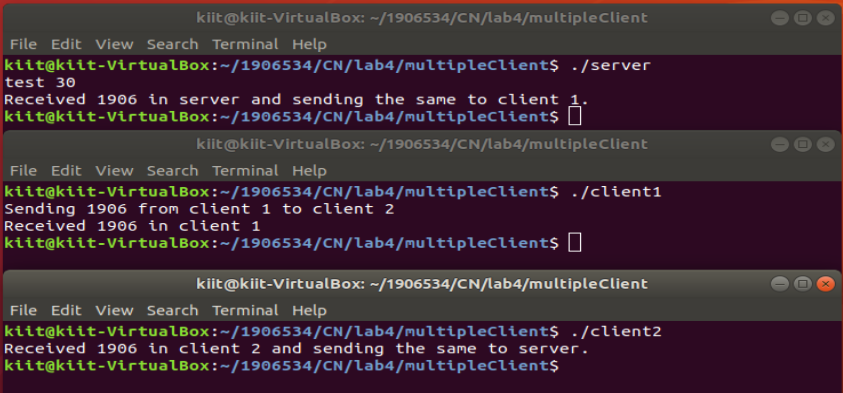
**recv(sockfd\_534, &buf\_534, sizeof(buf\_534), 0);**

**printf("%d\n", buf\_534);**

**close(sockfd\_534);**

**}**

**OUTPUT:**

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1. **TCP SOCKET USING STRUCTURE SEND THE DETAILS TO THE CLIENT, AFTER RECEIVING ROLL NUMBER**

Server.c

**#include <arpa/inet.h>**

**#include <netinet/in.h>**

**#include <stdio.h>**

**#include <string.h>**

**#include <sys/socket.h>**

**#include <sys/stat.h>**

**#include<unistd.h>**

**#include <sys/types.h>**

**struct student**

**{**

**int roll;**

**char name[50];**

**int marks;**

**};**

**int main()**

**{**

**struct sockaddr\_in client, server;**

**int s, n, sock,flag\_534=0;**

**int b1\_534;**

**struct student a[2];**

**a[0].roll=534;**

**strcpy(a[0].name,"Ankit");**

**a[0].marks=100;**

**a[1].roll=535;**

**strcpy(a[1].name,"Raj");**

**a[1].marks=95;**

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

**server.sin\_family = AF\_INET;**

**server.sin\_port = 2000;**

**server.sin\_addr.s\_addr = inet\_addr("127.0.0.1");**

**bind(s, (struct sockaddr\*)&server, sizeof server);**

**listen(s, 1);**

**n = sizeof client;**

**sock = accept(s, (struct sockaddr\*)&client, &n);**

**recv(sock, &b1\_534, sizeof(b1\_534), 0);**

**int k=0,i=0;**

**for(;i<2;i++)**

**{**

**if(a[i].roll==b1\_534)**

**{**

**k=1;**

**break;**

**}**

**}**

**if(k==1)**

**printf("%s %d",a[i].name,a[i].marks);**

**else**

**printf("\nNot found");**

**close(sock);**

**close(s);**

**}**

Client.c

**#include <arpa/inet.h>**

**#include <netinet/in.h>**

**#include <stdio.h>**

**#include <string.h>**

**#include <sys/socket.h>**

**#include<unistd.h>**

**#include <sys/stat.h>**

**#include <sys/types.h>**

**int main()**

**{**

**struct sockaddr\_in client;**

**int s, flag\_534;**

**int buffer\_534;**

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

**client.sin\_family = AF\_INET;**

**client.sin\_port = 2000;**

**client.sin\_addr.s\_addr = inet\_addr("127.0.0.1");**

**connect(s, (struct sockaddr\*)&client, sizeof client);**

**printf("\nEnter a roll no\t");**

**scanf("%d", &buffer\_534);**

**send(s, &buffer\_534, sizeof(buffer\_534), 0);**

**close(s);**

**}**

**OUTPUT:**

