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EXPERIMENT 2

Objective 3

To implement the program where client reads a number x and sends to server. The server sends 2x and x^2 to the client. The client adds them and sends the result to the server. Server displays the result.

Code:
server.c

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
	int listenfd,connfd,len,n;
	char buff[200];

	struct sockaddr_in servaddr,cliaddr;
	len=sizeof(servaddr);
	servaddr.sin_family=AF_INET;

	servaddr.sin_addr.s_addr=htons( INADDR_ANY);

	servaddr.sin_port=htons(0);
	listenfd=socket(AF_INET,SOCK_STREAM,0);
	bind(listenfd, (struct sockaddr *)&servaddr,len);
	getsockname(listenfd,(struct sockaddr *)&servaddr ,&len);
	printf("Port for client=%ld\n",(long)ntohs(servaddr.sin_port));
	listen(listenfd,5);
	connfd=accept(listenfd,(struct sockaddr *)&cliaddr ,&len);

	// Read the number from client
	n=read(connfd , buff ,sizeof(buff));
	buff[n]=0;
	int num = atoi(buff);
	printf("\nReceived number from client= %d\n", num);

	// Store multiplied by 2 and squares in an string
	int numdata[2];
```

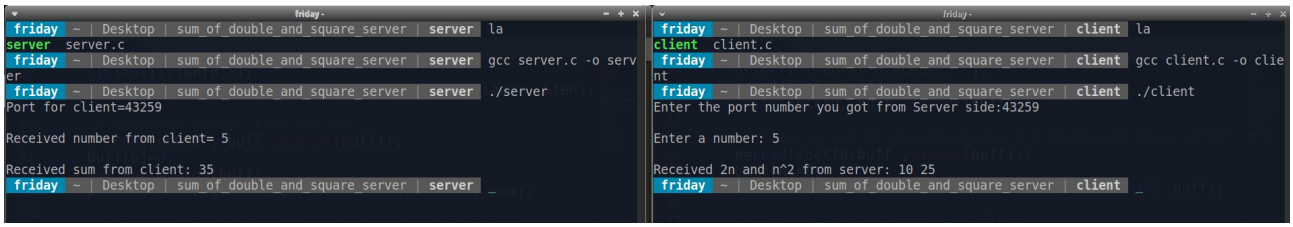
```
        numdata[0] = num * 2;
        numdata[1] = num * num;

        strcpy(buff, "");
        for(int i = 0; i < 2; i++)
        {
                char temp[50];
                sprintf (temp, "%d", numdata[i]);
                strcat(buff, temp);
                strcat(buff, " ");
        }

        // Send the two numbers to client
        write(connfd, buff ,sizeof(buff));

        // Receive the sum and print in server
        n=read(connfd , buff ,sizeof(buff));
        buff[n]=0;

        printf("\nReceived sum from client: %s\n", buff);

        return 0;
}
```

client.c

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
        int sockfd,len,n;
        long port;
        char buff[200];
        struct sockaddr_in cliaddr;
        len=sizeof(cliaddr);

        printf("Enter the port number you got from Server side:");
        scanf("%ld" ,&port);

        cliaddr.sin_family=AF_INET;
        cliaddr.sin_addr.s_addr=inet_addr("127.0.0.1");
        cliaddr.sin_port=htons(port);
        sockfd=socket(AF_INET,SOCK_STREAM,0);
```

```
    connect(sockfd,(struct sockaddr *)&cliaddr,len);

    // Input and send the number to server
    printf("\nEnter a number: ");
    scanf("%s", buff);
    write(sockfd, buff ,sizeof(buff));

    // Read values of multiplied by 2 and squares from server
    n=read(sockfd,buff ,sizeof(buff));
    buff[n]=0;
    printf("\nReceived 2n and n^2 from server: %s\n", buff);

    // Get the sum of received values
    char* temp;
    int sum = 0;
    temp = strtok(buff, " ");
    while( temp != NULL )
    {
       sum += atoi(temp);
       temp = strtok(NULL, " ");
    }

    // Send the sum to the server
    strcpy(buff, "");
    sprintf (buff, "%d", sum);
    write(sockfd, buff ,sizeof(buff));

    return 0;
}
```

Output:



Submitted by:

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