

Assignment 1-A

```
Router 1:
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 192.168.1.0
Router(config-router)#network 192.168.4.0
Router(config-router)#
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router 2:
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.5 255.255.255.0
Router(config-if)#ip address 192.168.2.5 255.255.255.0
Router(config-if)#no shutdown
```

```
Router 3:
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 192.168.3.0
Router(config-router)#network 192.168.5.0
Router(config-router)#
Router(config-router)#end
```

Assignment 2-A

```
Router 0:
Router#en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router eigrp 10
Router(config-router)#network 192.168.1.0 255.255.255.0
Router(config-router)#network 192.168.10.0 255.255.255.0
Router(config-router)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

```
Router 1:
Router#en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router eigrp 10
Router(config-router)#network 192.168.2.0 255.255.255.0
Router(config-router)#network 192.168.10.0 255.255.255.0
Router(config-router)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

Assignment 2-B

Commands:

Router 1:

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 1

Router(config-router)#network 192.168.3.0 0.0.0.255 area 0

Router(config-router)#network 192.168.1.0 0.0.0.255 area 0

Router(config-router)#network 192.168.2.0 0.0.0.255 area 0

Router(config-router)#end

Router 2:

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 1

Router(config-router)#network 192.168.4.0 0.0.0.255 area 0

Router(config-router)#network 192.168.2.0 0.0.0.255 area 0

Router 3:

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router ospf 1

Router(config-router)#network 192.168.5.0 0.0.0.255 area 0

Router(config-router)#network 192.168.3.0 0.0.0.255 area 0

Router(config-router)#network 192.168.4.0 0.0.0.255 area 0

Assignment 3-Client

```
#include <arpa/inet.h> // inet_addr()
#include <netdb.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <strings.h> // bzero()
#include <sys/socket.h>
#include <unistd.h> // read(), write(), close()
#define MAX 80
#define PORT 8080
#define SA struct sockaddr
void func(int sockfd)
{
    char buff[MAX];
    int n;
    for (;;) {
        bzero(buff, sizeof(buff));
        printf("Enter the string : ");
        n = 0;
        while ((buff[n++] = getchar()) != '\n')
            ;
        write(sockfd, buff, sizeof(buff));
        bzero(buff, sizeof(buff));
        read(sockfd, buff, sizeof(buff));
        printf("From Server : %s", buff);
        if ((strcmp(buff, "exit", 4)) == 0) {
            printf("Client Exit...\n");
            break;
        }
    }
}

int main()
{
    int sockfd, connfd;
    struct sockaddr_in servaddr, cli;

    // socket create and verification
    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if (sockfd == -1) {
        printf("socket creation failed...\n");
        exit(0);
    }
    else
        printf("Socket successfully created..\n");
    bzero(&servaddr, sizeof(servaddr));

    // assign IP, PORT
    servaddr.sin_family = AF_INET;
    servaddr.sin_addr.s_addr = inet_addr("127.0.0.1");
    servaddr.sin_port = htons(PORT);

    // connect the client socket to server socket
    if (connect(sockfd, (SA*)&servaddr, sizeof(servaddr))
```

```

        != 0) {
        printf("connection with the server failed...\n");
        exit(0);
    }
    else
        printf("connected to the server..\n");

    // function for chat
    func(sockfd);

    // close the socket
    close(sockfd);
}

/* OUTPUT

student@student-HP-Pro-3330-MT:~$ gcc client.c -o client
student@student-HP-Pro-3330-MT:~$ ./client
Socket successfully created..
connected to the server..
Enter the string : Shrikant
From Server : Hello Kajal
Enter the string : Bye

*/

```

Assignment 3-Server

```
#include <stdio.h>
#include <netdb.h>
#include <netinet/in.h>
#include <stdlib.h>
#include <string.h>
#include <sys/socket.h>
#include <sys/types.h>
#include <unistd.h> // read(), write(), close()
#define MAX 80
#define PORT 8080
#define SA struct sockaddr

// Function designed for chat between client and server.
void func(int connfd)
{
    char buff[MAX];
    int n;
    // infinite loop for chat
    for (;;) {
        bzero(buff, MAX);

        // read the message from client and copy it in buffer
        read(connfd, buff, sizeof(buff));
        // print buffer which contains the client contents
        printf("From client: %s\t To client : ", buff);
        bzero(buff, MAX);
        n = 0;
        // copy server message in the buffer
        while ((buff[n++] = getchar()) != '\n')
            ;

        // and send that buffer to client
        write(connfd, buff, sizeof(buff));

        // if msg contains "Exit" then server exit and chat
        ended.
        if (strncmp("exit", buff, 4) == 0) {
            printf("Server Exit...\n");
            break;
        }
    }
}

// Driver function
int main()
{
    int sockfd, connfd, len;
    struct sockaddr_in servaddr, cli;

    // socket create and verification
    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if (sockfd == -1) {
        printf("socket creation failed...\n");
        exit(0);
    }
```

```

    }
    else
        printf("Socket successfully created..\n");
    bzero(&servaddr, sizeof(servaddr));

    // assign IP, PORT
    servaddr.sin_family = AF_INET;
    servaddr.sin_addr.s_addr = htonl(INADDR_ANY);
    servaddr.sin_port = htons(PORT);

    // Binding newly created socket to given IP and verification
    if ((bind(sockfd, (SA*)&servaddr, sizeof(servaddr))) != 0) {
        printf("socket bind failed...\n");
        exit(0);
    }
    else
        printf("Socket successfully binded..\n");

    // Now server is ready to listen and verification
    if ((listen(sockfd, 5)) != 0) {
        printf("Listen failed...\n");
        exit(0);
    }
    else
        printf("Server listening..\n");
    len = sizeof(cli);

    // Accept the data packet from client and verification
    connfd = accept(sockfd, (SA*)&cli, &len);
    if (connfd < 0) {
        printf("server accept failed...\n");
        exit(0);
    }
    else
        printf("server accept the client...\n");

    // Function for chatting between client and server
    func(connfd);

    // After chatting close the socket
    close(sockfd);
}

```

/* OUTPUT

```

student@student-HP-Pro-3330-MT:~$ gcc server.c -o server
student@student-HP-Pro-3330-MT:~$ ./server
Socket successfully created..
Socket successfully binded..
Server listening..
server accept the client...
From client: Shrikant
        To client : Hello Kajal
From client: Bye
*/

```

Assignment 4-A

```
FTP Commands to put the file on the Server
ftp 192.168.1.2
Trying to connect...192.168.1.2
Connected to 192.168.1.2
220- Welcome to PT Ftp server
Username:demo
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir
Listing /ftp directory from 192.168.1.2:
%Error ftp://192.168.1.2/ (No such file or directory Or Permission
denied)
550-Requested action not taken. permission denied).
ftp>put ftpfile.txt
Writing file ftpfile.txt to 192.168.1.2:
File transfer in progress...
[Transfer complete - 23 bytes]
23 bytes copied in 0.048 secs (479 bytes/sec)
FTP Commands to get the file from the Server
ftp 192.168.1.2
Trying to connect...192.168.1.2
Connected to 192.168.1.2
220- Welcome to PT Ftp server
Username:demo
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get ftpfile.txt
Reading file ftpfile.txt from 192.168.1.2:
File transfer in progress...
[Transfer complete - 23 bytes]
23 bytes copied in 0.01 secs (2300 bytes/sec)
```