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SUBJECT : Computer Networks  
ASSIGNMENT NO. : 04

PROBLEM STATEMENT : IMPLEMENT ERROR CONTROL FREQUECY HOPPING SPREAD SPECTRUM AND DIRECT SEQUNCE SPREAD SPECTRUM METHODS IN WIRELESS COMMUNICATION .

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <stdbool.h>

#define PACKET\_SIZE 64

#define NUM\_CHANNELS 10

#define CODE\_LENGTH 32

void transmitFHSS(char data[]);

void receiveFHSS(char data[]);

void transmitDSSS(char data[]);

void receiveDSSS(char data[]);

int main() {

    char data[PACKET\_SIZE];

    printf("Enter data to transmit: ");

    fgets(data, sizeof(data), stdin);

    data[strcspn(data, "\n")] = '\0';

    transmitFHSS(data);

    receiveFHSS(data);

    transmitDSSS(data);

    receiveDSSS(data);

    return 0;

}

void transmitFHSS(char data[]) {

    printf("Transmitting using Frequency Hopping Spread Spectrum (FHSS)...\n");

    for (int i = 0; i < PACKET\_SIZE && data[i] != '\0'; i++) {

        int channel = rand() % NUM\_CHANNELS;

        printf("Transmitting %c on channel %d\n", data[i], channel);

    }

    printf("Transmission using FHSS completed.\n\n");

}

void receiveFHSS(char data[]) {

    printf("Receiving using Frequency Hopping Spread Spectrum (FHSS)...\n");

    for (int i = 0; i < PACKET\_SIZE && data[i] != '\0'; i++) {

        int channel = rand() % NUM\_CHANNELS;

        printf("Receiving %c from channel %d\n", data[i], channel);

    }

    printf("Reception using FHSS completed.\n\n");

}

void transmitDSSS(char data[]) {

    printf("Transmitting using Direct Sequence Spread Spectrum (DSSS)...\n");

    char code[CODE\_LENGTH];

    for (int i = 0; i < CODE\_LENGTH; i++) {

        code[i] = rand() % 2 == 0 ? '0' : '1';

    }

    for (int i = 0; i < PACKET\_SIZE && data[i] != '\0'; i++) {

        printf("Transmitting %c with code %s\n", data[i], code);

    }

    printf("Transmission using DSSS completed.\n\n");

}

void receiveDSSS(char data[]) {

    printf("Receiving using Direct Sequence Spread Spectrum (DSSS)...\n");

    char code[CODE\_LENGTH];

    for (int i = 0; i < CODE\_LENGTH; i++) {

        code[i] = rand() % 2 == 0 ? '0' : '1';

    }

    for (int i = 0; i < PACKET\_SIZE && data[i] != '\0'; i++) {

        printf("Receiving %c with code %s\n", data[i], code);

    }

    printf("Reception using DSSS completed.\n\n");

}

OUTPUT :   


