NAME : Gargi Dandare CLASS : SY-IT[A] ROLL NO. : 33 SUBJECT : Computer Networks

ASSIGNMENT NO. : 07

**Problem Statement**:

**Implement Sliding window flow control protocol.**

**1.Read Transmission time and Propagation Protocol**

**2. calculate Maximum packet to transmit.**

**3. calculate number of bits in the sequence number**

**4. calculate Sender window**

**5. Calculate Efficiency of the Algorithm**

**Code**

#include <stdio.h>

#define MAX\_PACKET\_SIZE 1500

#define MAX\_WINDOW\_SIZE 5

// Function to calculate the maximum number of packets to transmit

int calculateMaxPackets(int transmissionTime, int propagationTime) {

    return (transmissionTime + propagationTime) / transmissionTime;

}

// Function to calculate the number of bits in the sequence number

int calculateSequenceNumberBits(int maxPackets) {

    int bits = 0;

    while ((1 << bits) < maxPackets)

        bits++;

    return bits;

}

// Function to calculate the sender window size

int calculateSenderWindow(int maxWindowSize, int maxPackets) {

    return (maxWindowSize < maxPackets) ? maxWindowSize : maxPackets;

}

// Function to calculate the efficiency of the algorithm

float calculateEfficiency(int transmissionTime, int propagationTime, int maxPackets, int windowSize) {

    return (float)windowSize / ((float)transmissionTime / (transmissionTime + propagationTime));

}

int main() {

    int transmissionTime, propagationTime;

    printf("Enter transmission time (in milliseconds): ");

    scanf("%d", &transmissionTime);

    printf("Enter propagation time (in milliseconds): ");

    scanf("%d", &propagationTime);

    int maxPackets = calculateMaxPackets(transmissionTime, propagationTime);

    printf("Maximum packets to transmit: %d\n", maxPackets);

    int sequenceNumberBits = calculateSequenceNumberBits(maxPackets);

    printf("Number of bits in the sequence number: %d\n", sequenceNumberBits);

    int windowSize = calculateSenderWindow(MAX\_WINDOW\_SIZE, maxPackets);

    printf("Sender window size: %d\n", windowSize);

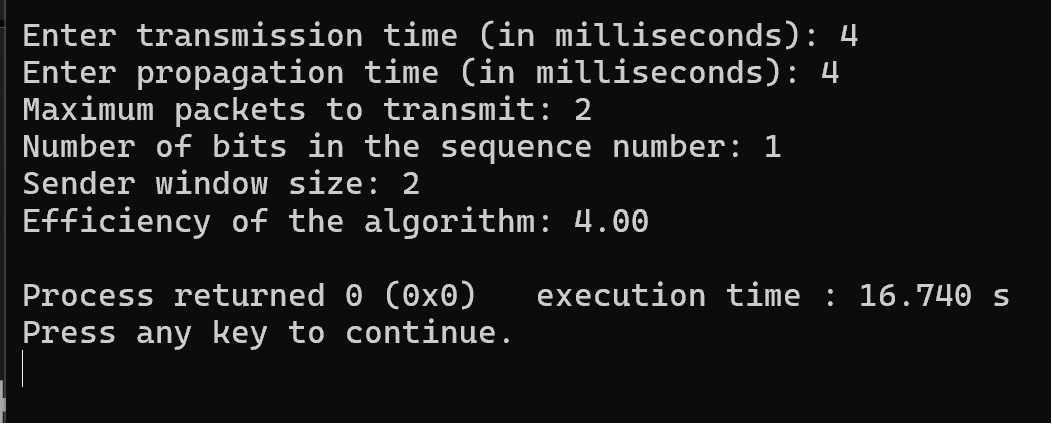
    float efficiency = calculateEfficiency(transmissionTime, propagationTime, maxPackets, windowSize);

    printf("Efficiency of the algorithm: %.2f\n", efficiency);

    return 0;

}

**Output:**

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