Experiment 9:

* Aim : Stop-and-Wait ARQ Protocol in C
* Apparatus (Software):
* Turbo C++

**Algorithm:**

**Input:**

* **Prompt the user to input the total number of frames (totalFrames) to send.**
* **Initialize Variables:**
* **Set frameToSend = 1 to represent the current frame being sent.**
* **Initialize an integer variable ack to store the acknowledgment status of each frame.**
* **Send Frame:**
* **While frameToSend is less than or equal to totalFrames, follow these steps:**
  + **Print the message "Sending frame frameToSend."**
  + **Prompt the user for acknowledgment (ack) of the frame by asking for input: "Enter acknowledgment for frame frameToSend (1 for received):".**
  + **Read the acknowledgment input from the user.**
* **Check Acknowledgment:**
* **If the user enters 1 (indicating the frame was received successfully):**
  + **Call the receiver function to simulate the reception of the frame.**
  + **Increment frameToSend to move to the next frame.**
* **If the acknowledgment is not 1, resend the frame (i.e., do not increment frameToSend).**

**Repeat:**

* **Repeat the process until all frames are sent and acknowledged (i.e., until frameToSend exceeds totalFrames).**

**End:**

* **When all frames have been successfully acknowledged, the program terminates.**

Code:

#include <stdio.h>

#include <stdbool.h>

void receiver(int frame) {

    printf("Receiver: Received frame %d\n", frame);

}

int main() {

    int totalFrames;

    printf("Enter total frames to send: ");

    scanf("%d", &totalFrames);

    int frameToSend = 1;

    int ack;

    while (frameToSend <= totalFrames) {

        printf("Sending frame %d\n", frameToSend);

        printf("Enter acknowledgement for frame %d (1 for received):", frameToSend);

        scanf("%d", &ack);

        if (ack == 1) {

            receiver(frameToSend);

            frameToSend++;

        }

    }

    return 0;

}

Output:

