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Practical 7

AIM:

Write a program to implement flow control at data link layer using

SLIDING WINDOW PROTOCOL. Simulate the flow of frames from one

node to another.

ALGORITHM:

Initialize Frames:

* Input the window size from the user.
* Input a message to be sent as a sequence of frames.
* Create a list of frames from the message, where each frame consists of:
  + A frame number (frame\_no).
  + The data (a single character from the message).
  + An acknowledgment status (acknowledged), initially set to False.

Set Initial Variables:

* Set base to 0, representing the starting position of the sliding window.
* The window\_size determines how many frames can be sent without waiting for acknowledgments.

Loop Until All Frames are Sent:

* Send Frames:
  + Send up to window\_size frames starting from the current base.
  + Display the frame numbers and data being sent.
  + Introduce a delay (2 seconds) to simulate transmission time.
* Receive Acknowledgments:
  + Simulate acknowledgment for each frame in the window:
    - With an error probability of 20%, mark the frame as not acknowledged.
    - Otherwise, mark the frame as successfully acknowledged.
  + Display the acknowledgment status for each frame (OK for success, ERROR for failure).
  + Introduce a delay to simulate acknowledgment processing time.

Update Window Base:

* + Shift the window (base) to the next unacknowledged frame:
    - Move base forward as long as frames at base are acknowledged.
    - If base has moved to the next set of unacknowledged frames, resend the remaining frames in the window.

Repeat Until All Frames are Acknowledged:

* Continue until base reaches the end of the frame list.
* If there are still frames left unacknowledged after a complete cycle, resend them.
* Introduce a delay for retransmission.

End Protocol:

* Print a confirmation message that all frames have been sent and acknowledged.

OUTPUT:



