

EX NO: 07
DATE: 6.9.24

SLIDING WINDOW PROTOCOL

AIM:

→ To write a program to implement sliding window protocol

CODE:

sender.py

```
import time
```

```
import os
```

```
def createframes(text_message):
```

```
    frame = [(i, char) for i, char in
```

```
               enumerate(text_message)]
```

```
    frames.append([len(text_message), 'END'])
```

```
    return frames
```

```
def write_to_file(filename, data):
```

```
    with open(filename, "w") as file:
```

```
        for frame in data:
```

```
            f.write(f"{frame[0]} ,
```

```
                    {frame[1]} \n")
```



```
def read_area_file(filename):
```

```
    if not os.path.exists(filename):
```

```
        return []
```

```
    with open(filename, 'r') as file
```

```
        return [line.strip().split(',') for line in  
                file.readlines()]
```

```
def send_frames(frames, window_size):
```

```
    i = 0
```

```
    while i < len(frames):
```

```
        window = frames[i:i+window_size]
```

```
        print(f"Sending frames: {window}")
```

```
        write_to_file('send-Buffer-text', window)
```

```
        time.sleep(3)
```

```
        receiver_buffer = read_from_file
```

```
        ('Receiver-Buffer-text')
```

```
        if not receiver_buffer:
```

```
            print("No acknowledgement  
received yet")
```

```
            continue
```

```
            ack_frame = receiver_buffer[-1]
```

```
            ack_number, ack_type = int(ack_frame[0]),  
                                     ack_frame[1]
```



```

def main-sender():
    window-size = int(input("Enter window size:"))
    text-message = input("Enter text")
    frames = create-frames(text-message)
    send-frames = (frames, window-size)
    if __name__ == "__main__":
        main-sender()

```

receiver.py

```

import random
import time
import os

def write-to-file(filename, data):
    with open(filename, 'w') as file:
        file.write(data)

def read-from-file(filename):
    if not os.path.exists(filename):
        return []
    with open(filename, 'r') as file:
        return [line.strip().split(',') for line in file.readlines()]

```

```

def process-frames(frames):
    ack = 1
    frame-seen = set()
    def main-receiver():
        while True:
            time.sleep(3)
            frames = read-from-file('sender-buffer.txt')
            if not frames:
                print("No frames to process, wash")
                continue
            acks = process-frames(frames)
            write-to-file('receiver-buffer.txt', acks)
            if [any(frame[i] == 'END' for frame in frames):
                print("End")
                break
    if __name__ == "__main__":
        main-receiver()

```


OUTPUT:-

Enter window size : 2

Enter text message : hell

Sending frame : [(0, 'h'), (1, 'e')]

Ack received

Sending frame : [(2, 'l'), (3, 'l')]

Ack received

Sending frame : [(4, 'END')]

Ack received

Received frame : END

Sending frame :

End

RESULT :

The Program is successfully executed
and the output is verified