## NP Lab

RISTIAN KARANTE IS I 17CSOD Sliding Window 7. Write a program to implement sliding window protocol between two mosts. Clogic at last) > Code : 5 Server side: #include <stdio.b> # include < stoing h> # include < sys/types. h>
# include < netinet/in.h> # include < aropa/inet-h> #define PECVBUF 20 int Adv Window = 0; void main()& int std, Ifd, poot 1, i, status, choice; char str[20] str1[20], eoo[20], advWindow[1027] act - sto[20]; int act; char frame 1 [20], frame[20]: int sendsize = 5; char \* recv-ets; recv- sto = malloc (50); me mset recv-sto, 0, 20);

int yes= 1;

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1	struct sockaddo-in saddo, caddo;
	my and de
	poot = 5000;
to the second	std = Socket CAF_INET, SOCK_STREAM, 0);
	The state of the s
	if (std<0)
	person ("Coros")
	if (setsockopt (std, SOL-SOCKET, SO-PRUSHAP)
	$\{yes, sizeof(int)\} = = -1)s'$
	person (" Setsock opt))
	Z stagnicale. I with
	1 bzeso (beaddo, sizeos (saddo));
	andrasin-family =AF-1NOI)
	sados sin- addo saddo = hom (INAUDR-1-1119)
	saddo sin-post = ntons (post);
	The second of th
	Ifd = bind(std, (stouct suck addo *) & sadds sizeof(sadds));
	sizeof (saddo)); and and large day
	if (Itd)
	person ("Bind Food ") Million I mil
	and and and the second of the stage of the stage of the second
12-11	Misten(std, 5); Make Jack Jack
	len = 9izeof (&caddo);
	Vd = accept (std, (stouct sockader *) &cadds,
	Wien);
	len=-1;
	120) (CA) (Carrent Carrent Car

	. Dale :
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	So While (1) &
	maemset (Frame, 0,20);
	Decv (Ifd. forme 100,0).
A	is (stoc mp (Soumer, "Gocits) == 0)
	a de la companya della companya della companya de la companya della companya dell
100	Points ( " In Exitting ! \ h?)
	3 poeak;
	Interestand() 1.8;
	int 15;
	it (e00 <4)2
	memset (Soame1, 0,20);
	800 (16=0) 15 (e00) 15++)
133	Soaroe 1[is] = Soarme [is]
	vecv-str=(charx) strat (secv-strsome)
	Source [606] = (2)
	points (" 'n 'n in introduce e o soo at
	Source = 11d Bosos at 12d Froms
	Sull forme recved = 7.5 Retainsmit es
	it eos, same)
	1= it eos:
	ack = i)
40	sale 3 politica of the contract of the state
	elses  points ("In) nReceirs some (succuss) = 7.5,  Pecving WINDOW: Steast segro=7.
	points ("In) he cuiry forme (succuss) = 7.5,
	198 CVing WINDOW: Steast segro=7
	-end seq. no = 1.d2) forme i, itsendia vecv-sto= (chars x) stocat vector-sto same?
	recv-str= (chars x) streat recht-str same
	i=i+sendsize;
	act=i
	3

	Dale :
	Page:
	point f("In Receives: Sending ACK back to
	sender ack=1/1012 ack)
	Spoints (ack-sto, "1.d"), ack);
	send (15d, ack_sto, stolen(ack_sto), o);
	4
	prints ("In Received Final sto at Destination 1516"
	recvista
	close(std); her all the state of the
	3
	7 (120 - 23 - 1) to
5	
	CHU, C. Marie Saile Car California
	Hindude (stdio h)
a de Ale A	# include astalib. b>
	# include < stoing. h)
71	# include < sys/socket.h>
	#include (Bys/types.h)
) · ( )	# include < netinet/in.h
	# indude <arapa inet.b=""></arapa>
	void main ()?
	int std, len choice, i), status, sendsize, post
	recvsize, temp1
1	chas sto[20], frame[20] temp[20], acts[20],
5 1 N 2	sendwin [20]
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	chao xmsg = "network programing"
To live to	stouct sockadds in saddo, caddo,
	post = 5000.

	Date : Page:
	Std = socket (AF_INET, SOOK_STREAM, P);
	if (std<0)
	beerog (Essos)
	bzero (2 3addo sizeod (saddo);
	sadds. Sin-family = AF_INET;
	ine t- pton (AF_INET, "127.0.0.1") & sadds. sip-adds)
	saddo. sin-post = htons (post);
	100 togal context to the straining account to
	connect (std, (stouct suck adds *) Ksadds
4	size of (saddo));
	points ("In msg= 1.5", msg);
	points ( " In len = y.d" stolen(msg)).
4	points (ec)n len= 1.d > stolen(mgg))
	points ("enter the text").
1	7=0; 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
	sendsize > 5;
	while (1 stalen (msg)) f
	memset (some, 0,20)
	stonepy (Soume, mgg+i, sendsize);
	points ( "In n Sending Soame = 1 s, Sending
e	WINDOW: start segnond - end segno
	1.d" foame, is itsendsize -1)
	send (std, soume, stolen (soume), 0);
	points ("Insending data and wait for act")
	memset (act, 0,20)
	vecv(std, act, 100,0);
	SSCant (ack, 1.d2), Lestatus).
	points ("In veridack no = ).d", status).
	i=status;
	3 1100 1122 : 0000 121/2
	woite (std) "Exit", Sizeou ("Exit")
	woite(std) "Exit", sizeof ("Exit")); points (" vn Exiting" ! vn").  close(std);

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	Log5c:
	. In this protocols, the sender has a buffer
	called sending window
	· The veceives have buffers called the veceiving
S. F.	window with a company of the contraction
	· The size of receiving window is the
	maximum number of somes that the
ye. 2	beceived can accept-
	· First Deceives requests for certain some
	· Then sender sends the requested some
	to seceives
	- Receivers send act if some received
	successfully otherwise it will send
	the forme no. for which expos receives
	had not received.
	· Sender slides the window to sight &
	ack received
	. It coops occurs, sender resends the
, , , ,	some soe which ack was deceived
, , V 1	
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	the state of the s
7 1	the first of the first of the first of the first
	The same of the sa
11	

## Sender's Side Output

```
rishav@DESKTOP-ICLRKNJ:~/Sliding window$ ./s
Recving frame (SUCCUSS ) = netwo ,Recving WINDOW: start segno= 0 - end segno= 4
 Recver : Sending ACK back to sender ack = 5
Recving frame (SUCCUSS ) = rk pr ,Recving WINDOW: start segno= 5 - end segno= 9
 Recver : Sending ACK back to sender ack = 10
Introduce error at frame= 1    Error at = 11 , Error full frame recved = oxram -- Retransmit
 Recver : Sending ACK back to sender ack = 11
Introduce error at frame= 3 Error at = 14 , Error full frame recved = graxm -- Retransmit
 Recver : Sending ACK back to sender ack = 14
Introduce error at frame= 1    Error at = 15 , Error full frame recved = mxing -- Retransmit
 Recver : Sending ACK back to sender ack = 15
Recving frame (SUCCUSS ) = ming ,Recving WINDOW: start segno= 15 - end segno= 19
Recver : Sending ACK back to sender ack = 20
Exitting!
Received Final str at Destination = network programming
rishav@DESKTOP-ICLRKNJ:~/Sliding window$
```

## Client's Side Output

```
rishav@DESKTOP-ICLRKNJ:~/Sliding window$ ./c
Enter the port address
msg= network programming
 len = 20
len = 20 Enter the text:
Sending frame = netwo , Sending WINDOW: start segno= 0 - end segno= 4
sending data and wait for ack
 recvd ack no = 5
Sending frame = rk pr , Sending WINDOW: start segno= 5 - end segno= 9
sending data and wait for ack
 recyd ack no = 10
Sending frame = ogram , Sending WINDOW: start segno= 10 - end segno= 14
 sending data and wait for ack
 recyd ack no = 11
Sending frame = gramm , Sending WINDOW: start segno= 11 - end segno= 15
sending data and wait for ack
 recyd ack no = 14
Sending frame = mming , Sending WINDOW: start seqno= 14 - end seqno= 18
sending data and wait for ack
 recvd ack no = 15
Sending frame = ming , Sending WINDOW: start seqno= 15 - end seqno= 19
sending data and wait for ack
 recvd ack no = 20
Exitting!
rishav@DESKTOP-ICLRKNJ:~/Sliding window$
```