

CYCLE-2

LAB-4:Write a program for congestion control using Leaky bucket algorithm.

Program:

```
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#define NOF_PACKETS 5
int main()

{
    int packet_sz[NOF_PACKETS], i, clk, b_size, o_rate, p_sz_rm=0, p_sz, p_time, op;
    for(i = 0; i<NOF_PACKETS; ++i)
        packet_sz[i] = random() % 100;
    for(i = 0; i<NOF_PACKETS; ++i)
        printf("\npacket[%d]:%d bytes\t", i, packet_sz[i]);
    printf("\nEnter the Output rate:");
    scanf("%d", &o_rate);
    printf("Enter the Bucket Size:");
    scanf("%d", &b_size);
    for(i = 0; i<NOF_PACKETS; ++i)
    {
        if( (packet_sz[i] + p_sz_rm) > b_size)
            if(packet_sz[i] > b_size)
                printf("\n\nIncoming packet size (%dbytes) is Greater than bucket capacity(%dbytes)-PACKET
REJECTED", packet_sz[i], b_size);
            else
                printf("\n\nBucket capacity exceeded-PACKETS REJECTED!!!");
            else
            {
                p_sz_rm += packet_sz[i];
                printf("\n\nIncoming Packet size: %d", packet_sz[i]);
                printf("\nBytes remaining to Transmit: %d", p_sz_rm);
                while(p_sz_rm>0)
                {
                    sleep(1);
                    if(p_sz_rm)
                    {
                        if(p_sz_rm <= o_rate)
                            op = p_sz_rm, p_sz_rm = 0;
                        else
                            op = o_rate, p_sz_rm -= o_rate;

                        printf("\nPacket of size %d Transmitted", op);
                        printf("----Bytes Remaining to Transmit: %d", p_sz_rm);
                    }
                    else
                    {
                        printf("\nNo packets to transmit!!!");
                    }
                }
            }
    }
}
```

Output:

```
input
packet[0]:83 bytes
packet[1]:86 bytes
packet[2]:77 bytes
packet[3]:15 bytes
packet[4]:93 bytes
Enter the Output rate:35
Enter the Bucket Size:90

Incoming Packet size: 83
Bytes remaining to Transmit: 83
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 48
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 13
Packet of size 13 Transmitted----Bytes Remaining to Transmit: 0

Incoming Packet size: 86
Bytes remaining to Transmit: 86
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 51
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 16
Packet of size 16 Transmitted----Bytes Remaining to Transmit: 0

Incoming Packet size: 77
Bytes remaining to Transmit: 77
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 42
Packet of size 35 Transmitted----Bytes Remaining to Transmit: 7
Packet of size 7 Transmitted----Bytes Remaining to Transmit: 0

Incoming Packet size: 15
Bytes remaining to Transmit: 15

Incoming Packet size: 15
Bytes remaining to Transmit: 15
Packet of size 15 Transmitted----Bytes Remaining to Transmit: 0

Incoming packet size (93bytes) is Greater than bucket capacity(90bytes)-PACKET REJECTED

...Program finished with exit code 0
Press ENTER to exit console.
```