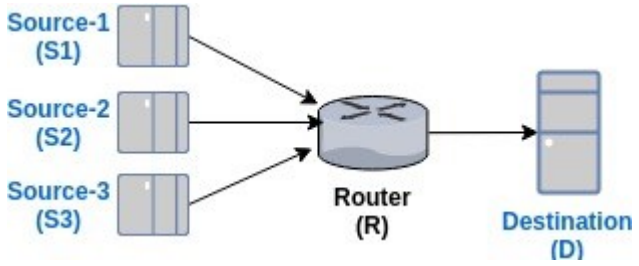
Weighted Fair Queuing

(Deadline Oct-23, 2059 hrs)

1. Project Description

The objective of this assignment is to understand/compare various scheduling algorithms. You are required to implement simple FIFO, Round Robin (RR) and Weighted Fair Queuing (WFQ) algorithms for the system described below.



Sources-1, 2 & 3 are sending packets of different sizes to router (R) at different intervals via different paths/queues. R extracts the payloads and forwards to destination (D) using the scheduling algorithms mentioned above via a single path/queue. You are free to choose any mechanism for communication between sources, router and destination (UDP socket, message queues or any other inter process communication mechanism). All the programs must be run on the same machine.

2. Inputs

Sources use the first byte of the payload to represents the origin. Rest of the bytes can be fixed or random. Following depicts the same idea

Byte	Payload
1	1 or 2 or 3 depending on source
2 to end of the packet	Fixed/Random

For example S1 can send 1000000000... as payload. Similarly S2 sends 2xajkbr….. S3 also follows the same. The packet size, count and frequency from sources are as per the table mentioned below.

Sources	Packet Count	Packet interval(ms)	Packet Size (Bytes)
S1	100	200	100
S2	1000	30	50
S3	500	300	100

For WFQ, R sets up following weights for S1, S2 & S3

Sources	Weights
S1	1
S2	2
S3	.5

3. Output

Destination (D) should print the sequence of packet sources in the same order it has received. The destination need to read the first byte of the payload to identify the source. Find the out the packet sequence for FIFO, RR and WFQ.

4. What to submit?

A single zip file containing

--> Source files
--> Makefile
--> README file that explains how to compile and run the program; whether your program works correctly or whether there are any known bugs/errors in your program

6. Grading

--> Correct implementation
--> Viva voce

7. Policies

--> Penalties will be there for any form of academic dishonesty, plagiarism, etc. There should be no downloaded code.
--> Software for checking plagiarism of the code will be used.