BAHRIA UNIVERSITY,
(Karachi Campus)

Department of Software Engineering

ASSIGNMENT #. 03 – Spring 2022

COURSE TITLE: **Operating Systems** COURSE CODE: **CSC-320**
Class: **BSE - 4(A & B)** Shift: **Morning**
Course Instructor: **Engr. Rizwan Fazal** Date: **20-June-2022**
Due Date: **30-June-2022 (4pm)** Max. Marks: **10 Points**

Instructions:

1. **This is an individual effort task.**
2. **Only handwritten answers are accepted on A4 size papers**
3. **Write your full name, registration number and section on the title page attached with this assignment. (Assignment WITHOUT title page will NOT be accepted!)**
4. **The given deadline is final and will not be extended in any case, therefore, it is highly recommended to start it as soon as possible**

[CLO-5]

Q. Refer to the following diagram, illustrating the feedback scheduling mechanism by showing the path that a process will follow through the various queues. This approach is known as Multilevel Feedback, meaning the OS allocates the processor to a process and when the process blocks or is preempted, feeds it back into one of several priority queues.

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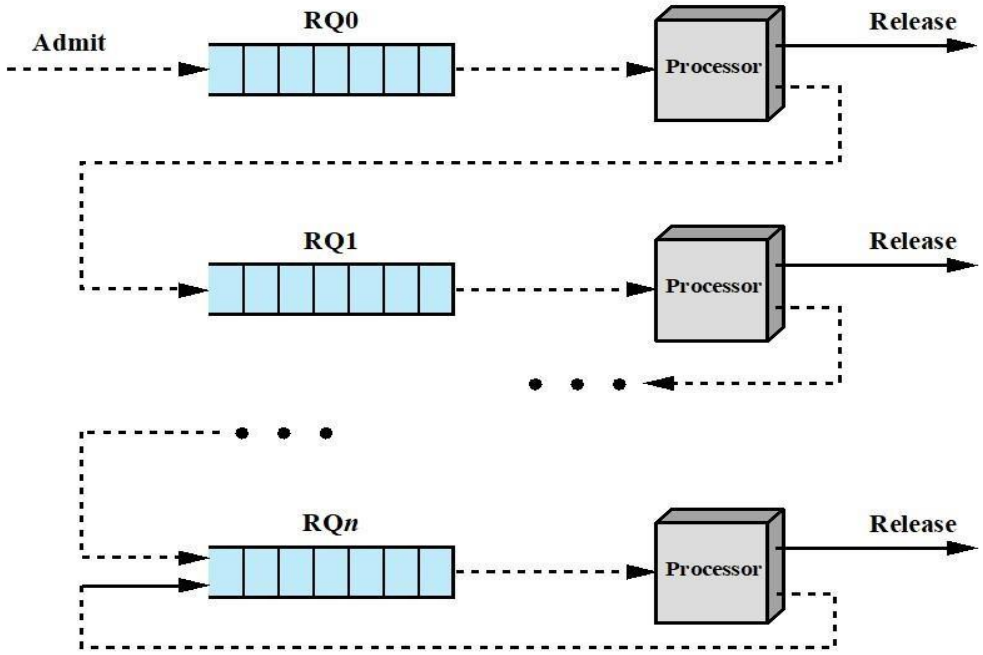

Suppose we have three processes A, B and C that arrive in the system having estimated burst times of 100 ms, 120 ms and 60 ms respectively.

Investigate the performance of the above given system for the following case if there are only 3 *Ready Queues* namely RQ0, RQ1 and RQ2:

(1). Round Robin in every queue with the relation **$q = (2^i \times 10)$ ms,** where 'i' is the Queue number starting from 0 to 2 as there are only 3 queues in this system. It means that each subsequent queue will have greater time quantum.

Tasks:

(1). Draw a neat and clean diagram showing the execution progress of each process on a time scale of **$q = (2^i \times 10)$ ms**

(2). Calculate the Turnaround time and Normalized Turnaround around time for each process according to the following given table:

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Serial #.	Process	Turnaround Time	Normalized Turnaround Time
1	A		
2	B		
3	C		

(3). Draw a conclusion based on this study by taking into account the following parameters:

○ Processes execution time ○ Scheduling technique ○ Turnaround

time and normalized turnaround time

Submission Guidelines:

1. Remember that, you will not be able to solve the above given problem until unless you properly understand the relevant concepts discussed during classroom lectures.
2. Prepare your solution on A4 size papers (paper with horizontal lines preferred) and must be neat and clean.
3. You are not supposed to share your assignment with others, otherwise it will be cancelled.
4. You can discuss the subject matter with each other but when it comes to problem solution, it shouldn't be copy pasted.

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ASSIGNMENT #. 3

Submitted by:

Name: Muhammad Junaid Saleem Qadi

Registration #: 70003

Section: BSE IV-B

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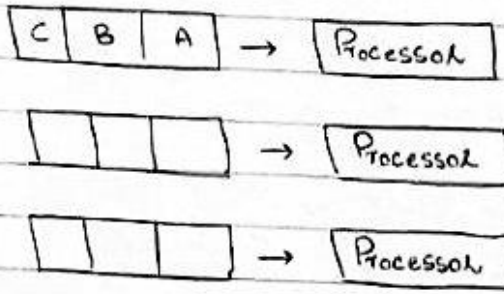
Task 01.

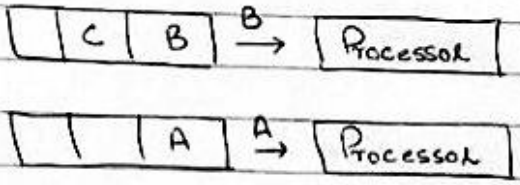
Step # 01 :

A = 100 ms , B = 120 ms , C = 60 ms



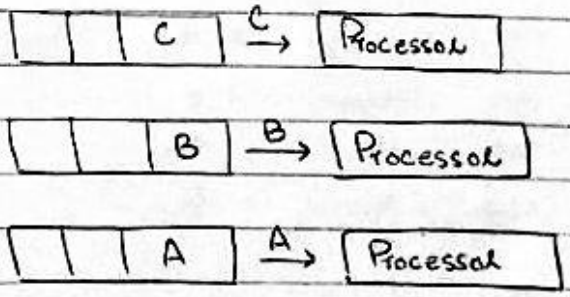
Step # 02 :

A = 90 ms, B = 120 ms, C = 60 ms



Step # 03 :

A = 70 ms, B = 110 ms, C = 60 ms



Step # 04 :

Since, there is no processing in RQ0, no need to draw RQ0' from next steps

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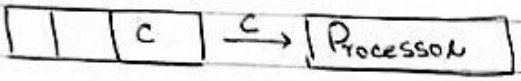
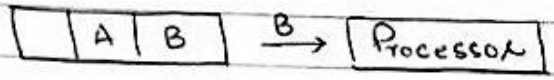
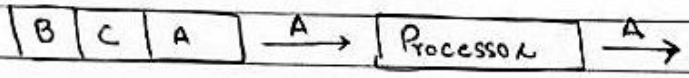
A = 30ms, B = 90ms, C = 50ms





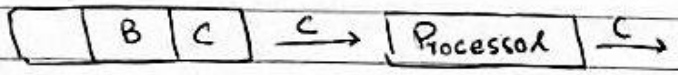
Step # 05 :

Since, there is no more processing in RQ1, so no need to draw RQ1 from now on (A = 30ms, B = 50ms, C = 30ms)



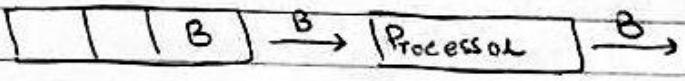
Step # 06 :

B = 50ms, C = 30ms



Step # 07 :

B = 50ms



Process	Arrival	Burst	Finish	T.T	Waiting	N.T.T (T_s/T_s)
A	0ms	100ms	140ms	140	40ms	1.4
B	0ms	120ms	210ms	210	90ms	1.75
C	0ms	60ms	120ms	120	60ms	2

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Task 3.

Acc to the above, this scheduling technique gives best outcome when the process have shorter Burst time b/c when there is a process of longer burst time. It can go to starvation as it go through multiprocessple queues until its processing finish.
Normalized turnaround time is ~~long~~ larger for shorter process while shorter for longer processes