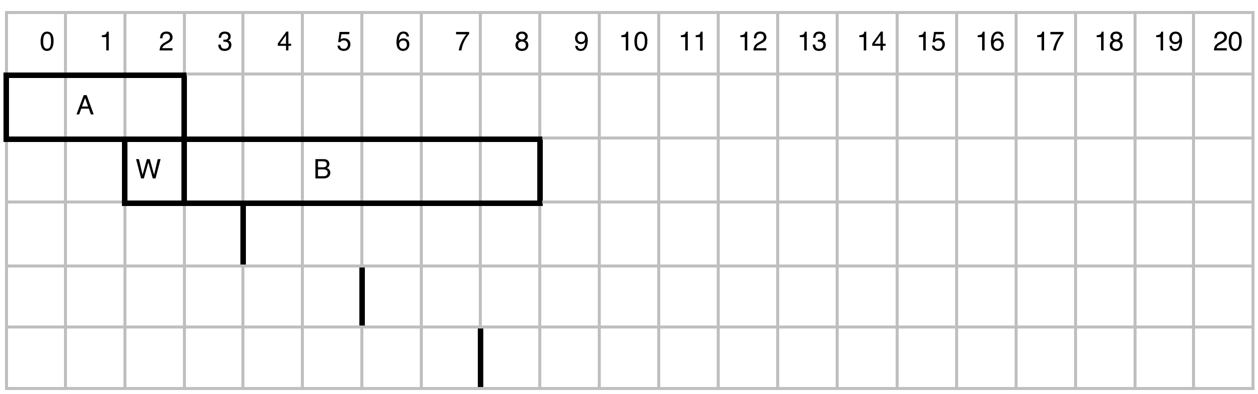
CSC 369: Exercise 11 Scheduling

Consider the following list of processes:
If time starts at 0, then A arrives at time 0 and gets 3 time units of service. At this point it is complete and leaves. B arrives at time 2, waits 1 time unit, and then runs for 6 time units. We assume that once a process has the CPU it runs to completion.

Q1. Fill in the chart below for the remaining 3 processes using a **First-Come-First-Served** algorithm. (The bars in the last 3 rows indicate the arrival time of the process.

Time

Process	Arrival Time	Service Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2



Total Waiting time: _________ time units

Total Running time: _________ time units

Average Wait time: _________ time units

Q2+3. Now create a schedule that **minimizes wait time**. You may not change the arrival time, and once a process begins running, it runs to completion. How do you choose the next process to run?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	A																			
		W			B															

Total Waiting time: _________ time units

Average Wait time: _________ time units

Average turnaround time: _________
Turnaround time = sum(completion time – arrival time)/ num processes

Q4: Finally, suppose we don't know when a process starts how many time units it will need. Use **round robin scheduling** with a time quantum of 2 units, to determine how the processes will run. When a process arrives, it is placed at the end of the ready queue.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A				A																
		B																		

Total Running time: _________ time units

Average turnaround time: _________

(When a process finishes its time slice at the moment of arrival of another process we need to make a scheduling decision! Which one gets enqueued first? For this exercise, assume that the arriving process gets enqueued first over a process that just finished its slice.)