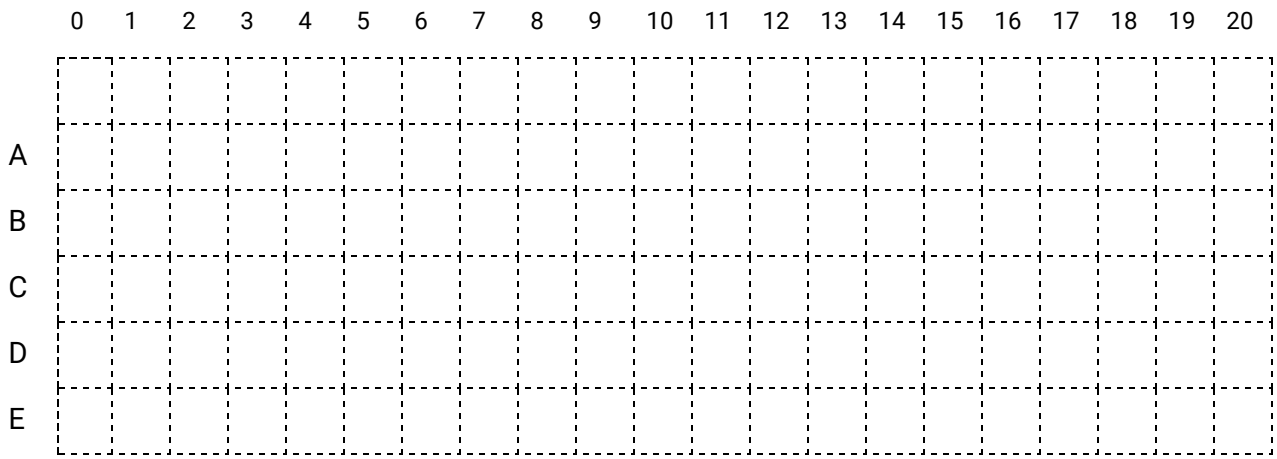
Exercise 1: Process scheduling (Lecture 12)

Suppose we have the following workload:

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

Question 1

If we use a SRTF scheduler, what will be the turnaround time for each process? And what will be the waiting time?
As an auxiliary, you may use the following chart to mark which process occupies the CPU at a specific time range.



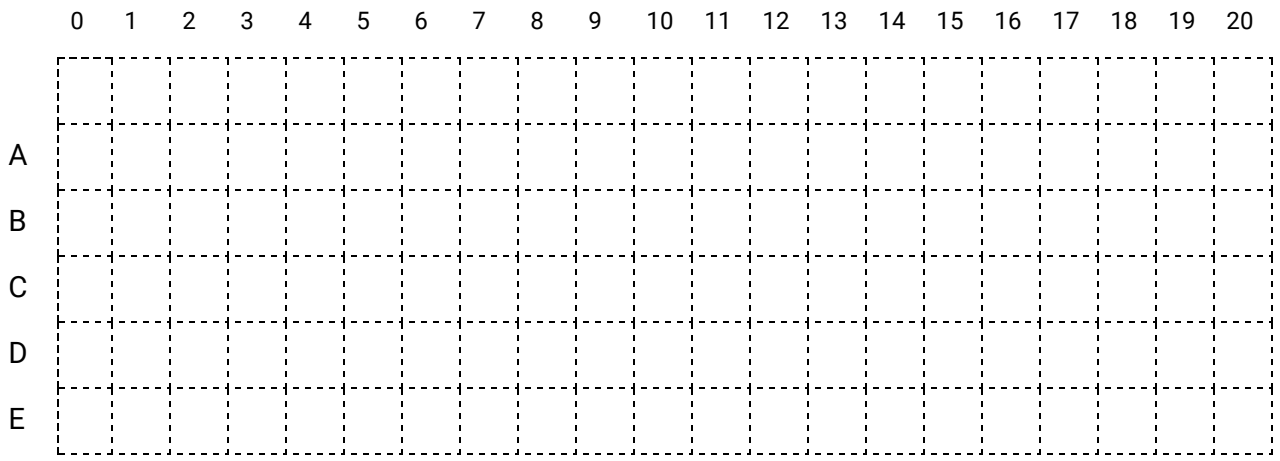
Fill the answers here

Process	Waiting time	Turnaround time
A		
B		
C		

D		
E		
Average		

Question 2

If we use a RR scheduler with time quantum 1, what will be the waiting time for each process? And what will be the response time?
As an auxiliary, you may use the following chart to mark which process occupies the CPU at a specific time range.



Fill the answers here

Process	Waiting time	Turnaround time
A		
B		
C		
D		
E		
Average		

Exercise 2: Page replacement strategy (Lecture 28)

Consider the following page reference string in a paging system:

12, 8, 3, 7, 8, 3, 9, 10, 3, 5, 7, 10, 3, 7, 5, 7, 12, 10, 7, 5, 12

Suppose 4 page frames are available and all the frames are initially empty. To break ties, replace the oldest page.

Question 1

How many times will page fault occur under LRU policy?

As an auxiliary, you may keep track of what's in the frames in the following table.

Access	Frame #1	Frame #2	Frame #3	Frame #4	#Page faults
12					
8					
3					
7					
8					
3					
9					
10					
3					
5					
7					
10					
3					
7					
5					
7					
12					
10					
7					

5					
12					

Question 2

How many times will page fault occur under the clock algorithm?

Access	Frame #1	Ref bit #1	Frame #2	Ref bit #2	Frame #3	Ref bit #3	Frame #4	Ref bit #4	Next victim	#Page faults
12										
8										
3										
7										
8										
3										
9										
10										
3										
5										
7										
10										
3										
7										
5										
7										
12										
10										
7										
5										
12										