B2_Assignment 4: Data Structures Div. A

Sr. No	Problem statement	Roll Nos	
1	WAP program to keep track of patients as they check into a medical clinic, assigning patients to doctors on a first-come, first-served basis.	2	7
2	WAP for A bank simulation of its teller operation to see how waiting times would be affected by adding another teller.	8	38
3	Write an algorithm Replace that takes a queue and two item. If the first item is in the queue, replace it with the second item, leaving the rest of the queue unchanged.	55	48
4	Write a menu-driven program that maintains a queue of passengers waiting to see a ticket agent. The program user should be able to insert a new passenger at the rear of the queue, display the passenger at the front of the queue, or remove the passenger at the front of the queue. The program will display the number of passengers left in the queue just before it terminates.	58	45
5	We Fly Anywhere Airlines (WFAA) is considering redesigning their ticket counters for airline passengers. They would like to have two separate waiting lines, one for regular customers and one for frequent flyers. Assuming there is only one ticket agent available to serve all passengers, they would like to determine the average waiting time for both types of passengers using various strategies for taking passengers from the waiting lines. WAP to simulate this situation.	59	49
6	Write a program which simulates the operation of a busy airport which has only two runways to handle all takeoffs and landings. You may assume that each takeoff or landing takes 15 minutes to complete. One runway request is made during each five minute time interval and likelihood of landing request is the same as for takeoff. Priority is given to planes requesting a landing. If a request cannot be honored it is added to a takeoff or landing queue. Your program should simulate 120 minutes of activity at the airport. Each request for runway clearance should be time-stamped and added to the appropriate queue. The output from your program should include the final queue contents, the number of take offs completed, the number of landings completed, and the average number of minutes spent in each queue.	61	
7	An operating system assigns job to print queues based on the number of pages to be printed (1 to 50 pages). You may assume that the system printers are able to print 10 page per minute. Smaller print jobs are printed before larger print jobs and print	68	

	jobs are processed from a single print queue implemented as a priority queue). The system administrators would like to compare the time required to process a set of print jobs using 1, 2, or 3 system printers. Write a program which simulates processing 100 print jobs of varying lengths using either 1, 2, or 3 printers. Assume that a print request is made every minute and that the number of pages to print varies from 1 to 50 pages. To be fair, you will need to process the same set of print jobs each time you add a printer. The output from your program should indicate the order in which the jobs were received, the order in which they were printed, and the time required to process the set of print jobs. If more than one printer is being used, indicate which printer each job was printed on.		
8	Write a C program to implement descending priority queue using arrays.	69	
9	Write a program to implement Josephus problem using queue	70	
10	WAP program to keep track of patients as they check into a medical clinic, assigning patients to doctors on a first-come, first-served basis.	72	
11	WAP for A bank simulation of its teller operation to see how waiting times would be affected by adding another teller.	62	
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