Lab Assignment 8 : Heap

Q1. Given an unordered sequence of **N numbers (a1, a2, ... aN),** select the **k-th** largest number

Q2. CPU Scheduling :

Scheduling of processes/work is done to finish the work on time. CPU Scheduling is a process that allows one process to use the CPU while another process is delayed (in standby) due to unavailability of any resources such as I / O etc, thus making full use of the CPU. The purpose of CPU Scheduling is to make the system more efficient, faster, and fairer.

Whenever the CPU becomes idle, the operating system must select one of the processes in the line ready for launch. The selection process is done by a temporary (CPU) scheduler. The Scheduler selects between memory processes ready to launch and assigns the CPU to one of them.

Shortest job first (SJF) scheduling :
Shortest job first (SJF) is a scheduling process that selects the waiting process with the smallest execution time to execute next. This scheduling method may or may not be preemptive. Significantly reduces the average waiting time for other processes waiting to be executed. The full form of SJF is Shortest Job First.

Process No.	Arrival Time (AT)	Burst Time (BT)
1	1	6
2	2	3
3	3	2
4	4	3
5	5	4

GANTT Chart :

	P1	P3	P2	P4	P5
0 1	7	9	12	15	19

Turn Around Time(TAT) = Completion time (CT) – Arrival time (AT)

Wait Time (WT) = TATb – Burst Time(BT)

Process No.	AT	BT	CT	TAT	WT
1	1	6	7	$(7 - 1) = 6$	$(6 - 6) = 0$
2	2	3	12	$(12 - 2) = 10$	$(10 - 3) = 7$
3	3	2	9	$(9 - 3) = 6$	$(6 - 2) = 4$
4	4	3	15	$(15 - 4) = 11$	$(11 - 3) = 8$
5	5	4	19	$(19 - 5) = 14$	$(14 - 4) = 10$

Write a program in C to schedule the above processes using SJF scheduling alogorithm and compute the TAT and WT for each process