********** ATTENTION: Attendance in lab is mandatory for all students. NO EXCEPTION!!!! **********

Lebanese University
Faculty of Science
Section I

BS - Computer Science
2018-2019

I2206
Data Structures
LS 6 : Priority Queue

We would like to implement a special kind of ADT called priority queue having the following operations :
— `queue CreateQueue();` : creates an empty queue.
— `int EnQueue(queue *q, element e, int priority);` : enqueue an element with its priority. Elements are kept in ascending order by priority, i.e. the front element is the element having the smallest priority.
— `int DeQueue(queue *q);` an element : removes the front element.
— `int Front(queue q, element *e);` : returns the front element.
— `int isEmptyQueue(queue q);` : returns true if the priority queue is empty.
— `int isFullQueue(queue q);` : returns true if the priority queue is full.

You are asked to provide two implementations of the ADT **without using any previously coded ADTs** :

1. using a single (circular) array
2. using a linked list

For this, create for each implementation 4 files :
— `Type_Queue.h` containing all the needed declarations
— `Queue.h` containing all the functions prototypes
— `Queue.c` containing the implementation of the functions
— `Test.c` containing a `main` function testing your functions