

CL2001 – Data Structure Lab

Lab Task # 12

Note:

- Copied task will be awarded **zero** marks.
- Use comments wherever applicable.
- Submit a pdf file containing all your C++ code with all possible screenshots of every task output on Google Classroom. The name of file should be your roll no followed by your name (roll-no-name.pdf) i.e., (23P-1234-Ali.pdf).
- Variables and functions names should be meaningful.

Restaurant Order Management System Using Max Heap

You are required to design and implement a Restaurant Order Management System using a Max Heap.

Each order has the following attributes:

- Item Name (string)
- Price (integer)
- Quantity (integer)
- Customer Name (string)
- Priority (integer) – Higher priority means the order must be served earlier.

Tasks to Perform:

1. Create an Order class with the attributes mentioned above.
2. Implement a Max Heap manually using an array (no STL containers allowed).
3. Implement the following operations:
 - Insert a new order into the heap
 - The order must be positioned correctly using heapify-up.
 - Serve (delete) the highest priority order
 - After deletion, the last order should move to the root and fix the heap using heapify-down.
 - Display all orders currently stored in the heap.
4. Create a menu-driven program where:
 - Press 1 → Insert new order
 - Press 2 → Serve highest priority order

- Press 3 → Display all orders
- Press 4 → Exit