

Metropolitan University of Tirana  
Data Structures  
Queues in Java

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## 9.1 Task Manager Application

Your task is to create a task manager application that allows users to keep track of their tasks, mark tasks as complete, and view completed tasks. The application should use a linked list to store the tasks, a queue to store the completed tasks, and a stack to implement the undo feature.

### Functionality

- **Add Task:** Allow users to add a new task to the To-Do List. The task should contain a title, description, priority level, and due date.
- **Edit Task:** Allow users to edit an existing task in the To-Do List. Users should be able to edit the task's title, description, priority level, and due date.
- **Delete Task:** Allow users to delete a task from the To-Do List.
- **Mark Task as Complete:** Allow users to mark a task as complete. Completed tasks should be moved to a separate list that can be viewed later.
- **View Completed Tasks:** Allow users to view a list of completed tasks.
- **Undo Last Action:** Allow users to undo their last action (e.g. add, edit, or delete task).

### Implementation Details

1. **Task Class:** Create a Task class that contains the task title, description, priority level, and due date.
2. **TaskOperation Class:** Create a TaskOperation class that contains the type of operation (add, edit, or delete), the task being modified, and the old task (for edit operations).
3. **TaskProcessing Class:** Create a TaskProcessing class that uses a linked list to store the tasks, a queue to store the completed tasks, and a stack to implement the undo feature. The class should contain methods for adding a task, deleting a task, marking a task as complete, viewing completed tasks, and undoing the last action.
4. **Main Class:** Create a Main class that tests the functionality of the TaskProcessing class.

### User Interface

- The application should provide a simple command-line interface for users to interact with.
- Users should be prompted with a menu of options (add, edit, delete, mark as complete, view completed tasks, and undo last action).
- Users should be able to input the necessary information for each option (e.g. task title, description, priority level, due date, etc.).