**Documentation for the Application**

**1. Introduction**

The application is a Hospital Patient Priority Queue, a Java-based console program that manages patients based on the severity of their medical conditions. It uses a heap structure (via Java's PriorityQueue) to prioritize patients efficiently.

**2. Description of the Application**

**Add Patient:** Allows the user to input a patient's name and severity level (1=Critical, 5=Mild). Patients are added to the queue based on their severity.

**View Next Patient:** Displays the next patient with the highest priority (lowest severity value) without removing them from the queue.

**Attend to Patient:** Removes and displays the patient with the highest priority.

**Exit:** Ends the application.

The priority queue ensures that patients with critical conditions are always attended to first, optimizing healthcare services.

**3. Reason for Creating This Application**

This application was created to simulate a real-world hospital scenario where patient management is crucial. It demonstrates how a heap-based priority queue can be used to optimize processes that require sorting by priority.

**4. Contribution**

**Educational Purpose:** Teaches the use of heap data structures in practical scenarios.

**Efficiency in Healthcare:** Models an efficient and scalable system for managing hospital queues.

**Code Reusability:** Can be adapted for other queue management systems like ticket booking or emergency response.