**Exercise 5: Task Management System**

**Task.java**

public class Task {

private String taskId;

private String taskName;

private String status;

public Task(String taskId, String taskName, String status) {

this.taskId = taskId;

this.taskName = taskName;

this.status = status;

}

public String getTaskId() {

return taskId;

}

public void display() {

System.***out***.println("ID: " + taskId + ", Task: " + taskName + ", Status: " + status);

}

}

**Node.java**

class Node {

Task task;

Node next;

public Node(Task task) {

this.task = task;

this.next = null;

}

}

**TaskLinkedList.java**

public class TaskLinkedList {

private Node head;

// Add task at end

public void addTask(Task task) {

Node newNode = new Node(task);

if (head == null) {

head = newNode;

} else {

Node current = head;

while (current.next != null)

current = current.next;

current.next = newNode;

}

System.***out***.println("Task added: " + task.getTaskId());

}

// Search by taskId

public void searchTask(String taskId) {

Node current = head;

while (current != null) {

if (current.task.getTaskId().equals(taskId)) {

System.***out***.println("Task found:");

current.task.display();

return;

}

current = current.next;

}

System.***out***.println("Task not found.");

}

// Traverse and print all tasks

public void displayTasks() {

if (head == null) {

System.***out***.println("No tasks available.");

return;

}

Node current = head;

while (current != null) {

current.task.display();

current = current.next;

}

}

// Delete task by taskId

public void deleteTask(String taskId) {

if (head == null) {

System.***out***.println("Task list is empty.");

return;

}

if (head.task.getTaskId().equals(taskId)) {

head = head.next;

System.***out***.println("Task deleted: " + taskId);

return;

}

Node current = head;

while (current.next != null) {

if (current.next.task.getTaskId().equals(taskId)) {

current.next = current.next.next;

System.***out***.println("Task deleted: " + taskId);

return;

}

current = current.next;

}

System.***out***.println("Task not found.");

}

}

**Main.java**

public class Main {

public static void main(String[] args) {

TaskLinkedList taskList = new TaskLinkedList();

// Adding tasks

taskList.addTask(new Task("T001", "Design database schema", "Pending"));

taskList.addTask(new Task("T002", "Develop login module", "In Progress"));

taskList.addTask(new Task("T003", "Write unit tests", "Pending"));

System.***out***.println("\n Task List:");

taskList.displayTasks();

System.***out***.println("\n Searching for T002:");

taskList.searchTask("T002");

System.***out***.println("\n Deleting T001:");

taskList.deleteTask("T001");

System.***out***.println("\n Task List After Deletion:");

taskList.displayTasks();

}

}

**Output:**

