**Exercise 5: Task Management System**

public class TaskManagementSystem {

// Step 2: Task Node

static class Task {

int taskId;

String taskName;

String status;

Task next;

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

this.taskId = taskId;

this.taskName = taskName;

this.status = status;

this.next = null;

}

public void display() {

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

}

}

// Linked List Class

static class TaskList {

private Task head;

public void addTask(int id, String name, String status) {

Task newTask = new Task(id, name, status);

if (head == null) {

head = newTask;

} else {

Task current = head;

while (current.next != null) {

current = current.next;

}

current.next = newTask;

}

System.out.println("Task added.");

}

public void traverseTasks() {

if (head == null) {

System.out.println("No tasks found.");

return;

}

Task current = head;

while (current != null) {

current.display();

current = current.next;

}

}

public Task searchTask(int id) {

Task current = head;

while (current != null) {

if (current.taskId == id) return current;

current = current.next;

}

return null;

}

public void deleteTask(int id) {

if (head == null) {

System.out.println("No tasks to delete.");

return;

}

if (head.taskId == id) {

head = head.next;

System.out.println("Task deleted.");

return;

}

Task current = head;

while (current.next != null) {

if (current.next.taskId == id) {

current.next = current.next.next;

System.out.println("Task deleted.");

return;

}

current = current.next;

}

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

}

}

// Step 4: Test in main()

public static void main(String[] args) {

TaskList taskList = new TaskList();

taskList.addTask(1, "Design Database", "Pending");

taskList.addTask(2, "Develop API", "In Progress");

taskList.addTask(3, "Test Module", "Pending");

System.out.println("\nAll Tasks:");

taskList.traverseTasks();

System.out.println("\nSearching Task ID 2:");

Task t = taskList.searchTask(2);

if (t != null) t.display(); else System.out.println("Not found");

System.out.println("\nDeleting Task ID 2:");

taskList.deleteTask(2);

System.out.println("\nRemaining Tasks:");

taskList.traverseTasks();

}

}

OUTPUT:

