**Riphah International University, Islamabad**



**Lab task**

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**Code:**

import java.util.ArrayList;

import java.util.List;

import java.util.Scanner;

class Task {

private static int idCounter = 1;

private int id;

private String title;

private String description;

private boolean isCompleted;

public Task(String title, String description) {

this.id = idCounter++;

this.title = title;

this.description = description;

this.isCompleted = false;

}

// Getters and setters

public int getId() {

return id;

}

public String getTitle() {

return title;

}

public void setTitle(String title) {

this.title = title;

}

public String getDescription() {

return description;

}

public void setDescription(String description) {

this.description = description;

}

public boolean isCompleted() {

return isCompleted;

}

public void markCompleted() {

this.isCompleted = true;

}

}

class TaskView {

private Scanner scanner;

public TaskView() {

this.scanner = new Scanner(System.in);

}

public void displayTasks(List<Task> tasks) {

if (tasks.isEmpty()) {

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

} else {

for (Task task : tasks) {

String status = task.isCompleted() ? "Completed" : "Not Completed";

System.out.println("ID: " + task.getId() + " | Title: " + task.getTitle() +

" | Description: " + task.getDescription() + " | Status: " + status);

}

}

}

public void displayTaskAdded(Task task) {

System.out.println("Task '" + task.getTitle() + "' added successfully.");

}

public void displayTaskCompleted(Task task) {

System.out.println("Task '" + task.getTitle() + "' marked as completed.");

}

public String getTaskTitle() {

System.out.print("Enter task title: ");

return scanner.nextLine();

}

public String getTaskDescription() {

System.out.print("Enter task description: ");

return scanner.nextLine();

}

public int getTaskId() {

System.out.print("Enter task ID: ");

while (!scanner.hasNextInt()) {

System.out.print("Invalid input. Please enter a valid task ID: ");

scanner.next(); // Clear the invalid input

}

int id = scanner.nextInt();

scanner.nextLine(); // Clear the newline

return id;

}

}

class TaskController {

private TaskView view;

private List<Task> tasks;

public TaskController(TaskView view) {

this.view = view;

this.tasks = new ArrayList<>();

}

public void addTask(String title, String description) {

Task task = new Task(title, description);

tasks.add(task);

view.displayTaskAdded(task);

}

public void displayTasks() {

view.displayTasks(tasks);

}

public void markTaskCompleted(int taskId) {

for (Task task : tasks) {

if (task.getId() == taskId) {

task.markCompleted();

view.displayTaskCompleted(task);

return;

}

}

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

}

}

public class Main {

public static void main(String[] args) {

TaskView view = new TaskView();

TaskController controller = new TaskController(view);

while (true) {

System.out.println("\n1. Add Task\n2. View Tasks\n3. Mark Task as Completed\n4. Exit");

System.out.print("Choose an option: ");

String choice = view.getTaskTitle();

switch (choice) {

case "1":

String title = view.getTaskTitle();

String description = view.getTaskDescription();

controller.addTask(title, description);

break;

case "2":

controller.displayTasks();

break;

case "3":

int taskId = view.getTaskId();

controller.markTaskCompleted(taskId);

break;

case "4":

System.out.println("Exiting application.");

return;

default:

System.out.println("Invalid choice. Please try again.");

}

}

}

}

**Output:**



