

Mini Project

Develop a basic to-do list application using data structure and function

Code:

```
import java.util.ArrayList;
import java.util.Scanner;

class Task {
    private String description;
    private boolean isCompleted;

    public Task(String description) {
        this.description = description;
        this.isCompleted = false;
    }

    public String getDescription() {
        return description;
    }

    public boolean isCompleted() {
        return isCompleted;
    }

    public void markCompleted() {
        this.isCompleted = true;
    }

    @Override
    public String toString() {
        return (isCompleted ? "[X] " : "[ ] ") + description;
    }
}

class ToDoApp {
    private ArrayList<Task> tasks;
    private Scanner scanner;

    public ToDoApp() {
        tasks = new ArrayList<>();
    }
}
```

```

        scanner = new Scanner(System.in);
    }

    public void addTask(String description) {
        tasks.add(new Task(description));
    }

    public void listTasks() {
        if (tasks.isEmpty()) {
            System.out.println("No tasks available.");
            return;
        }

        for (int i = 0; i < tasks.size(); i++) {
            System.out.println((i + 1) + ". " + tasks.get(i));
        }
    }

    public void markTaskAsCompleted(int index) {
        if (index < 0 || index >= tasks.size()) {
            System.out.println("Invalid task number.");
            return;
        }
        tasks.get(index).markCompleted();
    }

    public void removeTask(int index) {
        if (index < 0 || index >= tasks.size()) {
            System.out.println("Invalid task number.");
            return;
        }
        tasks.remove(index);
    }

    public void showMenu() {
        System.out.println("\nTo-Do List Application");
        System.out.println("1. Add Task");
        System.out.println("2. List Tasks");
        System.out.println("3. Mark Task as Completed");
        System.out.println("4. Remove Task");
        System.out.println("5. Exit");
        System.out.print("Choose an option: ");
    }
}

```

```

public void run() {
    boolean exit = false;
    while (!exit) {
        showMenu();
        int choice = scanner.nextInt();
        scanner.nextLine(); // Consume newline

        switch (choice) {
            case 1:
                System.out.print("Enter task description: ");
                String description = scanner.nextLine();
                addTask(description);
                break;
            case 2:
                listTasks();
                break;
            case 3:
                System.out.print("Enter task number to mark as completed:
");
                int completeIndex = scanner.nextInt() - 1;
                markTaskAsCompleted(completeIndex);
                break;
            case 4:
                System.out.print("Enter task number to remove: ");
                int removeIndex = scanner.nextInt() - 1;
                removeTask(removeIndex);
                break;
            case 5:
                exit = true;
                break;
            default:
                System.out.println("Invalid option. Please try again.");
        }
    }
    scanner.close();
}

public static void main(String[] args) {
    ToDoApp app = new ToDoApp();
    app.run();
}
}

```

Output:

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 1
Enter task description: Buy groceries
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 1
Enter task description: complete homework
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 2
1. [ ] Buy groceries
2. [ ] complete homework
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 3
Enter task number to mark as completed: 1
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 2
1. [X] Buy groceries
2. [ ] complete homework
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 4
Enter task number to remove: 1
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 2
1. [ ] complete homework
```

```
To-Do List Application
1. Add Task
2. List Tasks
3. Mark Task as Completed
4. Remove Task
5. Exit
Choose an option: 5
PS C:\Users\HP\Desktop\B.Tech\java(internship)\Mini Project> |
```