4.1 Basic Projects

1. Task List Application

Source Code:

```
import java.util.ArrayList;
import java.util.Scanner;
public class ListApp {
    public static void main(String[] args) {
        TaskList taskList = new TaskList();
        Scanner scanner = new Scanner(System.in);
        while (true) {
            displayMenu();
            int choice = getUserChoice(scanner);
            switch (choice) {
                case 1:
                    taskList.addTask(getTaskName(scanner));
                    break;
                case 2:
                    if (!taskList.isEmpty()) {
                        taskList.listTasks();
                        int taskNumber=getUserInput(scanner, "Enter the task number to re
");
                        if (taskList.isValidTaskNumber(taskNumber)) {
                            taskList.removeTask(taskNumber);
                        } else {
                            System.out.println("Invalid task number.");
                        }
                    } else {
```

```
                System.out.println("No tasks to remove.");
            }
            break;
        case 3:
            if (!taskList.isEmpty()) {
                taskList.listTasks();
            } else {
                System.out.println("No tasks to list.");
            }
            break;
        case 4:
            scanner.close();
            return;
        default:
            System.out.println("Invalid option. Please try again.");
    }
  }
}
private static void displayMenu() {
  System.out.println("Task List Application");
  System.out.println("1. Add Task");
  System.out.println("2. Remove Task");
  System.out.println("3. List Tasks");
  System.out.println("4. Quit");
  System.out.print("Select an option: ");
}
private static int getUserChoice(Scanner scanner) {
```

```
        return scanner.nextInt();
    }
    private static String getTaskName(Scanner scanner) {
        System.out.print("Enter task name: ");
        return scanner.next();
    }
    private static int getUserInput(Scanner scanner, String prompt) {
        System.out.print(prompt);
        return scanner.nextInt();
    }
}
class TaskList {
    private ArrayList<String> tasks = new ArrayList<>();
    public void addTask(String name) {
        tasks.add(name);
        System.out.println("Task added.");
    }
    public void removeTask(int taskNumber) {
        tasks.remove(taskNumber - 1);
        System.out.println("Task removed.");
    }
    public void listTasks() {
        for (int i = 0; i < tasks.size(); i++) {
            System.out.println((i + 1) + ". " + tasks.get(i));
        }
    }
    public boolean isEmpty() {
```

```
        return tasks.isEmpty();
    }
    public boolean isValidTaskNumber(int taskNumber) {
        return taskNumber >= 1 && taskNumber <= tasks.size();
}
}
```