# Pollution Tracker - Java Project

Created by Kajal

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## Project Summary

A simple Java console application that allows users to record and assess pollution levels for both air and water. Includes error handling, modular design, and user validation.

## Features

- Add pollution data (Location, Type, Level)  
- View all entries with pollution status  
- Pollution categories based on thresholds (Good, Moderate, Hazardous)  
- Error handling for invalid input  
- Modular code (separated classes for data, utility, and logic)

## How to Run

1. Save the Java code into .java files.  
2. Open terminal or command prompt in the folder.  
3. Compile:  
 javac PollutionTracker.java PollutionUtils.java PollutionData.java  
4. Run:  
 java PollutionTracker

## PollutionTracker.java

import java.util.\*;  
  
public class PollutionTracker {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 List<PollutionData> dataList = new ArrayList<>();  
  
 System.out.println("=== Pollution Tracker System ===");  
  
 while (true) {  
 try {  
 System.out.println("\n1. Add Data\n2. View Data\n3. Exit");  
 System.out.print("Enter your choice: ");  
 int choice = Integer.parseInt(sc.nextLine().trim());  
  
 switch (choice) {  
 case 1:  
 System.out.print("Enter Location: ");  
 String loc = sc.nextLine().trim();  
  
 System.out.print("Enter Type (Air/Water): ");  
 String type = sc.nextLine().trim();  
 if (!type.equalsIgnoreCase("Air") && !type.equalsIgnoreCase("Water")) {  
 System.out.println("Invalid type!");  
 break;  
 }  
  
 System.out.print("Enter Pollution Level: ");  
 double level = Double.parseDouble(sc.nextLine().trim());  
 if (level < 0) {  
 System.out.println("Level must be positive.");  
 break;  
 }  
  
 PollutionData data = new PollutionData(loc, type, level);  
 dataList.add(data);  
 System.out.println("Status: " + PollutionUtils.assessPollution(type, level));  
 break;  
  
 case 2:  
 if (dataList.isEmpty()) {  
 System.out.println("No records.");  
 } else {  
 for (PollutionData d : dataList) {  
 System.out.printf("%s - %s: %.2f (%s)%n",  
 d.getLocation(), d.getType(),  
 d.getLevel(),  
 PollutionUtils.assessPollution(d.getType(), d.getLevel()));  
 }  
 }  
 break;  
  
 case 3:  
 System.out.println("Exiting...");  
 sc.close();  
 return;  
  
 default:  
 System.out.println("Invalid choice.");  
 }  
 } catch (Exception e) {  
 System.out.println("Error: " + e.getMessage());  
 }  
 }  
 }  
}

## PollutionUtils.java

public class PollutionUtils {  
 public static String assessPollution(String type, double level) {  
 if (type.equalsIgnoreCase("Air")) {  
 if (level <= 50) return "Good";  
 else if (level <= 100) return "Moderate";  
 else return "Hazardous";  
 } else if (type.equalsIgnoreCase("Water")) {  
 if (level <= 1.0) return "Safe";  
 else if (level <= 3.0) return "Moderate";  
 else return "Contaminated";  
 }  
 return "Unknown";  
 }  
}

## PollutionData.java

public class PollutionData {  
 private String location;  
 private String type;  
 private double level;  
  
 public PollutionData(String location, String type, double level) {  
 this.location = location;  
 this.type = type;  
 this.level = level;  
 }  
  
 public String getLocation() { return location; }  
 public String getType() { return type; }  
 public double getLevel() { return level; }  
}