

Problem Set Sponsor: CDCC(Center for Distributed Confidential Computing)

Indiana Toxicity Watch: Mapping Health & Environmental Risks

Objective: To create a comprehensive and accessible platform that aggregates publicly available data on toxic chemicals in Indiana. Teams are challenged to build a tool to visualize, analyze, and search for information related to toxic chemicals, their geolocation, and associated health risks. This could empower citizens, policymakers, and researchers with insights into the environmental impact of hazardous chemicals in Indiana.

Challenge Options: Participants can focus on one of the following project areas, depending on their expertise and interest. Brownie points if you focus on all of them.

1. **Data Aggregation & Cleansing:** Scrape and integrate data from various sources to build a centralized database of toxic chemical data in Indiana. Ensure data cleanliness, standardize formats, and incorporate geolocation information for all sources.
2. **Visualization Platform:** Build an interactive map or dashboard that allows users to search by location, chemical, or health outcome. Integrate filters for specific contaminants, date ranges, and proximity to residential areas, schools, or hospitals.
3. **Risk Analysis & Reporting:** Develop a model that correlates geolocations and toxic chemicals with health outcomes. This could include prevalence data on cancer, respiratory issues, and other health conditions reported in the area, making the platform useful for health risk assessments.
4. **Mobile or Web-Based Search Tool:** Design a tool that enables users to search for environmental risk information by zip code, address, or area of interest. This could help users quickly find if their neighborhood has any contamination issues and understand associated health risks.
5. **Data Insights and Storytelling:** Identify and visualize trends in toxic chemical exposure and health outcomes. Create dashboards that show correlations over time and provide downloadable reports that could help communities advocate for policy changes.

Some Data Sources that you may use (but not limited to):

IN Dept. Environmental Management

- ["What's In My Neighborhood"](#) tools including [IDEM Interactive Map](#)
- [State Cleanup Program](#)
- [Voluntary Remediation Program](#)
- [Storage Tanks - Data and Reports](#)
- [Emergency Response](#) - contains links to spills data
- [Institutional Controls Registry](#)
- [Air Quality Data](#) - including links to summary tables

- ["Virtual File Cabinet"](#) - requires search by e.g. location

EPA

- [Superfund sites in Indiana](#)
- [Contaminants at Superfund Sites](#)
- [2022 Toxics Release Inventory \(TRI\) for Indiana](#)
 - [Download basic TRI data file](#)
 - [Download the TRI Geo-Specific Tables \(Comma-Separated Value files\)](#)

Agency for Toxic Substances and Disease Registry

- [Data Resources](#) - [Site Tool](#)

U.S. Geological Survey

- [Data](#)