**Summary:**

In this hypothetical scenario for the **2024 Rowdy Datathon**, participants are tasked with addressing a global crisis of rapidly declining pollinator populations, specifically focusing on monarch butterflies. Teams must analyze data, identify contributing factors, and recommend strategies for resource allocation.

**Key Responsibilities:**

* Provide a detailed description of changes in the monarch butterfly population.
* Investigate contributing factors such as habitat loss, climate change, pesticide use, and potential impacts on human well-being.
* Recommend resource allocation based on the most critical factors.
* Perform a focused analysis of monarch butterfly migration through Texas and compare it with other states.

**Motivation:** The collapse of pollinators would significantly impact agriculture and ecosystems, causing:

* A decline in pollinator-dependent crops (e.g., melons, almonds).
* Reduced crop diversity and increased food prices.
* Disruption in livestock production due to reduced forage crops.
* Ecosystem damage and biodiversity loss.

**Monarch Butterflies:** Monarch butterflies are crucial pollinators known for their multi-generational migration from North America to Mexico. Their populations have drastically declined due to factors like:

* Habitat loss (especially milkweed, the sole food source for larvae).
* Climate change, which disrupts migration and breeding.
* Pesticide use, including herbicides that destroy milkweed and insecticides that harm monarchs directly.

Monarchs are important for pollination and biodiversity, and their conservation can raise awareness about broader environmental issues.

**Data Sources:**

* Environmental Protection Agency (EPA) air quality data.
* Journey North and eButterfly platforms for tracking monarch sightings.
* USDA Pesticide Data Program.
* County-level crop data.

**Evaluation Criteria:** Results will be evaluated based on:

* Presentation quality (informative and understandable).
* Analysis comprehension.
* Technical methods used.
* Awareness of data context and bias.
* Reproducibility of results.

**Intermediate Track Tasks:**

1. Create a map showing monarch butterfly sightings by county using the Journey North data.
2. Gather air quality and temperature data from the EPA for relevant dates.
3. Perform a statistical analysis to determine if there is a significant correlation between air quality, temperature, and monarch butterfly decline.