Practical Application: Disaster Data

- Have a look at the file `wind_disasters.csv`. It is a text file with a UTF-8 encoding.
- The data in this table was taken from EM-DAT: The OFDA/CRED International Disaster Database (Data version: v06.01, Created on: Feb-7-2006).

  From the website `http://www.em-dat.net`:

  > *"EMDAT contains essential core data on the occurrence and effects of over 12,800 mass disasters in the world from 1900 to present. The database is compiled from various sources, including UN agencies, non-governmental organisations, insurance companies, research institutes and press agencies."*

- The file `wind_disasters.csv` contains a subset of the EM-DAT database pertaining only to wind-related disasters (for example, Hurricanes, Typhoons, Tornados, etc.).
- The columns in this file correspond to:
  - `type`–the type of disaster
  - `event_name`–the name of the disaster (if it exists)
  - `num_killed`–the number of fatalities
  - `damage`–total damage (in adjusted USD)
  - `start_year`–year in which the disaster began
  - `start_month`–month in which the disaster began
  - `start_day`–day of month on which the disaster began
  - `iso`–three-letter country code
  - `country_name`–full name
  - `region`–global region
  - `continent`–continent

  Observe that some fields might not be populated (i.e., a blank field is represented by successive commas, potentially with a space in between). Also note that lines that start with a '#' are comments in the file.

Suppose that you are working on a research project that is trying to assess the impact of wind-related disasters in terms of human deaths and property damage. Imagine you need to answer the following simple questions:

1. How many disasters were there in each year?
2. What were the total number of deaths in each year from wind-related disasters?
3. What was the aggregate damage in each year from wind-related disasters?
4. What was the maximum number of deaths from a single disaster in each year?
5. What was the maximum amount of damage from a single disaster in each year?

How could you use a Python program to help you answer these questions? How would it read the data in this file? How could you calculate these simple summary statistics?