Use Case Scenarios

Use Case Scenario #1:

- **Scenario Name:** Track Objects in Space.
- **Description:** Provide the scientist with all the information (Record ID, Satellite Name, Country, Orbit Type, Launch Year, Launch Site, Longitude, Avg. Longitude, Geohash, and Days Old) related to a specific kind of space object.
- **Actors:** Scientist and Database.
- **Pre-condition:** The user should be logged in as a Scientist.
- **Trigger-condition:** The user selects 'Track Objects in Space' in the menu.
- **Flow of events:**
  Step 1: The user selects the menu option to select the type of space object they want to know the information of.
  Step 2: The database looks for the information related to the selected space object.
  Step 3: The system displays a list of all the space objects that match the category that the user is looking for, providing their Record ID, Satellite Name, Country, Orbit Type, Launch Year, Launch Site, Longitude, Avg. Longitude, Geohash and Days Old.
  Step 4: Log system interaction in the log file.
  Step 5: End of use case.

Use Case Scenario #2:

- **Scenario Name:** Assess if debris is still in orbit
- **Description:** The database will assess the status of the debris by making calculations and looking at the space object's data.
- **Actors:** Database
- **Pre-condition:** The user should be logged in as a Scientist.
- **Trigger-condition:** The user selects 'Assess if debris is still in orbit' in the menu.
- **Flow of events:**
  Step 1: To determine if the debris is in orbit, the system will check if the approximate_orbit_type is defined, longitude has a valid value, days old is less than 15'000 days, and conjunction is greater than or equal to 1. If all of these conditions are met, the debris is still in orbit. Otherwise, the debris has exited the orbit.
  Step 2: Calculate the orbital drift by computing abs(longitude – avg_longitude). If it is greater than 50, the debris is 'High Risk'. If it is greater than 10, it is 'Moderate Risk', and it is 'Low Risk' otherwise.
  Step 3: Create still_in_orbit and risk_level columns, add them to the original CSV file and create a new one with the updated information.

Step 4: Create a TXT file with the count of in orbit vs. exited debris and include all the information about the exited debris.
Step 5: Log system interaction in the log file.
Step 6: End of use case.