AI project using data from the **Stockholm International Peace Research Institute (SIPRI)** could focus on **predicting military spending trends** across different countries.

**Project Idea**

Predicting Future Military Expenditures and Analyzing Spending Patterns

**Objective**

Build a predictive model to forecast future military spending by country and region based on historical SIPRI data. Additionally, analyze the impact of various factors (e.g., GDP, political stability, regional conflict intensity) on military spending patterns, and visualize trends over time to identify key global shifts in defense spending.

**Key Components**

1. **Data Preprocessing and Feature Engineering**

* Use SIPRI datasets on Military Expenditures by Country, Arms Transfers, and Conflict Data.
* Collect external data sources (like World Bank indicators for GDP and political stability) to enrich the dataset.
* Engineer features such as yearly growth rate in military spending, arms import/export volumes, and proximity to regional conflicts.

1. **Model Selection and Prediction**

* Develop a time series forecasting model (e.g., ARIMA, LSTM) or a regression model (like Random Forest Regressor) to predict military spending.
* Explore the model's feature importance to understand which factors most strongly influence spending.

1. **Trend Analysis and Visualization**

* Use clustering algorithms to group countries by similar spending patterns or rates of increase.
* Create visualizations (e.g., heatmaps, line graphs) to illustrate which regions are experiencing significant shifts in spending.

1. **Insight Generation**

* Analyze the implications of predicted increases in spending by region or conflict intensity.
* Provide insights on global stability and the shifting balance of military power, potentially useful for policy recommendations.

**Datasets**

* **SIPRI Military Expenditure Database**

Contains military expenditure data by country from 1949.

[https://www.sipri.org/sites/default/files/SIPRI-Milex-data-1948-2023.xlsx](https://www.sipri.org/sites/default/files/SIPRI-Milex-data-1948-2023.xlsx%20)

* **SIPRI Arms Transfers Database**

Tracks international transfers of major conventional weapons.

<https://armstransfers.sipri.org>

* **World Bank Indicators**

World Bank indicators for GDP and political stability

<https://datacatalog.worldbank.org/search/dataset/0037712/World-Development-Indicators>

**Potential Outcomes**

* A predictive model for military spending over the next 5-10 years for selected countries or regions.
* Identification of key drivers of military expenditure changes.
* Clustering of countries or regions based on similar spending patterns or conflict intensities.
* Showcase skills in predictive modeling and feature engineering
* Highlight valuable geopolitical insights using SIPRI’s comprehensive data.

To ensure that you choose an appropriate project, turn in a 1-2 page project proposal by the end of week 3. Use this proposal document to demonstrate that you have completed some background work on your chosen topic. The proposal should begin with a clear and unambiguous statement of your topic and include all of the following:

1. A brief discussion of the problem and algorithms you intend to investigate and the system you intend to build in doing so.
2. Identification of specific related course topics (e.g. heuristic search, classification, deep learning, NLP, CV, etc.).
3. Examples of expected behaviors of the system or the types of problems the algorithms you investigate are intended to handle.
4. The issues you expect to focus on.
5. A list of papers or other resources you intend to use to inform your project efforts. This list forms the core of your project report reference list.
6. A list of **EQUAL** contributions that each team member will make to the Final Team Project.