EVS Project Presentation

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Introduction

- Forests are an extremely important for our ecology and the survival of most species on this planet as a whole. Forests serve the environment in the following ways
  - Rainforests all over the world hold nearly two-thirds of the total plant species.
  - Precipitation is formed when the atmosphere draws moisture from oceans as water vapor, which condenses and falls as rain, hail or snow. Transpiration from trees is a major source of this moisture, and forest cover loss has been observed to correlate with reduced rainfall patterns
  - Many indigenous people have been living in harmony with the rainforest for thousands of years, depending on it for their food, shelter and medicines.
  - More than 25% of our modern medicines, food and other resources originate from tropical forest plants.

Objectives

Our objectives are twofold. From available datasets , study the following:

- Trend of forest cover areas and make predictions based on some machine learning models about when the tipping point of forest depletions, to the point that the damage is irreversible.
- Study specific cases of countries that are:
  - Significant players and account for a large percentage of the world's forest covers
  - Have shown drastic changes in their history of forest cover areas, either drastic increase in cover or decrease.

  and study these countries in detail, including the factors like environment conservation initiatives that lead to increase in cover area, or factors like rapid industrialization that lead to their decrease

Resources Used

https://data.worldbank.org/indicator/AG.LND.FRST.ZS?view=chart

https://ourworldindata.org/forests

The primary dataset that is being used for this project are the ones above, hosted by The World Bank Group & Our World in Data, a scientific online publication. This has extensive data on each countries history of forest cover area, which will help us detect anomalies and also provides sufficient data to fit our model for the predictions.

Since enough data is available (from 1990 to 2016), our predictions will be accurate as the machine learning model will have enough data to fit.

Additionally, articles from the past, or credible internet sources will be used for the individual case studies.

Flowchart of Workflow
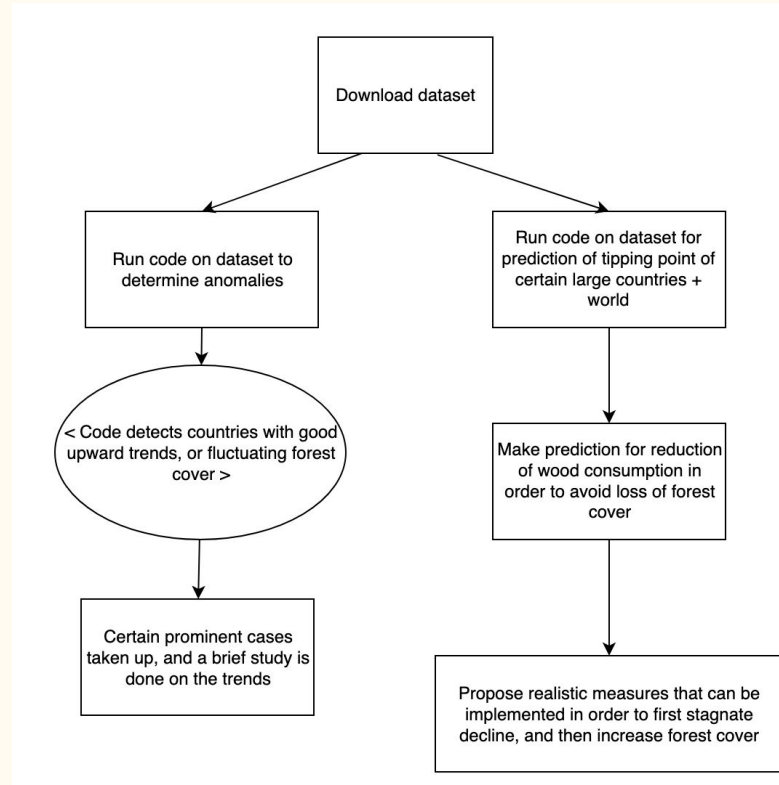
Work Details

- Create a model to fit existing data cover using linear regression, in python.
- Subjectively look towards some major contributors forest data and study in depth.
- Run a script to find major changes in trends in the data, and then study in depth what caused those changes.

Expected outcome

- The first program will give us a list of forest trends, based on which anomalies (fluctuations or upward trends) individual studies of the countries involved can be done.

  Upward trends would even give us suggestions for the conclusion of the report where we propose a conservation phenomenon, if the trend is due to some constructive activity of the government or the society.

- The second part gives us the tipping points of forest cover in individual countries, and we would propose a metric to decide what amount of forest depletion finally leads to unsustainability of the environment
- The final part of the project is proposing a policy to stop the decline of forest cover loss, and to increase the same

Thank you