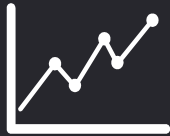# Socio Political Analysis in Regions of World (SPAROW)

Anindita Saha

Arul Bharathi

Namita Shah

1

PROBLEM ANALYSIS & MOTIVATION

"There comes a time when one must take a position that is neither safe, nor politic, nor popular, but he must take it because conscience tells him it is right." — Martin Luther King Jr.

- How a socio-political status and stability of a country affects people in their educational, health, and livelihood grounds.

PROJECT OBJECTIVES AND SOCIAL IMPACT

How does a socio-political status of a country can affect its economical, health and intellectual status?

How does social media sentiment and misconception of news articles correlate with the socio-political events of a country?

How can economists and NGO prepare for resource allocation, educational planning, medical shortage planning during times of political catastrophe?
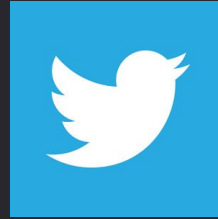
DOMAIN UNDERSTANDING & DATA SOURCES

ARMED CONFLICTS

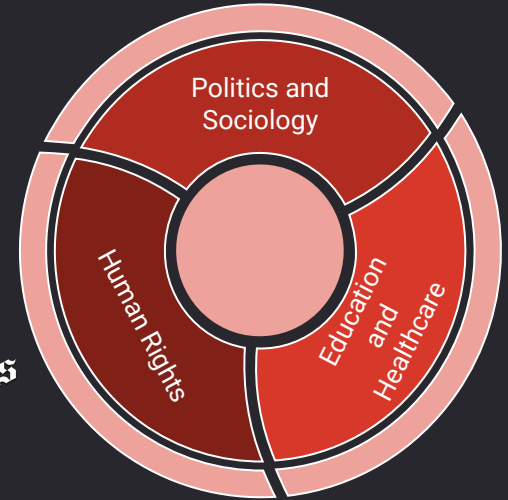SOCIO-POLITICAL EVENTS

SOCIAL-MEDIA

COUNTRY GOVERNANCE

EDUCATION & HEALTH INDICES

NEWS-MEDIA

Politics and Sociology

Human Rights

Education and Healthcare

CONCEPT STACK

EXPLORATION AND HYPOTHESIS FORMULATION

CONFIRMATORY AND PREDICTIVE ANALYSIS

ANOMALY DETECTION AND INSIGHT DEVELOPMENT

PROGRESS REPORT

Feb 20

Feb 24

Mar 15

Apr 3

Apr 8

Data Collection

Data Cleaning

Data Integration

Data Analysis / Modeling

Data Visualization
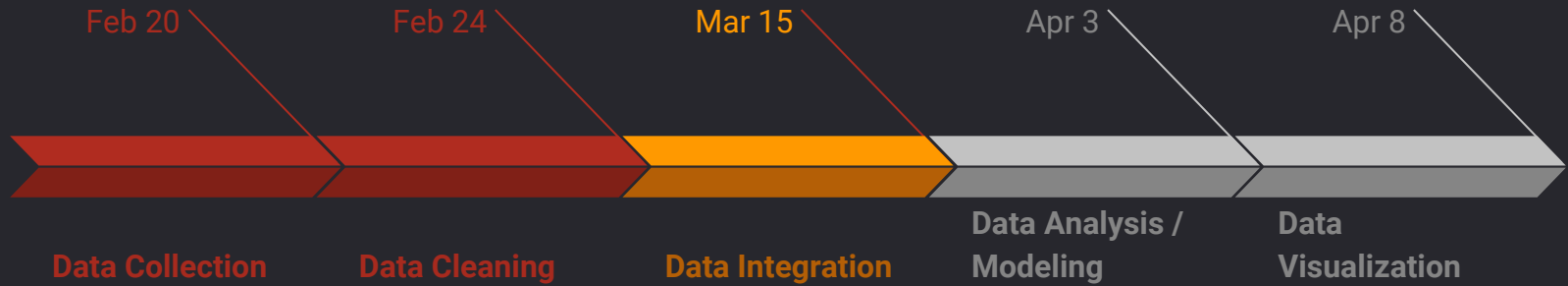
DATA COLLECTION, INTEGRATION AND PREPROCESSING

100%
Data Collection

45%
Data Integration

30%
Data Preprocessing

- Web Scraping
- CSV Files, APIs

- Normalization
- Merging

- Missing Values
- Outlier Treatment
- Standardization
- Feature Engineering

FUTURE WORK

DATA INTEGRATION

EXPLORATORY DATA ANALYSIS

PREDICTIVE MODELLING

MAR 15

MAR 22

MAR 30

MAR 17

MAR 26

APR 7

SOCIAL & NEWS MEDIA IMPACT

ANOMALY DETECTION

INSIGHT AND VISUALIZATIONS
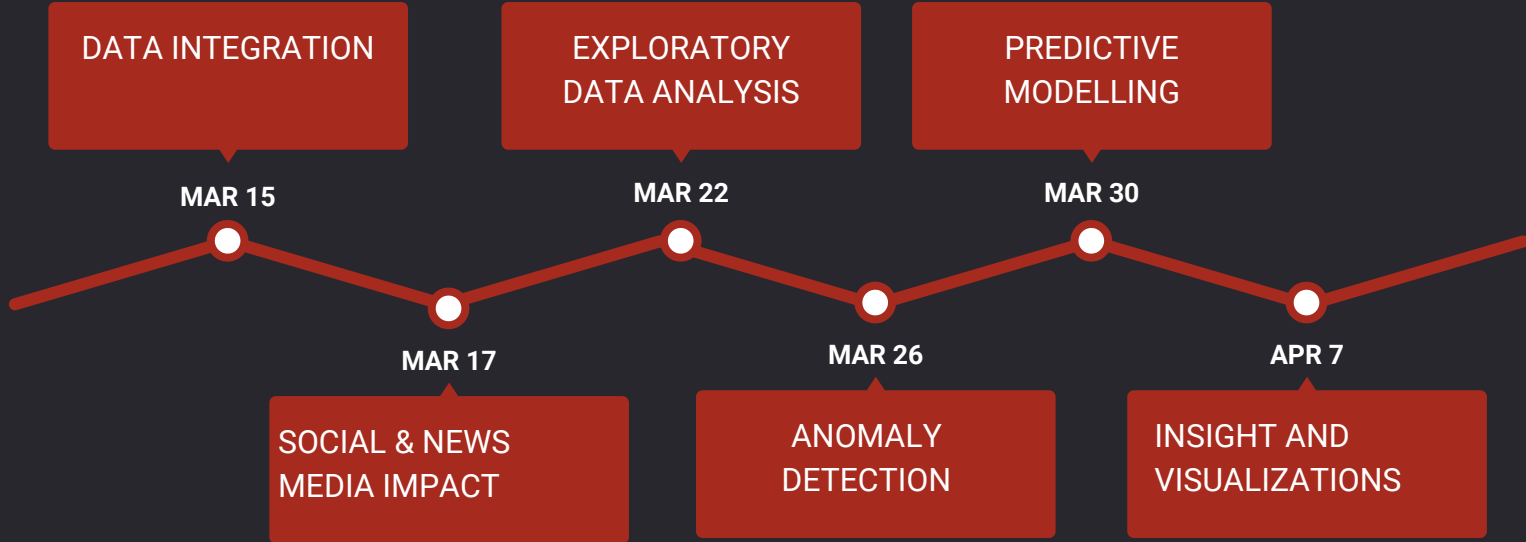
EXPLORATORY DATA ANALYSIS

Examples:

1. What is the rate of school dropouts in countries with conflicts?
2. What are the variations of the number of conflicts in a country and their impact on society?
3. What type of event caused high fatalities?
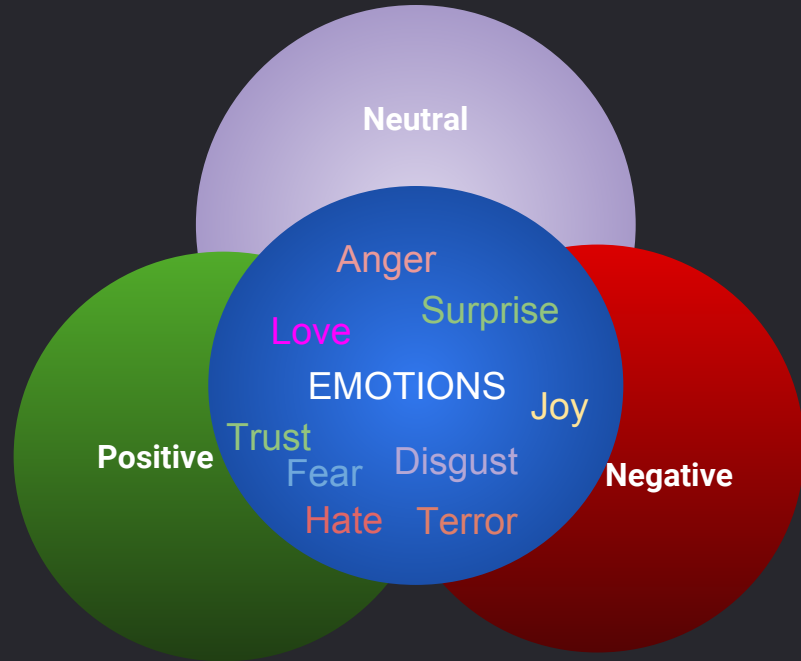
PREDICTIVE MODELING

- Given the socio-political features
    - What would be the Human Development Index?
    - What would be the loss of education and health indices?
    - Will the country undergo chaos and political instability?

SOCIAL-MEDIA IMPACT ANALYSIS

Twitter Data

- ❖ Sentiment Analysis for each of the Countries
- ❖ Sentiment Analysis of tweets from the world leaders
- ❖ Discover insights that would impact social harmony and political instability

Neutral

Anger

Surprise

Love

EMOTIONS

Trust

Joy

Fear

Disgust

Positive

Hate

Terror

Negative

NEWS-MEDIA IMPACT ANALYSIS

- Highlighting issues that are published and opinionated in each country at particular year
- Clustering the corpus of news articles to get intuitive insights about a country.
- Topic Modeling- LDA

ANOMALY DETECTION

- Analyse the misconception in news articles related to the events in a country
- Leveraging "Recurrent Neural Networks"(many to one LSTM) to classify anomalies in news articles
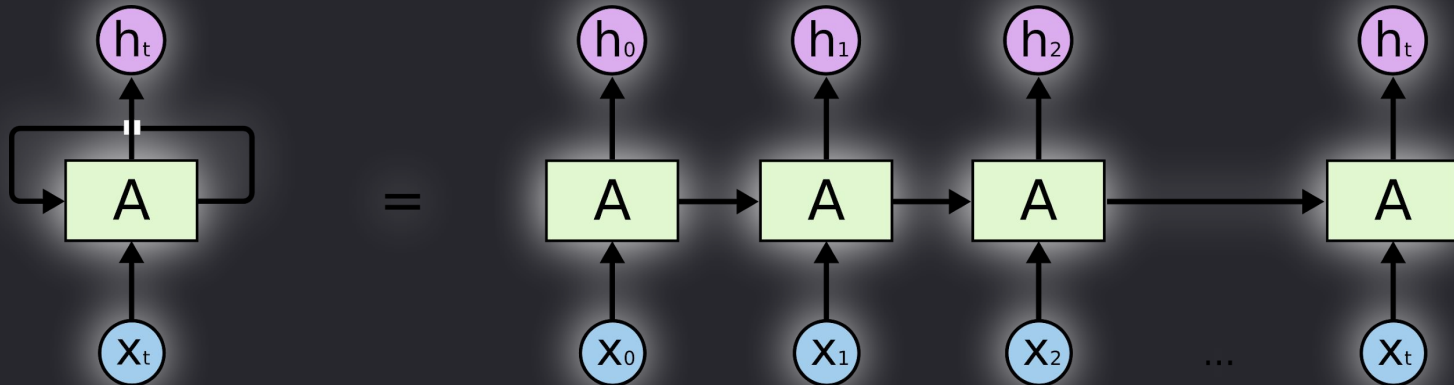
Evaluation Metrics

- Hypothesis Testing
- Regression Evaluation
  - RMSE
  - R-Square
  - MSE
- Classification Evaluation
  - ROC -Curve
  - Sensitivity
  - Specificity

THANKS!

ANY QUESTIONS?