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ATOMICA
LABS

Sentiment and Time Series Analysis

PROJECT PROPOSAL

PRESENTED to:

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Table of Contents

Tip: Use links to go to a different page inside your presentation. Links work best for pages like this one!

How: Highlight text, click on the link symbol on the toolbar, and select the page in your presentation that you want to connect.

Kindly delete this note after editing this page. Thank you!

Goals for the quarter

Goal #1

Help Businesses by analyzing public sentiments on their products

Goal #2

Help public figures to maintain their reputaion by monitoring Public sentiment on their content or social media posts

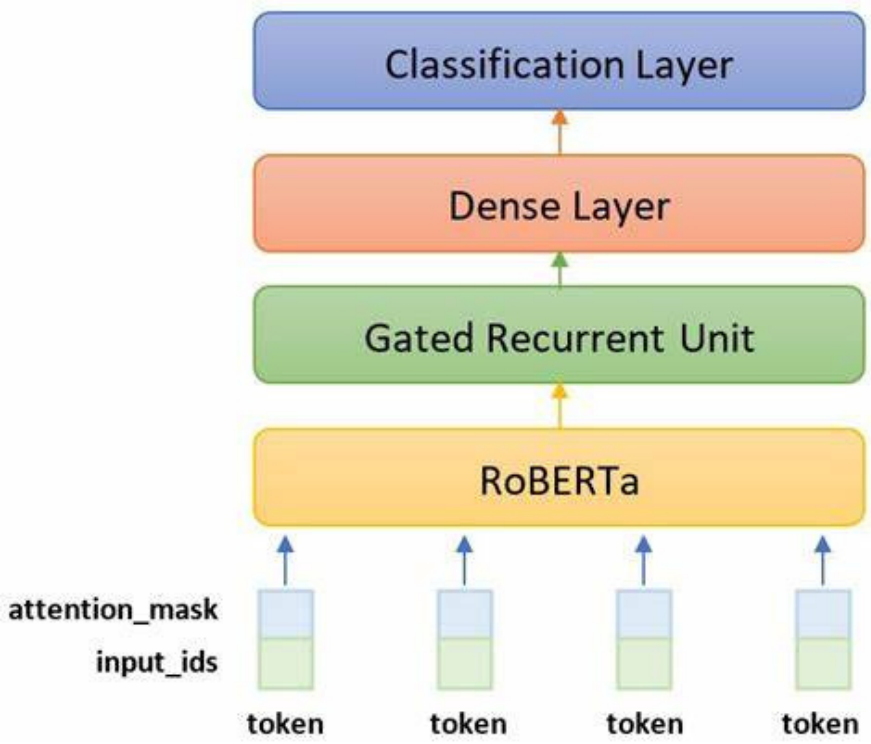
About Sentiment & Time series analysis

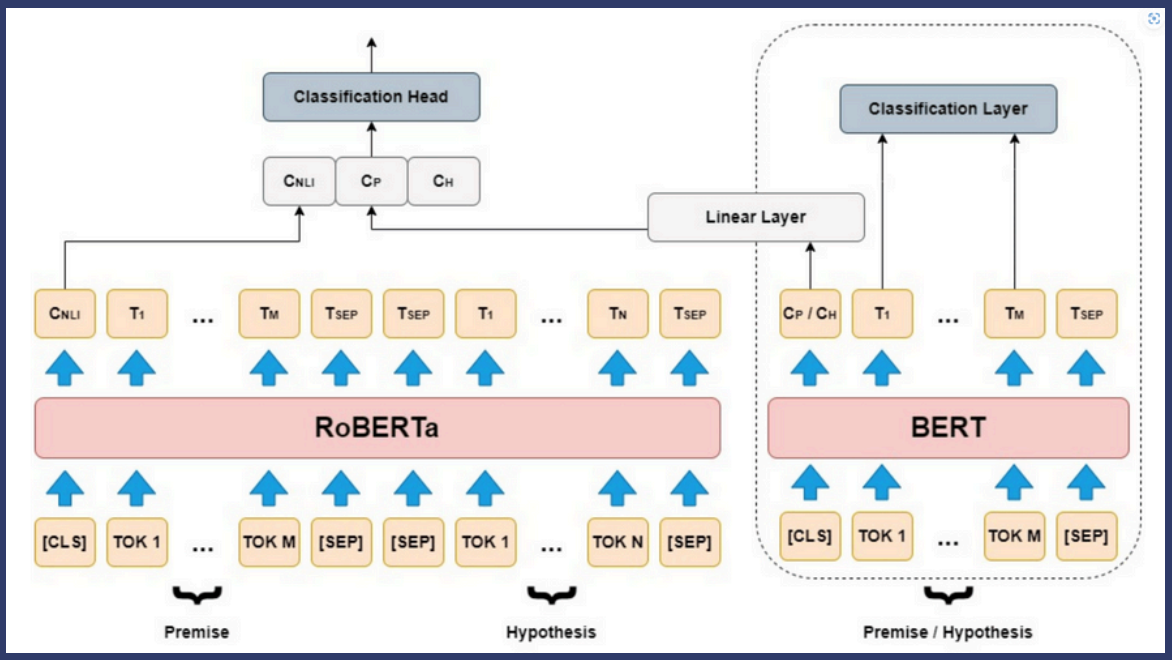
Objectives:

- **To understand how user comments, reviews, and ratings evolved over time and identify any significant trends or patterns.**
- **Monitor public sentiment and analyze them**
- **To provide valuable, data-driven recommendations for decision-makers based on the extracted insights from the data.**
- **Combining various statistical models (Statsmodels, Holt-Winters) and machine learning libraries (NLTK, TextBlob, TensorFlow, Scikit-learn) to conduct comprehensive analyses.**
- **Utilizing time series forecasting techniques to predict future rating trends, enabling proactive decision-making.**

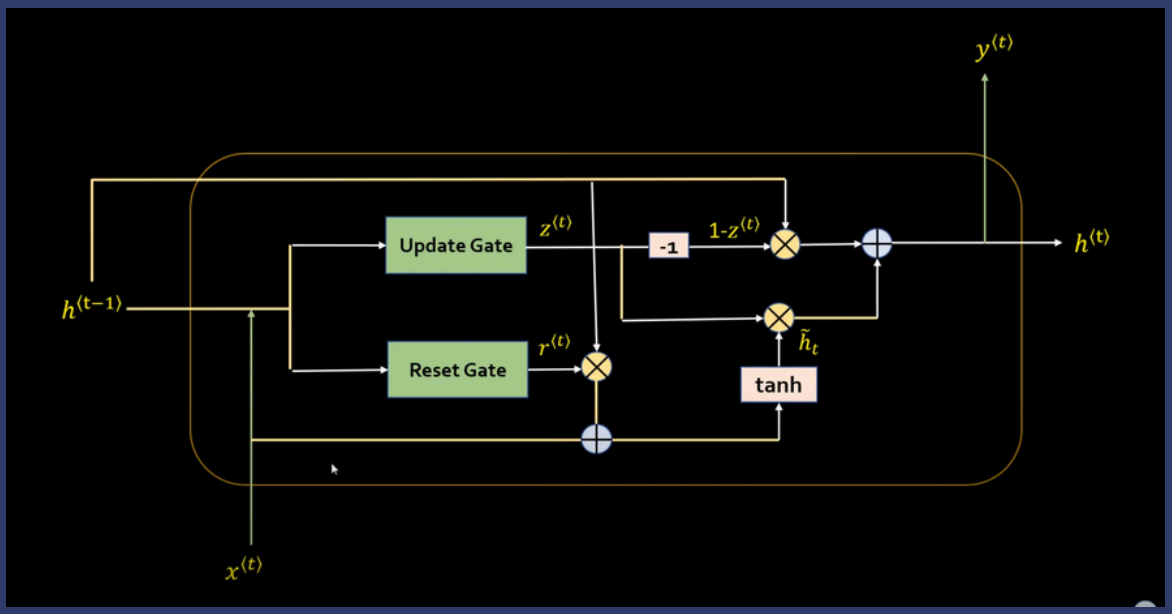
Our Hybrid Machine Learnign Model

RoBERTa & GRU





RoBerta Model Structure



GRU Model Structure

Steps to create a RoBERTa + GRU Hybrid model

1. Set up the environment and install required libraries.

2. Load and preprocess the data - (tokenize text using RoBERTa's tokenizer).

3. Define a custom dataset - for handling inputs and labels.

4. Build the RoBERTa + GRU model - by combining the RoBERTa encoder with a GRU layer.

5. Create DataLoader objects - for training and validation.

6. Set up the training loop - with an optimizer and loss function.

7. Evaluate the model - on the validation set after each epoch.

8. Train the model - for multiple epochs.

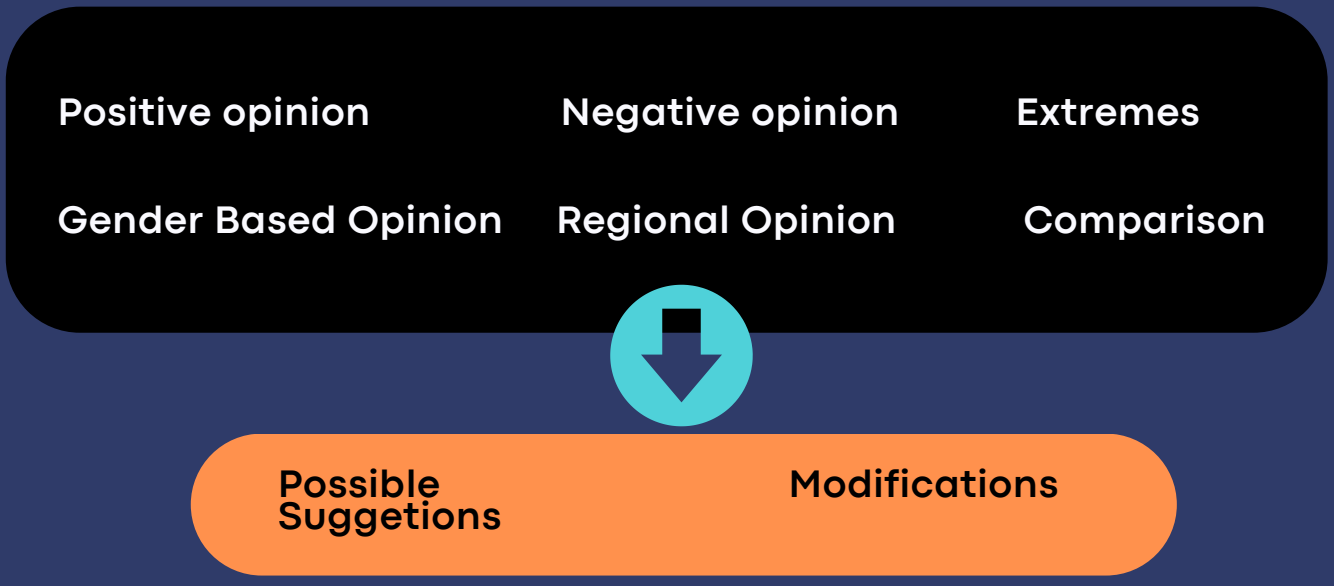
9. Save the trained model

Project Summary and Dash-board

A concise list of tools for summarizing data and building dashboards:

Advanced Analytics and Customization:
-Power Bi
-Looker (Google Cloud)
-Qlik Sense
-Grafana
Open-source platform for real-time monitoring and visualization.

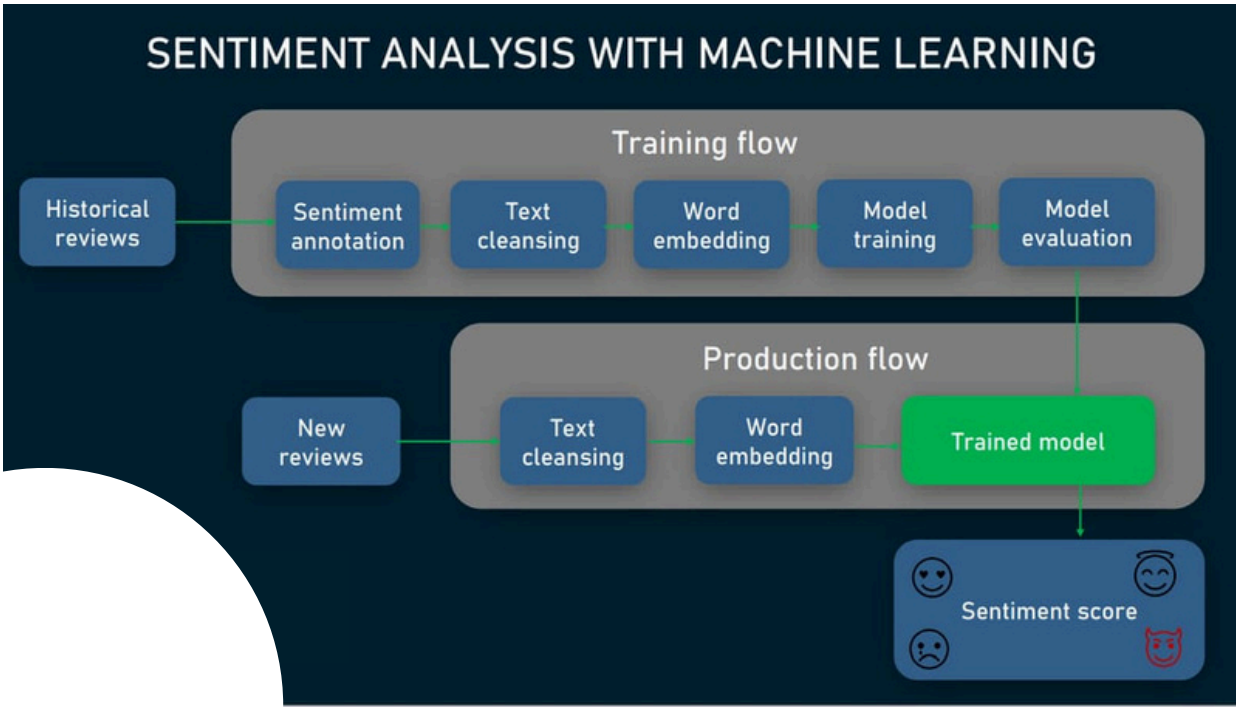
Developers (Custom Dashboards):
-Python (Plotly, Dash, Matplotlib, Seaborn)
-Metabase



Proposed Timeline

We have to do the projects into the proper steps. Our initial steps will be-

1. [setup Structue]
2. [Collect data in model]
3. [Analyze &train the ML models]
4. [Performance test]
5. [Creating Dashboard]



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