Graphical user interface, application, Word

Description automatically generated

CST3130 Advanced Web Development with Big Data

Data Visualization Website – Final Report

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# Screenshot of all front-end website pages

My website provides historical data, results of sentiment analysis, and predictions for the top 5 cryptocurrencies - Bitcoin, Ethereum, XRP, Polkadot, and Dogecoin. Our website presents line charts displaying each cryptocurrency's historical prices and pie charts showcasing the sentiment analysis related to each cryptocurrency. I used machine learning to generate predictions for numerical and synthetic data in plot charts.

This is a link for my website: https://cst3130-2022-23-crypto.s3.amazonaws.com/index.html

## Bitcoin

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## Ethereum

Graphical user interface

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## XRP

Graphical user interface, application

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## Polkadot

Graphical user interface, application

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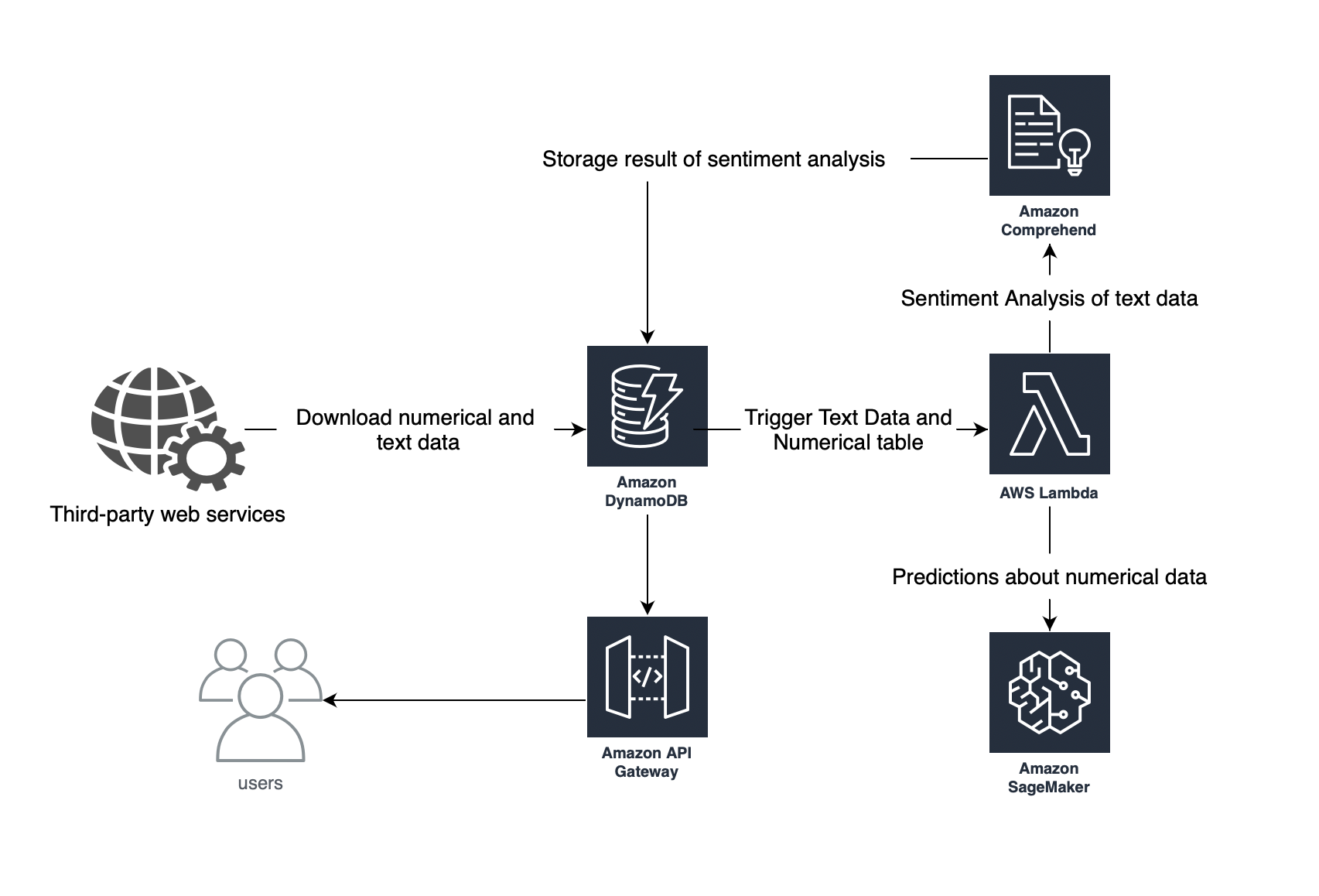
## DogeCoin

Graphical user interface

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# System Architecture Diagram

This architecture diagram includes the main features of AWS services.



Explanation:

1. Third-Party Web Service: Data, including numerical and text data, is downloaded from third-party web services and stored in DynamoDB.
2. AWS Lambda Function: The back-end of the website runs on a serverless architecture using AWS Lambda functions. Lambda functions are triggered by events in DynamoDB, such as the sentiment analysis or numerical prediction.
3. AWS SageMaker: Machine learning is performed using AWS SageMaker to generate correct predictions about synthetic data and to generate predictions about numerical data.
4. AWS Comprehend: Sentiment analysis is performed using AWS Comprehend on text data stored in the cloud.
5. DynamoDB: Cloud database used to store data from the third-party web service and the sentiment data resulting from the sentiment analysis.
6. AWS API Gateway: The WebSocket back-end runs on AWS API Gateway, which enables real-time communication between the client and server using WebSockets.
7. S3 Bucket: All of the front-end files are publicly available on an S3 bucket.