Middlesex University London

Data visualization Website

Student Name: Afeez Adebayo Jinadu

Student Number: M00977103

Date:4th of April 2024

Module Leader: Dr David Gamez

Project Description

In this report we explore data visualization and its implementation the concept

Of data visualization with the use of different charts , this website utilizes advanced technologies to display data in time series and sentiment data determined from people emotions and text based data.

Technical Stack

The project is built on serverless technology, with amazon web services powering its cores , the project uses the fetch API with typescript to download numeric and text based data .

With a NoSQL dynamo db. database, it allows for flexibility and easy storage of the data that has been downloaded whereby Api gateway WebSocket services trigger lambda functions for displaying the data on a html 5 frontend.

The application also uses sage maker to make future predictions of the data which is also stored withing the database.

Amazon web services

These are services provided on the cloud, they offer several benefits such a serverless architecture as stated earlier in this section we dive into the core services we have used while building this application

Aws Lambda

Aws lambda is an aws service that allows us to assign triggers that instruct the code to run when certain conditions are met. Within this project lambda functions are use extensively.

Aws Api gateway

This is a service that allows the application to create a live WebSocket that a client can connect to in this project we utilize API gateway web sockets for our API fully running on the cloud.

Aws Sage Maker

During these project Aws sage maker was used to train the crypto data and an endpoint is created where data can be sent to it and it returns future predictions

Database Structure

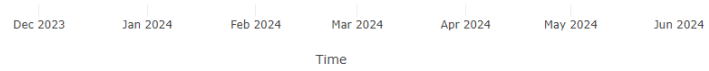
The application utilizes a NoSQL database and utilizes four core tables that handle data storage as shown in the figure below, this tables handle the storage of numeric price data, text data, sentiment data and connection ids.

Data Visualization on the Frontend

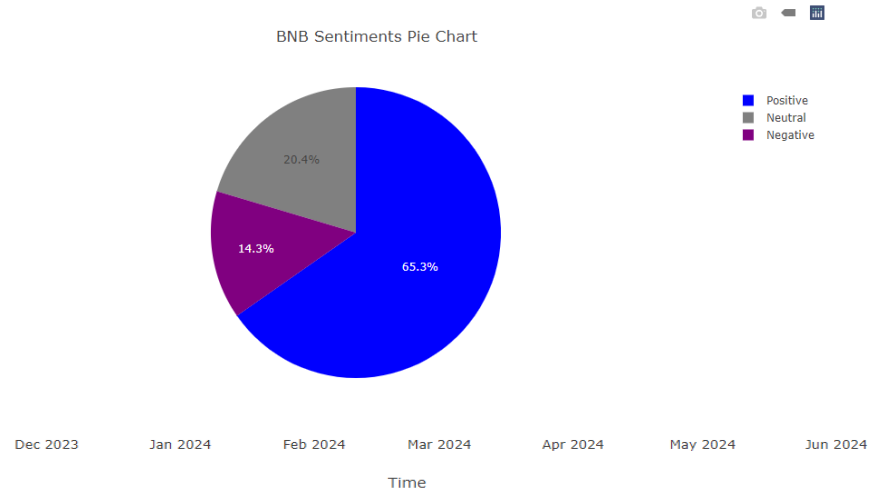
These sections show the running website with charts created using plotly and html 5, the following images below are the running website.

Hosted At: https://my-data-visualization-website.s3.amazonaws.com/index.html

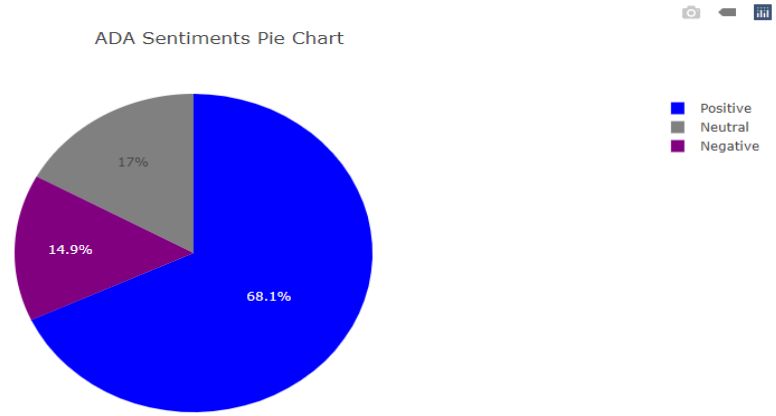
Images



Showing Sentiment of BNB



Showing Sentiment of ADA



my-data-visualization-website.s3.amazonaws.com/index.html

Currency Data Visualization Website

ADA ETH DOT BNB BTC

Showing ADA Prices and Predictions

Showing Sentiment of ADA

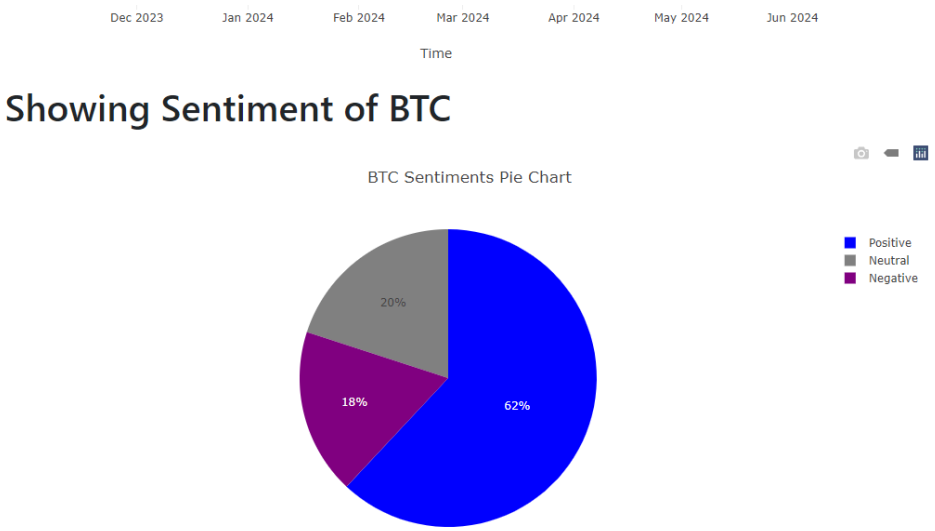
my-data-visualization-website.s3.amazonaws.com/index.html

Currency Data Visualization Website

ADA ETH DOT BNB BTC

Showing ETH Prices and Predictions

Showing Sentiment of ETH



Student Custom Data on Plotly

The module leader provided students with custom data to validate machine learning was done correctly down below is my custom data with predictions plotted using NodeJS and plotly