Financial Health of Countries

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1 ABOUT TEAM

(1) **Group Number**: 5
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2 ABOUT PROJECT

2.1 Tentative Title of the project

Financial Health of Countries

2.2 Sub-categories of the project

- Structured Data Processing and Analytics

2.3 Abstract

Financial defaulting is a situation where a country is unable to repay its debt obligations to its external creditors. This can be caused by a variety of factors such as economic downturns, political instability, and poor financial management. In recent years, several South Asian countries have experienced financial defaulting, with severe consequences for their economies and citizens. Predicting the financial conditions of a country can be a complex task, as it involves analyzing multiple factors that impact its economy. There are several parameters that economists and financial analysts use to predict the financial conditions of a country. Some parameters are: GDP, Inflation, Balance of Payments, Unemployment rate, Debt-to-GDP, political stability, etc. One such country is Pakistan, which has been struggling with a balance of payment crisis since 2018. The country has been borrowing heavily from international institutions like the International Monetary Fund (IMF) to meet its financial obligations. However, due to mounting debts, Pakistan has been unable to repay its loans, leading to a decline in its credit rating and a slowdown in

economic growth. Similarly, Sri Lanka has also faced a debt crisis in recent years. The country has borrowed heavily from China to finance large-scale infrastructure projects, such as the Hambantota Port and Colombo Port City. However, the high-interest rates on these loans have put a strain on the Sri Lankan economy, leading to a debt-to-GDP of over 90%. In 2020, Sri Lanka defaulted on a $1 billion debt repayment to India, further exacerbating its financial troubles.

2.4 Methodology to be followed

(1) **Data collection** In this step, we will collect finance data from world bank, IMF and various other sources. We will focus on collecting data relevant to the short term financial health of countries.
(2) **Data Preprocessing** Finance data of countries is often non continuous and absent due to ongoing crisisi in that country or refusla to cooperate with internationallaws. Therefore, it is essential to preprocess the data before analysis. This step involves removing handling missing data, and converting the data into a suitable format for analysis.
(3) **Graph data processing** The next step is to perform graph data processing on the finance data. Graph data processing involves traversing the graph to extract information about nodes and edges. This can involve various techniques.
(4) **Visualization** The final step is to visualize the results of the analysis. Visualization techniques can include graphs, heatmaps, and scatter plots.

2.5 Datasets Identified

The following datasets can prove useful for developing the project:-

- World Bank GDP Growth
- World Bank Total Reserves
- World Bank Investment in Transport
- IMF data for balance of payment

2.6 System Architecture (Tentative)

We plan on using **MongoDB** to store data and run graph algorithms using graph processing engine like **Apache Graph** or **GraphX** to analyse the data to construct the result based on the query entered by the user.

For the front end we are currently planning on using React Native to develop the User Interface and NodeJS for back end to send and recieve data from front end and database and to add some other module or part as needed to the system..