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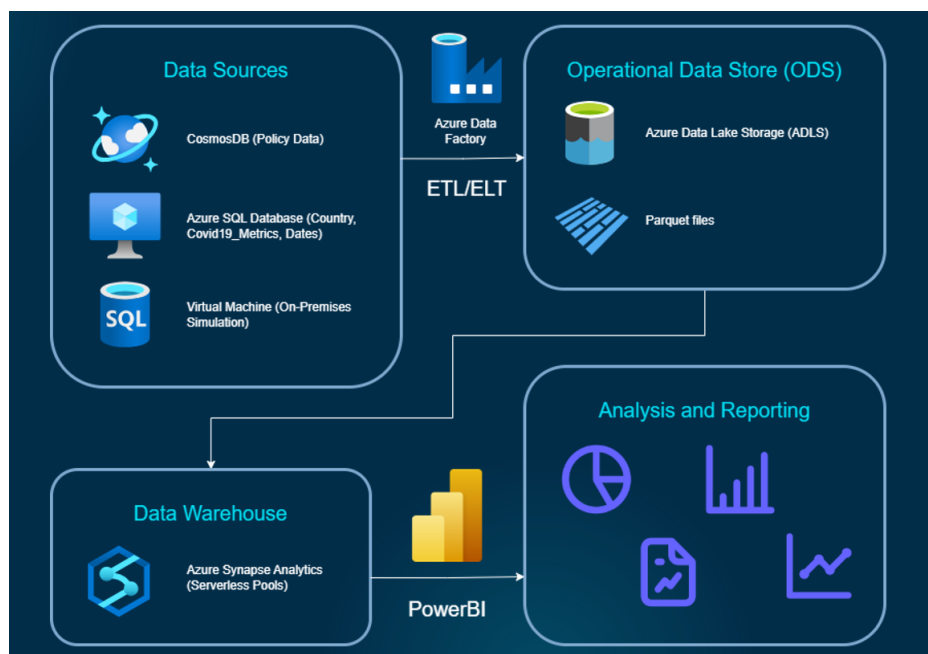
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Group 1 Research Paper

This project aims to find the best two policies for combating COVID-19. The image below displays an architectural overview of the services used in this project, and displays

the flow of data. After retrieving COVID-19 data from three different sources, it was deposited into a data lake using Azure Data Factory. Then, after bringing the data together with Azure Synapse to form tables, we could load the data into Power BI for analysis and reporting. Our group was assigned two policies, recommending the closing of schools and setting international travel bans for arrivals from some regions. We use these two assigned policies to help explain our selection of the best two policies for COVID-19. Through exploratory statistical analysis, our group concluded that the best two policies are

stay-at-home requirements, where individuals can only leave with exceptions, and workplace closings, where a country requires workspace closings. We found that both policies strongly correlate negatively with deaths and confirmed cases. Deaths and cases often stabilize or decrease during the month after these two policies are enacted or initialized from a similar policy. This differs from other policies where the data lacks sufficient evidence to prove it significantly affected combating COVID-19. For example, some policies like public information campaigns maintained one "degree" throughout the data period. Our ten selected countries had coordinated public information campaigns from early 2020 to the middle of 2021. This resulted in difficulty in determining whether any degree of public information campaigns were effective in combating COVID-19.

We filtered through all policies and analyzed how they coorelate to maximizing the total decline in deaths and confirmed cases, which was our metric for determining which policy was most effective. We conclude that stay-at-home requirements 2 and workplace closing 2 were the most effective policies we found because of how they correlate with maximizing the total decline change in death and confirmed cases. We considered workplace closing 3 as a component of workplace closing 2 as workplace closing 2's policy definition was already the most extreme form of the policy.

Our PowerBI report used line chart to show that stay-at-home policy 2 has one of the most meaningful effects on the change in deaths. This idea can be observed in our side-by-side line charts of policy changes with death and number of case changes (Selected Policy 1). Canada, Germany, and the United Kingdom all received fewer cases and deaths in February 2021, which all correspond with the month after each country enacted stay-at-home requirements with exceptions. Similarly, workplace closing 2 followed a

similar pattern in Sweden, South Korea, and Germany during the beginning of 2021. The changes in deaths and confirmed cases lowered after the workplace closing policy got heightened in each of these cases.