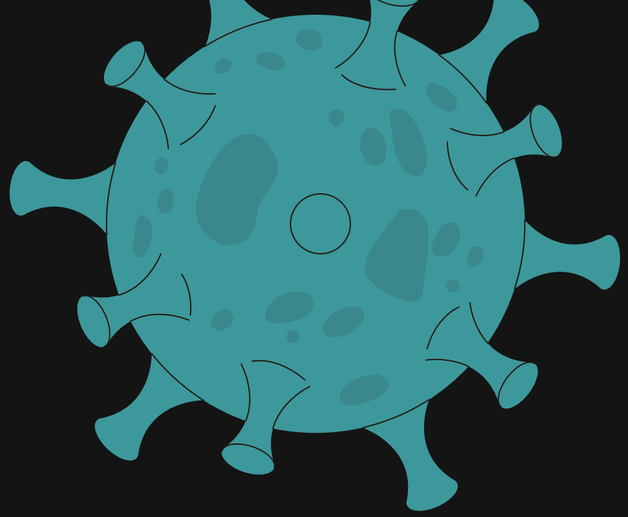
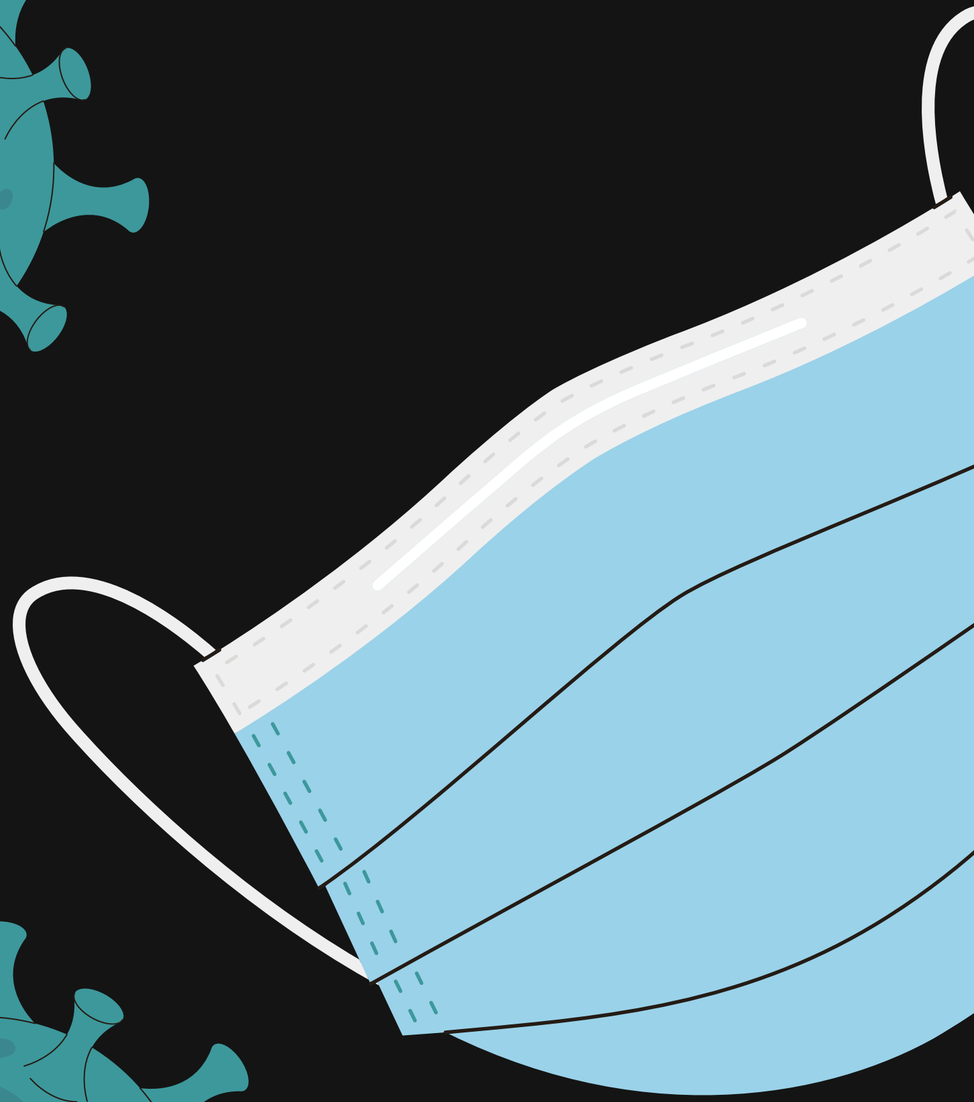
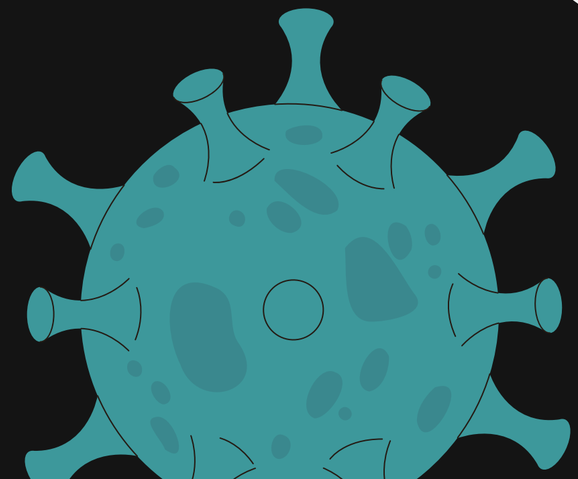
Covid prediction model







Content

What you need to know

Problem statement

Block Diagram of Project

Why FbProphet made?

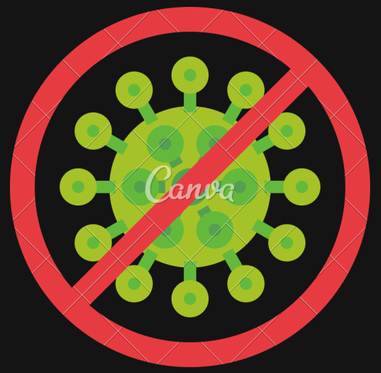
Tech Stacku sed

Modules of the Project

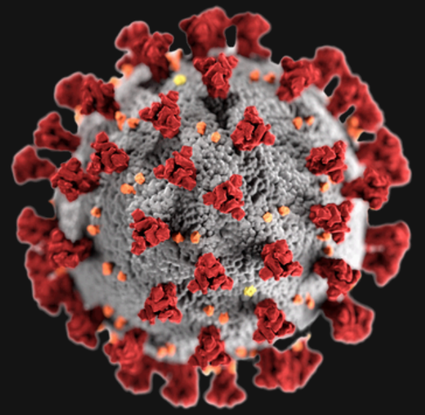
Project Statues& Current Status

Further Work and Conclusion

Reference Research links

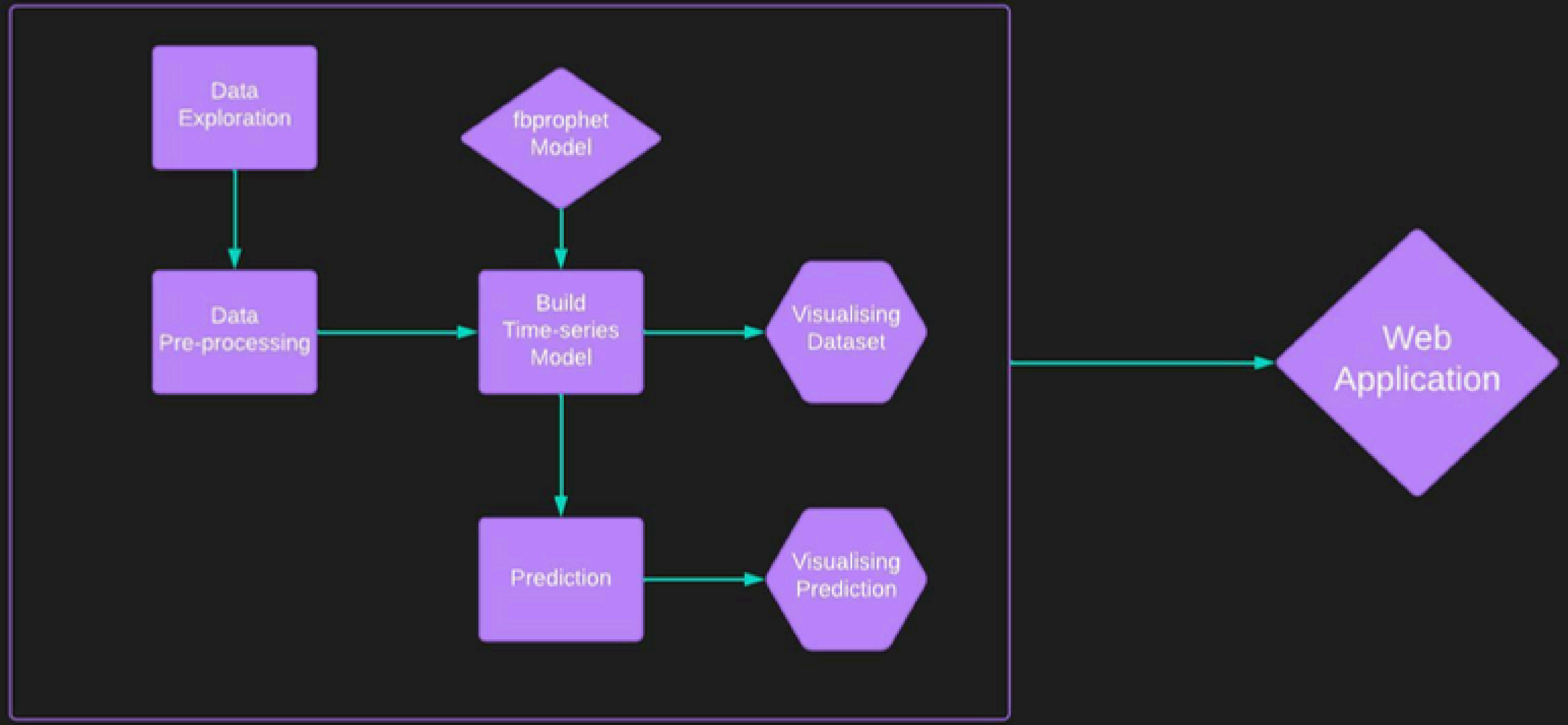


Problem Definition



- Coronavirus disease (COVID-19) is an inflammation disease from a new virus. The disease causes respiratory ailment with manifestations,, and in progressively serious cases, the problem in breathing and death. Coronavirus has been perceived as a worldwide pandemic
- Initially we used to be unsure about how the cases will rise or fall in the upcoming days. Thus we could not prepare for the same and lost a lot of time and resources.
- Using this software,we will be able to predict the covid cases for the next 30 days. This will ensure we can make adequate preparations for the same.

Block diagram of Project :

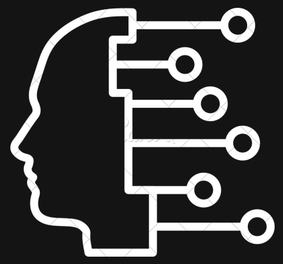


Why Facebook prophet model?

- Facebook Prophet model is based on time series model.
- It helps us better analyse and visualise the data.
- It makes accurate future predictions by taking into account the previous data of date and parameter for which predictions are to be made as an input.
- It has easy implementation and also gives us weekly,monthly and yearly trends.

Tech stack used :

Google collab



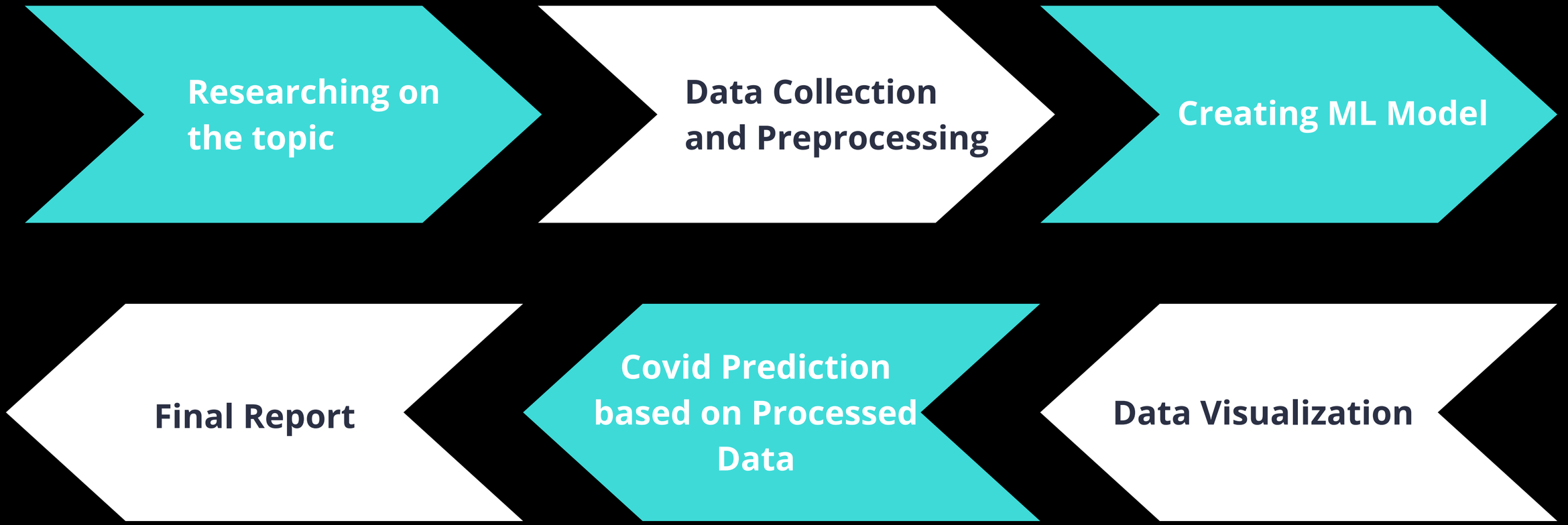
Facebook prophet model

Python

CSS

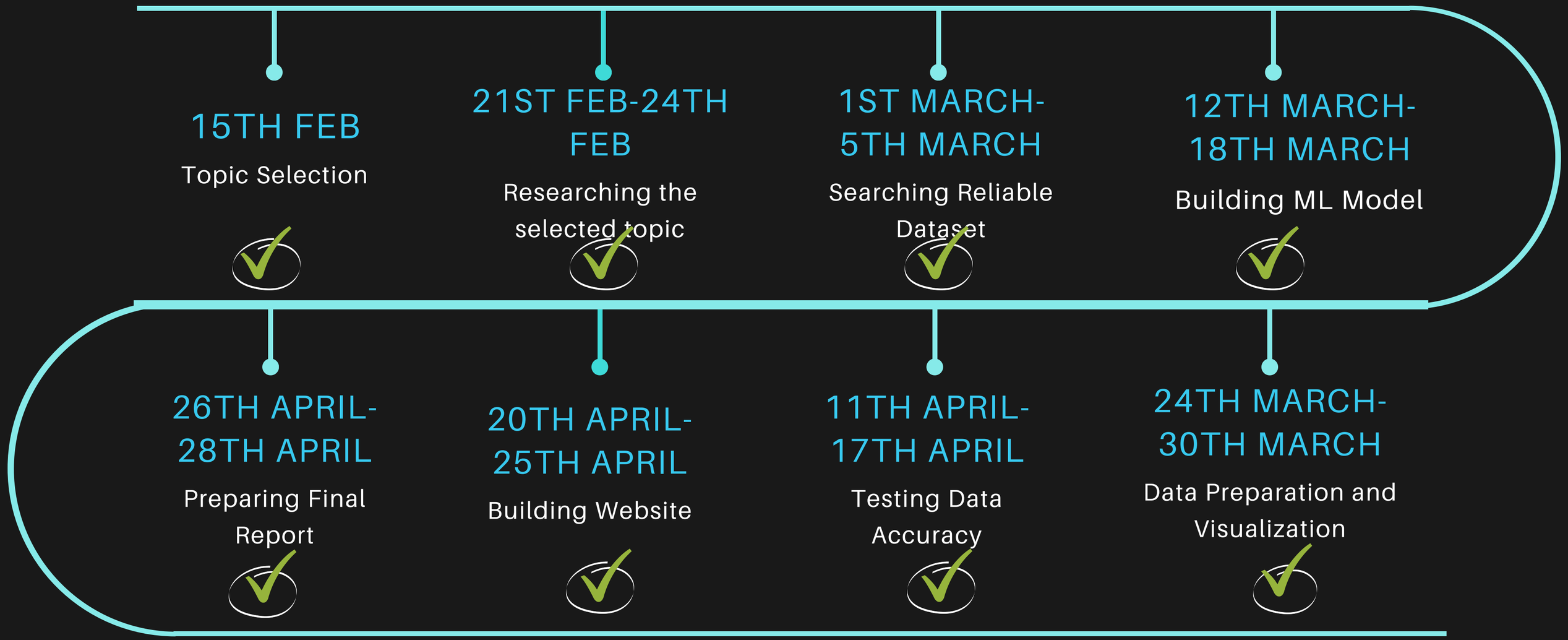
Django

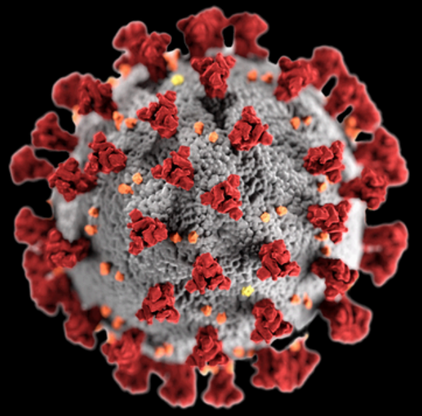
Modules of Project :



PROJECT STATUS :

Mini Project Timeline :





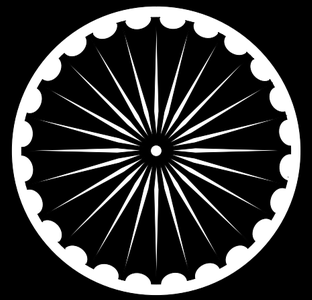
FINAL STATUS :

World Page:

We have created two major web pages namely world and India.

- In this page, we have first depicted the live count of covid cases,deaths, recoveries and active cases and following that we have represented the country-wise distribution of covid-cases using a world-map.
- Next, we have shown the top 10 worst affected countries due to the covid-19 pandemic using different kinds of graphs.
- We have also shown the graph for recoveries.
- At the end, we have created a form which would ask users about the country and predict the covid cases for the next 30 days using graphical representation.

India Page:



- In this page, we have represented the state-wise distribution of covid-cases using India’s map.
- We have also shown the graph for cured cases and active cases.
- At the end, we have created a form which would ask users about the state and predict the covid cases for the next 30 days using graphical representation.

Further Work :

- Different variants : Visualisation of cases based on different variants.
- Pincode : Building an API to detect the pincode of the area the user lives and showing the covid data of the area and the neighbouring areas.
- Age wise prediction : Prediction of the covid case growth for different age groups.

Conclusion :

- We have built a website to show users different statistical, graphical and visual representations of the spread of Coronavirus in the world, India and in their choice of country and state.
- We have used the Facebook Prophet model to predict cases based on the data of cases available till now. On comparing with real world results, we have concluded that the Prophet model can predict cases with 92.47% accuracy.
- We have used various python libraries to calculate and plot graphs, ML models to predict data, HTML and CSS for an interactive frontend and Django to build our website by connecting all these elements.
- Thus we have made an informative, user-friendly and visually appealing website for all users.

Reference research links :

1. M. Rohini, K. R. Naveena, G. Jothipriya, S. Kameshwaran and M. Jagadeeswari, "A Comparative Approach To Predict Corona Virus Using Machine Learning," 2021 International Conference on Artificial Intelligence and Smart Systems (ICAIS), 2021, pp. 331-337, doi: 10.1109/ICAIS50930.2021.9395827. Available : https://ieeexplore.ieee.org/document/9395827

2. Locquet, M., Diep, A.N., Beaudart, C. et al. A systematic review of prediction models to diagnose COVID-19 in adults admitted to healthcare centers. Arch Public Health 79, 105 (2021). Availale at: https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-021-00630-3

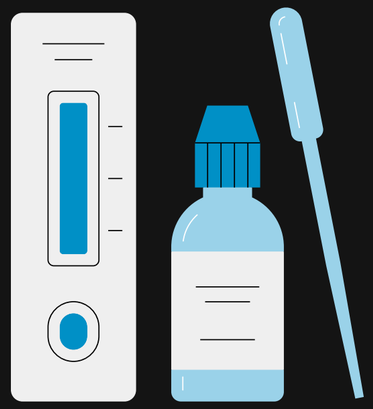
3. Sujath, R., Chatterjee, J.M. & Hassanien, A.E. A machine learning forecasting model for COVID-19 pandemic in India. Stoch Environ Res Risk Assess 34, 959–972 (2020). Available at: https://link.springer.com/article/10.1007/s00477-020-01827-8#Sec6

4. https://www.who.int/bulletin/online_first/20-255695

5.Article Source: A machine learning based exploration of COVID-19 mortality risk
Mahdavi M, Choubdar H, Zabeh E, Rieder M, Safavi-Naeini S, et al. (2021) A machine learning based exploration of COVID-19 mortality risk. PLOS ONE 16(7): e0252384. Available at: https://journals.plos.org/plosone/article/citation?id=10.1371/journal.pone.0252384

6. S. Shaikh, J. Gala, A. Jain, S. Advani, S. Jaidhara and M. Roja Edinburgh, "Analysis and Prediction of COVID-19 using Regression Models and Time Series Forecasting," 2021 11th International Conference on Cloud Computing, Data Science & Engineering (Confluence), 2021, pp. 989-995, Available at: https://ieeexplore.ieee.org/document/9377137

7. L. W. Mary and S. A. A. Raj, "Machine Learning Algorithms for Predicting SARS-CoV-2 (COVID-19) – A Comparative Analysis," 2021 2nd International Conference on Smart Electronics and Communication (ICOSEC), 2021, Available at: https://ieeexplore.ieee.org/document/9591801



Thank you