**Project Problem Statement**

**Project Name:** Predicting COVID-19 Hospitalizations using Kalman Filter

**Team Members:** Pooja Bhatia, Nitharsan Sivakanthan

**Problem Statement:** We want to predict COVID-19 Hospitalizations in Washington State using Kalman filter on the basis of various predictors (positive cases, vaccinations, Age, Cases per county). The Kalman filter is typically used for time series data. We plan to use daily/weekly COVID-19 data to predict hospitalizations.

In research papers we found, there was promise in using the Kalman filter for time series forecasting to determine trends in the COVID-19 pandemic. These papers also included a possibility in studying the association of vaccinated people and number of daily cases for predictions, which is exactly what we are planning to use.

**Data Sources:** We plan to use the Department of Heath Washington State, CDC, and Our World In Data as our data sources.

<https://www.doh.wa.gov/emergencies/covid19/datadashboard>

<https://ourworldindata.org/>

**Citations:**

<https://www.frontiersin.org/articles/10.3389/fphy.2021.629320/full>

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256227>

**Group Dynamics:**

We will communicate using email and whatsapp. We plan to meet regularly either on Tuesday, Wednesday, or Friday mornings. We will share the data and code using a Github repository and using Colab.

<https://github.com/poojabhatia17dec/Covid19-hospitalisation-prediction--Kalman-Flter>

Next Steps:

1. Data collection (Nith)
2. Data cleaning (Pooja)
3. Exploratory Data Analysis (Pooja)
4. Research using Kalman Filter (Nith & Pooja)
5. Create Regression (Nith)
6. Apply Kalman Filter (Pooja)
7. Compare results (Nith & Pooja)
8. Prepare Presentation (Nith & Pooja)