**{Project\_Logo} (**[**Free online logo maker**](https://www.google.com/search?client=firefox-b-1-d&q=free+logo+maker)**)**

Predicting Covid Mortality using Supervised Machine Learning Model

### **Team Members**

| **Name** | **Email** | **Phone Number** |
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### **Background**

* Mortality from COVID-19 shows a strong relationship with age and pre-existing medical conditions, as does mortality from other causes. We aimed to investigate how specific factors (age, pre-existing medical conditions, ethnicity, gender) are differentially associated with COVID-19 mortality as compared to mortality from causes other than COVID-19.

### **Motivation**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has infected tens of millions of people worldwide, causing substantial mortality. Numerous factors have emerged as being associated with a higher risk of severe outcomes and death from COVID-19. Mortality appears to rise exponentially with increasing age. Male sex, obesity, socioeconomic deprivation, and a number of comorbidities are also associated with higher risk. Substantial variation in mortality by ethnicity has also been observed in several studies, with evidence from the US suggesting worse COVID-related outcomes among minority ethnic groups, compared with the majority White populations. However, little evidence is available on how the factors associated with COVID-19 mortality compare with the factors associated with mortality from other causes, and hence the extent to which a person's risk of dying from COVID-19 is likely to be governed by their broader mortality risk. We know that increasing age is the major risk factor for all-cause mortality. It is possible that COVID-19 simply multiplies everyone's risk of death by a constant factor, or it could be that some factors have a different effect on COVID-19 deaths specifically. A better understanding of this would help inform strategies to identify and protect those most at risk of poor outcomes during the pandemic.

### **Questions to answer**

* Predicting a person’s likelihood to contract Covid death vs mortality based Supervised ML
* Linear regression: Calculate precision, accuracy, recall
* 5 different machine learning models
* Checklist of existing conditions -> correlation to % of Covid mortality
* Data from CDC + Kaggle (at least 2 sets of data)

### **Tools/Modules to use**

* Python
* Pandas
* Matplotlib
* NumPy
* SciPy
* Website creation

### **Data sets to use**

List all possible databases you’ll use

* [Conditions Contributing to COVID-19 Deaths, by State and Age, Provisional 2020-2023 | Data | Centers for Disease Control and Prevention (cdc.gov)](https://data.cdc.gov/NCHS/Conditions-Contributing-to-COVID-19-Deaths-by-Stat/hk9y-quqm)
* <https://www.kaggle.com/code/kerneler/starter-us-covid-19-risk-assessment-4bba24c6-d/data>

Github link:

<https://github.com/rvroomiii/group_hub>

### **Tasks Breakdown**

Student 1: Collect/Clean the data.: **Abraham Abate**

Import data into DB

Student 2: Feature selection/Dashboard and ….:Ashish J Shukla

Feature:

Student 3: Method for analysis/Visualization and …. : Team

Prediction Method

* Linear regression
* Ridge regression
* Decision trees
* Random forest
* K-nearest neighbor (KNN)
* Neural network regression
* SVM

Student 4: Presentation and … .: Jialin Huang

Student 5: Website development.. : Roger Vroom

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### **Tasks and timeline**

|  | **Date** | **Task** | **Notes** |
| --- | --- | --- | --- |
| **Seg-1.1** | **2/28/23** | (I assume you’ve started ..) |  |
| **Seg-1.2** | **3/1/23** | (Still a good time to start ..) |  |
| **Seg-1.3** | **3/2/23** | Neural Networks Day-2 | Normal Class |
| **Seg-1.4** | **3/3/23** | (Start now ..) |  |
| **Seg-1.5** | **3/4/23** | (Go Back 3 Spaces ..) |  |
| **Seg-1.6** | **3/5/23** |  |  |
| **Seg-2.1** | **3/6/23** |  | Group Roster and Project Idea Proposal Due |
| **Seg-2.2** | **3/7/23** |  |  |
| **Seg-2.3** | **3/8/23** |  |  |
| **Seg-2.4** | **3/9/23** |  |  |
| **Seg-2.5** | **3/10/23** |  |  |
| **Seg-2.6** | **3/11/23** |  |  |
| **Seg-3.1** | **3/12/23** |  |  |
| **Seg-3.2** | **3/13/23** |  |  |
| **Seg-3.3** | **3/14/23** |  |  |
| **Seg-3.4** | **3/15/23** |  |  |
| **Seg-3.5** | **3/16/23** |  |  |
| **Seg-3.6** | **3/17/23** |  |  |
| **Seg-4.1** | **3/18/23** |  |  |
| **Seg-4.2** | **3/19/23** |  |  |
| **Seg-4.3** | **3/20/23** |  |  |
| **Seg-4.4** | **3/21/23** | Mock Presentation |  |
| **Seg-4.5** | **3/22/23** |  |  |
| **Seg-4.6** | **3/23/23** | PROJECT PRESENTATION | 4th Segment and  Self Assessment Due |
| **Seg-5.1** |  |  | All submissions Due |

### **Presentation**

Divide your presentation steps to tasks and assign it to members.

Suggested by:  
Khaled Karman