**COVID-19 Peak Prediction using Logistic Function**

**Team Members:**

Ananthaneni Vamsi Krishna (3143762)

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**Under the guidance of**

Dr. Yudi Dong

Department of Computer & Information Science Gannon University  
109 University Square  
Erie, PA 16541

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# INTRODUCTION

* Corona Virus disease 2019(Covid-19) is a highly infectious and transmitted that was first discovered in Wuhan City, China around December 2019.
* But in India, it was reported first in Kerala State in January 2020.
* Our main aim is to get the estimation for the total number of cases recovered and deaths around the globe using technology.
* In our python project, we will implement a live dashboard for Covid – 19 spread analyses.

* The dashboard will give numerous insightful visualizations to the investigation of covid spread.
* We will be using NumPy, Matplotlib, SciPy and Pandas as our libraries to perform analysis and visualization of this project.
* In this undertaking, we will deal with datasets of top 15 countries, and we will create a dashboard.

# METHODS

The methods that are used in our python project are the python libraries such as NumPy, SciPy, Pandas, Random, Matplotlib and Linear Regression.

* **NumPy: -** The command used for it to install is import NumPy as np.
* **SciPy:** - SciPy stands for Scientific Python. Like NumPy, SciPy is open source so we can use it freely.
* **Random:** - The Random module is a built-in module to generate the pseudo- random variables. It can be used perform some action randomly such as to get a random number, selecting a random elements from a list, shuffle elements randomly.
* **Pandas: -** Pandas is a Python library, and it is also used to analyse the data. It is also used for correlation and plotting of the data. Insert the correct method to create the series by

pd. (my list)

* **Matplotlib: -** Matplotlib is an amazing visualization in python library used to create arrays for 2D and 3D. It is a multi-platform data visualization library.
* **Non – linear regression:** - It is a mathematical model that will be in a fit equation, it uses a straight-line equation such as y = c + mx. It uses as a curve which makes it a nonlinear.
* To accomplish this objective, Non-linear regression has been applied to the model, using a logistic function.
* This process consists of 1) Data Cleaning
* Choosing the most suitable equation which can be graphically adapted to the data, in this case, Logistic Function (Sigmoid)
* The formula for the logistic function is:

Y = 1/(1+e^B1(X-B2))

* Database Normalization

# RESULTS

* Based on the data sets that we have taken above, the data will be merged into the python tool (Jupiter Notebook) by first importing the libraries and then by adding the files to it.

Graphical user interface, table

Description automatically generated with medium confidence

Figure Reading Data From the Table

Chart, scatter chart

Description automatically generated

Figure Graphical Representation of Final Data Vs Fit Model after Apply New beta Value