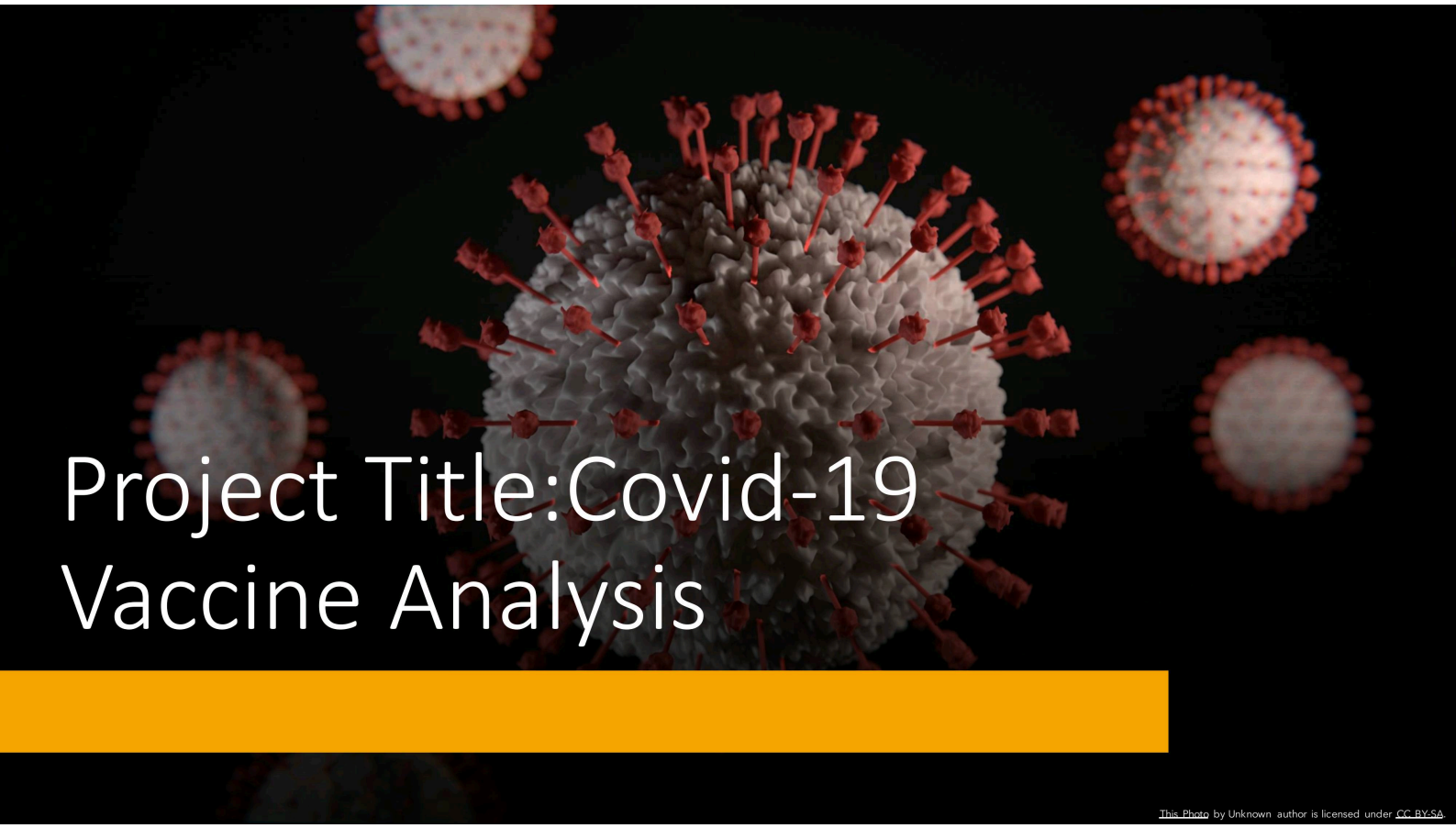


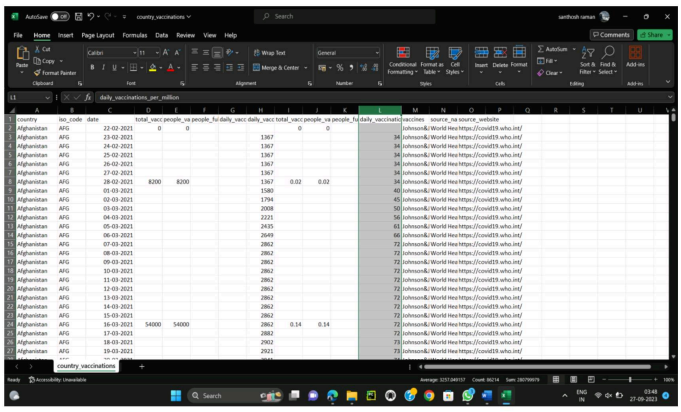
Project Title:Covid-19 Vaccine Analysis

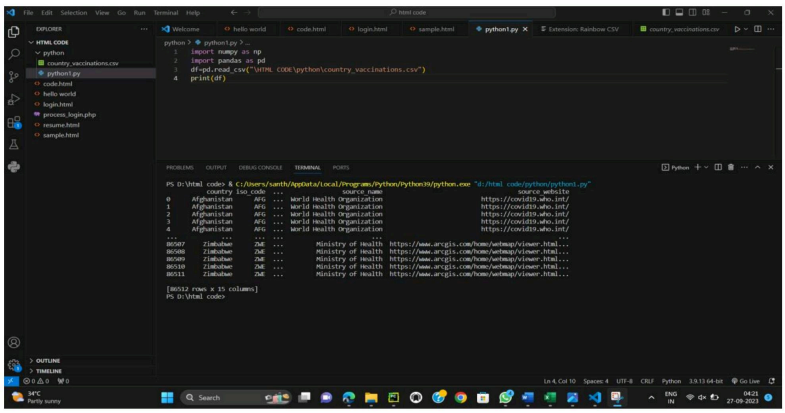
Project Definition:

This Project contains an In-depth Analysis of Covid-19 Vaccine data,Focusing on Vacancy efficacy,distribution and and adverse effects.It involves data Collection,Data Preprocessing ,Exploratory data Analysis,Statistical Analysis, and Virtualization.

Data Collection:

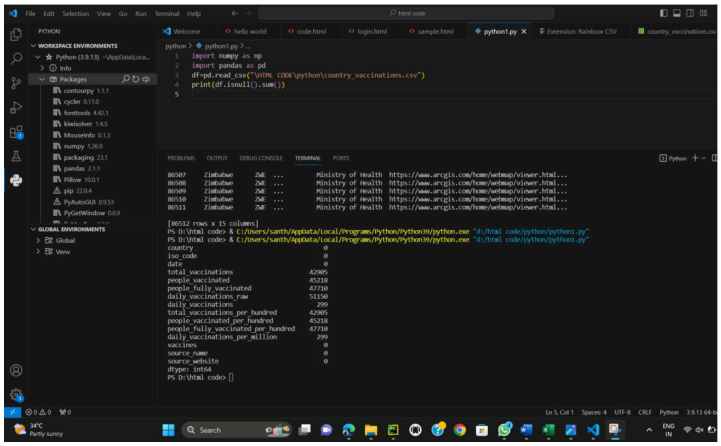
By making use of the link given below we can download the dataset for our project.
https://www.kaggle.com/datasets/gpreda/covid-world-vaccination-progress

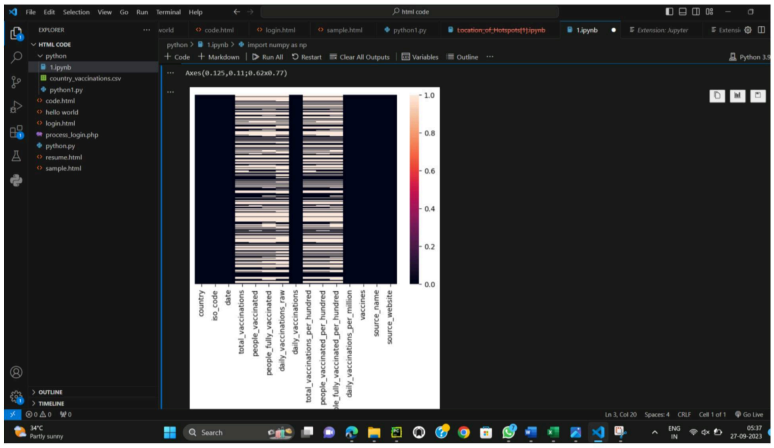




Data Preprocessing:

- In Case of this part we will be finding the Total number of missing values in the given dataset and Handling it by plotting a Heatmap

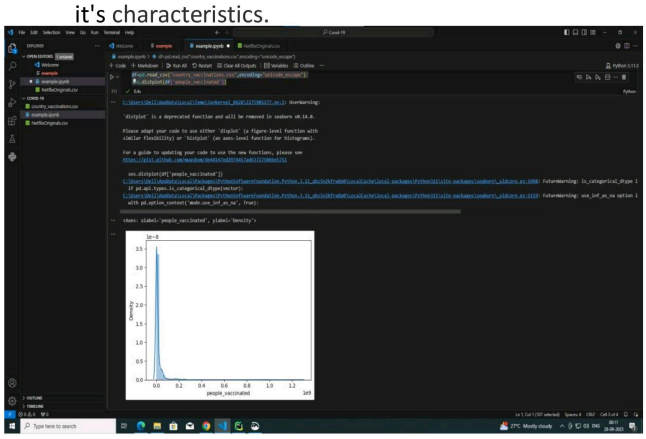




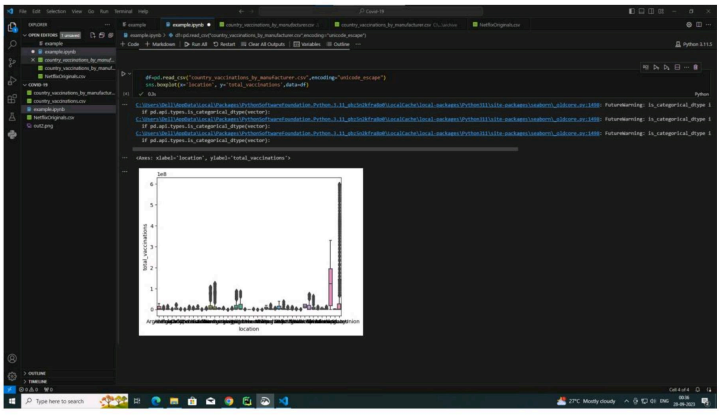
Exploratory Data Analysis:

In case of Exploratory Data Analysis(EDA) we have gone through the concept of identifying the outliers and plotting them in various type of Graphs.

1. As a very first step of this case we have plotted a distribution chart for the downloaded dataset by understanding it's characteristics.



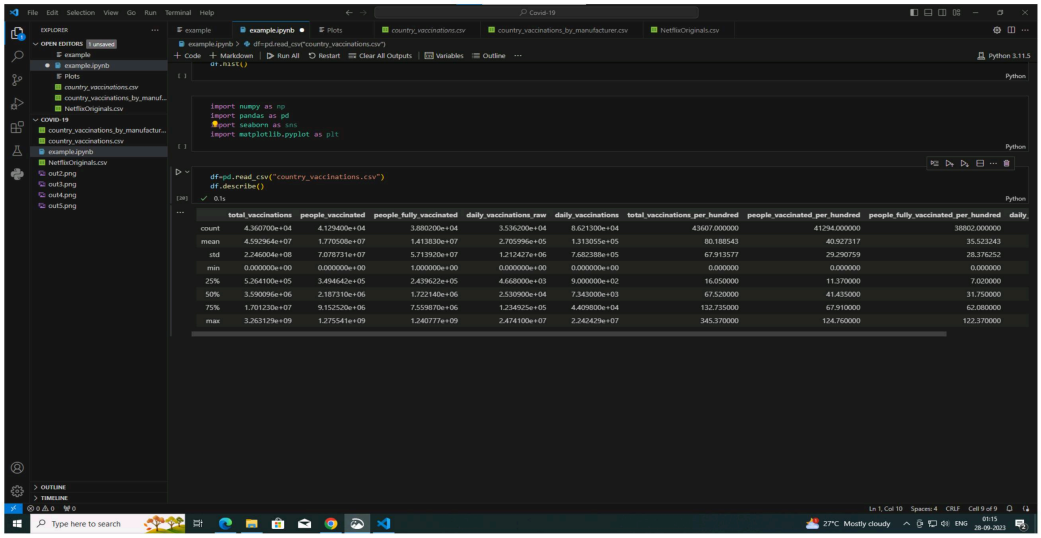
2.Secondly we have plotted the boxplot for given dataset by Understanding about Outliers .



Statistical Analysis:

- It simply describes the basic Statistics for all continuous variables And Nan values are automatically skipped in these statistics. It Indicates the Count of a variable,Mean,Standard deviation,Minimum and Maximum value

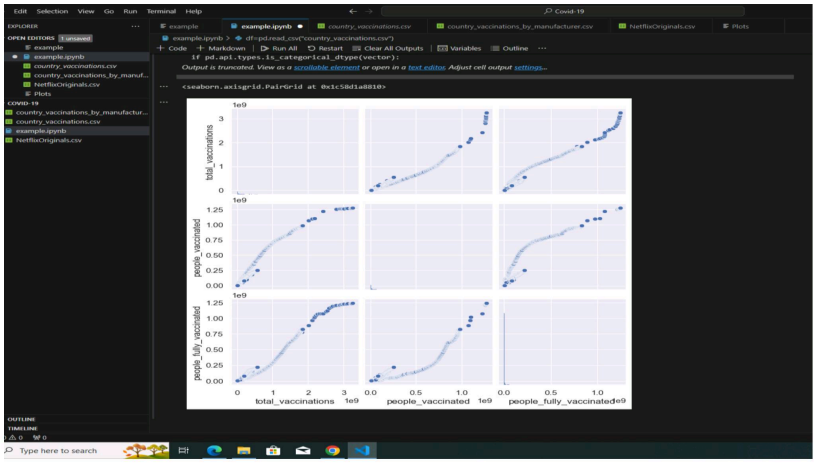
Statistical distribution contains the dataset variables that has either Integers or Floating Point type.

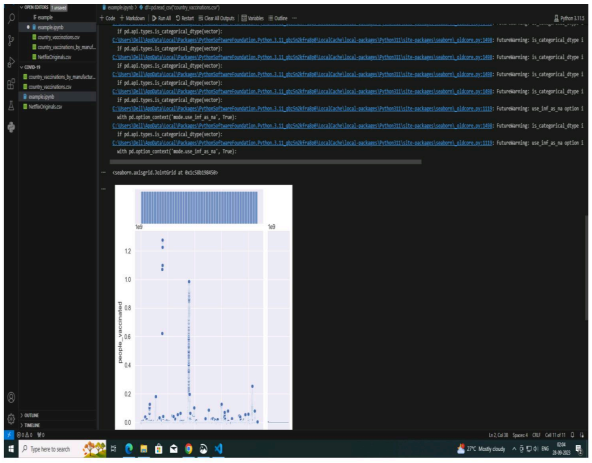


	total_vaccinations	people_vaccinated	people_fully_vaccinated	daily_vaccinations_raw	daily_vaccinations	total_vaccinations_per_hundred	people_vaccinated_per_hundred	people_fully_vaccinated_per_hundred	daily_
count	4.360700e+04	4.129400e+04	3.880200e+04	3.536200e+04	8.621300e+04	43607.000000	41294.000000	38802.000000	
mean	4.592964e+07	1.770508e+07	1.413830e+07	2.705996e+05	1.313055e+05	80.188543	40.927317	35.523243	
std	2.246004e+08	7.078731e+07	5.713920e+07	1.212427e+06	7.682388e+05	67.913577	29.290759	28.376252	
min	0.000000e+00	0.000000e+00	1.000000e+00	0.000000e+00	0.000000e+00	0.000000	0.000000	0.000000	
25%	5.264100e+05	3.494642e+05	2.439622e+05	4.668000e+03	9.000000e+02	16.050000	11.370000	7.020000	
50%	3.590096e+06	2.187310e+06	1.722140e+06	2.530900e+04	7.343000e+03	67.520000	41.435000	31.750000	
75%	1.701230e+07	9.152520e+06	7.559870e+06	1.234925e+05	4.409800e+04	132.735000	67.910000	62.080000	
max	3.263129e+09	1.275541e+09	1.240777e+09	2.474100e+07	2.242429e+07	345.370000	124.760000	122.370000	

Visualization:

- Here we visualize the given dataset by means of bar plots, line charts, heatmaps and Pair plot.





Insights and Recommendations:

Variants: Monitoring the impact of COVID-19 variants on vaccine effectiveness is essential. New variants may require booster shots or updated vaccines to maintain protection.

Vaccine Distribution: Ensuring equitable distribution of vaccines globally is critical to achieving widespread immunity. Disparities in vaccine access can prolong the pandemic.

Booster Shots: Research indicated that booster shots might be necessary to maintain immunity, especially for certain populations and in response to new variants.

Long-term Effects: Continuously monitor and research the long-term effects of COVID-19 vaccines, including any potential rare side effects.

Global Collaboration: Collaboration between countries, organizations, and pharmaceutical companies is essential for effective vaccine research, production, and distribution