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Web Application: Time Series-COVID19 Prediction

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I. INTRODUCTION

Covid-19 has become a dangerous name in 2020. The first case was registered in Wuhan of Hubei province, China on Dec 12, 2020. It has severe spreading power, it is found that in England R-number is around 1.1-1.6 i.e an infected person can spread up to 40000 people before he gets cured. So, the health department failed with the wrong prediction of numbers. Therefore, to avoid such misassumptions, I designed a web application based on the time series and the outbreak prediction of Covid-19 in India by analyzing the daily confirmed cases as well as daily deceased cases from January to July.

This helps in the right evaluation of cases thereby helping the health department to preplan the future rise in cases and creates a chance of defeating the virus and saving the lives of millions of people. Only in India the daily confirmed cases reached around 90k and daily deceased around 1200.

My application is designed using the Django web framework and the prediction is done using multi-linear regression in Machine learning in Python by taking all the possible dependent factors such as time, daily confirmed cases, total confirmed cases, total deceased, and daily deceased as per the dataset.

II. DATA COLLECTION

The COVID-19 dataset consists of around 173 records. These records show the information related to coronavirus cases in the country over the period of time from January to July. It contains around 7 attributes like date, daily confirmed, total confirmed, daily recovered, total recovered, daily deceased, total deceased, etc. Based on this information, we need to predict the total confirmed as well as total deceased cases as per the given future dates.

III. DATA REPRESENTATION

The Dataset we are using is COVID-19. It consists of various details like date, daily confirmed, total confirmed, daily recovered, total recovered, daily deceased, total deceased, etc. of around 173 days daily record. The following are the steps to be performed on the dataset to solve the problem.

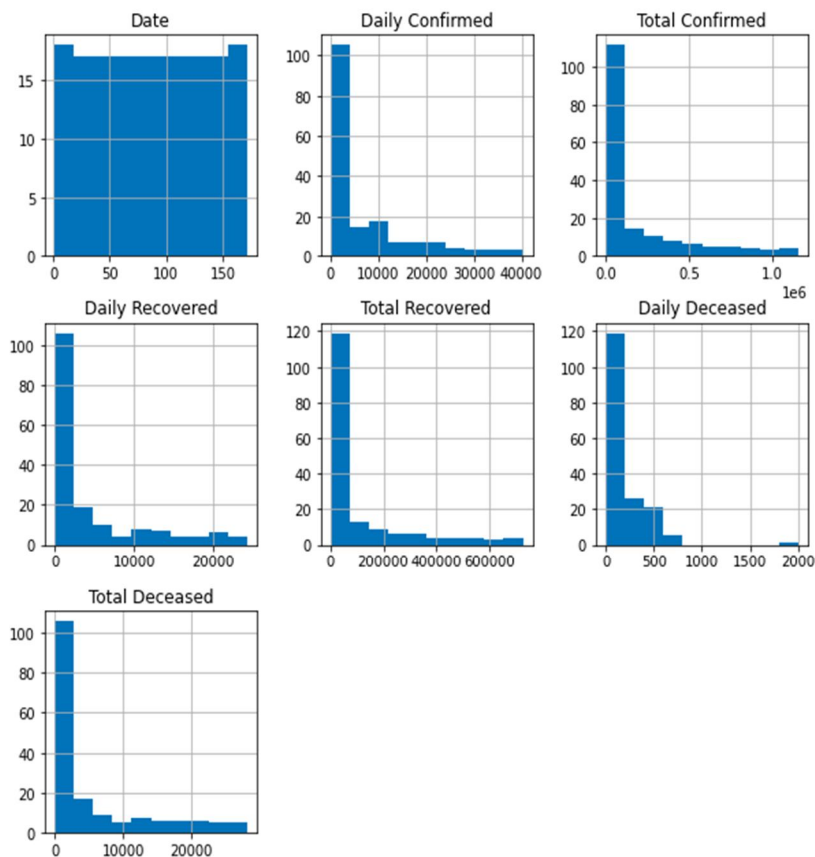
- 1) Read the Input dataset.
 - 2) Perform all necessary Data Normalization, Standardization processing to prepare the transformed format of the given input dataset.
 - 3) Handle the missing values.
 - 4) Perform Exploratory Data Analysis/Visualization and bring insights into the predictor variables.
 - 5) Apply Multi-linear regression algorithm by splitting the data into train and test sets
 - 6) Measure and compare the performance of the models using confusion matrix and metrics like
- Therefore, after all data preprocessing techniques, all the columns have the same data type i.e int64.

A. Data Visualisation

Now, we are going to visualize the dataset in different methods.

- 1) We are plotting the individual columns below.
- 2) Now, we concentrate only on the total confirmed cases vs date.
- 3) Plotting the points of each column in different combinations.

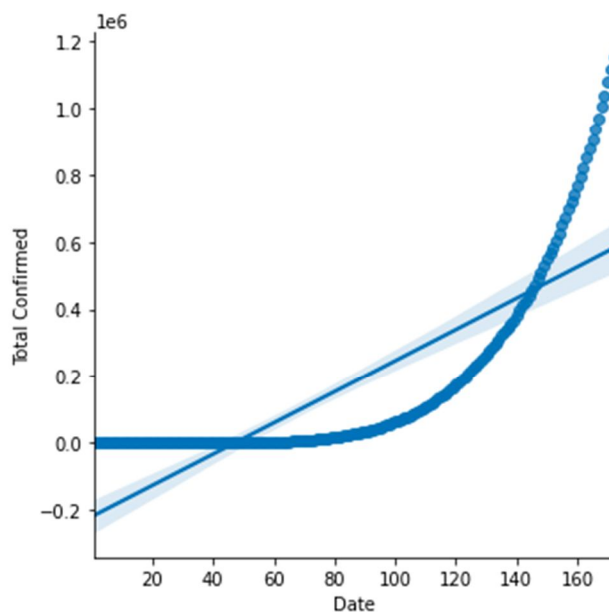
```
In [16]: covid.hist(figsize=(10,10))
plt.show()
```



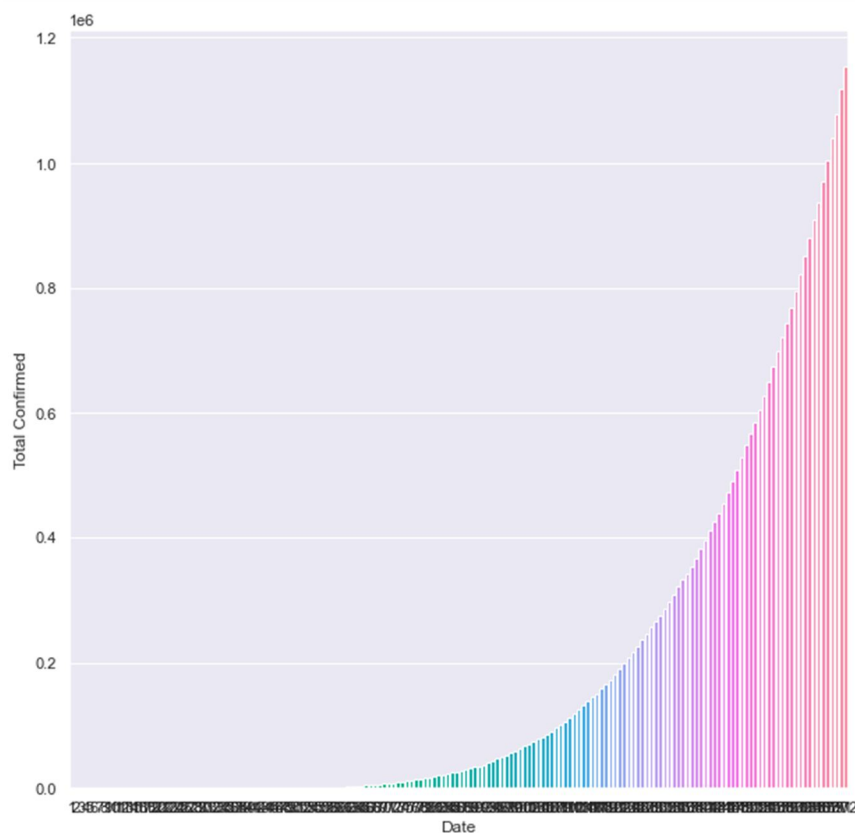
(i)

```
In [18]: sns.lmplot(x='Date', y='Total Confirmed', data=covid)
```

```
Out[18]: <seaborn.axisgrid.FacetGrid at 0x7fc525e6c950>
```



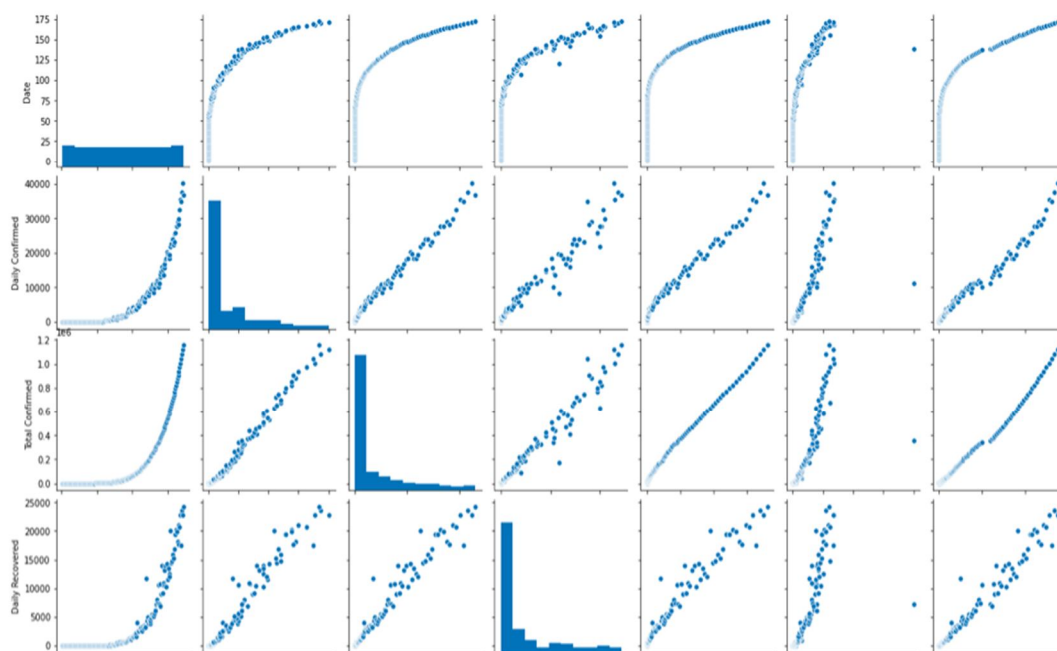
```
In [28]: sns.set(rc={'figure.figsize':(10,10)})
sns.barplot(x="Date",y="Total Confirmed",data=covid)
plt.show()
```



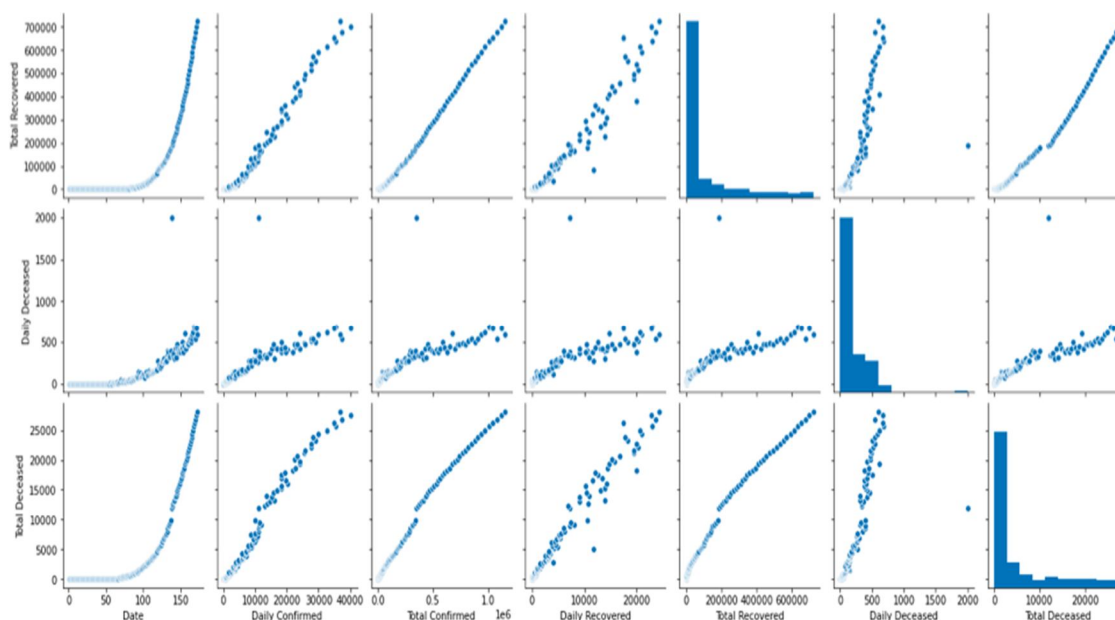
(ii)

```
In [19]: sns.pairplot(covid,diag_kind="hist")
```

```
Out[19]: <seaborn.axisgrid.PairGrid at 0x7fc520ad04d0>
```



Continued...



(iii)

Here the purpose of Visualization is to observe whether the data is distributed normally or not and to observe and remove the outliers. If data in each attribute is not normally distributed we have to apply some normalization techniques. But we have data distributed normally after removing outliers and normalization. And we can gain some meaningful insights from the observations above histograms and plots.

Now, we are separating the features and label values into two different data frames.

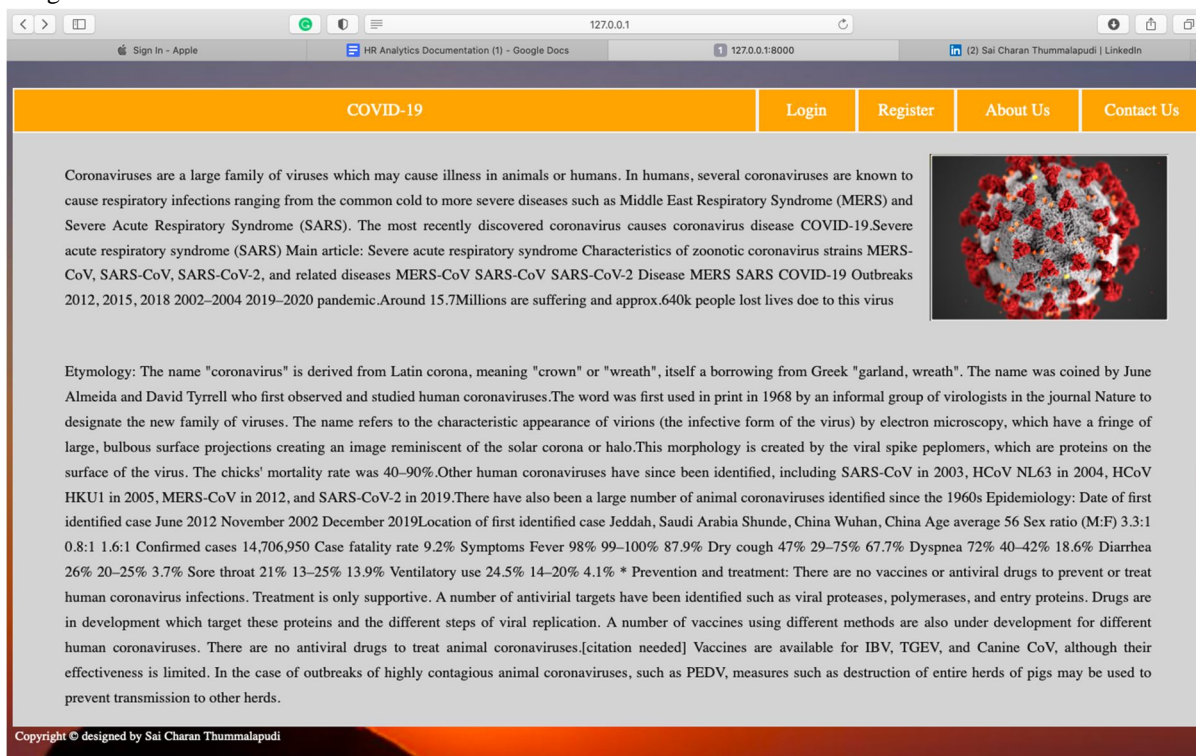
```
In [18]: x=covid.iloc[:,1:6].values
```

```
In [19]: y=covid.iloc[:,0].values
y
```

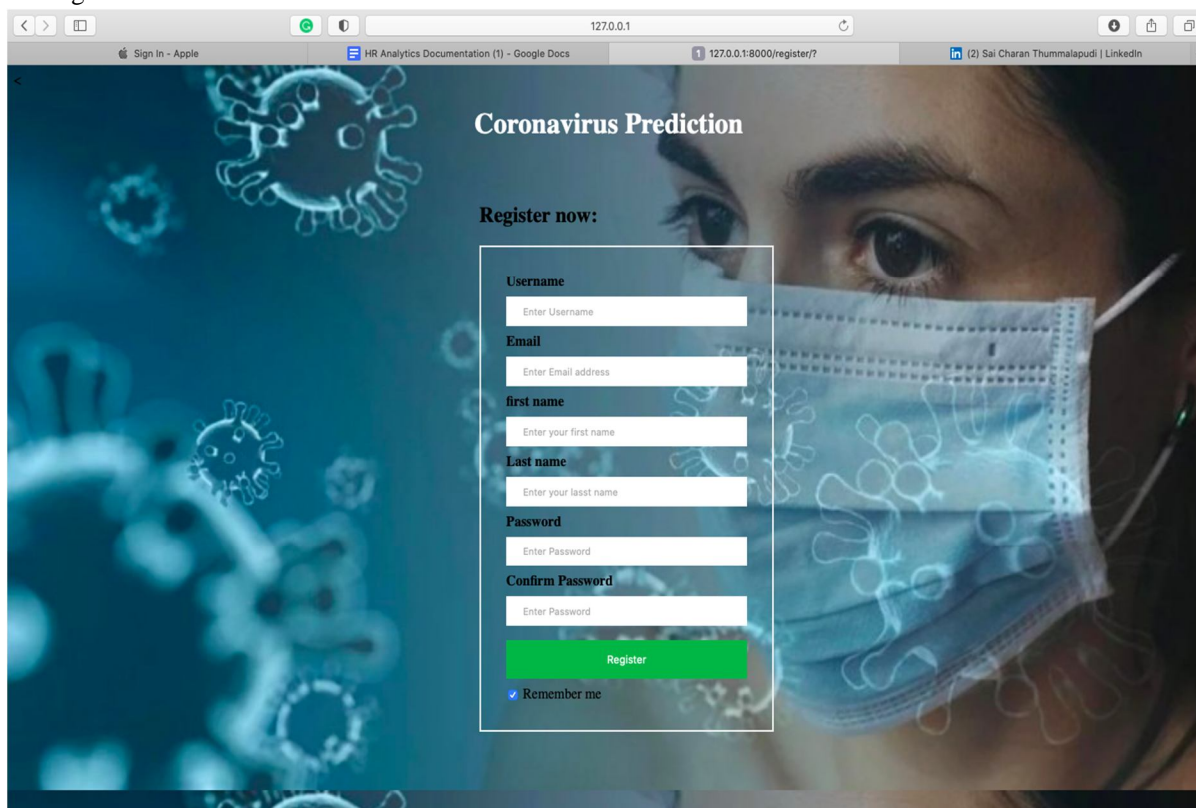
```
Out[19]: array([[ 1, 1, 1, 2, 3, 3, 3,
 3, 3, 3, 3, 3, 3,
 3, 3, 3, 3, 3, 3,
 3, 3, 3, 3, 5, 6, 28,
 31, 34, 39, 48, 63, 71, 81,
 91, 102, 112, 126, 146, 171, 198,
 256, 334, 403, 497, 571, 657, 730,
 883, 1019, 1139, 1326, 1635, 2059, 2545,
 3105, 3684, 4293, 4777, 5350, 5915, 6728,
 7599, 8453, 9211, 10454, 11485, 12371, 13432,
 14354, 15725, 17305, 18544, 20081, 21373, 23040,
 24448, 26283, 27890, 29458, 31360, 33065, 34866,
 37262, 39826, 42778, 46434, 49405, 53007, 56351,
 59690, 62865, 67176, 70768, 74330, 78056, 82047,
 85855, 90649, 95698, 100326, 106480, 112200, 118223,
 124759, 131424, 138537, 144951, 150858, 158104, 165358,
 173496, 181860, 190649, 198372, 207187, 216876, 226723,
 236195, 246603, 257485, 266021, 276002, 287158, 298293,
 309599, 321638, 333043, 343075, 354161, 367269, 381098,
 395838, 411753, 426904, 440464, 456120, 472988, 491193,
 509448, 529590, 549200, 567539, 585795, 605224, 627171,
 649889, 673907, 697849, 720349, 743496, 769057, 794847,
 822609, 850366, 879472, 907650, 937567, 970174, 1005642,
1040462, 1077869, 1118112, 1154918])
```


V. OUTPUTS

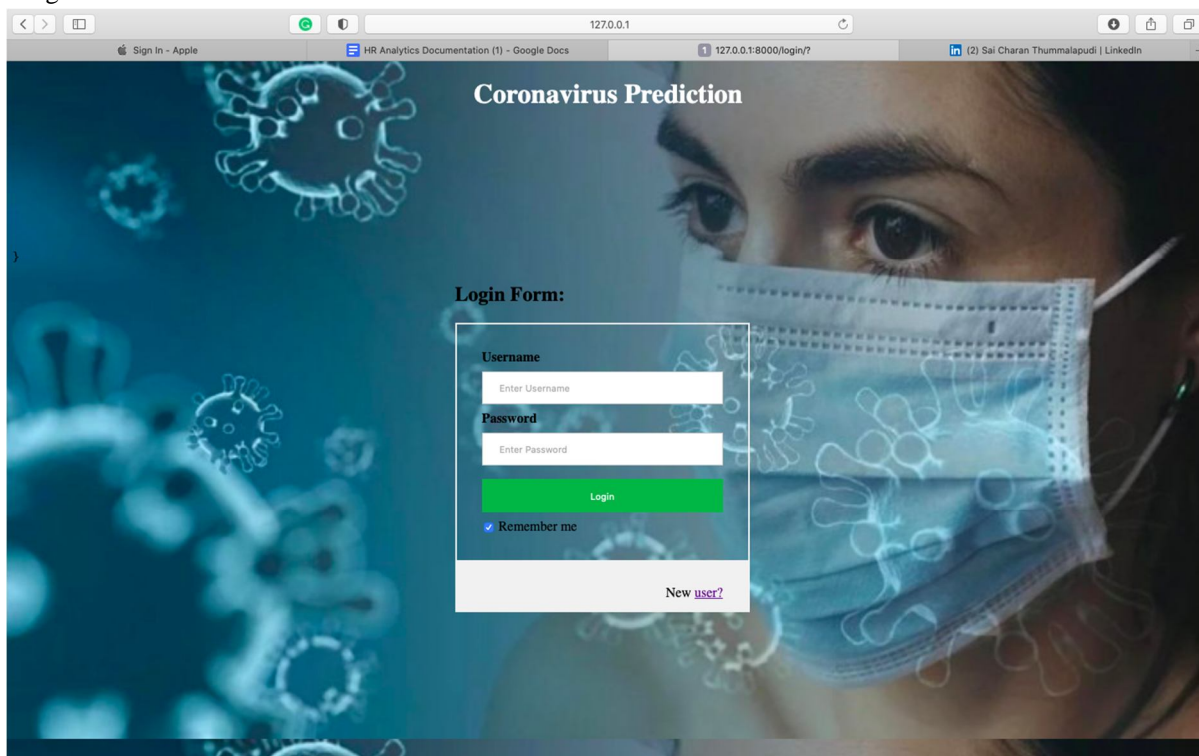
1) Home Page



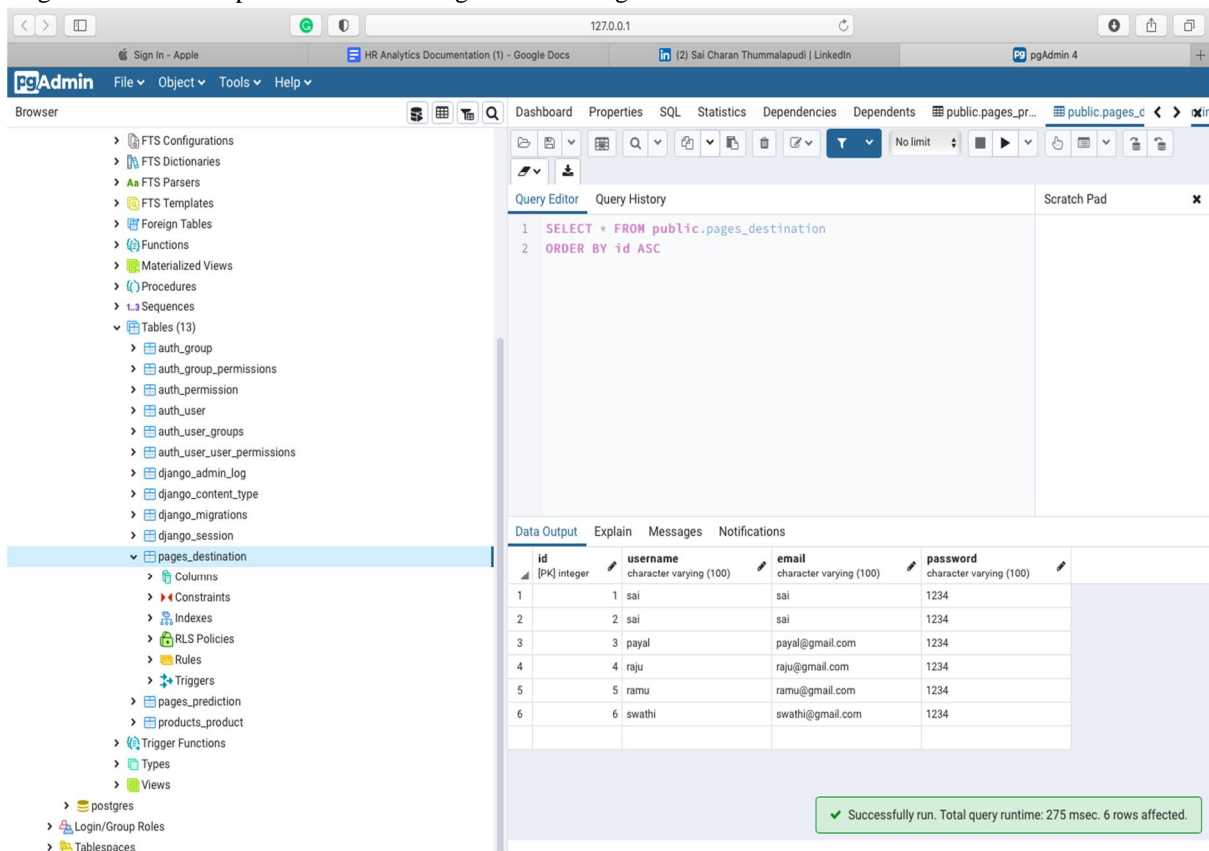
2) Register Page



3) Login Page



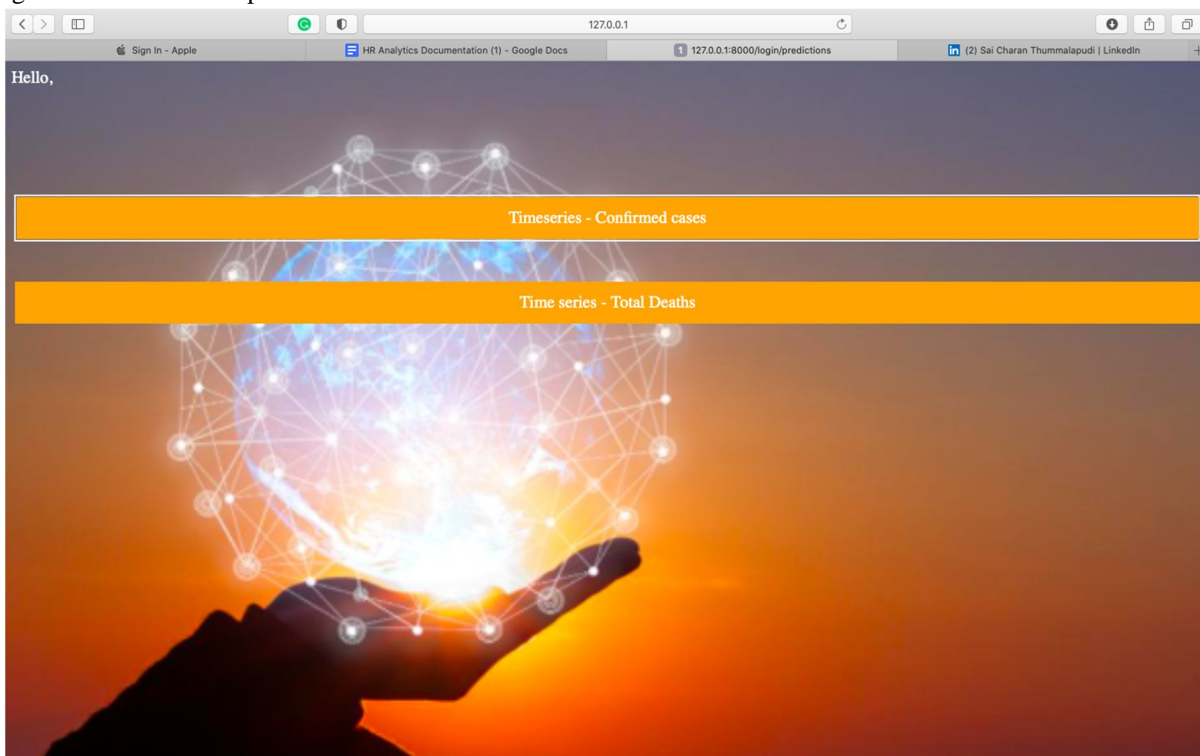
4) Checking the email id and password from the PgAdmin 4 Postgres database.



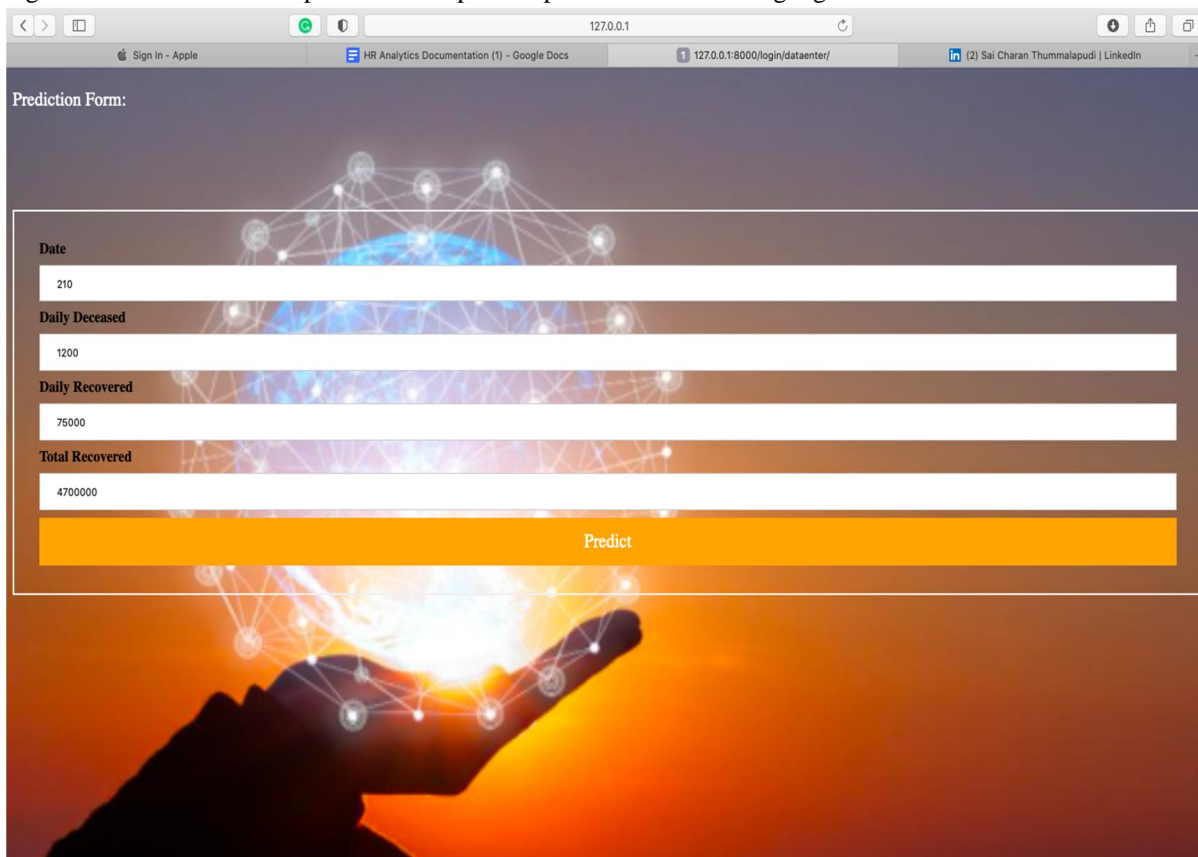
id	username	email	password
1	sai	sai	1234
2	sai	sai	1234
3	payal	payal@gmail.com	1234
4	raju	raju@gmail.com	1234
5	ramu	ramu@gmail.com	1234
6	swathi	swathi@gmail.com	1234

Successfully run. Total query runtime: 275 msec. 6 rows affected.

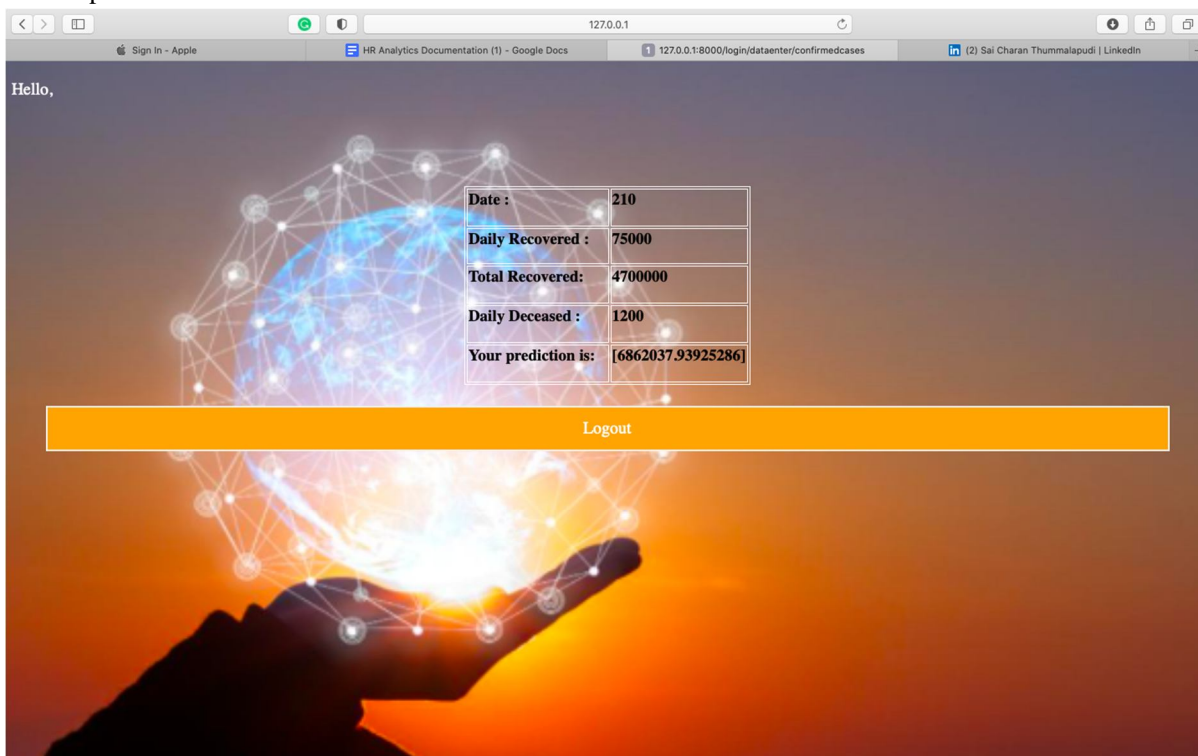
5) Choosing between whether to predict total confirmed cases or total deceased.



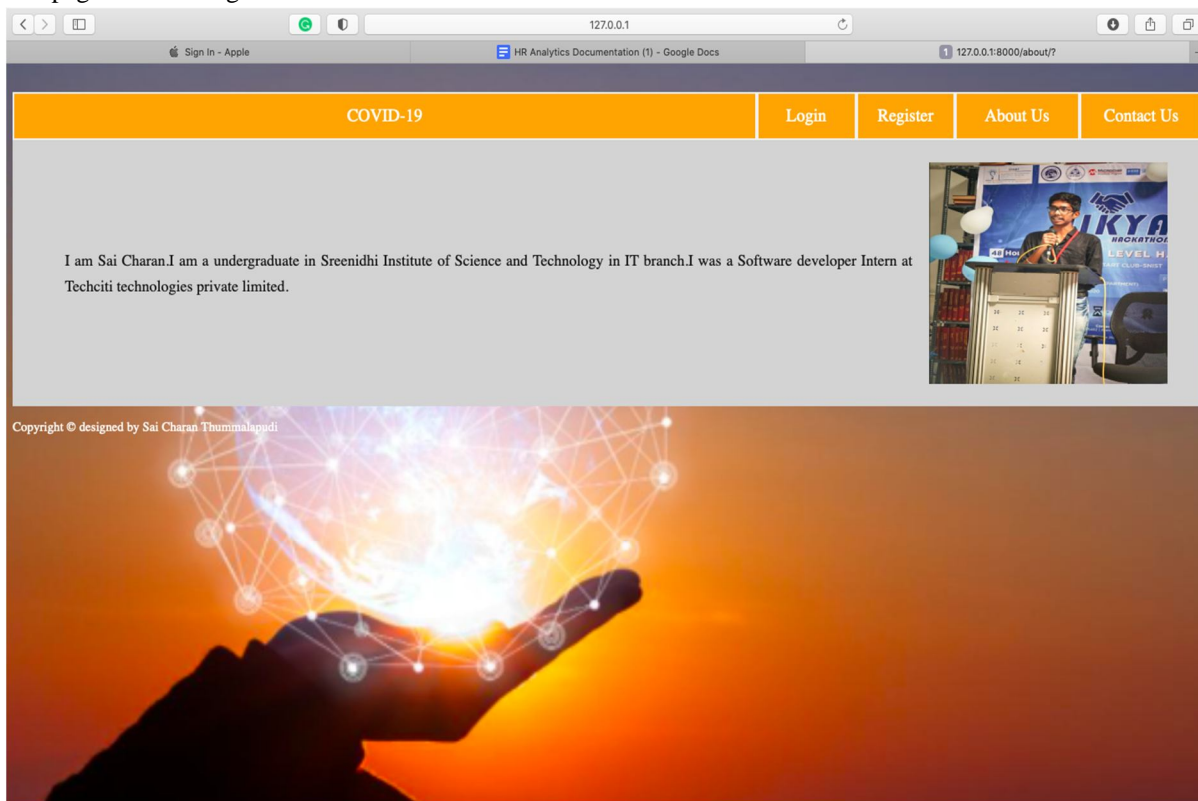
6) Entering the user-defined data to predict and to power up the machine learning algorithm.



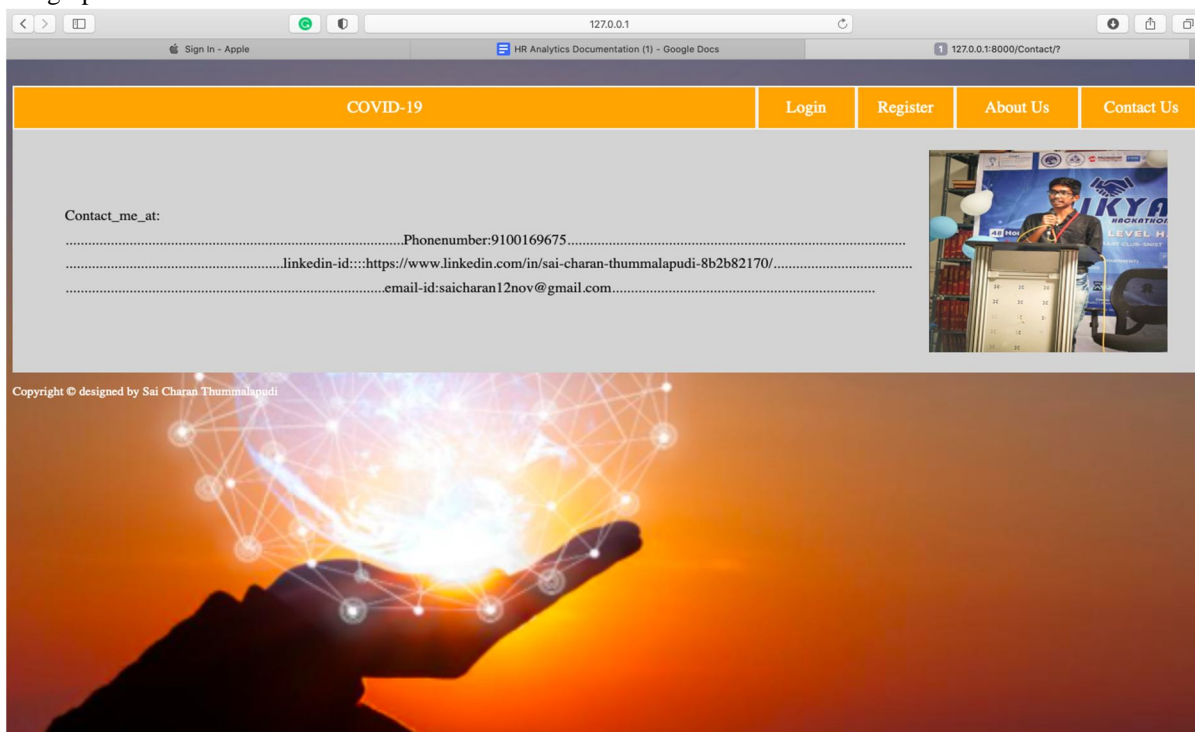
7) Predicted output in tabular form.



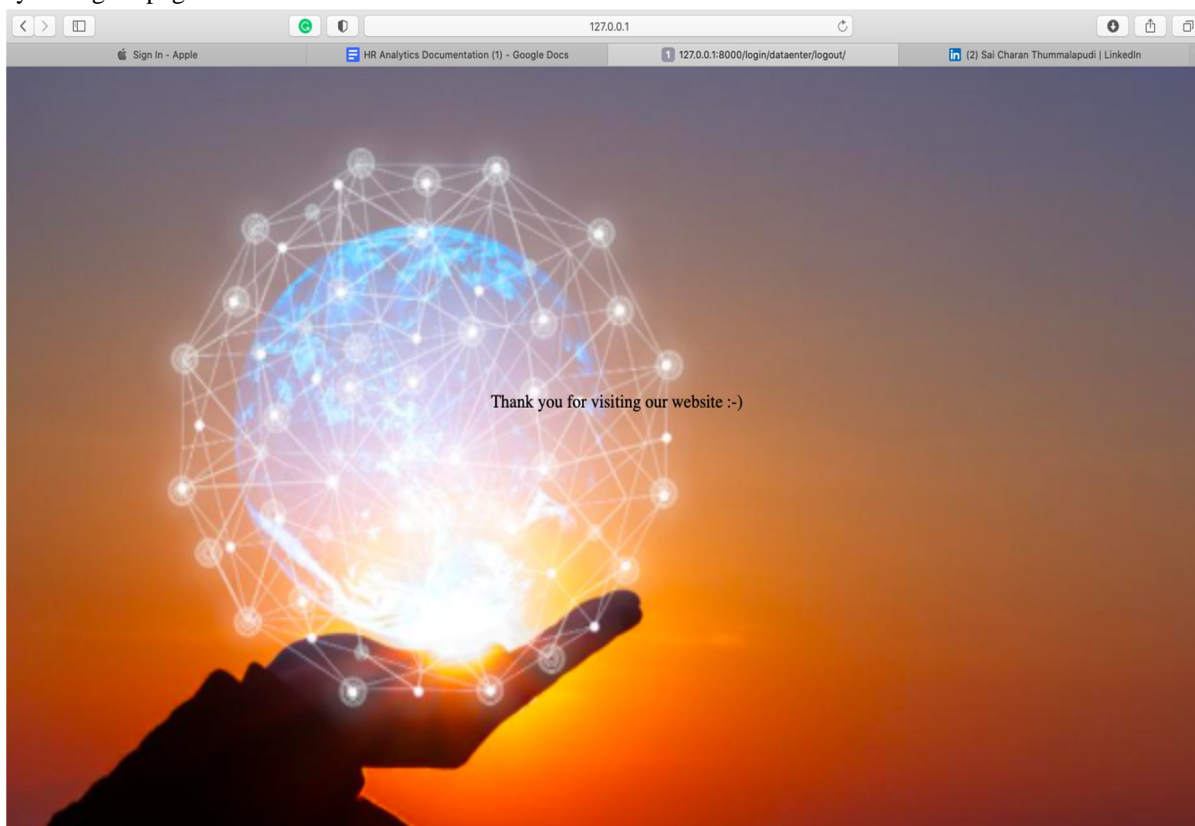
8) About us page for knowing about the creator.



- 9) Contact us page if the user wants to contact with the creator. Which provides a phone number, email id, and LinkedIn id, and the photograph of the creator i.e me.



- 10) Thankyou/Logout page.



VI. CONCLUSION

My project is very useful for the health department as well as common people. Because no one is able to predict the rise or fall in cases day by day. And it is human inefficient to predict the cases and changes from person to person. So to avoid the chaos, my web application is very much useful to predict future cases with efficiency.

The health department of India as well as the world are facing a great challenge with this pandemic and they could not meet the right needs of a patient and lack in the number of drugs, ventilators, oxygen cylinders, etc..

So, by using my project one could easily predict the number of cases on any day as per the user wish.

I can proudly say that this can save many lives and can remove the chaos in many minds.

BIBLIOGRAPHY

- [1] Osborn, Tracy (May 2015), Hello Web App (1st ed.), Tracy Osborn, p. 142, ISBN 0986365912
- [2] Bendoraitis, Aidas (October 2014), Web Development with Django Cookbook (1st ed.), Packt, p. 294, ISBN 178328689X
- [3] Baumgartner, Peter; Malet, Yann (2015), High-Performance Django (1st ed.), Lincoln Loop, p. 184, ISBN 1508748128
- [4] Elman, Julia; Lavin, Mark (2014), Lightweight Django (1st ed.), O'Reilly Media, p. 246, ISBN 149194594X
- [5] Percival, Harry (2014), Test-Driven Development with Python (1st ed.), O'Reilly Media, p. 480, ISBN 1449364829
- [6] <https://www.coursera.org/programs/sreenidhi-institute-of-science-and-tech-on-coursera-tcvb9?productId=COgVtZLEeqkcQ4Ni0FYhw&productType=course&showMiniModal=true>
- [7] <https://www.coursera.org/programs/sreenidhi-institute-of-science-and-tech-on-coursera-tcvb9?collectionId=&productId=ZtbS2tDqEemzBL13JFZTg&productType=s12n&showMiniModal=true>
- [8] <https://www.geeksforgeeks.org/django-tutorial/>
- [9] <https://www.geeksforgeeks.org/machine-learning/>
- [10] <https://github.com/susanli2016/Machine-Learning-with-Python>
- [11] <https://www.kaggle.com/datasets> for datasets and reference.

To access my project: <https://github.com/saicharan1312>



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