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6th Sem

Electronics and communication

Vidyavardhaka college of engineering

MAJOR PROJECT1

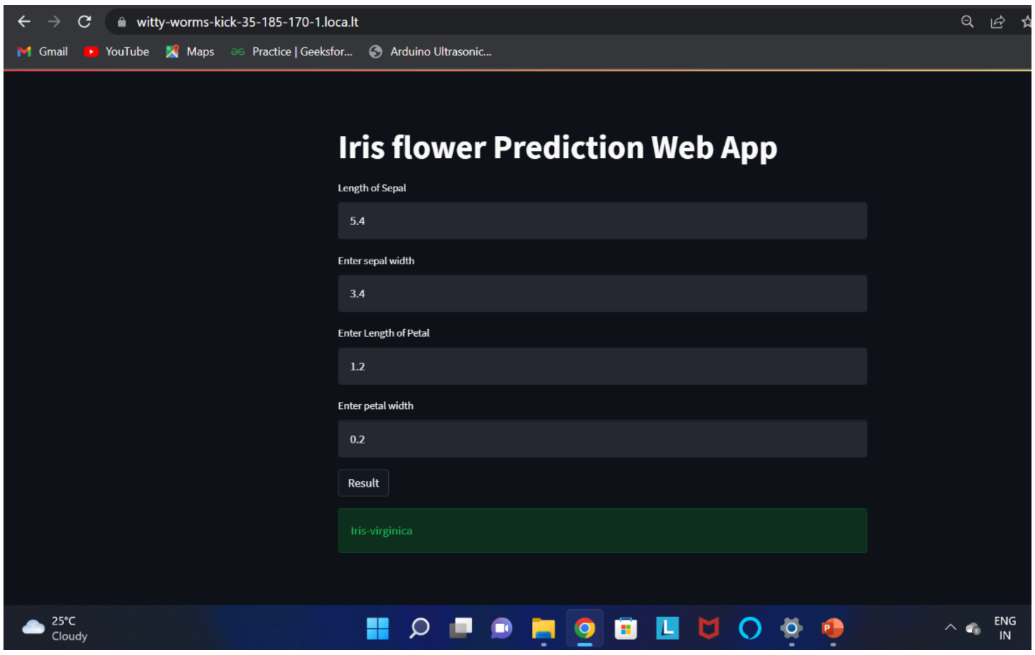
Analysis of dataset on Iris flower and deployed it using heroku and Streamlit

Python code for ML technique(Logistic Regression):

```
import pandas as pd
df=pd.read_csv('/content/IRIS.csv')
df

df.info()

df.shape

df['species'].value_counts()

#to consider i/p & o/p
x=df.iloc[:,0:4].values
x

y=df.iloc[:,4].values
y

#train_test_split
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,random_state=0)

print(x.shape) #150 rows & 4 cols
print(x_train.shape)   #75% is used to training data _____112 rows & 
4 cols
print(x_test.shape) #25% in testing_____38 rows & 4 cols
print(y.shape)
print(y_train.shape)
print(y_test.shape)

#Scaling
from sklearn.preprocessing import MinMaxScaler
scaler=MinMaxScaler()

x_train=scaler.fit_transform(x_train)
x_test=scaler.fit_transform(x_test)

#Classifier
from sklearn.linear_model import LogisticRegression
model=LogisticRegression()

model.fit(x_train,y_train)

y_pred=model.predict(x_test)
y_predy_pred=model.predict(x_test)
y_pred

y_test

from sklearn.metrics import accuracy_score
accuracy_score(y_pred,y_test)*100

#individual Prediction
model.predict([[22,3.5,4,5]])

model.predict([[ 5.1, 3.5,  1.4,  0.2        ]])

#Accuracy
```

```
from sklearn.metrics import accuracy_score
accuracy_score(y_pred,y_test)*100

#Joblib
import joblib
joblib.dump(model,'Iris')
#We are creating a new file & dumping the model inside it.
```

Deployed in Heroku & streamlit.



Iris flower Prediction Web App

Length of Sepal: 5.4

Enter sepal width: 3.4

Enter Length of Petal: 1.2

Enter petal width: 0.2

Result

Iris-virginica

Link:https://iris7.herokuapp.com/

Here in this webpage is implemented Heroku cloud using GitHub and streamlit , it takes Sepal length, sepal width, petal length and petal width and tell which type of Iris flower –Iris setose, Iris -versicolor, Iris-virginica based on dataset. An example as shown in the above image that it belongs to Iris virginica family.

Major project -2

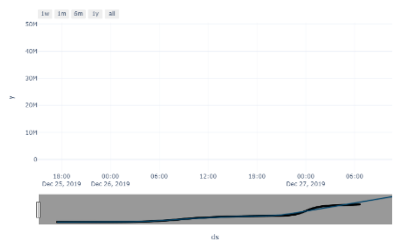
Implemented dataset and performed Exploratory Data Analysis(EDA) on COVID-19 data frame:

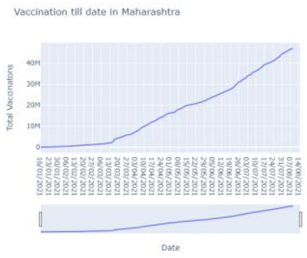
Python code:

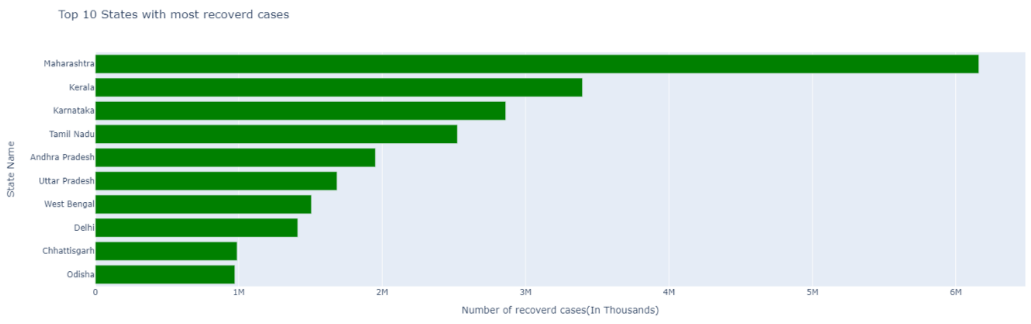
```
import numpy as np

import pandas as pd



df = pd.read_csv('/content/covid_19_india.csv')

df


df.head()


import seaborn as sns

import matplotlib.pyplot as plt

import plotly.graph_objects as go

%matplotlib inline

import warnings

warnings.filterwarnings('ignore')


df.isnull().sum()



df.info()



df = df.drop(['Sno','ConfirmedIndianNational','ConfirmedForeignNational'],axis=1)
```

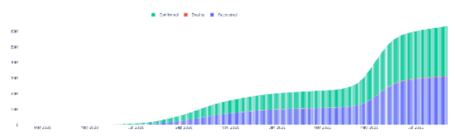
```
df.head()


df['Active'] = df['Confirmed'] - df['Cured'] - df['Deaths']
df.tail()


df['Date'] = pd.to_datetime(df['Date'])


df.info()


india_cases = df[df['Date'] == df['Date'].max()].copy().fillna(0)
india_cases.index = india_cases['State/UnionTerritory']
india_cases = india_cases.drop(['State/UnionTerritory','Time','Date'],axis=1)


india_cases.head()


dff = pd.DataFrame(pd.to_numeric(india_cases.sum())).transpose()
dff.style.background_gradient(cmap='BuGn',axis=1)



Trend = df.groupby(['Date'])['Confirmed','Deaths','Cured',].sum().reset_index()


Trend.head()


fig = go.Figure(go.Bar(x = Trend.Date, y = Trend.Cured, name = 'Recovered'))
fig.add_trace(go.Bar(x = Trend.Date, y = Trend.Deaths, name = 'Deaths'))
fig.add_trace(go.Bar(x = Trend.Date, y = Trend.Confirmed, name = 'Confirmed'))
fig.update_layout(barmode='stack', legend_orientation="h", legend=dict(x=0.3,y=1.1),
            paper_bgcolor='white',
            plot_bgcolor="white")
```

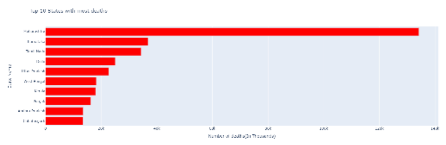
```
fig.show()

import plotly.express as px



def horizontal_bar_chart(dff, x, y, title, x_label, y_label, color):
  fig = px.bar(dff, x=x, y=y, orientation='h', title=title,
            labels={x.name:x_label,
                    y.name:y_label}, color_discrete_sequence=[color])
  fig.update_layout(yaxis={'categoryorder': 'total ascending'})
  fig.show()

top_10_death_states = india_cases.sort_values('Deaths', ascending = False)[:10]

horizontal_bar_chart(top_10_death_states, top_10_death_states.Deaths,
top_10_death_states.index,
                   'Top 10 States with most deaths', 'Number of deaths(In Thousands)','State
Name','red')

top_10_confirmed_states = india_cases.sort_values('Confirmed', ascending = False)[:10]

horizontal_bar_chart(top_10_confirmed_states, top_10_confirmed_states.Confirmed,
top_10_confirmed_states.index,
                   'Top 10 States with most confirmed cases', 'Number of confirmed cases(In
Thousands)','State Name','orange')

top_10_recoverd_states = india_cases.sort_values('Cured', ascending = False)[:10]

horizontal_bar_chart(top_10_recoverd_states, top_10_recoverd_states.Cured,
top_10_recoverd_states.index,
                'Top 10 States with most recoverd cases', 'Number of recoverd cases(In
Thousands)','State Name','green')


vaccination = pd.read_csv('/content/covid_vaccine_statewise.csv.zip')


vaccination.tail()


vaccination.head()


vaccination['Total Vaccinatons'] = vaccination['First Dose
Administered']+vaccination['Second Dose Administered']


#Renaming columns
vaccination.rename(columns = {'Updated On':'Date'}, inplace = True)


Maharashtra = vaccination[vaccination["State"]=="Maharashtra"]


fig = px.line(Maharashtra,x="Date",y="Total Vaccinatons",title="Vaccination till date in
Maharashtra")
fig.update_xaxes(rangeslider_visible=True)


from fbprophet import Prophet
from fbprophet.plot import plot_plotly, add_changepoints_to_plot
from plotly.offline import iplot, init_notebook_mode


model = Prophet()


Confirmed = Trend.loc[:,['Date', 'Confirmed']]
Confirmed.tail()
Confirmed.columns = ['ds', 'y']


model.fit(Confirmed)


future = model.make_future_dataframe(periods=60)

future.tail()


forecast_india_conf = model.predict(future)

forecast_india_conf


fig = plot_plotly(model, forecast_india_conf)

fig.update_layout(template='plotly_white')

iplot(fig)
```

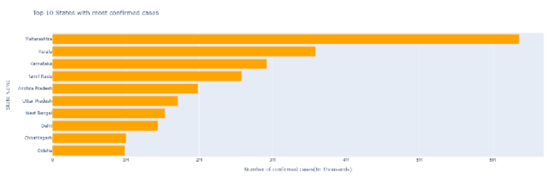












Reference:

github: https://github.com/gladsongoms/Iris

Colab sheet:

Covid-19 -- https://colab.research.google.com/drive/1XwRnq4YweZNW0nGx-l_8-1UCUyQM4q74#scrollTo=cMG-ILRdA0gB

Iris ---https://colab.research.google.com/drive/13_xEwW9pVd_o3QoWgfY-rVTZnpiwpTch#scrollTo=lWJ9EwmijTsg

Iris (streamlit file)--
https://colab.research.google.com/drive/1JjqzQrfARcrcfNs84sUrHGl264MTgkOw#scrollTo=lkADehRFBjy5