Unemployment Analysis with Python

Importing libraries and packages

In [2]:
```
#import libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
```

Data Collection and processing

In [9]:
```
#importing data
df = pd.read_csv('Unemployment_Rate_upto_11_2020.csv')
```

In [10]:
```
#first 5 rows of data
df.head()
```

Out[10]:

	Region	Date	Frequency	Estimated Unemployment Rate (%)	Estimated Employed	Estimated Labour Participation Rate (%)	Region.1	longitude	latitude
0	Andhra Pradesh	31-01-2020	M	5.48	16635535	41.02	South	15.9129	79.74
1	Andhra Pradesh	29-02-2020	M	5.83	16545652	40.90	South	15.9129	79.74
2	Andhra Pradesh	31-03-2020	M	5.79	15881197	39.18	South	15.9129	79.74
3	Andhra Pradesh	30-04-2020	M	20.51	11336911	33.10	South	15.9129	79.74
4	Andhra Pradesh	31-05-2020	M	17.43	12988845	36.46	South	15.9129	79.74

In [11]:
```
#some information about dataset
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 267 entries, 0 to 266
Data columns (total 9 columns):
 #   Column                                   Non-Null Count  Dtype
---  ------                                   --------------  -----
 0   Region                                   267 non-null    object
 1    Date                                    267 non-null    object
 2    Frequency                               267 non-null    object
 3    Estimated Unemployment Rate (%)         267 non-null    float64
 4    Estimated Employed                      267 non-null    int64
 5    Estimated Labour Participation Rate (%) 267 non-null    float64
 6   Region.1                                 267 non-null    object
 7   longitude                                267 non-null    float64
 8   latitude                                 267 non-null    float64
dtypes: float64(4), int64(1), object(4)
memory usage: 18.9+ KB
```

In [12]:
```
df.describe()
```

Out[12]:

	Estimated Unemployment Rate (%)	Estimated Employed	Estimated Labour Participation Rate (%)	longitude	latitude
count	267.000000	2.670000e+02	267.000000	267.000000	267.000000
mean	12.236929	1.396211e+07	41.681573	22.826048	80.532425
std	10.803283	1.336632e+07	7.845419	6.270731	5.831738
min	0.500000	1.175420e+05	16.770000	10.850500	71.192400
25%	4.845000	2.838930e+06	37.265000	18.112400	76.085600
50%	9.650000	9.732417e+06	40.390000	23.610200	79.019300
75%	16.755000	2.187869e+07	44.055000	27.278400	85.279900
max	75.850000	5.943376e+07	69.690000	33.778200	92.937600

In [13]:
```
# dataset having missing values or not
df.isnull().sum()
```

Out[13]:
```
Region                                   0
 Date                                    0
 Frequency                               0
 Estimated Unemployment Rate (%)         0
 Estimated Employed                      0
 Estimated Labour Participation Rate (%) 0
Region.1                                 0
longitude                                0
latitude                                 0
dtype: int64
```

In [14]:
```
#rename all the columns
df.columns = ["States","Date","Frequency","Estimated Unemployment Rate","Estimated Emp
```

In [15]:
```
df
```

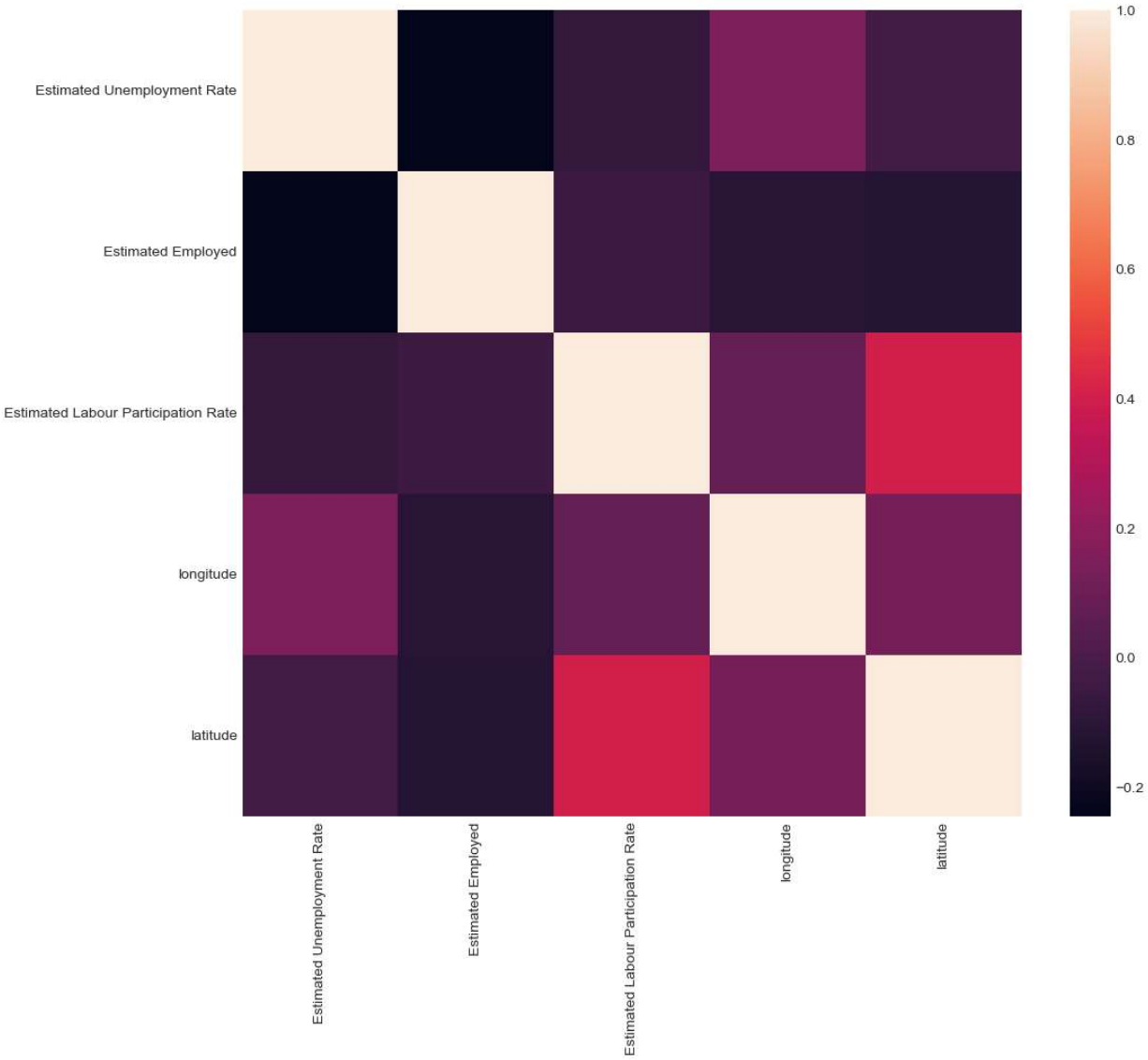
Out[15]:

	States	Date	Frequency	Estimated Unemployment Rate	Estimated Employed	Estimated Labour Participation Rate	Region	longitude	latitude
0	Andhra Pradesh	31-01-2020	M	5.48	16635535	41.02	South	15.9129	79.740
1	Andhra Pradesh	29-02-2020	M	5.83	16545652	40.90	South	15.9129	79.740
2	Andhra Pradesh	31-03-2020	M	5.79	15881197	39.18	South	15.9129	79.740
3	Andhra Pradesh	30-04-2020	M	20.51	11336911	33.10	South	15.9129	79.740
4	Andhra Pradesh	31-05-2020	M	17.43	12988845	36.46	South	15.9129	79.740
...	...	...	...	...	...	...	...	...	...
262	West Bengal	30-06-2020	M	7.29	30726310	40.39	East	22.9868	87.855
263	West Bengal	31-07-2020	M	6.83	35372506	46.17	East	22.9868	87.855
264	West Bengal	31-08-2020	M	14.87	33298644	47.48	East	22.9868	87.855
265	West Bengal	30-09-2020	M	9.35	35707239	47.73	East	22.9868	87.855
266	West Bengal	31-10-2020	M	9.98	33962549	45.63	East	22.9868	87.855

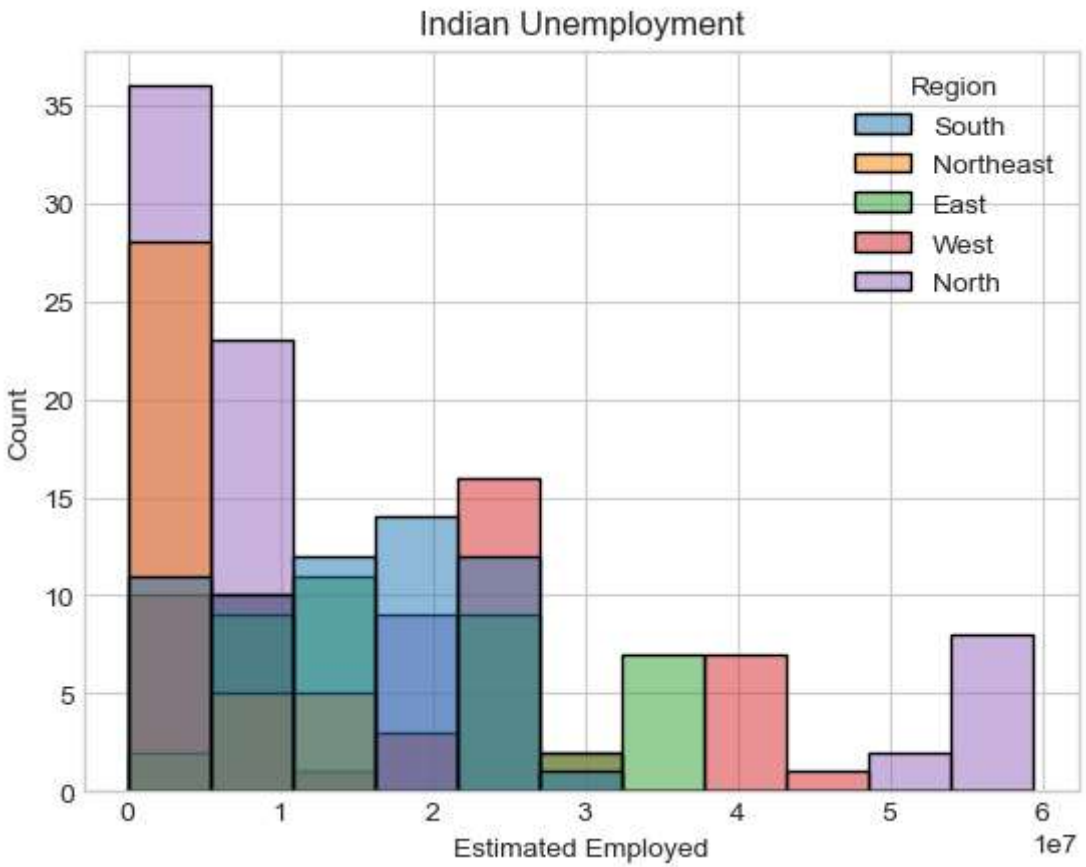
267 rows × 9 columns

In [16]:
```
#correlation between the features of dataset
plt.style.use("seaborn-whitegrid")
plt.figure(figsize=(12,10))
sns.heatmap(df.corr())
plt.show()
```

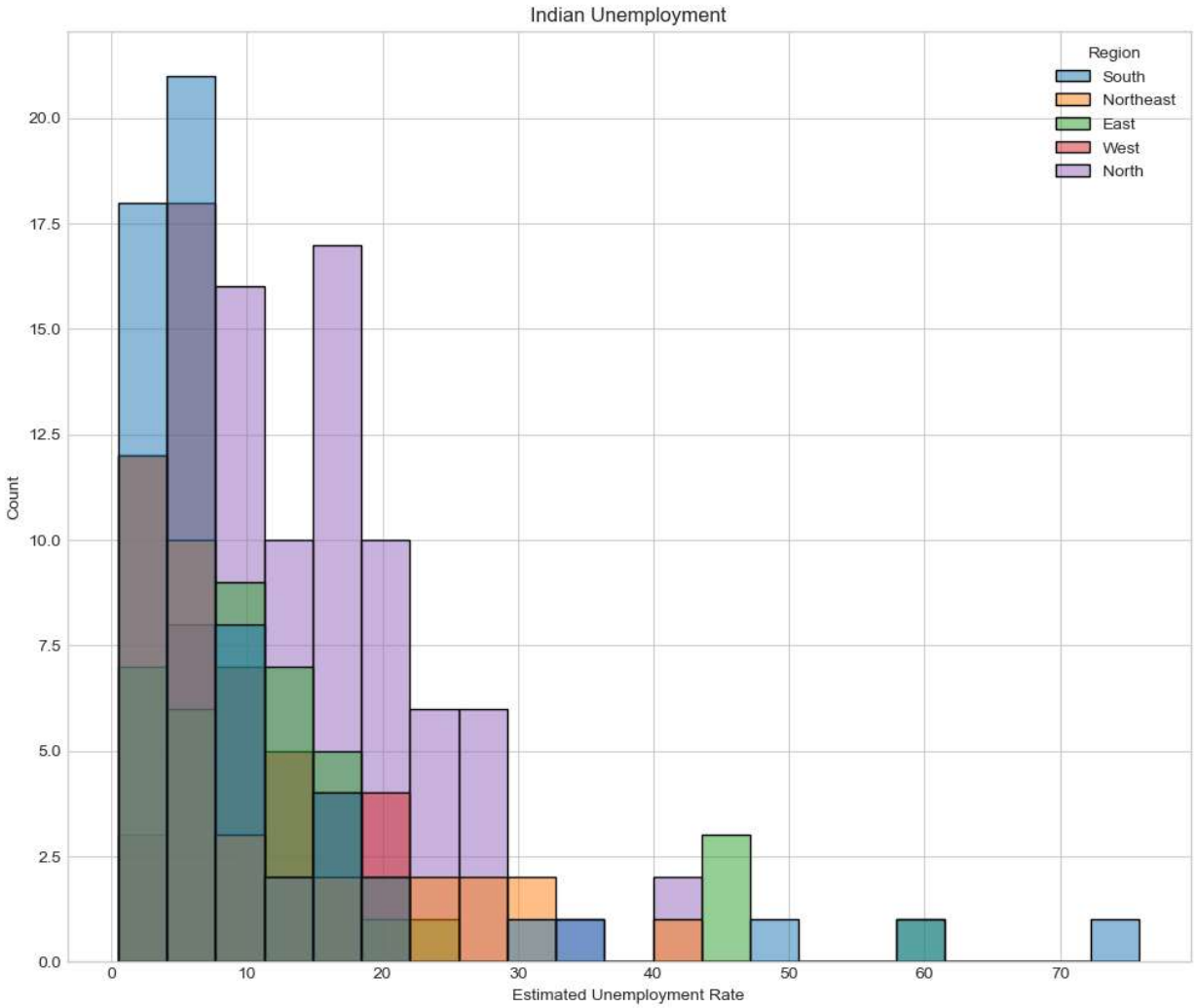
```
C:\Users\Hello\AppData\Local\Temp\ipykernel_6360\1494911393.py:2: MatplotlibDeprecati
onWarning: The seaborn styles shipped by Matplotlib are deprecated since 3.6, as they
no longer correspond to the styles shipped by seaborn. However, they will remain avai
lable as 'seaborn-v0_8-<style>'. Alternatively, directly use the seaborn API instead.
  plt.style.use("seaborn-whitegrid")
C:\Users\Hello\AppData\Local\Temp\ipykernel_6360\1494911393.py:4: FutureWarning: The
default value of numeric_only in DataFrame.corr is deprecated. In a future version, i
t will default to False. Select only valid columns or specify the value of numeric_on
ly to silence this warning.
  sns.heatmap(df.corr())
```



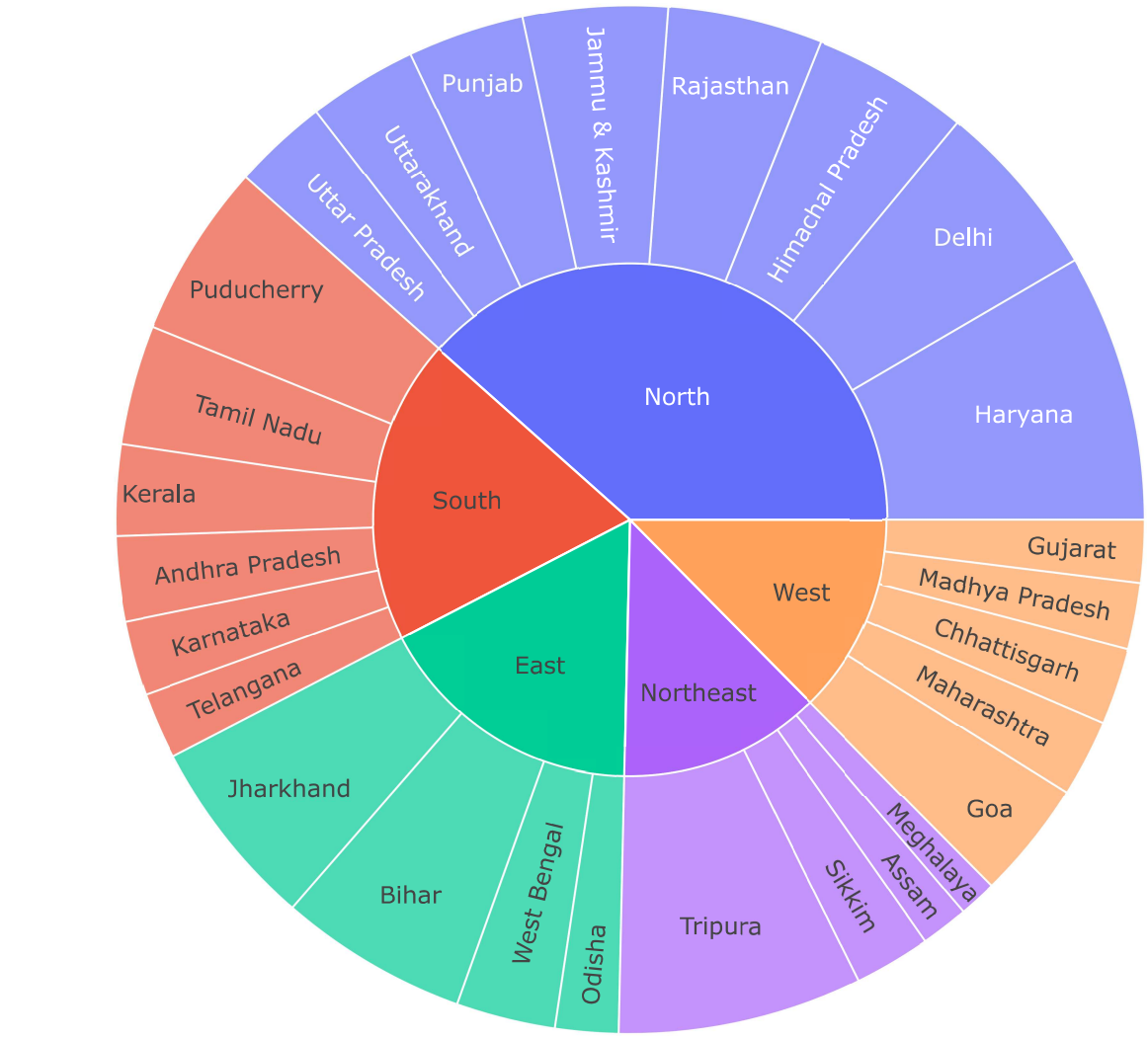
In [21]:
```
#estimated number of employess accourding to different regions of india
df.columns=["States","Date","Frequency","Estimated Unemployment Rate","Estimated Emplo
plt.title("Indian Unemployment")
sns.histplot(x="Estimated Employed",hue="Region",data=df)
plt.show()
```



In [23]:
```
#unemployment rate accourding to different regions og india
plt.figure(figsize=(12,10))
plt.title("Indian Unemployment")
sns.histplot(x="Estimated Unemployment Rate",hue="Region",data=df)
plt.show()
```



In [29]:
```
# creating a dashboard to analyze the unemployment rate of each indian sate of india
unemployment= df[["States","Region","Estimated Unemployment Rate"]]
figure=px.sunburst(unemployment,path=["Region","States"],values="Estimated Unemploymer
figure.show()
```


Unemployment Rate in Indian
North
South
East
West
Northeast
Haryana
Delhi
Himachal Pradesh
Rajasthan
Jammu & Kashmir
Punjab
Uttarakhand
Uttar Pradesh
Puducherry
Tamil Nadu
Kerala
Andhra Pradesh
Karnataka
Telangana
Gujarat
Madhya Pradesh
Chhattisgarh
Maharashtra
Goa
Meghalaya
Assam
Sikkim
Tripura
Odisha
West Bengal
Bihar
Jharkhand

In [ ]: