In [76]:
```
# import libaries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [602]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\21_cities - 21_cities.csv")
```

Out[602]:

	id	name	state_id	state_code	state_name	country_id	country_code	country
0	52	Ashkāsham	3901	BDS	Badakhshan	1	AF	Afgh
1	68	Fayzabad	3901	BDS	Badakhshan	1	AF	Afgh
2	78	Jurm	3901	BDS	Badakhshan	1	AF	Afgh
3	84	Khandūd	3901	BDS	Badakhshan	1	AF	Afgh
4	115	Rāghistān	3901	BDS	Badakhshan	1	AF	Afgh
...	...	...	...	...	...	...	...	
150449	131496	Redcliff	1957	MI	Midlands Province	247	ZW	Zir
150450	131502	Shangani	1957	MI	Midlands Province	247	ZW	Zir
150451	131503	Shurugwi	1957	MI	Midlands Province	247	ZW	Zir
150452	131504	Shurugwi District	1957	MI	Midlands Province	247	ZW	Zir
150453	131508	Zvishavane District	1957	MI	Midlands Province	247	ZW	Zir

150454 rows × 11 columns

In [603]:
```
x=x.head(10)
```

Out[603]:

	id	name	state_id	state_code	state_name	country_id	country_code	country_name
0	52	Ashkāsham	3901	BDS	Badakhshan	1	AF	Afghanistan
1	68	Fayzabad	3901	BDS	Badakhshan	1	AF	Afghanistan
2	78	Jurm	3901	BDS	Badakhshan	1	AF	Afghanistan
3	84	Khandūd	3901	BDS	Badakhshan	1	AF	Afghanistan
4	115	Rāghistān	3901	BDS	Badakhshan	1	AF	Afghanistan
5	131	Wākhān	3901	BDS	Badakhshan	1	AF	Afghanistan
6	72	Ghormach	3871	BDG	Badghis	1	AF	Afghanistan
7	108	Qala i Naw	3871	BDG	Badghis	1	AF	Afghanistan
8	54	Baghlān	3875	BGL	Baghlan	1	AF	Afghanistan
9	140	Ḩukūmatī Dahanah-ye Ghōrī	3875	BGL	Baghlan	1	AF	Afghanistan

In [604]:
```
x.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 11 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   id            10 non-null     int64  
 1   name          10 non-null     object 
 2   state_id      10 non-null     int64  
 3   state_code    10 non-null     object 
 4   state_name    10 non-null     object 
 5   country_id    10 non-null     int64  
 6   country_code  10 non-null     object 
 7   country_name  10 non-null     object 
 8   latitude      10 non-null     float64
 9   longitude     10 non-null     float64
 10  wikiDataId    10 non-null     object 
dtypes: float64(2), int64(3), object(6)
memory usage: 1008.0+ bytes
```

In [605]:
```
x.columns
```

Out[605]:
```
Index(['id', 'name', 'state_id', 'state_code', 'state_name', 'country_id',
       'country_code', 'country_name', 'latitude', 'longitude', 'wikiDataId
'],
      dtype='object')
```

In [606]:
```
d=x[['id', 'name', 'state_id', 'state_code', 'state_name']]
```

Out[606]:

	id	name	state_id	state_code	state_name
0	52	Ashkāsham	3901	BDS	Badakhshan
1	68	Fayzabad	3901	BDS	Badakhshan
2	78	Jurm	3901	BDS	Badakhshan
3	84	Khandūd	3901	BDS	Badakhshan
4	115	Rāghistān	3901	BDS	Badakhshan
5	131	Wākhān	3901	BDS	Badakhshan
6	72	Ghormach	3871	BDG	Badghis
7	108	Qala i Naw	3871	BDG	Badghis
8	54	Baghlān	3875	BGL	Baghlan
9	140	Ḩukūmatī Dahanah-ye Ghōrī	3875	BGL	Baghlan

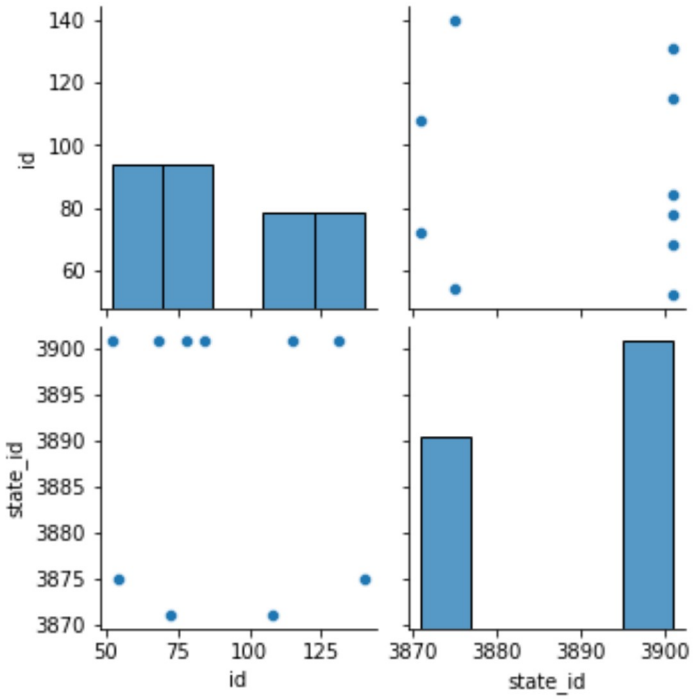
In [607]:

Out[607]:

	id	state_id	country_id	latitude	longitude
count	10.000000	10.000000	10.0	10.000000	10.000000
mean	90.200000	3889.800000	1.0	36.508872	69.339683
std	31.371608	14.520484	0.0	0.801155	3.430057
min	52.000000	3871.000000	1.0	34.987350	63.128910
25%	69.000000	3875.000000	1.0	35.962298	68.543590
50%	81.000000	3901.000000	1.0	36.774050	70.626740
75%	113.250000	3901.000000	1.0	37.030642	71.358550
max	140.000000	3901.000000	1.0	37.660790	73.349280

In [608]:

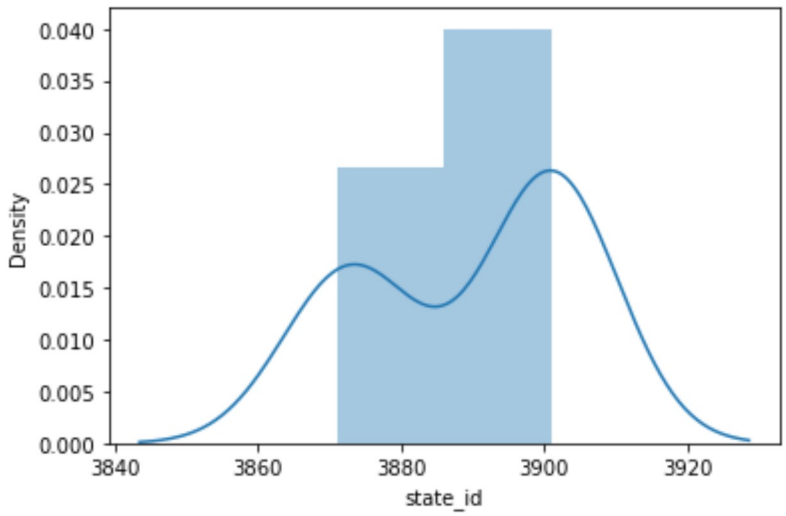
Out[608]: <seaborn.axisgrid.PairGrid at 0x190d50f5ee0>



In [611]:

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: Fut
ureWarning: `distplot` is a deprecated function and will be removed in a futu
re version. Please adapt your code to use either `displot` (a figure-level fu
nction with similar flexibility) or `histplot` (an axes-level function for hi
stograms).
  warnings.warn(msg, FutureWarning)
```

Out[611]: <AxesSubplot:xlabel='state_id', ylabel='Density'>



In [615]:
```
x1=x[['state_id']]
```

In [616]:

Out[616]: <AxesSubplot:>

In [617]:
```
x=x1[['state_id']]
```

In [618]:
```
# to split my dataset into traning and test date

from sklearn.model_selection import train_test_split
```

In [619]:
```
from sklearn.linear_model import LinearRegression

lr=LinearRegression()
```

Out[619]: LinearRegression()

In [620]:

```
4.547473508864641e-13
```

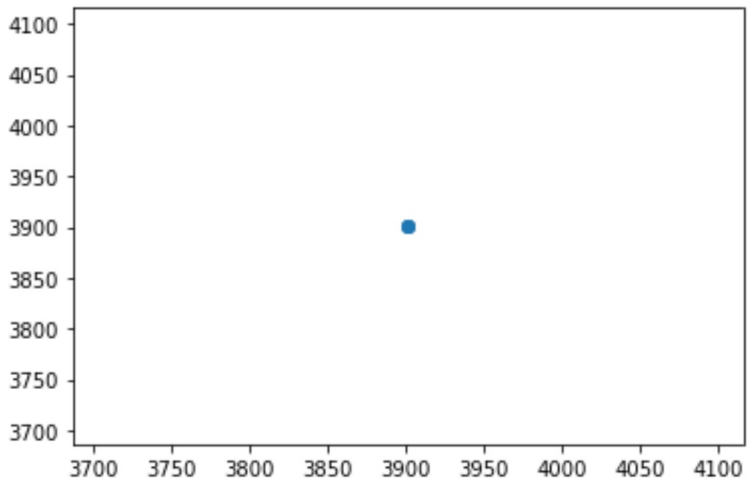
In [621]:
```
coeff=pd.DataFrame(lr.coef_,x.columns,columns=['Co-efficient'])
```

Out[621]:

	Co-efficient
state_id	1.0

In [622]:
```
prediction=lr.predict(x_test)
```

Out[622]: <matplotlib.collections.PathCollection at 0x190d75e2280>



In [623]:

Out[623]: 1.0

In [624]:

Out[624]: 1.0

In [625]:

In [626]:
```
rr=Ridge(alpha=10)
rr.fit(x_train,y_train)
```

Out[626]: 0.0

In [627]:
```
la=Lasso(alpha=10)
```

Out[627]: Lasso(alpha=10)

In [628]:

Out[628]: 0.0

In [629]:
```
from sklearn.linear_model import ElasticNet
en=ElasticNet()
```

Out[629]: ElasticNet()

In [630]:

Out[630]: array([0.99486615])

In [631]:

Out[631]: array([3900.91785845, 3900.91785845, 3900.91785845])

In [632]:

Out[632]: 19.944994499449876

In [633]:

Out[633]: 0.0

In [634]:

In [635]:

```
Mean Absolute Error 0.0
```

In [636]:

```
Mean Squared Error 0.0
```

In [637]:

```
Root Mean Squared Error 0.0
```

In [638]:

In [639]:
```
filename="prediction"
```

In [640]:
```
import pandas as pd
```

In [641]:
```
filename="prediction"
```

In [644]:
```
real=[[12],[55]]
```

In [645]:

Out[645]: array([12., 55.])

In [ ]: