```
In [1]: import pandas as pd
        import matplotlib.pyplot as plt
        import seaborn as sns
        import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
        df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns

```
In [3]:  df["SUBDIVISION"].value_counts()
```

```
Out[3]:  GUJARAT REGION                         115
         EAST MADHYA PRADESH                    115
         COASTAL KARNATAKA                      115
         MADHYA MAHARASHTRA                     115
         KERALA                                 115
         EAST RAJASTHAN                         115
         NAGA MANI MIZO TRIPURA                 115
         WEST RAJASTHAN                         115
         GANGETIC WEST BENGAL                   115
         BIHAR                                  115
         KONKAN & GOA                           115
         SOUTH INTERIOR KARNATAKA               115
         ORISSA                                 115
         JAMMU & KASHMIR                        115
         TAMIL NADU                             115
         CHHATTISGARH                           115
         RAYALSEEMA                             115
         UTTARAKHAND                            115
         HARYANA DELHI & CHANDIGARH             115
         SUB HIMALAYAN WEST BENGAL & SIKKIM     115
         ASSAM & MEGHALAYA                      115
         VIDARBHA                               115
         JHARKHAND                              115
         WEST UTTAR PRADESH                     115
         WEST MADHYA PRADESH                    115
         TELANGANA                              115
         PUNJAB                                 115
         MATATHWADA                             115
         SAURASHTRA & KUTCH                     115
         HIMACHAL PRADESH                       115
         NORTH INTERIOR KARNATAKA               115
         EAST UTTAR PRADESH                     115
         COASTAL ANDHRA PRADESH                 115
         LAKSHADWEEP                            114
         ANDAMAN & NICOBAR ISLANDS              110
         ARUNACHAL PRADESH                       97
         Name: SUBDIVISION, dtype: int64
```

KERALA

In [4]:
```python
dat1=df[df["SUBDIVISION"]=="KERALA"]
dat1
```

Out[4]:

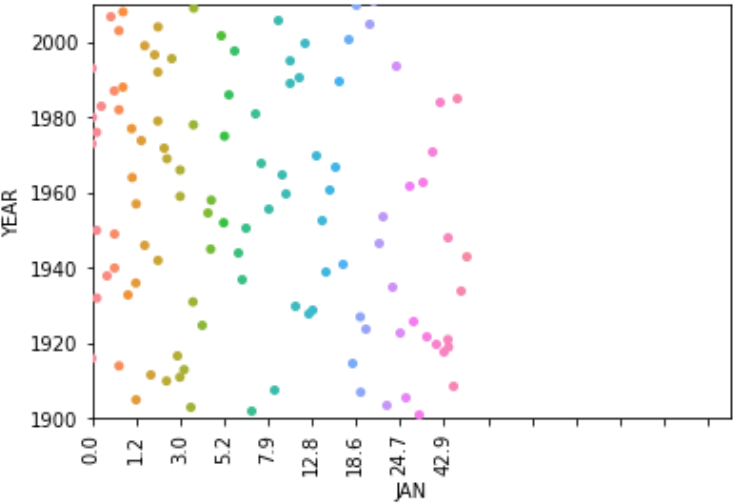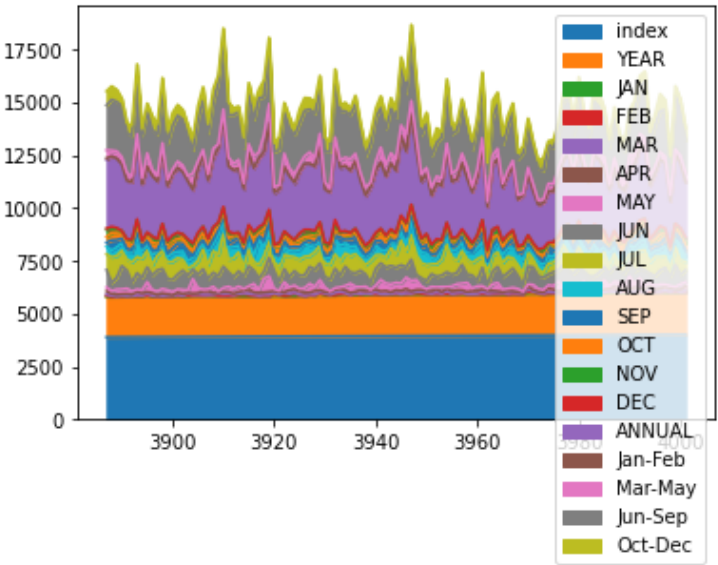|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
3887	3887	KERALA	1901	28.7	44.7	51.6	160.0	174.7	824.6	743.0	357.5	197.7	266.9
3888	3888	KERALA	1902	6.7	2.6	57.3	83.9	134.5	390.9	1205.0	315.8	491.6	358.4
3889	3889	KERALA	1903	3.2	18.6	3.1	83.6	249.7	558.6	1022.5	420.2	341.8	354.1
3890	3890	KERALA	1904	23.7	3.0	32.2	71.5	235.7	1098.2	725.5	351.8	222.7	328.1
3891	3891	KERALA	1905	1.2	22.3	9.4	105.9	263.3	850.2	520.5	293.6	217.2	383.5
...	...	...	...	...	...	...	...	...	...	...	...	...	...
3997	3997	KERALA	2011	20.5	45.7	24.1	165.2	124.2	788.5	536.8	492.7	391.2	227.2
3998	3998	KERALA	2012	7.4	11.0	21.0	171.1	95.3	430.3	362.6	501.6	241.1	187.5
3999	3999	KERALA	2013	3.9	40.1	49.9	49.3	119.3	1042.7	830.2	369.7	318.6	259.9
4000	4000	KERALA	2014	4.6	10.3	17.9	95.7	251.0	454.4	677.8	733.9	298.8	355.5
4001	4001	KERALA	2015	3.1	5.8	50.1	214.1	201.8	563.6	406.0	252.2	292.9	308.1

115 rows × 20 columns

In [5]:
```python
dat1.plot.bar("YEAR","JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR","JAN")
sns.stripplot(x=dat1["JAN"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```
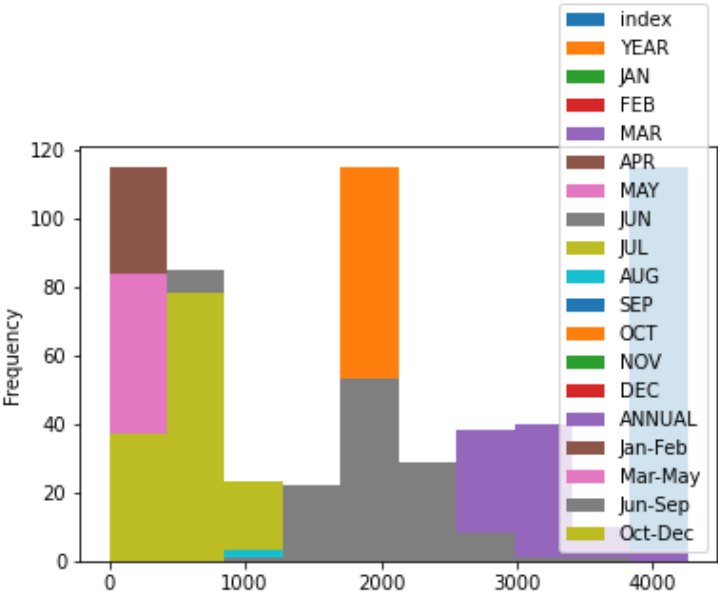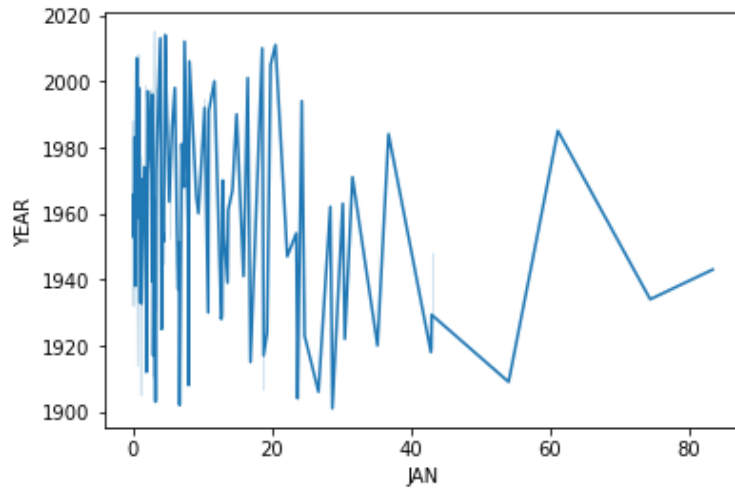


```
<Figure size 4320x2160 with 0 Axes>
```
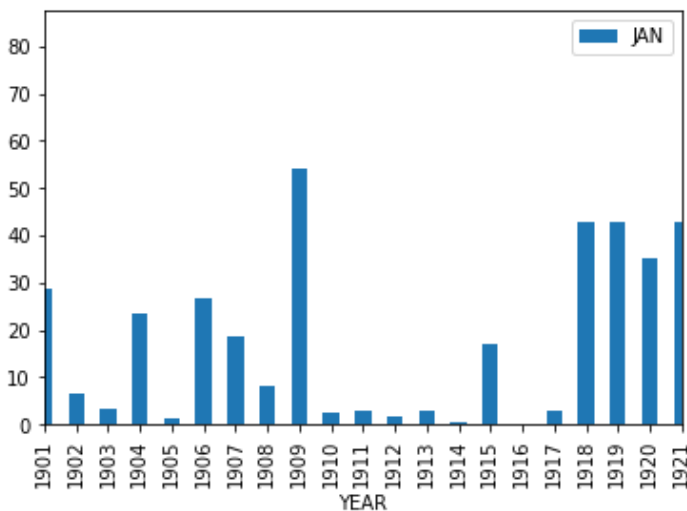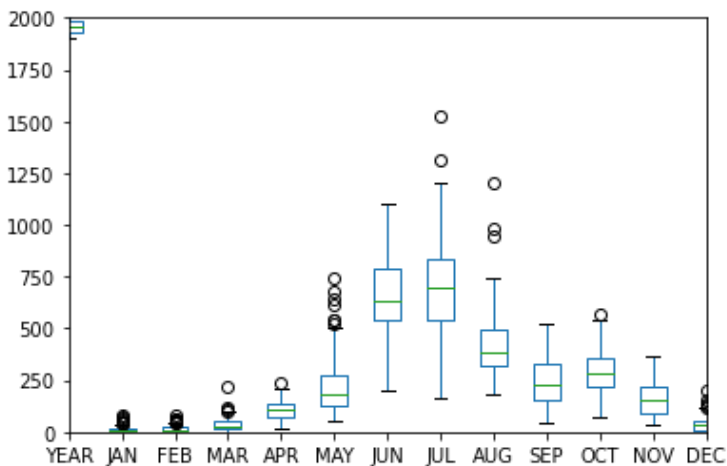
Out[5]: <AxesSubplot:ylabel='Frequency'>

In [6]:
```python
sns.lineplot(x=dat1["JAN"],y=dat1["YEAR"])
plt.show()
```


SOUTH INTERIOR KARNATAKA

In [7]:
```python
dat2=df[df["SUBDIVISION"]=="SOUTH INTERIOR KARNATAKA"]
dat2
```

Out[7]:

|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	N(
3772	3772	SOUTH INTERIOR KARNATAKA	1901	4.9	31.8	3.0	32.7	109.6	106.0	210.0	109.2	140.8	170.1	72
3773	3773	SOUTH INTERIOR KARNATAKA	1902	1.9	0.5	6.7	42.6	97.7	91.7	210.0	82.1	138.4	219.1	44
3774	3774	SOUTH INTERIOR KARNATAKA	1903	0.3	0.0	1.1	11.6	125.1	129.7	284.4	155.7	197.1	154.2	186
3775	3775	SOUTH INTERIOR KARNATAKA	1904	1.0	0.5	5.2	43.5	144.7	167.9	197.1	73.2	89.6	120.4	2
3776	3776	SOUTH INTERIOR KARNATAKA	1905	1.7	7.9	14.2	23.6	118.6	95.9	148.4	140.6	43.1	142.8	22
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3882	3882	SOUTH INTERIOR KARNATAKA	2011	2.1	12.4	12.4	80.2	83.5	177.1	202.4	199.5	111.2	144.8	56
3883	3883	SOUTH INTERIOR KARNATAKA	2012	4.6	5.5	8.1	99.0	45.6	81.8	144.7	236.5	100.6	62.8	82
3884	3884	SOUTH INTERIOR KARNATAKA	2013	0.5	10.1	11.7	34.6	95.6	176.2	307.4	151.7	191.8	103.7	24
3885	3885	SOUTH INTERIOR KARNATAKA	2014	0.4	2.4	17.7	46.7	130.5	106.8	271.6	254.6	161.6	152.9	2(
3886	3886	SOUTH INTERIOR KARNATAKA	2015	1.7	0.2	24.4	80.5	125.3	218.7	112.0	136.6	164.5	106.1	138

115 rows × 20 columns

In [ ]:

In [8]:
```python
dat2.plot.bar("YEAR","JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR","JAN")
sns.stripplot(x=dat2["JAN"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()
```
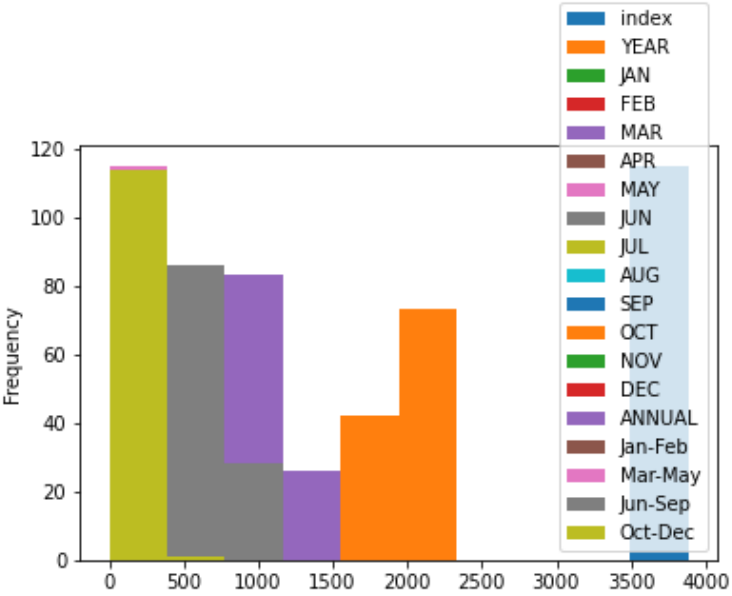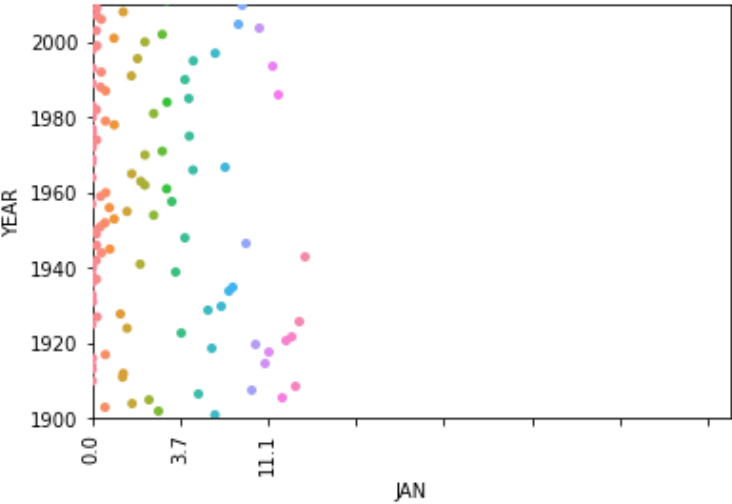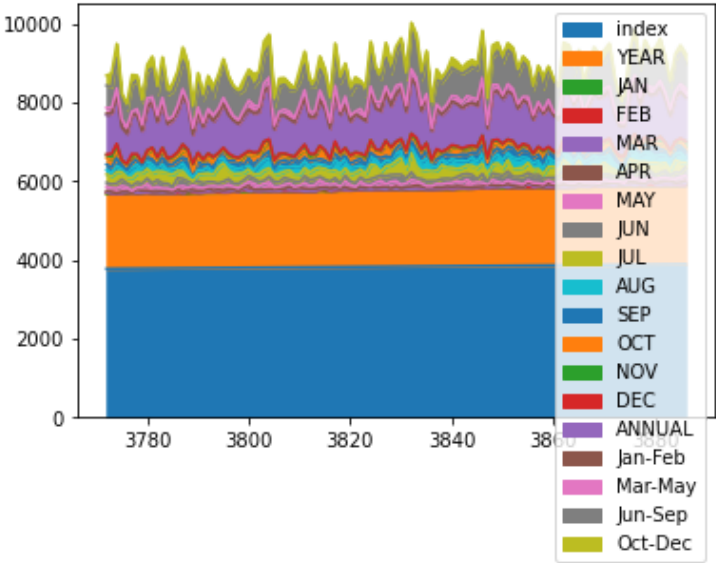


```
<Figure size 4320x2160 with 0 Axes>
```
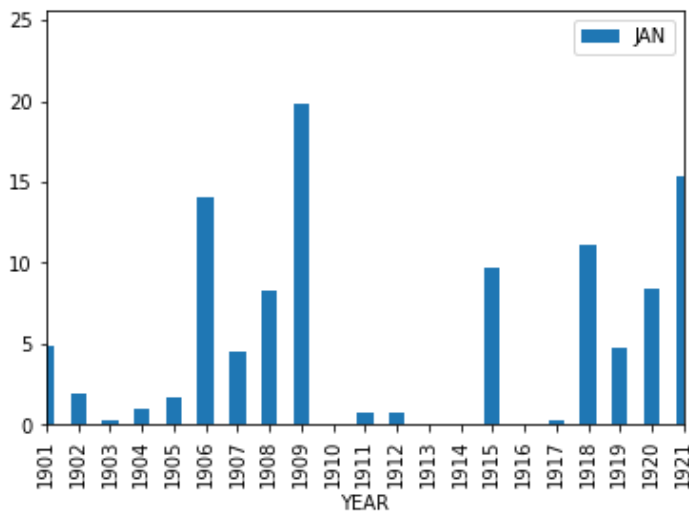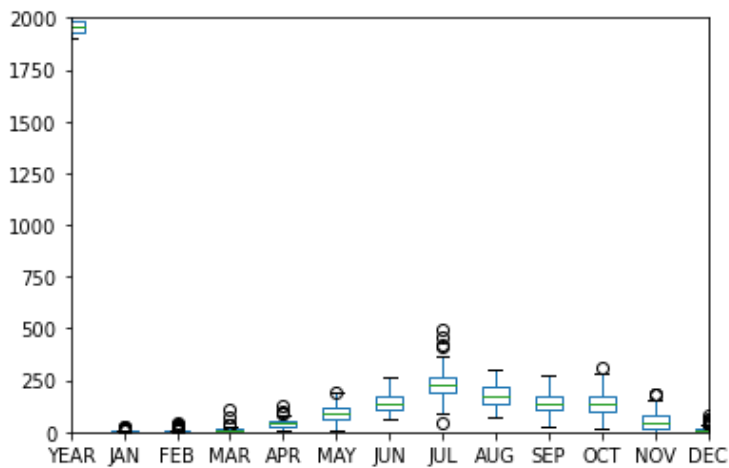
In [9]:
```python
sns.lineplot(x=dat2["JAN"],y=dat2["YEAR"])
plt.show()
```