

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

BIHAR

```
In [4]: dat1=df[df["SUBDIVISION"]=="BIHAR"]
        dat1
```

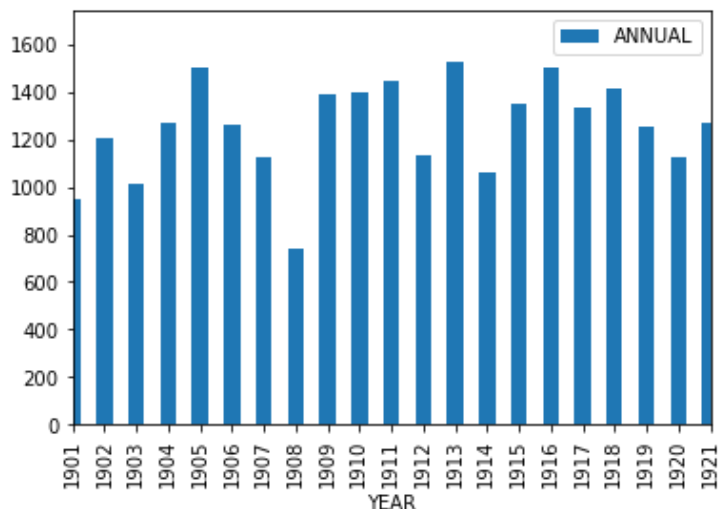
Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO
897	897	BIHAR	1901	51.8	19.6	11.9	1.1	65.6	66.3	245.9	319.4	155.1	8.3	7
898	898	BIHAR	1902	4.6	0.7	24.3	17.3	66.3	118.2	361.0	225.5	358.7	28.5	1
899	899	BIHAR	1903	5.3	4.7	2.0	4.7	28.2	192.9	115.0	342.6	173.9	147.0	0
900	900	BIHAR	1904	6.3	1.7	3.5	5.3	118.7	191.6	394.4	351.3	84.4	98.1	10
901	901	BIHAR	1905	16.0	30.1	32.6	21.4	77.5	50.5	409.1	495.3	353.9	11.6	0
...
1007	1007	BIHAR	2011	4.2	7.7	9.2	23.9	74.5	211.0	241.1	278.7	234.1	10.0	2
1008	1008	BIHAR	2012	18.1	2.7	7.3	20.4	18.8	96.2	354.0	240.4	233.8	34.3	6
1009	1009	BIHAR	2013	5.1	22.6	0.6	32.3	89.5	183.3	182.0	213.6	143.3	197.1	0
1010	1010	BIHAR	2014	17.0	33.5	8.4	0.7	103.9	115.2	265.4	307.6	160.3	47.8	0
1011	1011	BIHAR	2015	12.8	1.8	27.2	38.7	39.5	122.1	231.5	287.0	101.7	10.4	0

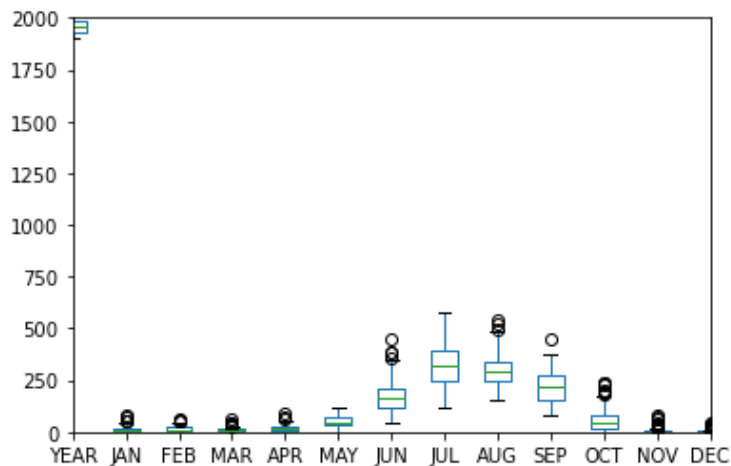
115 rows × 20 columns

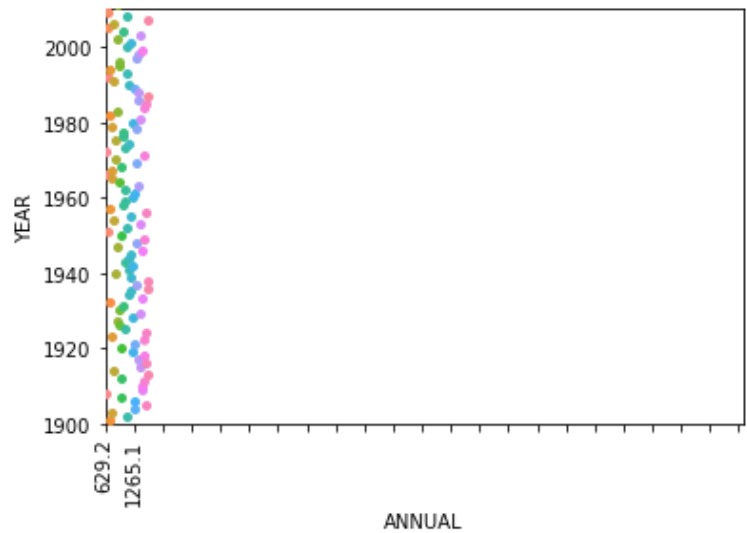
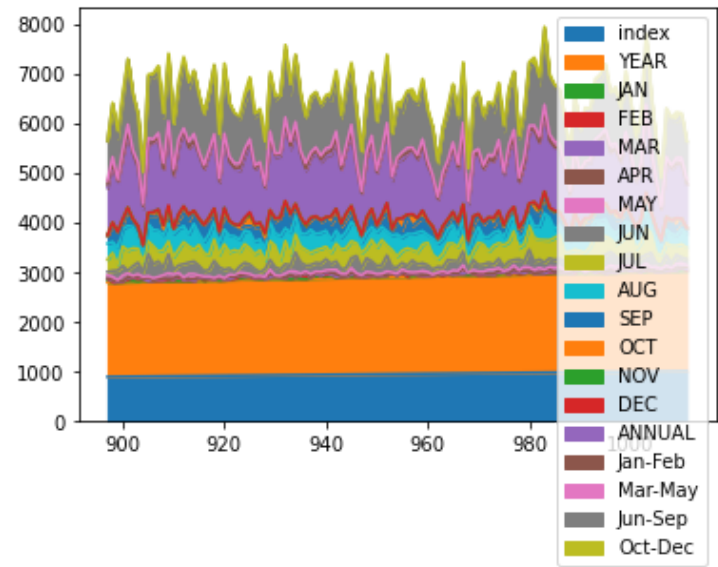


```
In [15]: dat1.plot.bar("YEAR", "ANNUAL")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "ANNUAL")
sns.stripplot(x=dat1["ANNUAL"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,1000)
plt.xticks(dat1["ANNUAL"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=75))
plt.show()
dat1.plot.hist()
```

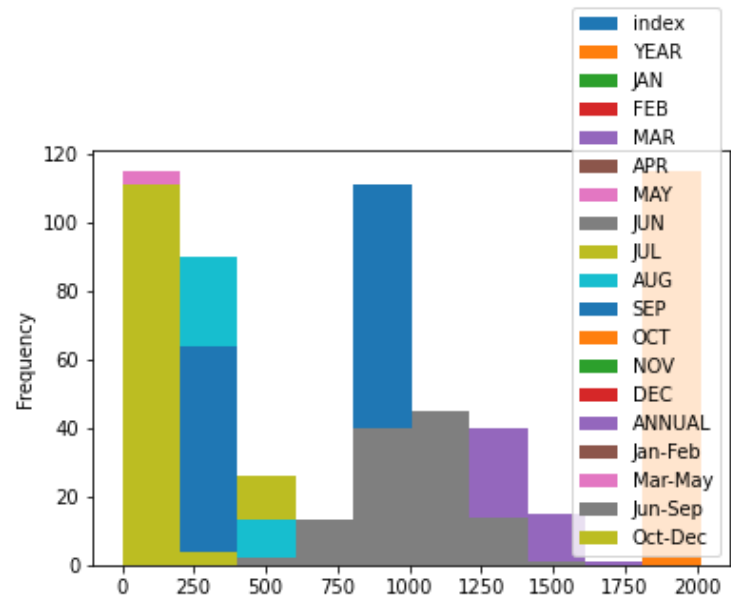


<Figure size 4320x2160 with 0 Axes>

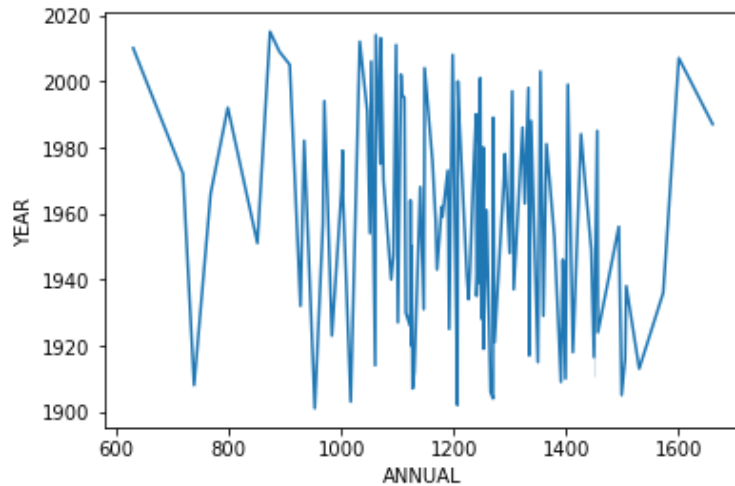




Out[15]: <AxesSubplot:ylabel='Frequency'>



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



EAST MADHYA PRADESH

In [7]:

dat2=df[df["SUBDIVISION"]=="EAST MADHYA PRADESH"]
dat2

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
2162	2162	EAST MADHYA PRADESH	1901	48.5	38.1	15.7	10.7	6.2	61.0	367.5	589.2	189.9	5.9	0.0
2163	2163	EAST MADHYA PRADESH	1902	14.9	8.9	0.0	3.6	2.7	28.0	411.9	227.0	236.6	17.0	27.0
2164	2164	EAST MADHYA PRADESH	1903	5.6	2.9	0.3	0.9	37.5	67.5	261.4	366.7	257.4	177.9	0.0
2165	2165	EAST MADHYA PRADESH	1904	2.0	15.3	48.2	0.0	8.6	109.9	443.2	316.6	135.6	44.8	3.0
2166	2166	EAST MADHYA PRADESH	1905	15.9	8.0	14.3	12.3	10.2	34.4	292.4	243.3	250.9	2.9	0.0
...
2272	2272	EAST MADHYA PRADESH	2011	0.6	1.9	0.3	7.1	4.7	332.5	323.6	326.9	276.5	1.1	0.0
2273	2273	EAST MADHYA PRADESH	2012	39.4	0.7	0.6	1.1	1.2	67.8	398.9	351.7	172.6	12.7	3.0
2274	2274	EAST MADHYA PRADESH	2013	2.0	43.4	14.1	9.5	0.3	311.9	456.2	480.8	78.0	124.2	0.0
2275	2275	EAST MADHYA PRADESH	2014	32.1	49.7	17.8	5.1	2.5	91.8	283.4	231.8	139.6	56.4	1.0
2276	2276	EAST MADHYA PRADESH	2015	37.3	11.0	73.4	25.8	6.3	139.2	262.2	272.1	71.6	38.2	1.0

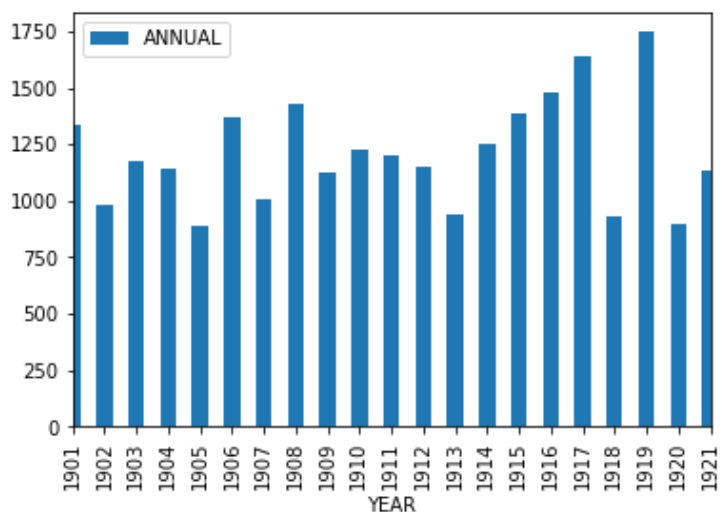
115 rows × 20 columns

In [16]:

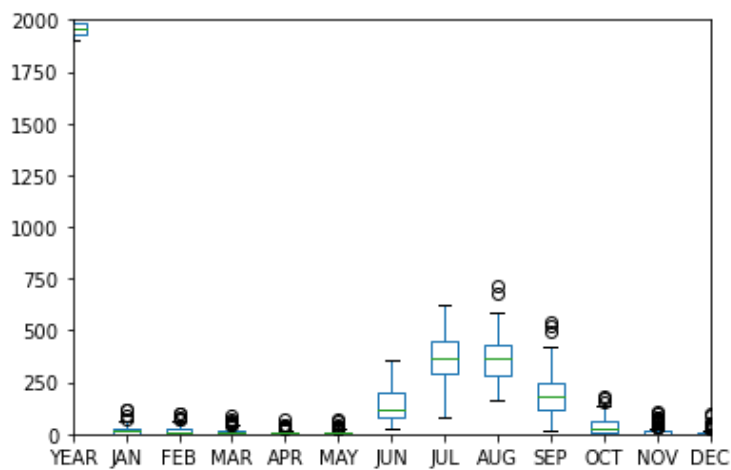
```

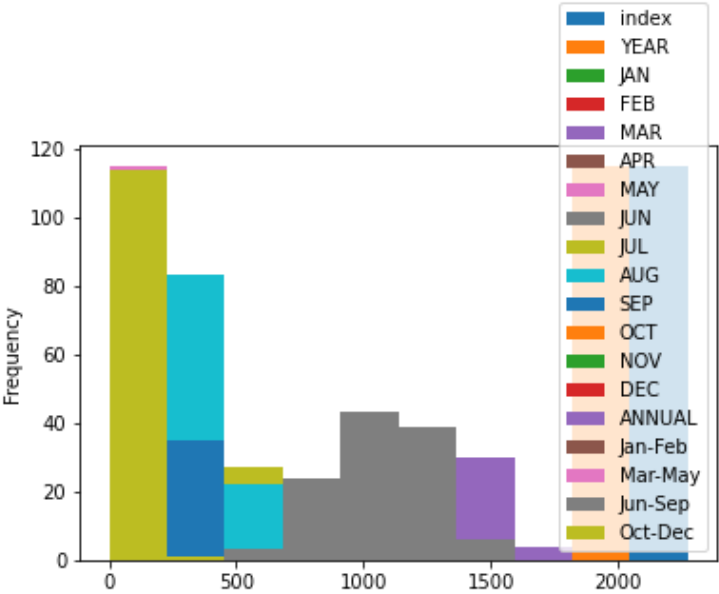
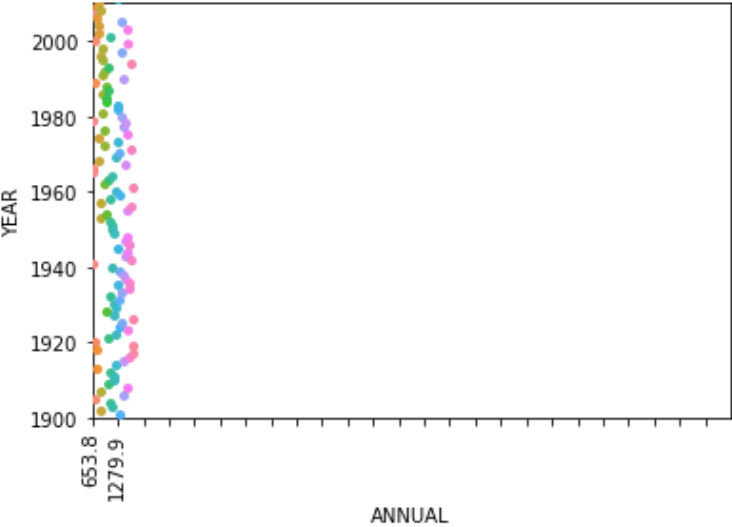
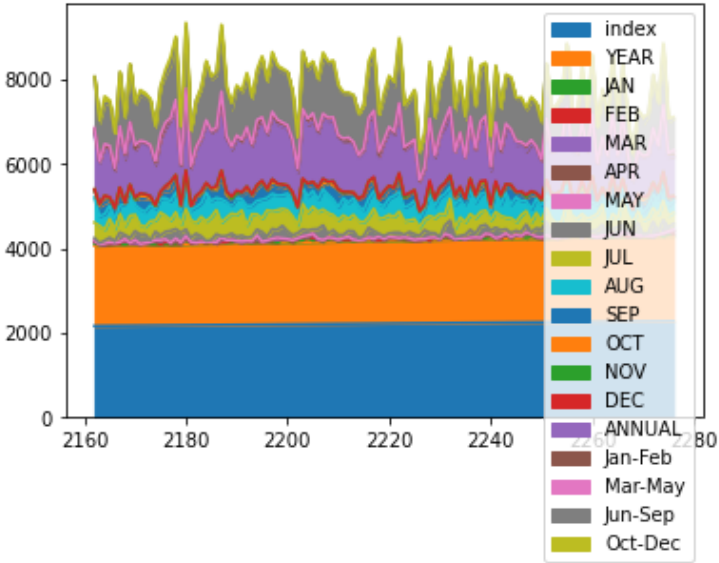
dat2.plot.bar("YEAR", "ANNUAL")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "ANNUAL")
sns.stripplot(x=dat2["ANNUAL"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["ANNUAL"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=70))
plt.show()
dat2.plot.hist()
plt.show()

```



<Figure size 4320x2160 with 0 Axes>





```
In [9]: sns.lineplot(x=dat2["ANNUAL"],y=dat2["YEAR"])  
plt.show()
```

