

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

## MATATHWADA

In [4]:

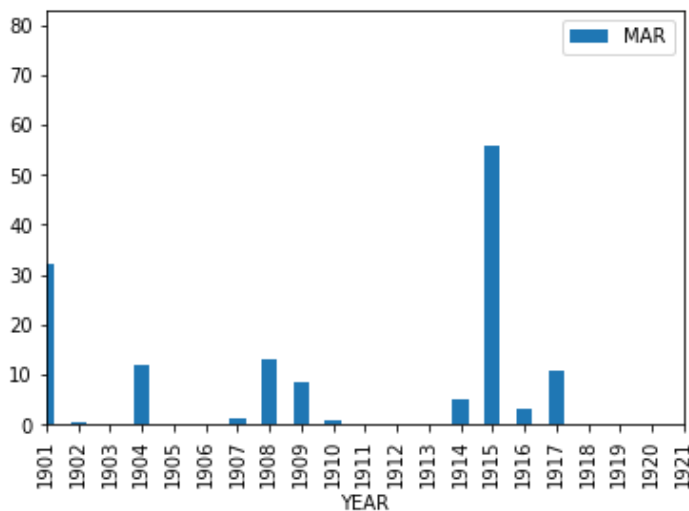
dat1=df[df["SUBDIVISION"]=="MATATHWADA"]  
dat1

Out[4]:

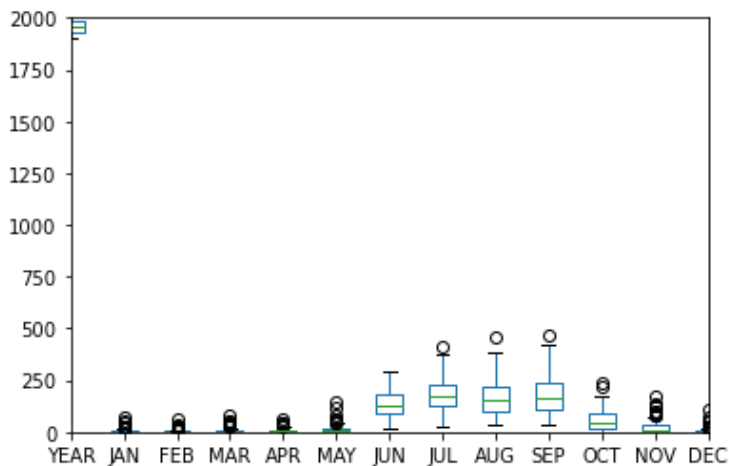
	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO
2737	2737	MATATHWADA	1901	15.8	3.3	32.1	48.5	26.5	193.1	184.1	249.8	74.0	81.6	0
2738	2738	MATATHWADA	1902	1.3	0.0	0.4	7.2	0.8	52.4	120.9	85.2	273.3	61.3	84
2739	2739	MATATHWADA	1903	2.6	0.8	0.0	1.7	58.3	104.4	264.2	281.9	173.3	139.9	0
2740	2740	MATATHWADA	1904	0.0	0.9	12.1	0.3	7.2	79.2	118.4	57.3	339.0	76.2	0
2741	2741	MATATHWADA	1905	1.3	2.0	0.0	6.6	4.8	84.6	94.8	137.6	157.8	15.4	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2847	2847	MATATHWADA	2011	0.0	3.8	0.7	3.5	3.1	79.2	230.1	228.5	90.0	24.8	0
2848	2848	MATATHWADA	2012	0.0	0.0	0.0	0.6	2.3	72.2	161.1	101.4	120.0	68.8	0
2849	2849	MATATHWADA	2013	1.5	9.4	2.6	7.9	6.4	160.9	293.4	136.9	154.1	94.3	7
2850	2850	MATATHWADA	2014	1.4	13.4	79.0	11.9	7.0	30.4	105.0	178.9	84.5	14.2	19
2851	2851	MATATHWADA	2015	10.1	1.6	32.0	39.6	12.3	118.3	27.4	112.2	154.3	19.5	4

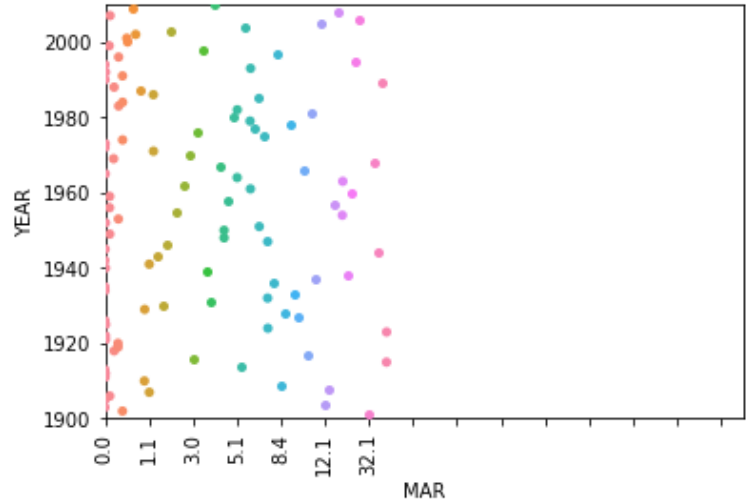
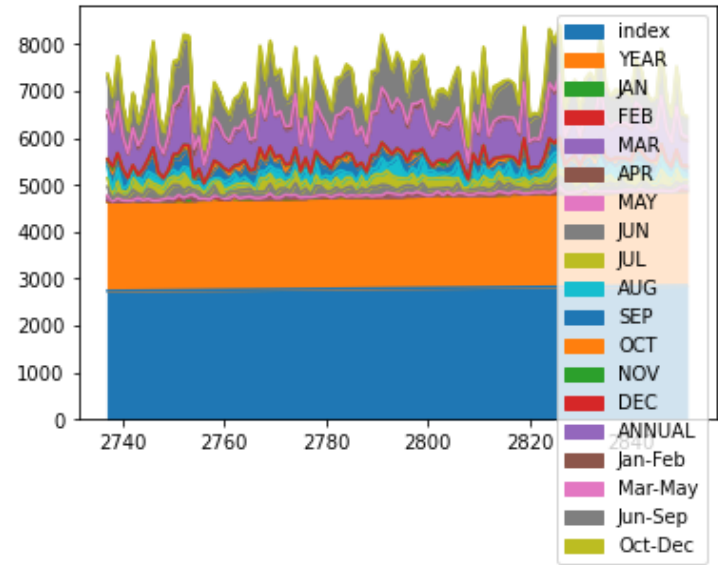
115 rows × 20 columns

```
In [5]: dat1.plot.bar("YEAR", "MAR")
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", "MAR")
sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```

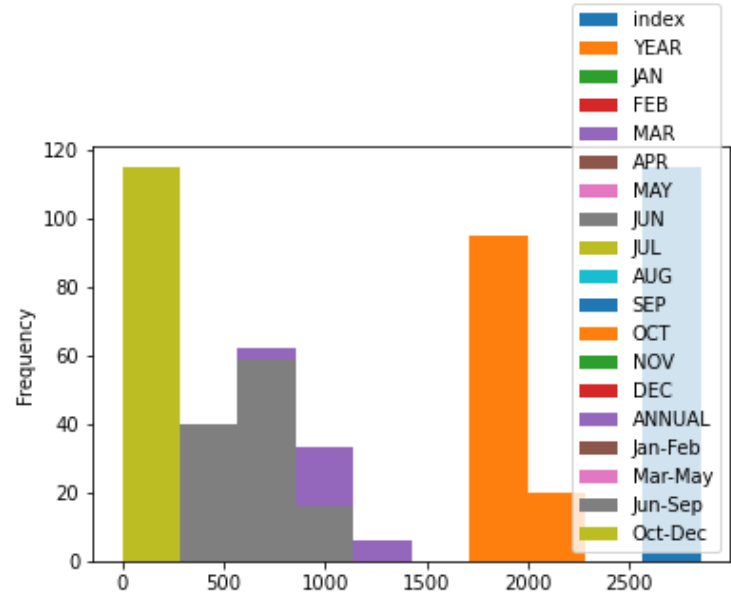


<Figure size 4320x2160 with 0 Axes>

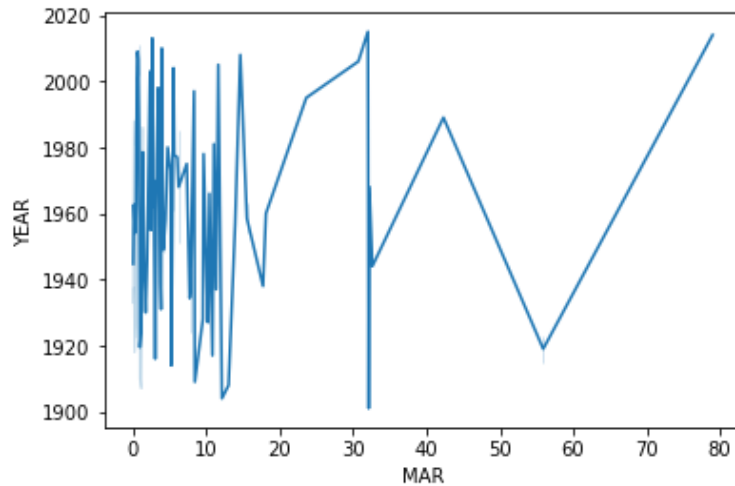




Out[5]: <AxesSubplot:ylabel='Frequency'>



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



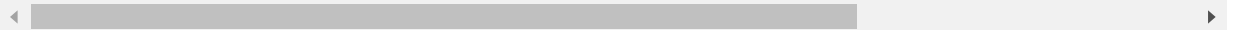
## WEST MADHYA PRADESH

```
In [7]: dat2=df[df["SUBDIVISION"]=="WEST MADHYA PRADESH"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
<b>2047</b>	2047	WEST MADHYA PRADESH	1901	25.8	5.8	5.8	2.8	2.1	41.2	228.9	349.9	47.9	5.6	0.0
<b>2048</b>	2048	WEST MADHYA PRADESH	1902	22.1	8.4	0.0	2.0	5.9	35.9	401.9	179.4	194.1	37.9	10.0
<b>2049</b>	2049	WEST MADHYA PRADESH	1903	5.3	0.0	0.0	0.0	22.3	50.6	304.9	261.1	250.2	55.1	0.0
<b>2050</b>	2050	WEST MADHYA PRADESH	1904	3.2	15.5	14.8	0.0	12.0	96.6	273.0	218.6	125.9	3.3	1.8
<b>2051</b>	2051	WEST MADHYA PRADESH	1905	3.5	4.4	1.1	0.8	3.0	36.1	326.3	137.6	183.5	0.3	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>2157</b>	2157	WEST MADHYA PRADESH	2011	0.0	1.7	0.1	1.8	3.6	241.5	306.7	343.3	165.0	0.2	0.0
<b>2158</b>	2158	WEST MADHYA PRADESH	2012	6.2	0.0	0.0	0.9	3.1	48.2	439.2	341.2	194.3	2.1	0.0
<b>2159</b>	2159	WEST MADHYA PRADESH	2013	1.7	31.1	8.5	2.8	0.4	263.7	485.1	432.6	98.9	68.7	0.3
<b>2160</b>	2160	WEST MADHYA PRADESH	2014	25.6	34.4	4.6	1.4	1.4	30.6	337.4	211.0	192.6	7.0	3.0
<b>2161</b>	2161	WEST MADHYA PRADESH	2015	40.2	6.4	53.5	13.3	2.0	154.1	428.2	276.6	55.6	11.0	0.3

115 rows × 20 columns

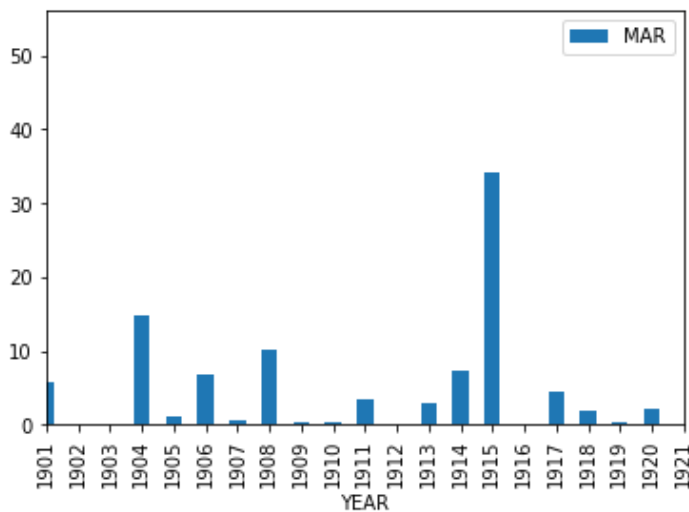


In [8]:

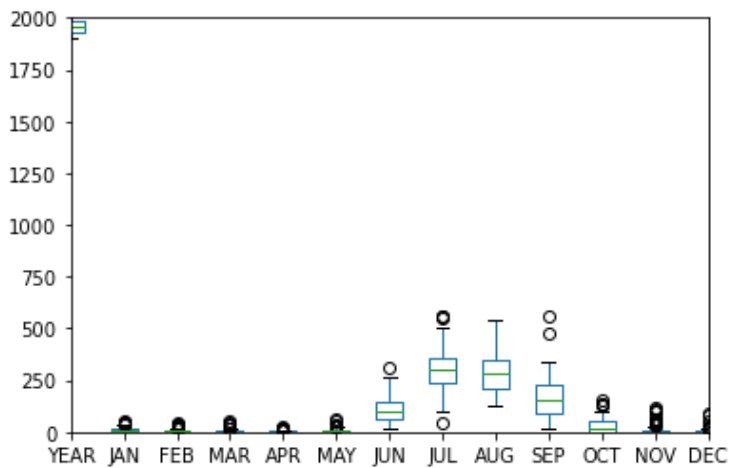
```

dat2.plot.bar("YEAR", "MAR")
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", "MAR")
sns.stripplot(x=dat2["MAR"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

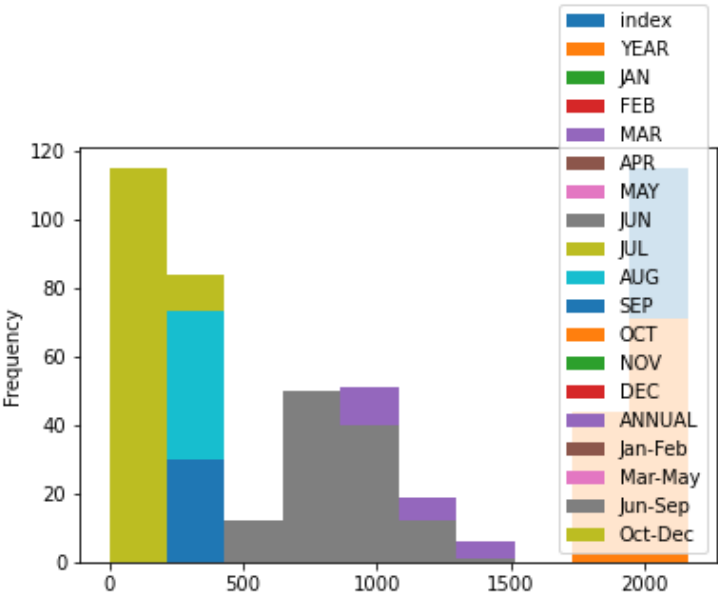
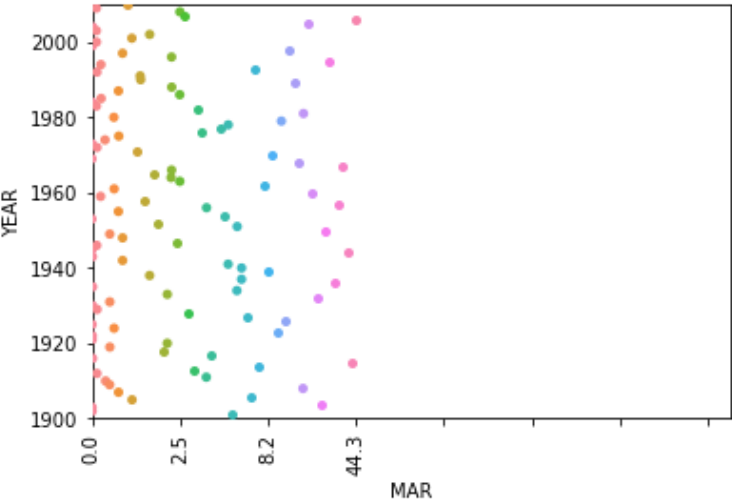
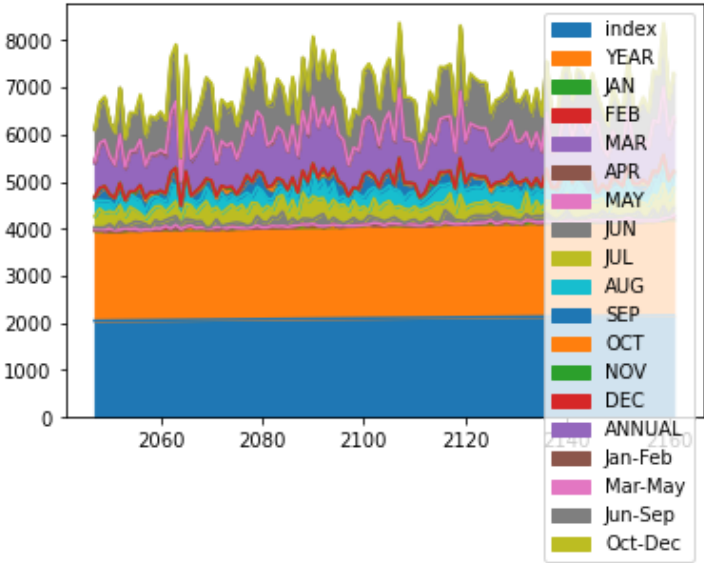
```



&lt;Figure size 4320x2160 with 0 Axes&gt;







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

