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

In [2]:
```python
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]:
```
TELANGANA                          115
WEST RAJASTHAN                     115
UTTARAKHAND                        115
GANGETIC WEST BENGAL              115
KONKAN & GOA                       115
WEST MADHYA PRADESH               115
EAST UTTAR PRADESH                115
SUB HIMALAYAN WEST BENGAL & SIKKIM 115
EAST MADHYA PRADESH               115
COASTAL KARNATAKA                 115
ORISSA                            115
HIMACHAL PRADESH                  115
EAST RAJASTHAN                    115
HARYANA DELHI & CHANDIGARH        115
SOUTH INTERIOR KARNATAKA          115
BIHAR                             115
WEST UTTAR PRADESH                115
NORTH INTERIOR KARNATAKA          115
MATATHWADA                        115
MADHYA MAHARASHTRA                115
GUJARAT REGION                    115
ASSAM & MEGHALAYA                 115
KERALA                            115
SAURASHTRA & KUTCH                115
CHHATTISGARH                      115
JAMMU & KASHMIR                   115
COASTAL ANDHRA PRADESH            115
TAMIL NADU                        115
PUNJAB                            115
JHARKHAND                         115
VIDARBHA                          115
NAGA MANI MIZO TRIPURA            115
RAYALSEEMA                        115
LAKSHADWEEP                       114
ANDAMAN & NICOBAR ISLANDS         110
ARUNACHAL PRADESH                  97
Name: SUBDIVISION, dtype: int64
```

GANGETIC WEST BENGAL

In [4]:
```python
dat1=df[df["SUBDIVISION"]=="GANGETIC WEST BENGAL"]
dat1
```

Out[4]:

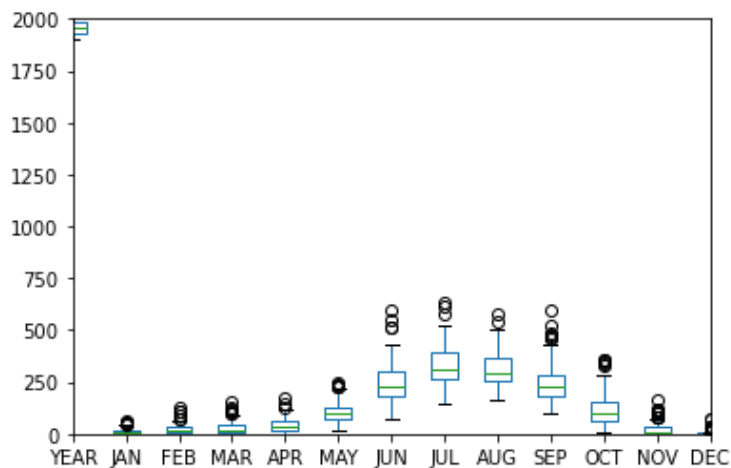|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO'
552	552	GANGETIC WEST BENGAL	1901	37.1	58.4	3.9	64.1	121.7	198.0	280.8	275.7	313.5	51.1	83.
553	553	GANGETIC WEST BENGAL	1902	0.0	1.2	44.2	103.8	161.6	140.9	347.8	264.8	230.5	32.5	10.
554	554	GANGETIC WEST BENGAL	1903	17.5	24.6	37.3	30.6	78.5	201.7	179.6	277.6	300.7	198.0	8.
555	555	GANGETIC WEST BENGAL	1904	0.1	23.9	35.6	17.5	160.2	286.7	435.3	241.7	142.8	35.1	4.
556	556	GANGETIC WEST BENGAL	1905	30.9	49.6	84.7	84.9	156.8	70.9	525.5	263.6	287.6	107.3	0.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
662	662	GANGETIC WEST BENGAL	2011	2.5	2.7	40.5	75.0	132.6	434.5	219.9	443.2	295.9	36.9	1.
663	663	GANGETIC WEST BENGAL	2012	40.7	15.3	4.4	57.7	44.2	146.6	315.0	261.4	246.9	64.2	47.
664	664	GANGETIC WEST BENGAL	2013	2.5	10.0	4.8	45.6	195.9	233.4	263.2	401.4	254.0	353.2	0.
665	665	GANGETIC WEST BENGAL	2014	0.9	42.2	19.9	1.9	124.4	193.6	298.7	292.6	229.5	56.9	0.
666	666	GANGETIC WEST BENGAL	2015	12.9	5.5	19.3	88.7	57.6	247.2	633.1	260.6	164.0	32.7	2.

115 rows × 20 columns
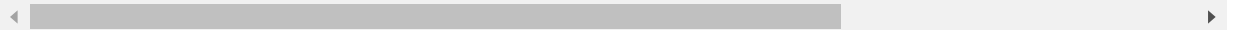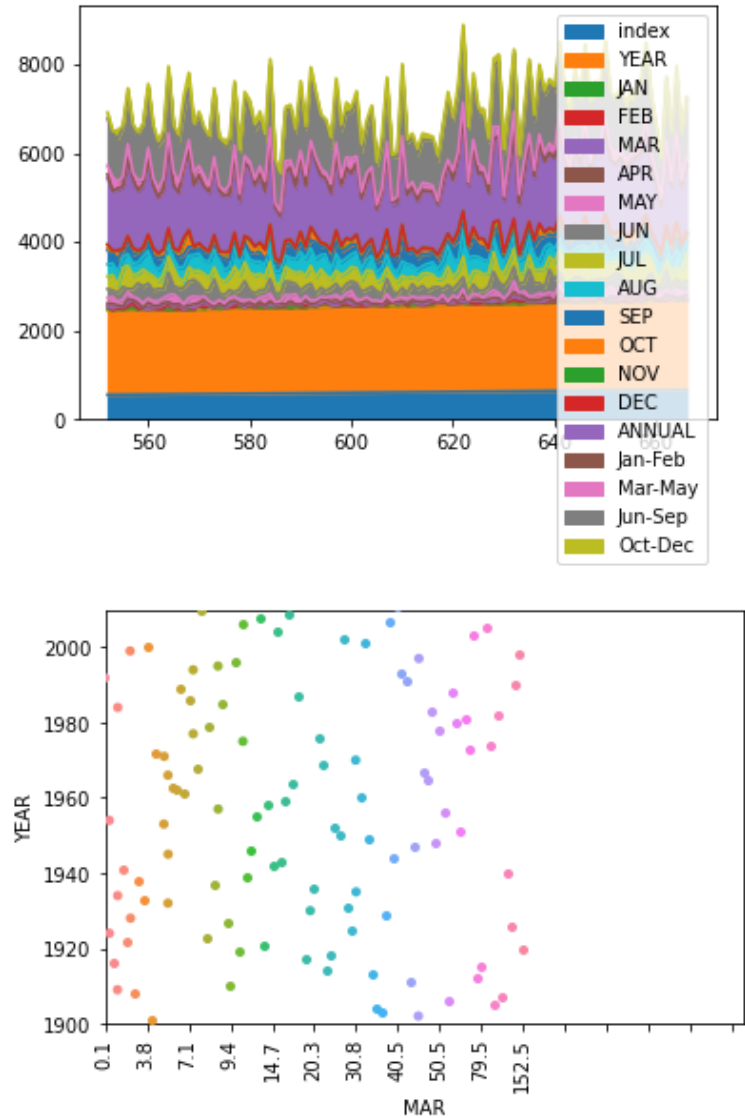
```
In [5]: dat1.plot.bar("YEAR","MAR")
        plt.xlim(0,20)
        plt.figure(figsize=(60,30))
        plt.show()
        dat1.plot.box()
        plt.xlim(2,14)
        plt.ylim(0,2000)
        plt.show()
        dat1.plot.area()
        dat1.plot.scatter("YEAR","MAR")
        sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
        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()
```
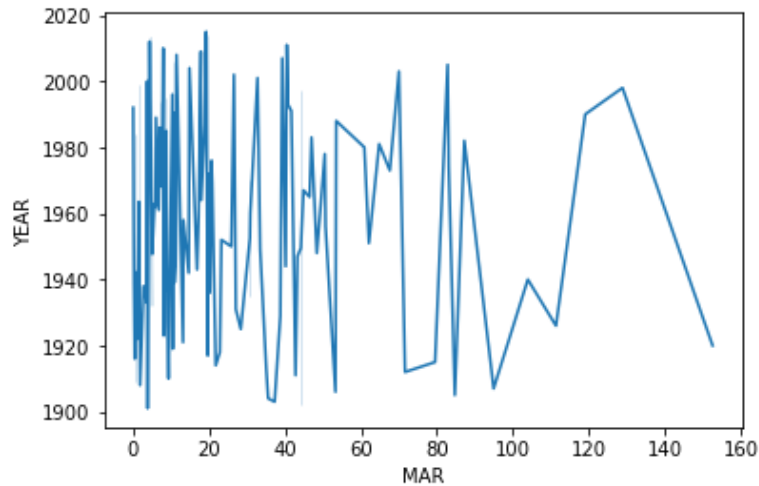


```
<Figure size 4320x2160 with 0 Axes>
```
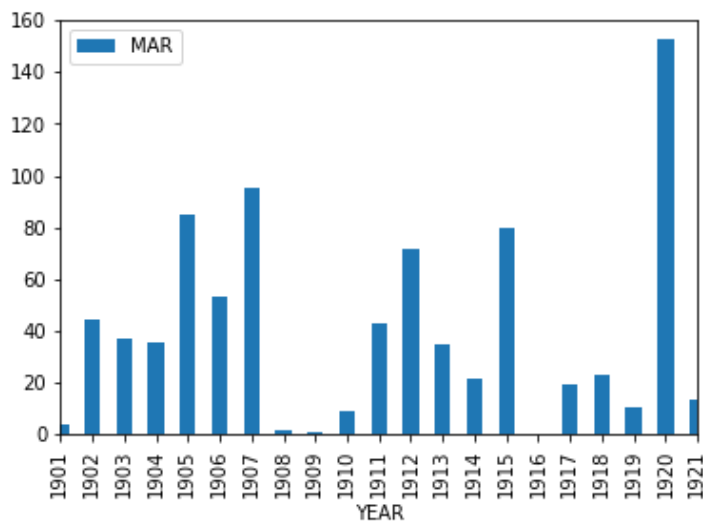
Out[5]:   <AxesSubplot:ylabel='Frequency'>
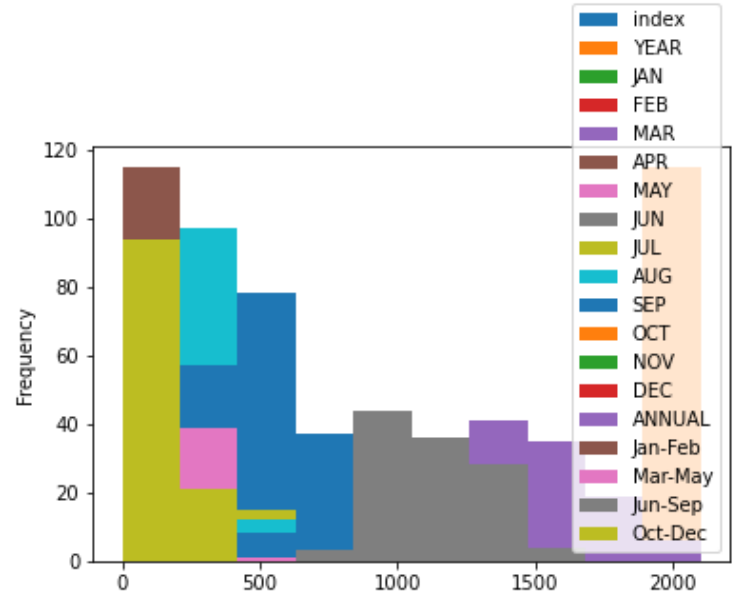
In [6]:
```
sns.lineplot(x=dat1["MAR"],y=dat1["YEAR"])
plt.show()
```


KONKAN & GOA

In [7]:
```
dat2=df[df["SUBDIVISION"]=="KONKAN & GOA"]
dat2
```

Out[7]:

|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
2507	2507	KONKAN & GOA	1901	5.6	0.1	0.4	35.7	19.9	746.1	1075.5	748.0	117.4	38.6	
2508	2508	KONKAN & GOA	1902	0.3	0.0	0.0	0.4	7.6	428.2	943.6	515.1	613.8	74.3	
2509	2509	KONKAN & GOA	1903	0.0	0.0	0.1	0.0	201.1	470.5	1298.6	673.9	285.1	140.8	
2510	2510	KONKAN & GOA	1904	0.0	0.1	6.6	6.3	4.6	975.8	771.7	321.3	217.0	90.3	
2511	2511	KONKAN & GOA	1905	0.1	0.1	0.0	0.4	8.6	293.7	770.6	305.5	208.3	83.5	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2617	2617	KONKAN & GOA	2011	0.0	0.0	0.0	3.4	1.1	857.0	1384.1	987.9	468.3	120.3	
2618	2618	KONKAN & GOA	2012	0.0	0.0	0.0	0.6	1.1	633.0	928.5	762.5	515.3	175.1	
2619	2619	KONKAN & GOA	2013	1.8	5.4	0.1	0.1	18.5	1028.3	1478.5	497.6	340.7	149.3	
2620	2620	KONKAN & GOA	2014	1.3	5.3	1.8	0.7	21.3	238.2	1293.2	658.0	419.5	98.7	
2621	2621	KONKAN & GOA	2015	2.7	0.0	36.8	3.6	11.3	764.0	526.5	377.3	240.9	91.4	

115 rows × 20 columns

In [8]:
```python
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()
```


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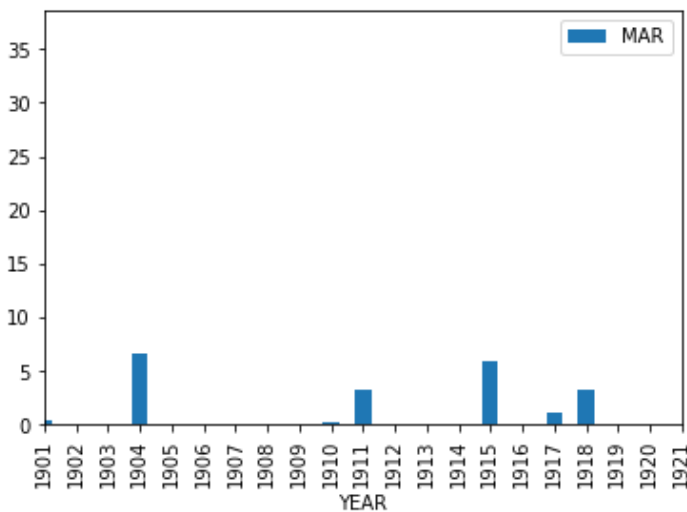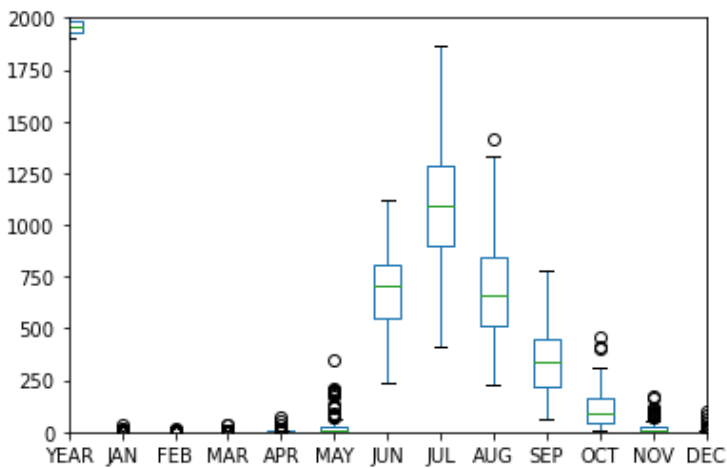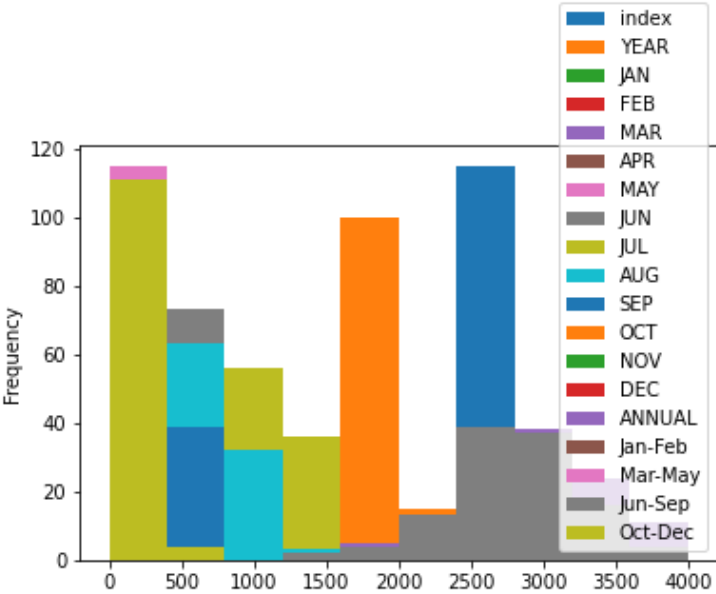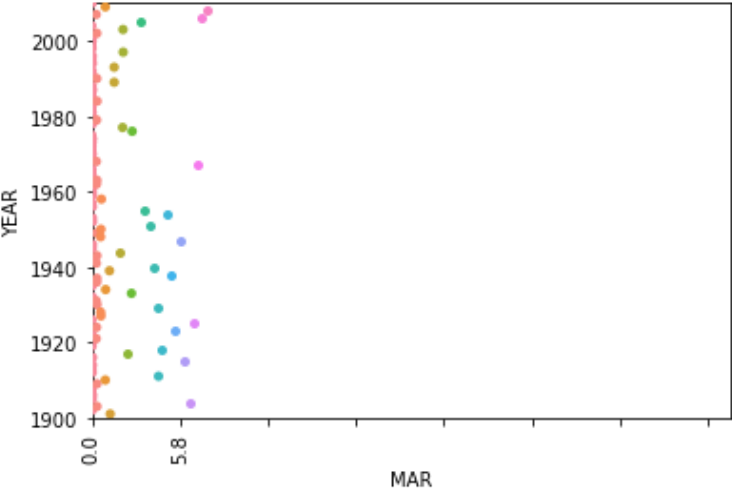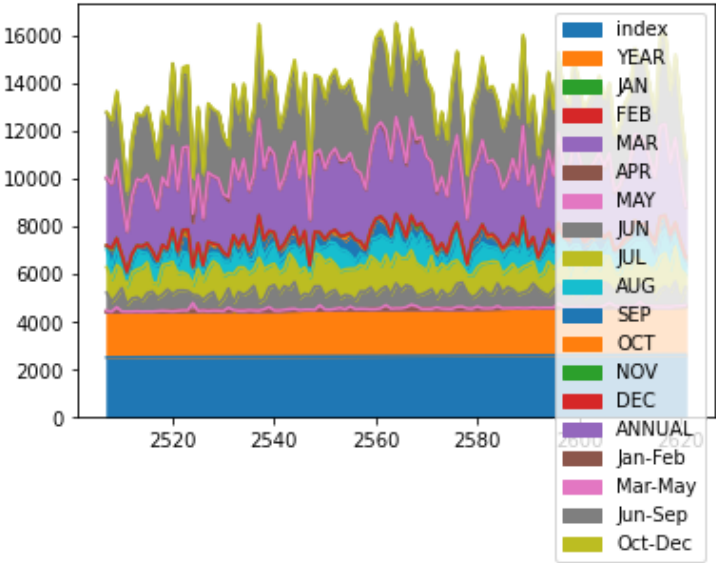
In [9]:
```python
sns.lineplot(x=dat2["MAR"],y=dat2["YEAR"])
plt.show()
```