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

4116 rows × 20 columns

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

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

SUB HIMALAYAN WEST BENGAL & SIKKIM

```
In [4]: dat1=df[df["SUBDIVISION"]=="SUB HIMALAYAN WEST BENGAL & SIKKIM"]
        dat1
```

Out[4]:

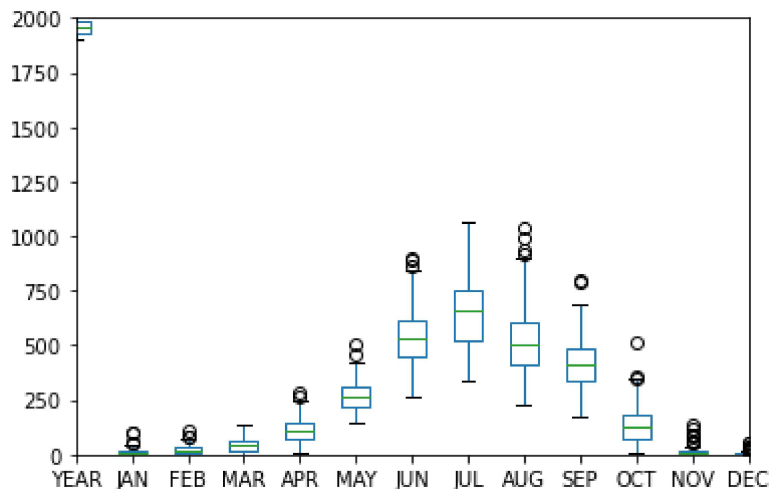|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	O
437	437	SUB HIMALAYAN WEST BENGAL & SIKKIM	1901	26.5	14.8	14.1	29.2	195.5	488.4	524.8	501.1	242.7	5!
438	438	SUB HIMALAYAN WEST BENGAL & SIKKIM	1902	1.2	0.7	87.1	126.1	271.3	539.2	671.0	603.8	799.9	7₄
439	439	SUB HIMALAYAN WEST BENGAL & SIKKIM	1903	5.5	8.7	19.6	18.6	163.6	541.2	431.5	708.8	365.2	14'
440	440	SUB HIMALAYAN WEST BENGAL & SIKKIM	1904	3.4	29.2	0.9	124.3	333.6	274.2	500.4	468.5	260.6	16₄
441	441	SUB HIMALAYAN WEST BENGAL & SIKKIM	1905	12.0	31.2	51.9	104.4	290.6	524.8	523.1	1036.6	321.1	8'
...	...	...	...	...	...	...	...	...	...	...	...	...	
547	547	SUB HIMALAYAN WEST BENGAL & SIKKIM	2011	8.5	19.9	71.2	135.0	247.8	419.8	612.3	470.3	356.3	4(
548	548	SUB HIMALAYAN WEST BENGAL & SIKKIM	2012	15.3	13.9	45.5	159.8	202.4	604.2	684.5	332.7	434.7	11!
549	549	SUB HIMALAYAN WEST BENGAL & SIKKIM	2013	3.0	23.6	32.1	114.7	296.5	404.9	588.4	416.3	308.0	19!
550	550	SUB HIMALAYAN WEST BENGAL & SIKKIM	2014	0.2	26.6	37.7	47.9	308.6	543.2	384.6	563.3	371.5	3'
551	551	SUB HIMALAYAN WEST BENGAL & SIKKIM	2015	15.7	15.0	64.8	149.0	304.6	508.2	393.3	626.6	354.9	5:

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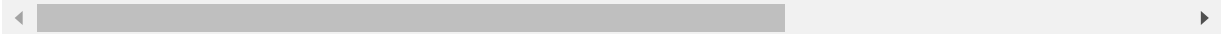
In [5]:
```python
dat1.plot.bar("YEAR","SEP")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR","SEP")
sns.stripplot(x=dat1["SEP"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["SEP"],rotation="vertical")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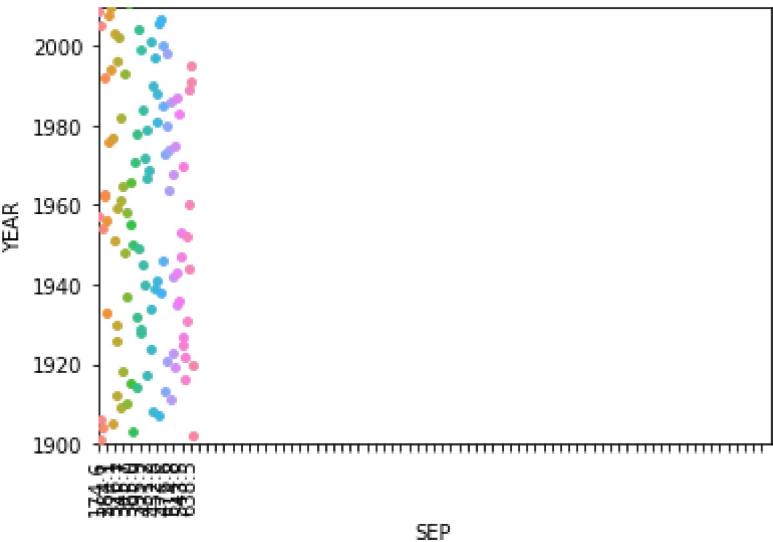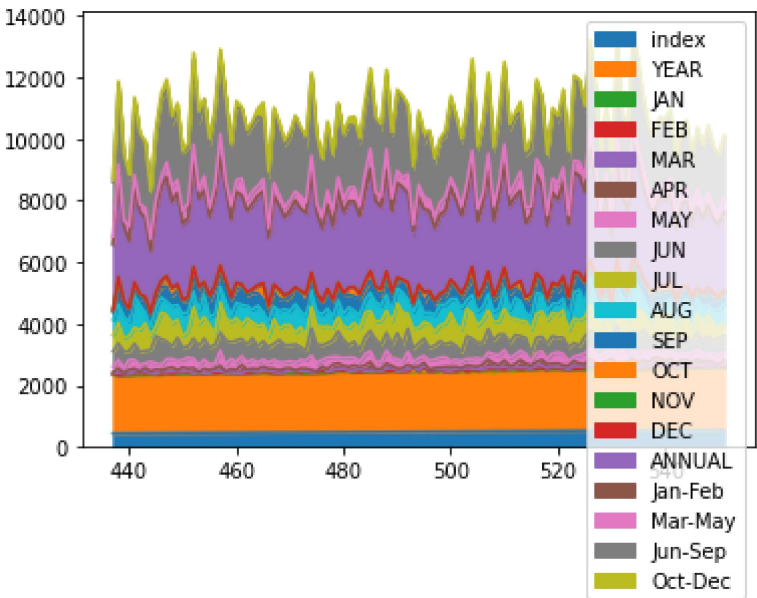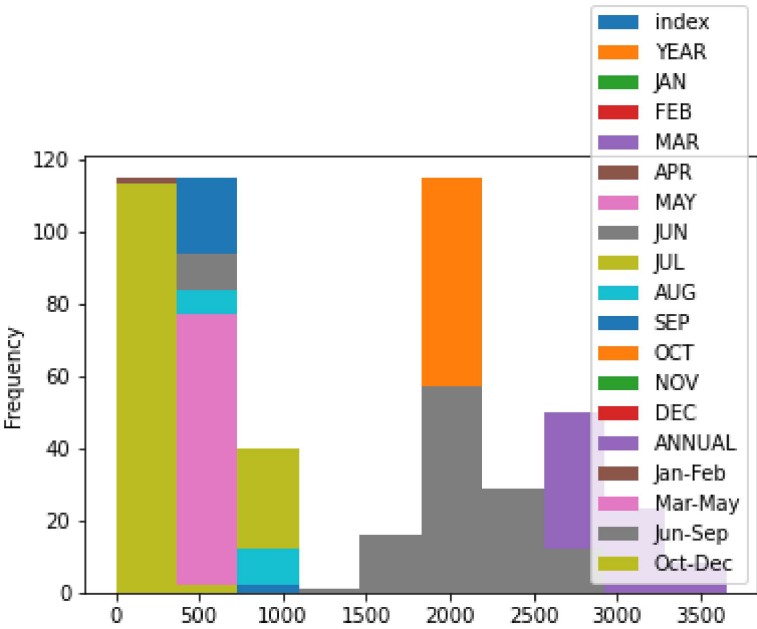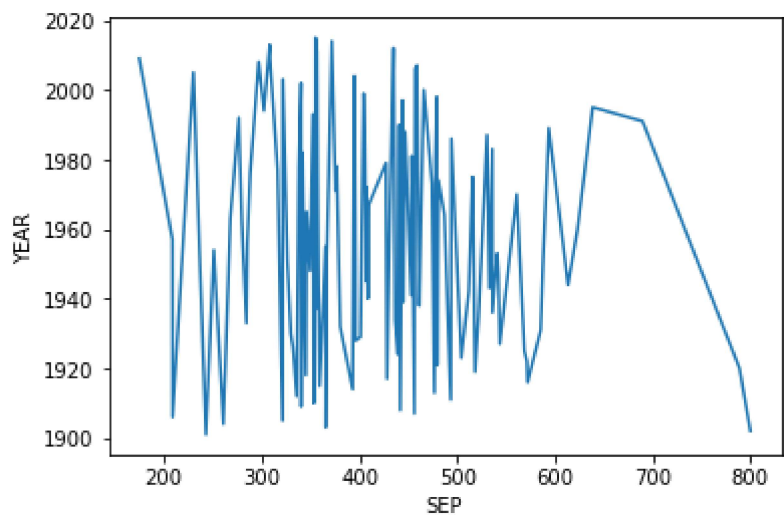

`<Figure size 4320x2160 with 0 Axes>`
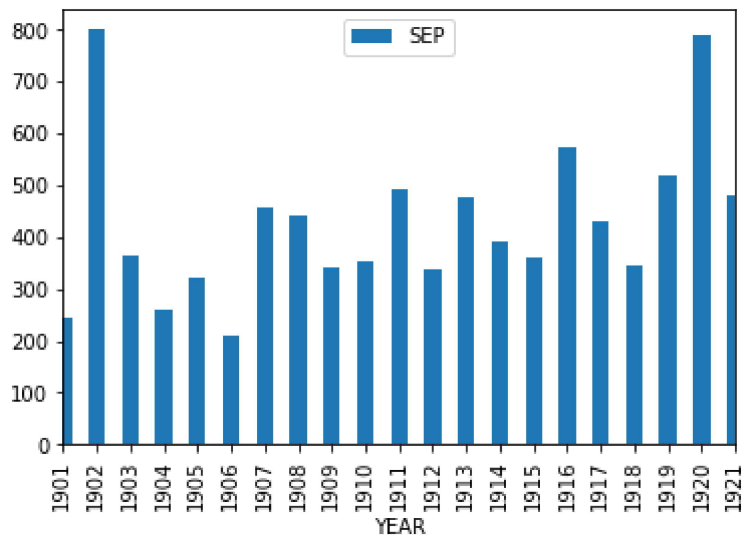
Out[5]: `<AxesSubplot:ylabel='Frequency'>`

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


JHARKHAND

```
In [7]: dat2=df[df["SUBDIVISION"]=="JHARKHAND"]
        dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
782	782	JHARKHAND	1901	92.7	66.6	11.1	18.4	33.5	70.9	269.4	415.1	248.0	37.3
783	783	JHARKHAND	1902	4.2	7.7	13.2	28.5	59.8	89.9	456.1	204.9	306.6	17.6
784	784	JHARKHAND	1903	25.1	19.5	10.7	32.8	56.4	142.1	206.1	280.8	190.2	210.1
785	785	JHARKHAND	1904	2.5	17.0	38.1	9.1	116.1	308.9	494.1	336.1	125.6	30.6
786	786	JHARKHAND	1905	38.4	53.3	61.6	32.9	66.2	41.5	420.3	293.7	322.8	21.3
...	...	...	...	...	...	...	...	...	...	...	...	...	...
892	892	JHARKHAND	2011	3.3	2.5	6.4	25.4	55.0	349.0	181.8	403.2	324.6	23.3
893	893	JHARKHAND	2012	34.6	10.3	1.5	9.6	6.6	121.1	287.2	282.4	217.6	37.8
894	894	JHARKHAND	2013	1.1	17.9	1.6	22.3	85.0	181.5	211.1	278.1	173.8	281.1
895	895	JHARKHAND	2014	9.9	47.5	22.9	1.9	98.2	139.7	321.3	290.9	178.2	44.9
896	896	JHARKHAND	2015	12.2	2.6	21.6	55.5	25.5	183.3	429.7	240.7	85.1	22.7

115 rows × 20 columns

In [8]:
```python
dat2.plot.bar("YEAR","SEP")
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","SEP")
sns.stripplot(x=dat2["SEP"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["SEP"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()
```
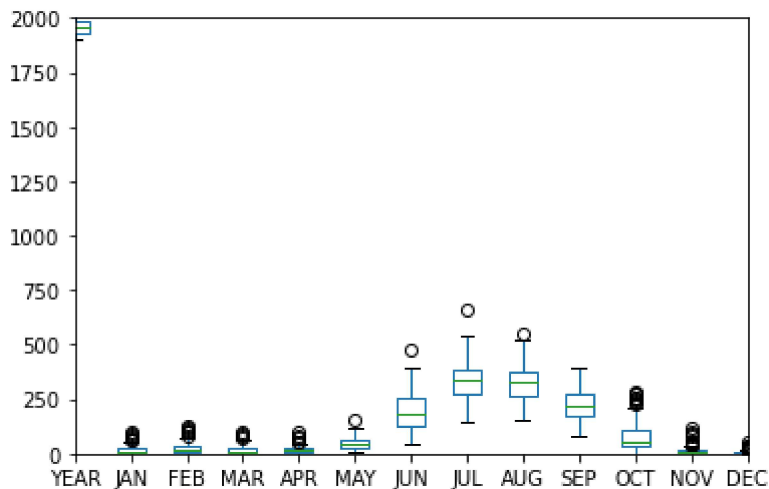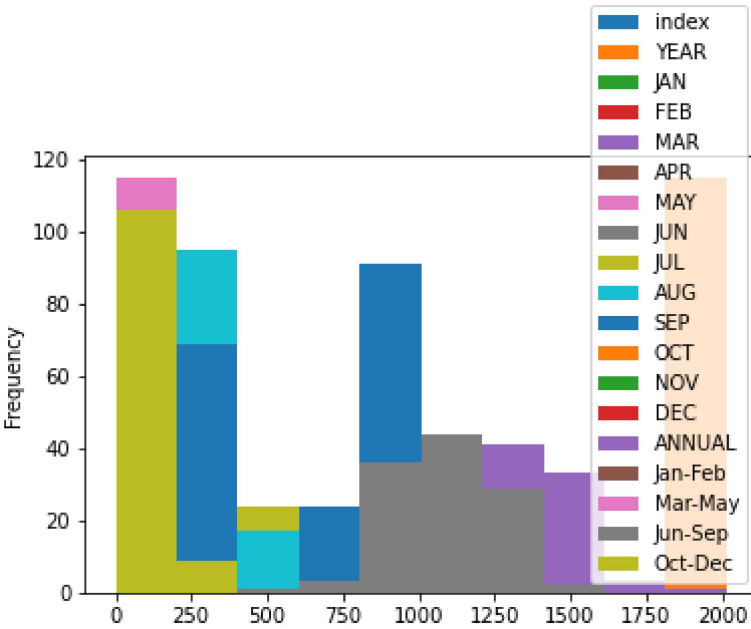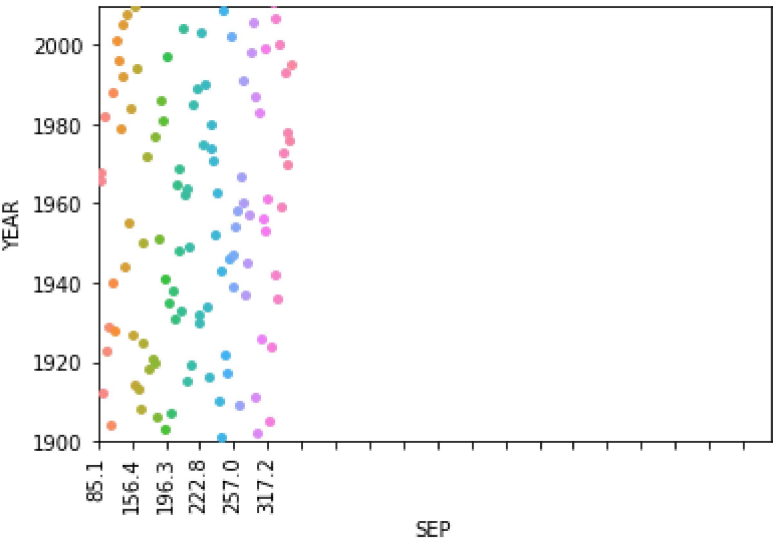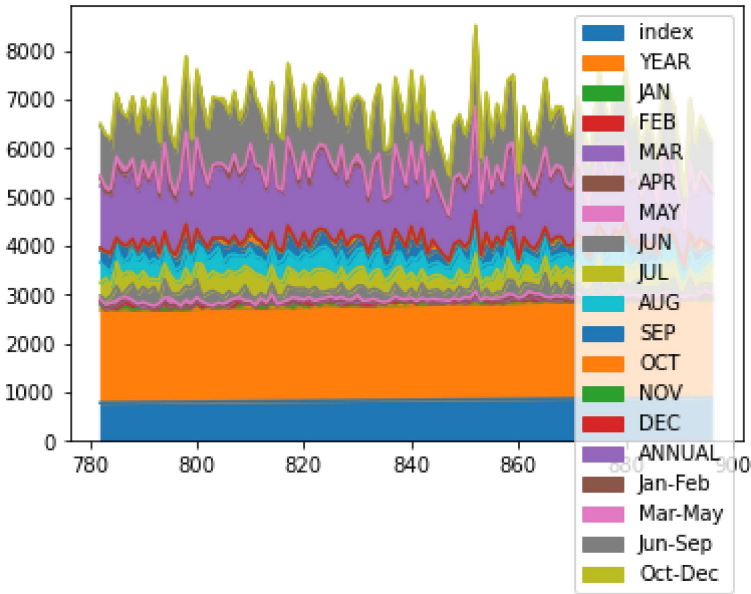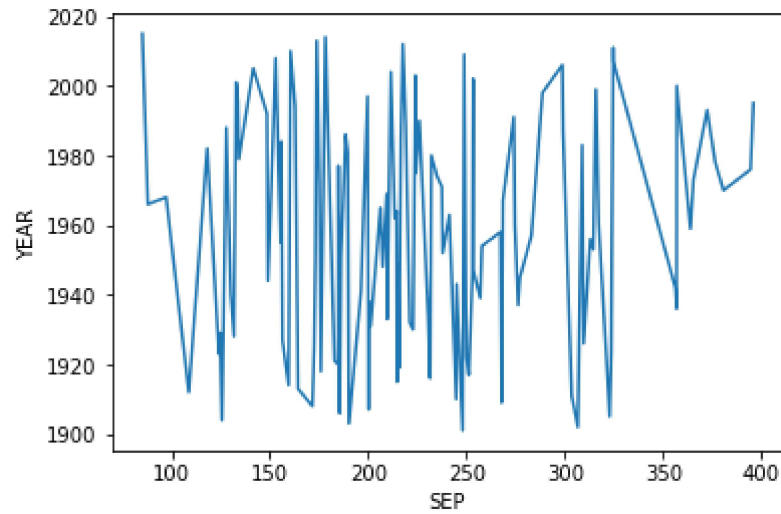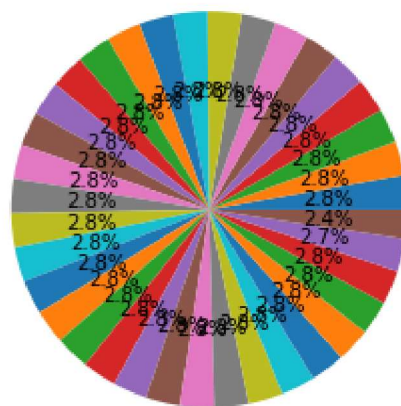

<Figure size 4320x2160 with 0 Axes>
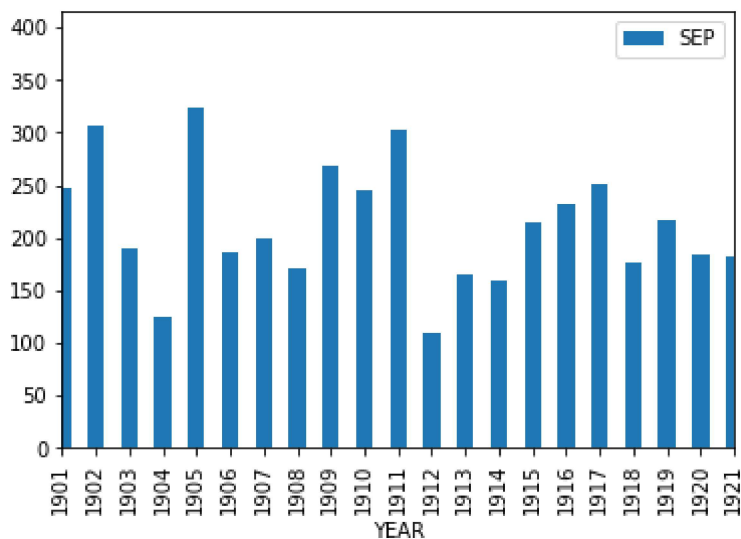
In [9]:
```python
sns.lineplot(x=dat2["SEP"],y=dat2["YEAR"])
plt.show()
```


In [ ]:

In [40]:
```python
plt.pie(df["SUBDIVISION"].value_counts(),labels=None,autopct="%1.1f%%",startan
plt.legend(df["SUBDIVISION"].value_counts().index,bbox_to_anchor=(1,2))
plt.axis('equal')
plt.show()
```


In [ ]: