

```
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]: 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]:

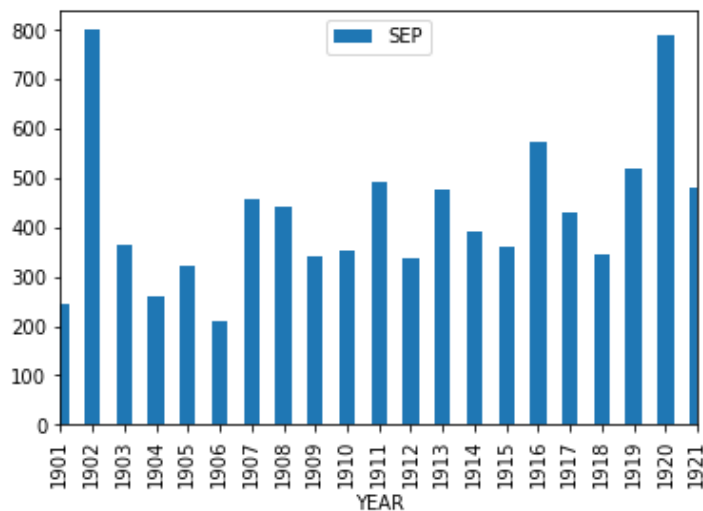
dat1=df[df["SUBDIVISION"]=="SUB HIMALAYAN WEST BENGAL & SIKKIM"]
dat1

Out[4]:

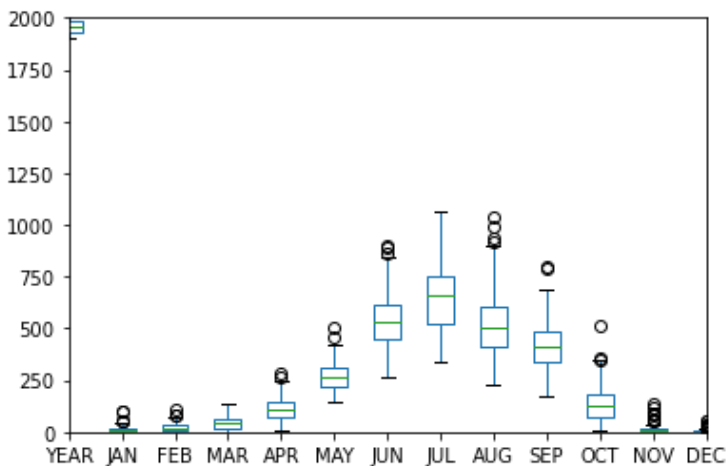
	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
437	437	SUB HIMALAYAN WEST BENGAL & SIKKIM	1901	26.5	14.8	14.1	29.2	195.5	488.4	524.8	501.1	242.7	55.5	17
438	438	SUB HIMALAYAN WEST BENGAL & SIKKIM	1902	1.2	0.7	87.1	126.1	271.3	539.2	671.0	603.8	799.9	74.4	5
439	439	SUB HIMALAYAN WEST BENGAL & SIKKIM	1903	5.5	8.7	19.6	18.6	163.6	541.2	431.5	708.8	365.2	141.3	0
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	164.8	8
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	87.9	2
...
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	46.7	26
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	119.4	12
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	199.8	16
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	31.2	5
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	53.6	20

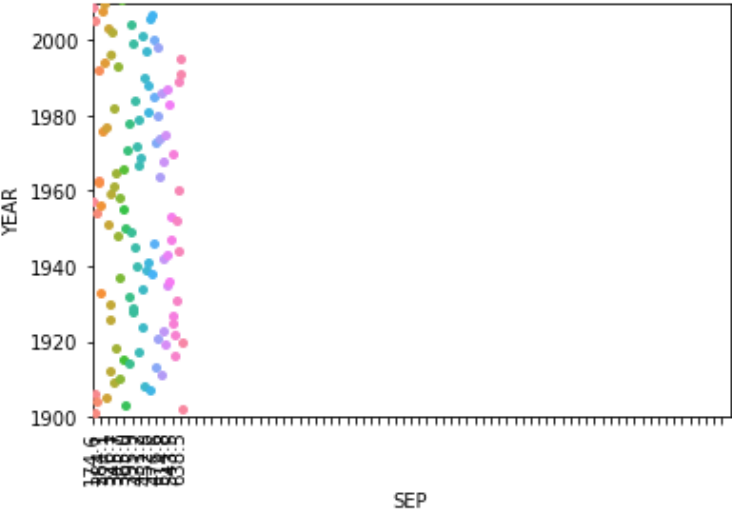
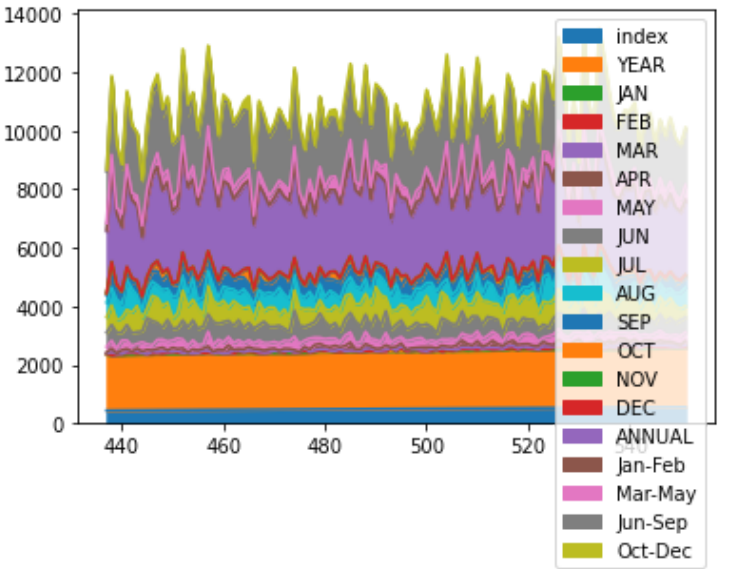
115 rows × 20 columns

```
In [5]: 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()
```

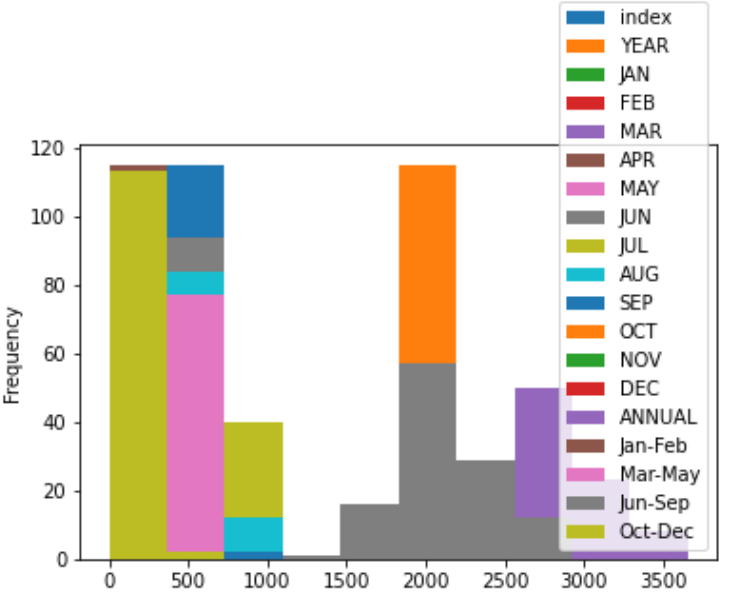


<Figure size 4320x2160 with 0 Axes>

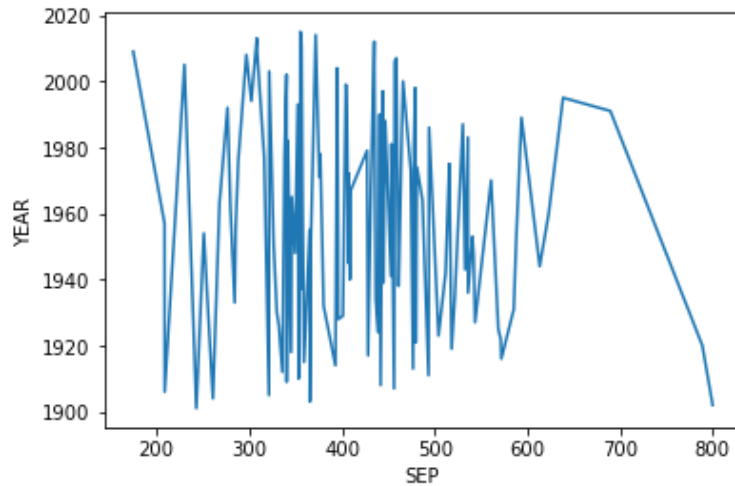




Out[5]: <AxesSubplot:ylabel='Frequency'>



```
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	NOV
782	782	JHARKHAND	1901	92.7	66.6	11.1	18.4	33.5	70.9	269.4	415.1	248.0	37.3	11.5
783	783	JHARKHAND	1902	4.2	7.7	13.2	28.5	59.8	89.9	456.1	204.9	306.6	17.6	5.9
784	784	JHARKHAND	1903	25.1	19.5	10.7	32.8	56.4	142.1	206.1	280.8	190.2	210.1	0.5
785	785	JHARKHAND	1904	2.5	17.0	38.1	9.1	116.1	308.9	494.1	336.1	125.6	30.6	2.3
786	786	JHARKHAND	1905	38.4	53.3	61.6	32.9	66.2	41.5	420.3	293.7	322.8	21.3	0.0
...
892	892	JHARKHAND	2011	3.3	2.5	6.4	25.4	55.0	349.0	181.8	403.2	324.6	23.3	0.0
893	893	JHARKHAND	2012	34.6	10.3	1.5	9.6	6.6	121.1	287.2	282.4	217.6	37.8	48.6
894	894	JHARKHAND	2013	1.1	17.9	1.6	22.3	85.0	181.5	211.1	278.1	173.8	281.1	0.0
895	895	JHARKHAND	2014	9.9	47.5	22.9	1.9	98.2	139.7	321.3	290.9	178.2	44.9	0.0
896	896	JHARKHAND	2015	12.2	2.6	21.6	55.5	25.5	183.3	429.7	240.7	85.1	22.7	0.2

115 rows × 15 columns

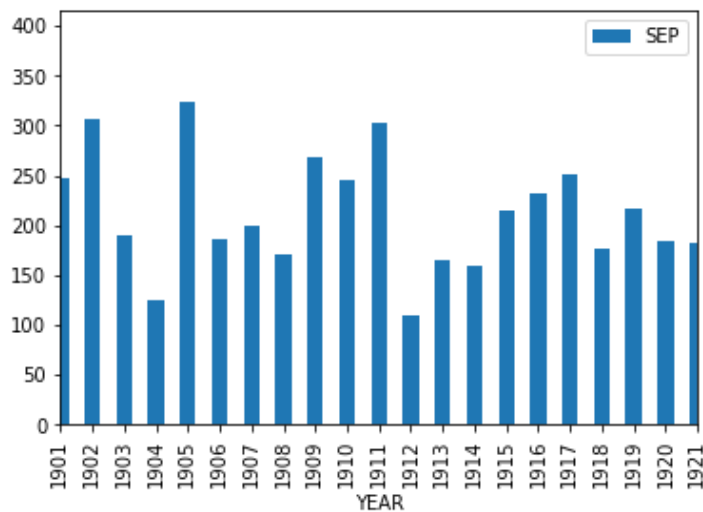


In [8]:

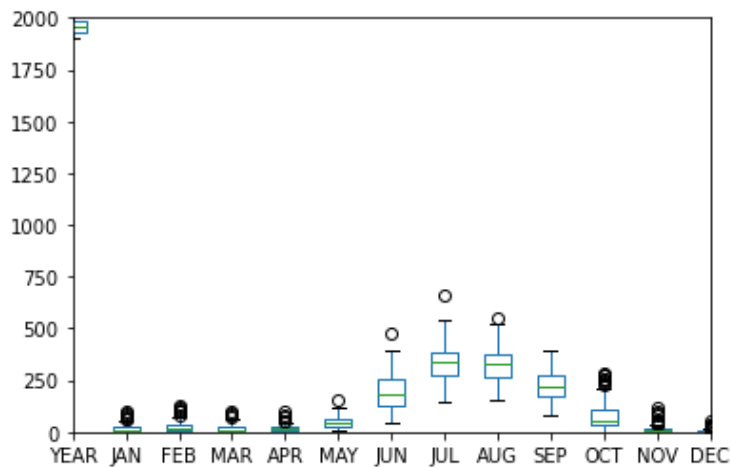
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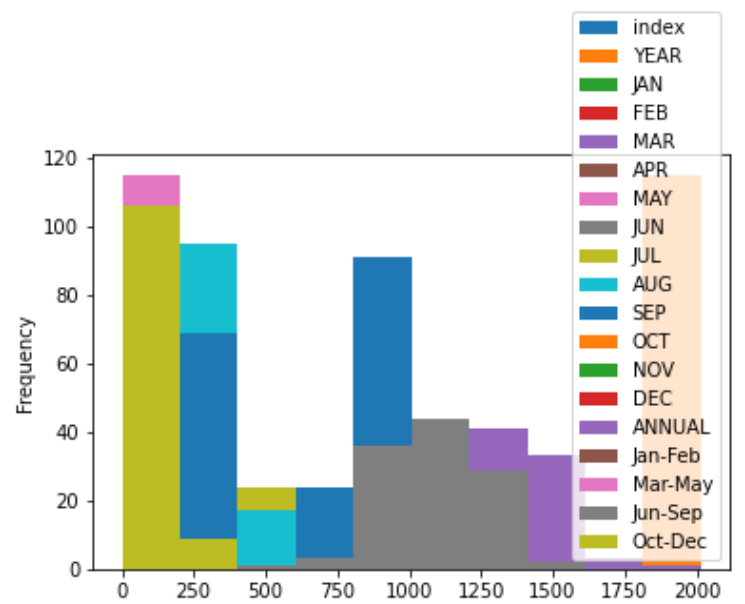
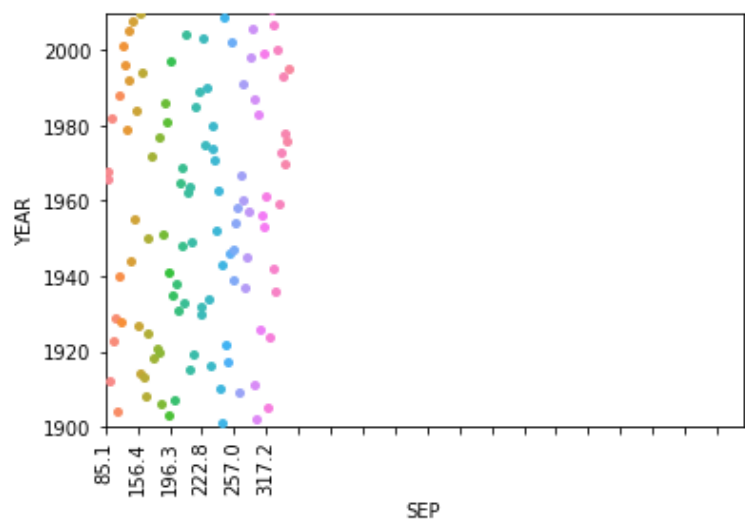
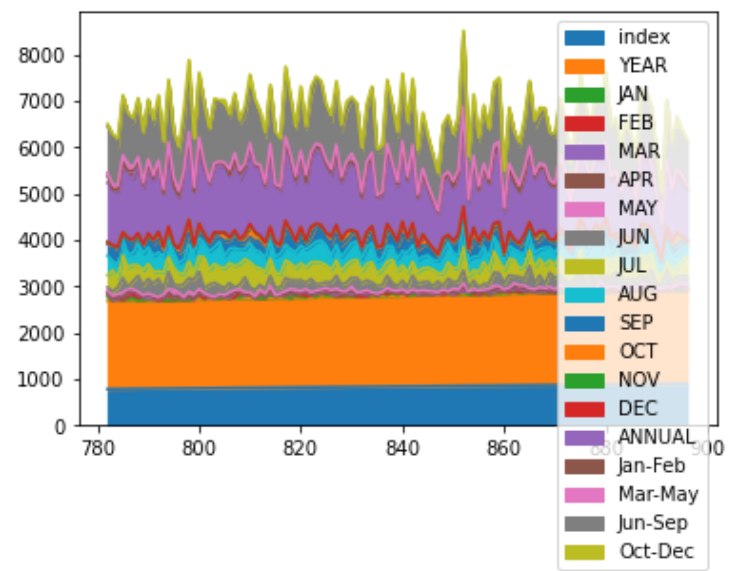
dat2.plot.bar("YEAR", "SEP")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "SEP")
sns.stripplot(x=dat2["SEP"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["SEP"],rotation="vertical")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

```

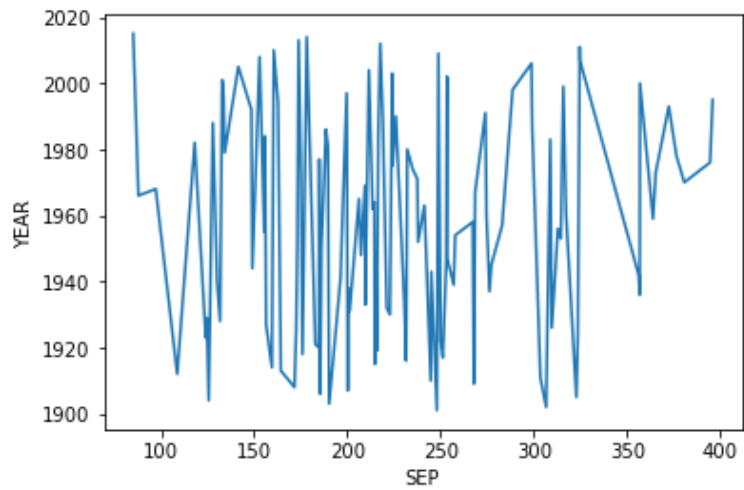


<Figure size 4320x2160 with 0 Axes>



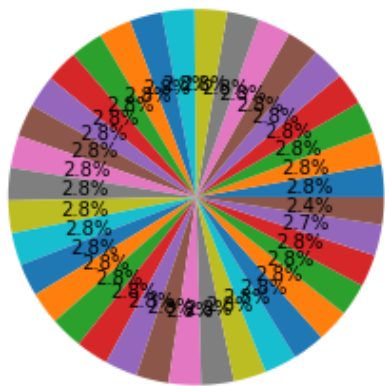



```
In [9]: sns.lineplot(x=dat2["SEP"],y=dat2["YEAR"])  
plt.show()
```



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In [ ]:
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```
In [40]: plt.pie(df["SUBDIVISION"].value_counts(),labels=None,autopct="%1.1f%%",startangle=0
plt.legend(df["SUBDIVISION"].value_counts().index,bbox_to_anchor=(1,2))
plt.axis('equal')
plt.show()
```



In []: