Shapiro Test inin sonucuna göre verimizin normal dağılmadığını varssayıyoruz bu yuzden nonparametrik tek örneklem t testini uyguluyoruz

In [16]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import scipy.stats as stats
from statsmodels.stats.descriptivestats import sign_test
olcumler=np.array([1,160,234,149,145,107,197,75,201,225,4,119,
                   157,145,127,3,163,114,5,65,112,185,202,146,
                   203,2,203,114,188,156,187,154,2,95,165,50,110,
                   216,138,151,166,135,155,84,251,173,6,207,121,120])
```

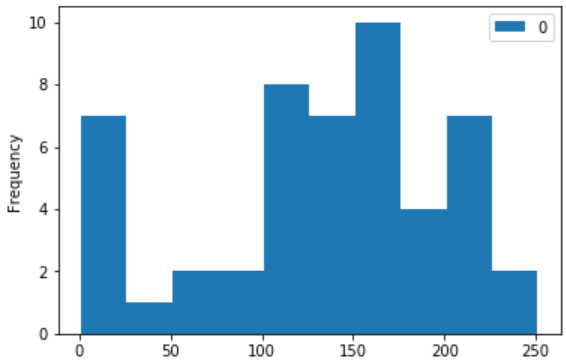
In [4]:
```
from scipy.stats import shapiro
```

In [8]:
```
#H0 hipotezi reddedilir h0 normal dağılmıyor buyyuzden nonparametrik tekn örneklem t tesitini uygu
layacağım
#z yi uygulamama sebebi ise sd nin bilinmemesidir
shapiro(olcumler)
```

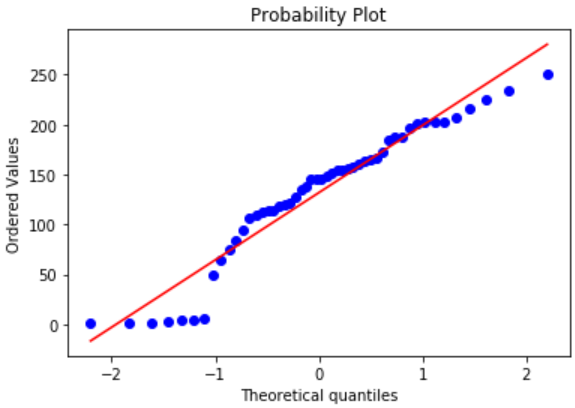
```
(0.9287277460098267, 0.004947586916387081)
```

In [9]:
```
import matplotlib.pyplot as plt
```

In [13]:
```
(pd.DataFrame(olcumler)).plot.hist();
```



In [19]:
```
import pylab
stats.probplot(x=olcumler,dist="norm",plot=pylab);
```



In [22]:
```
#Ho hipotezi reddedilir çünnkü pval 0.0026<0.05 yani %95 güvenirli
#lik ile web sitesinde geçirilen süre 170 saniyeden farklıdır.
np.round(sign_test(olcumler,mu0=170)[1],5)
```

```
0.0026
```

In [37]:
```
#Deneme
ax=np.array([170,170,160,158])
ax.mean()
stats.ttest_1samp(ax,popmean=160)
```

```
Ttest_1sampResult(statistic=1.4055638569974547, pvalue=0.25451576824432837)
```

In [30]:
```
import statsmodels.stats.api as sms
sms.DescrStatsW(ax).tconfint_mean()
```

```
(154.31120046415285, 174.68879953584715)
```