Statistical Outlier Detection - IQR

We know that IQR is Q3 - Q1, and we can set the lower and upper bound by Q1 - 1.5IQR and Q3 + 1.5IQR. Boxplot automatically draws the lower/upper bound for us. We can also detect the data by defining a function.

Setup

```
import pandas as pd
import matplotlib.pyplot as plt
```

```
df = pd.read_csv('/content/Nov2Temp.csv')
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 118 entries, 0 to 117
Data columns (total 2 columns):
 #   Column  Non-Null Count  Dtype
---  ------  --------------  -----
 0   high    118 non-null    int64
 1   low     118 non-null    int64
dtypes: int64(2)
memory usage: 2.0 KB
```

```
df.describe()
```

	high	low
count	118.000000	118.000000
mean	56.830508	29.262712
std	17.205796	12.877084
min	15.000000	-33.000000
25%	48.250000	24.000000
50%	57.500000	31.000000
75%	66.750000	36.750000
max	127.000000	54.000000

```
df.shape
```

```
(118, 2)
```

Check for outliers in df['low']

[ ] ↳ *2 cells hidden*

Setup thresholds

```
low_IQR = df['low'].quantile(0.75) - df['low'].quantile(0.25)
low_low_limit = df['low'].quantile(0.25) - 1.5 * low_IQR

print(low_low_limit)
```

```
4.875
```

```
low_high_limit = df['low'].quantile(0.75) + 1.5 * low_IQR

print(low_high_limit)
```

```
55.875
```

```
df[df['low'] < low_low_limit]
```

	high	low
41	41	-2
79	18	-1
109	48	-11
110	43	-21
111	64	-33

```
df[df['low'] > low_high_limit]
```

	high	low

Remove outliers

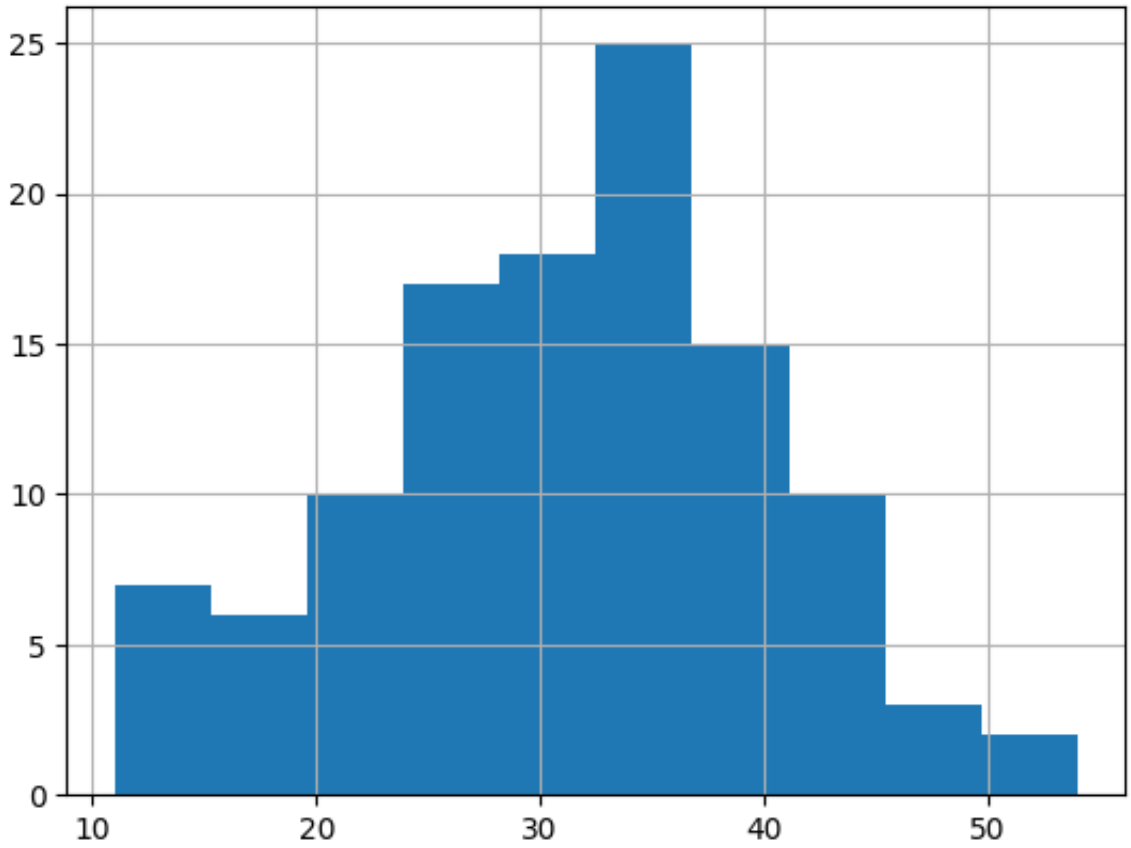
```
df.drop(df[df['low'] < low_low_limit].index, inplace = True)
```

```
df.drop(df[df['low'] > low_high_limit].index, inplace = True)
```

Check Results

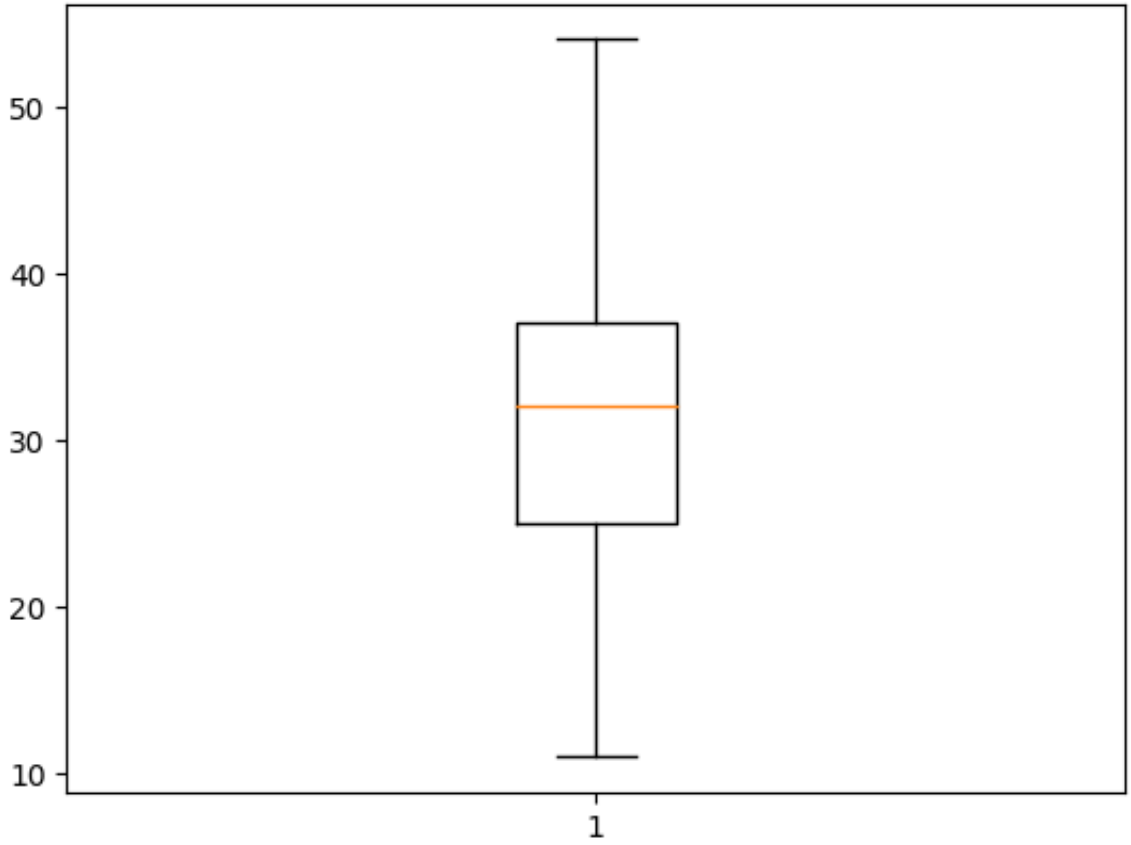
```
df['low'].hist()
```

```
<Axes: >
```



```
plt.boxplot(df['low'])
```

```
{'whiskers': [<matplotlib.lines.Line2D at 0x7ff0f5106c40>,
  <matplotlib.lines.Line2D at 0x7ff0f5106ee0>],
 'caps': [<matplotlib.lines.Line2D at 0x7ff0f51161c0>,
  <matplotlib.lines.Line2D at 0x7ff0f5116460>],
 'boxes': [<matplotlib.lines.Line2D at 0x7ff0f51069a0>],
 'medians': [<matplotlib.lines.Line2D at 0x7ff0f5116700>],
 'fliers': [<matplotlib.lines.Line2D at 0x7ff0f51169a0>],
 'means': []}
```



Practice

Let's do the same thing for df['high']

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