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The t-Distribution

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```python
1  # imports and packages
2  import pandas as pd
3  import numpy as np
4  import matplotlib.pyplot as plt
5  from scipy import stats
```
[ ]   Python

```python
1  # load dataset
2  df = pd.read_csv(r"raw\transformer-voltage-10-sample.csv",
3                   delimiter=",")
4  df
```
[ ]   ⊞ Open 'df' in Data Wrangler   Python

```python
1  # summary of dataframe
2  df.info()
```
[ ]   Python

```python
1  # summary of statistics
2  df.describe()
```
[ ]   Python

```python
1  # t-critical for two-tailed test
2  alpha = 0.05
3  dof = df['Voltage'].count()-1
4
5  t_critical = stats.t.ppf(1-alpha/2,dof)
6  t_critical
```
[ ]   Python

```python
1   # voltage distribution
2   mean = df['Voltage'].mean()
3   std = df['Voltage'].std(ddof=1)
4
5   x = np.linspace(90,150,100)
6   p = stats.norm.pdf(x,mean,std)
7
8   # distribution plot
9   plt.plot(x,p)
10  plt.show()
```
[ ]   Python

Shoe Inventory

```python
1  df = pd.read_csv(r"raw\shoe-inventory.csv",
2                   delimiter=",")
3  df
```
[ ]   Python