THE T-DISTRIBUTION

INFERENTIAL STATISTICS

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The t-Distribution

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```python
# imports and packages
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy import stats
```

[ ] Python

```python
# load dataset
df = pd.read_csv(r"raw\transformer-voltage-10-sample.csv",
                 delimiter=",")
df
```

[ ] Open 'df' in Data Wrangler — Python

```python
# summary of dataframe
df.info()
```

[ ] Python

```python
# summary of statistics
df.describe()
```

[ ] Python

```python
# t-critical for two-tailed test
alpha = 0.05
dof = df['Voltage'].count()-1

t_critical = stats.t.ppf(1-alpha/2,dof)
t_critical
```

[ ] Python

```python
# voltage distribution
mean = df['Voltage'].mean()
std = df['Voltage'].std(ddof=1)

x = np.linspace(90,150,100)
p = stats.norm.pdf(x,mean,std)

# distribution plot
plt.plot(x,p)
plt.show()
```

[ ] Python

Shoe Inventory

```python
df = pd.read_csv(r"raw\shoe-inventory.csv",
                 delimiter=",",
                 index_col=0)
df
```

[ ] Open 'df' in Data Wrangler — Python