calculating-the-confidence-level

April 10, 2024

[1]:
```
import scipy.stats as stats
import math
```

[2]:
```
#given values
sample_mean = 240
sample_std_dev = 25
sample_size = 10
confidence_level = 0.95
```

[4]:
```
#dataframe
df = sample_size -1
df
```

[4]: 9

[6]:
```
#significance level
alpha = (1 - confidence_level) / 2
alpha
```

[6]: 0.025000000000000022

[8]:
```
#t-value from the t-distribution table
t_value = stats.t.ppf(1- alpha,df)
margin_of_error = t_value * (sample_std_dev / math.sqrt(sample_size))

lower_limit = sample_mean - margin_of_error
upper_limit = sample_mean + margin_of_error
```

[9]:
```
print(f"Cofidence Interval: ({lower_limit}, {upper_limit})")
```

```
Cofidence Interval: (222.1160773511857, 257.8839226488143)
```