

🌟 Introducing Bessel's correction 🚀

```
import pandas as pd
import numpy as np
```

```
data = [1, 2, 3, 4, 5]
```

```
# Calculate the standard deviation using Pandas
df = pd.DataFrame(data)
float(df.std())
```

1.5811388300841898

@akshay_pachaar

```
# Calculate the standard deviation using NumPy
arr = np.array(data)
np.std(arr)
```

1.4142135623730951

Pandas considers data to be a sample of a larger population, so to obtain an unbiased result, it uses $n-1$ instead of n as the divisor.

This is referred to as Bessel's correction in statistics.

On the other hand, NumPy makes no such correction

Swipe 👉



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But you can make them return same value with an additional parameter!

ddof: delta degrees of freedom

Swipe 



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How can you make them return same value ?

To make both return the same values, you can specify the `ddof` parameter in both Pandas and NumPy to either `1` (biased) or `0` (unbiased).

```
float(df.std(ddof=0))
```

```
1.4142135623730951
```








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```
np.std(arr, ddof=0)
```

```
1.4142135623730951
```

That's a wrap!

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Cheers!! 



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