

## tf.nn.moments

```
moments(  
    x,  
    axes,  
    shift=None,  
    name=None,  
    keep_dims=False  
)
```

Defined in [tensorflow/python/ops/nn\\_impl.py](#).

See the guide: [Neural Network > Normalization](#)

Calculate the mean and variance of `x`.

The mean and variance are calculated by aggregating the contents of `x` across `axes`. If `x` is 1-D and `axes = [0]` this is just the mean and variance of a vector.

★ **Note:** `shift` is currently not used, the true mean is computed and used.

When using these moments for batch normalization (see [tf.nn.batch\\_normalization](#)):

- for so-called "global normalization", used with convolutional filters with shape `[batch, height, width, depth]`, pass `axes=[0, 1, 2]`.
- for simple batch normalization pass `axes=[0]` (batch only).

## Args:

- `x`: A **Tensor**.
- `axes`: Array of ints. Axes along which to compute mean and variance.
- `shift`: Not used in the current implementation
- `name`: Name used to scope the operations that compute the moments.
- `keep_dims`: produce moments with the same dimensionality as the input.

## Returns:

Two **Tensor** objects: `mean` and `variance`.

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