tf.contrib.distributions.moving_mean_variance

```
moving_mean_variance(
    value,
    decay,
    collections=None,
    name=None
)
```

Defined in `tensorflow/contrib/distributions/python/ops/moving_stats.py`.

Compute exponentially weighted moving {mean,variance} of a streaming value.

The exponentially-weighting moving `mean_var` and `variance_var` are updated by `value` according to the following recurrence:

```
variance_var = decay * (variance_var + (1-decay) * (value - mean_var)**2)
mean_var     = decay * mean_var + (1 - decay) * value
```

Note: `mean_var` is updated *after* `variance_var`, i.e., `variance_var` uses the lag-1 mean.

For derivation justification, see equation 143 of: T. Finch, Feb 2009. "Incremental calculation of weighted mean and variance". http://people.ds.cam.ac.uk/fanf2/hermes/doc/antiforgery/stats.pdf

Unlike `assign_moving_mean_variance`, this function handles variable creation.

Args:

- `value`: `float`-like `Tensor`. Same shape as `mean_var` and `variance_var`.
- `decay`: A `float`-like `Tensor`. The moving mean decay. Typically close to `1.`, e.g., `0.999`.
- `collections`: Python list of graph-collections keys to which the internal variables `mean_var` and `variance_var` are added. Default value is `[GraphKeys.GLOBAL_VARIABLES]`.
- `name`: Optional name of the returned operation.

Returns:

- `mean_var`: `Variable` representing the `value`-updated exponentially weighted moving mean.
- `variance_var`: `Variable` representing the `value`-updated exponentially weighted moving variance.

Raises:

- `TypeError`: if `value_var` does not have float type `dtype`.
- `TypeError`: if `value`, `decay` have different `base_dtype`.

Last updated November 2, 2017.