# tf.metrics.mean_squared_error

```
mean_squared_error(
    labels,
    predictions,
    weights=None,
    metrics_collections=None,
    updates_collections=None,
    name=None
)
```

Defined in `tensorflow/python/ops/metrics_impl.py` .

Computes the mean squared error between the labels and predictions.

The `mean_squared_error` function creates two local variables, `total` and `count` that are used to compute the mean squared error. This average is weighted by `weights` , and it is ultimately returned as `mean_squared_error` : an idempotent operation that simply divides `total` by `count` .

For estimation of the metric over a stream of data, the function creates an `update_op` operation that updates these variables and returns the `mean_squared_error` . Internally, a `squared_error` operation computes the element-wise square of the difference between `predictions` and `labels` . Then `update_op` increments `total` with the reduced sum of the product of `weights` and `squared_error` , and it increments `count` with the reduced sum of `weights` .

If `weights` is `None` , weights default to 1. Use weights of 0 to mask values.

## Args:

- `labels` : A **Tensor** of the same shape as `predictions` .
- `predictions` : A **Tensor** of arbitrary shape.
- `weights` : Optional **Tensor** whose rank is either 0, or the same rank as `labels` , and must be broadcastable to `labels` (i.e., all dimensions must be either `1` , or the same as the corresponding `labels` dimension).
- `metrics_collections` : An optional list of collections that `mean_squared_error` should be added to.
- `updates_collections` : An optional list of collections that `update_op` should be added to.
- `name` : An optional variable_scope name.

## Returns:

- `mean_squared_error` : A **Tensor** representing the current mean, the value of `total` divided by `count` .
- `update_op` : An operation that increments the `total` and `count` variables appropriately and whose value matches `mean_squared_error` .

## Raises:

- `ValueError` : If `predictions` and `labels` have mismatched shapes, or if `weights` is not `None` and its shape doesn't match `predictions` , or if either `metrics_collections` or `updates_collections` are not a list or tuple.

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