tf.reshape

```
reshape(
    tensor,
    shape,
    name=None
)
```

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

See the guide: Tensor Transformations > Shapes and Shaping

Reshapes a tensor.

Given `tensor`, this operation returns a tensor that has the same values as `tensor` with shape `shape`.

If one component of `shape` is the special value -1, the size of that dimension is computed so that the total size remains constant. In particular, a `shape` of `[-1]` flattens into 1-D. At most one component of `shape` can be -1.

If `shape` is 1-D or higher, then the operation returns a tensor with shape `shape` filled with the values of `tensor`. In this case, the number of elements implied by `shape` must be the same as the number of elements in `tensor`.

For example:

```
# tensor 't' is [1, 2, 3, 4, 5, 6, 7, 8, 9]
# tensor 't' has shape [9]
reshape(t, [3, 3]) ==> [[1, 2, 3],
                        [4, 5, 6],
                        [7, 8, 9]]

# tensor 't' is [[[1, 1], [2, 2]],
#                [[3, 3], [4, 4]]]
# tensor 't' has shape [2, 2, 2]
reshape(t, [2, 4]) ==> [[1, 1, 2, 2],
                        [3, 3, 4, 4]]

# tensor 't' is [[[1, 1, 1],
#                 [2, 2, 2]],
#                [[3, 3, 3],
#                 [4, 4, 4]],
#                [[5, 5, 5],
#                 [6, 6, 6]]]
# tensor 't' has shape [3, 2, 3]
# pass '[-1]' to flatten 't'
reshape(t, [-1]) ==> [1, 1, 1, 2, 2, 2, 3, 3, 3, 4, 4, 4, 5, 5, 5, 6, 6, 6]

# -1 can also be used to infer the shape

# -1 is inferred to be 9:
reshape(t, [2, -1]) ==> [[1, 1, 1, 2, 2, 2, 3, 3, 3],
                         [4, 4, 4, 5, 5, 5, 6, 6, 6]]
# -1 is inferred to be 2:
reshape(t, [-1, 9]) ==> [[1, 1, 1, 2, 2, 2, 3, 3, 3],
                         [4, 4, 4, 5, 5, 5, 6, 6, 6]]
# -1 is inferred to be 3:
reshape(t, [ 2, -1, 3]) ==> [[[1, 1, 1],
                              [2, 2, 2],
                              [3, 3, 3]],
                             [[4, 4, 4],
                              [5, 5, 5],
                              [6, 6, 6]]]

# tensor 't' is [7]
# shape `[]` reshapes to a scalar
reshape(t, []) ==> 7
```

Args:

- `tensor`: A `Tensor`.
- `shape`: A `Tensor`. Must be one of the following types: `int32`, `int64`. Defines the shape of the output tensor.
- `name`: A name for the operation (optional).

Returns:

A `Tensor`. Has the same type as `tensor`.

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