tf.nn.sparse_softmax_cross_entropy_with_logits

```
sparse_softmax_cross_entropy_with_logits(
    _sentinel=None,
    labels=None,
    logits=None,
    name=None
)
```

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

See the guide: Neural Network > Classification

Computes sparse softmax cross entropy between `logits` and `labels`.

Measures the probability error in discrete classification tasks in which the classes are mutually exclusive (each entry is in exactly one class). For example, each CIFAR-10 image is labeled with one and only one label: an image can be a dog or a truck, but not both.

NOTE: For this operation, the probability of a given label is considered exclusive. That is, soft classes are not allowed, and the `labels` vector must provide a single specific index for the true class for each row of `logits` (each minibatch entry). For soft softmax classification with a probability distribution for each entry, see `softmax_cross_entropy_with_logits`.

WARNING: This op expects unscaled logits, since it performs a `softmax` on `logits` internally for efficiency. Do not call this op with the output of `softmax`, as it will produce incorrect results.

A common use case is to have logits of shape `[batch_size, num_classes]` and labels of shape `[batch_size]`. But higher dimensions are supported.

Note that to avoid confusion, it is required to pass only named arguments to this function.

Args:

- `_sentinel`: Used to prevent positional parameters. Internal, do not use.
- `labels`: `Tensor` of shape `[d_0, d_1, ..., d_{r-1}]` (where `r` is rank of `labels` and result) and dtype `int32` or `int64`. Each entry in `labels` must be an index in `[0, num_classes)`. Other values will raise an exception when this op is run on CPU, and return `NaN` for corresponding loss and gradient rows on GPU.
- `logits`: Unscaled log probabilities of shape `[d_0, d_1, ..., d_{r-1}, num_classes]` and dtype `float32` or `float64`.
- `name`: A name for the operation (optional).

Returns:

A `Tensor` of the same shape as `labels` and of the same type as `logits` with the softmax cross entropy loss.

Raises:

- `ValueError`: If logits are scalars (need to have rank >= 1) or if the rank of the labels is not equal to the rank of the labels minus one.

Last updated November 2, 2017.