tf.keras.backend.rnn

```
rnn(
    step_function,
    inputs,
    initial_states,
    go_backwards=False,
    mask=None,
    constants=None,
    unroll=False
)
```

Defined in `tensorflow/python/keras/_impl/keras/backend.py`.

Iterates over the time dimension of a tensor.

Arguments:

- `step_function`: RNN step function. Parameters; input; tensor with shape `(samples, ...)` (no time dimension), representing input for the batch of samples at a certain time step. states; list of tensors. Returns; output; tensor with shape `(samples, output_dim)` (no time dimension). new_states; list of tensors, same length and shapes as 'states'. The first state in the list must be the output tensor at the previous timestep.
- `inputs`: tensor of temporal data of shape `(samples, time, ...)` (at least 3D).
- `initial_states`: tensor with shape (samples, output_dim) (no time dimension), containing the initial values for the states used in the step function.
- `go_backwards`: boolean. If True, do the iteration over the time dimension in reverse order and return the reversed sequence.
- `mask`: binary tensor with shape `(samples, time, 1)`, with a zero for every element that is masked.
- `constants`: a list of constant values passed at each step.
- `unroll`: whether to unroll the RNN or to use a symbolic loop (`while_loop` or `scan` depending on backend).

Returns:

A tuple, `(last_output, outputs, new_states)`. last_output: the latest output of the rnn, of shape `(samples, ...)` outputs: tensor with shape `(samples, time, ...)` where each entry `outputs[s, t]` is the output of the step function at time `t` for sample `s`. new_states: list of tensors, latest states returned by the step function, of shape `(samples, ...)`.

Raises:

- `ValueError`: if input dimension is less than 3.
- `ValueError`: if `unroll` is `True` but input timestep is not a fixed number.
- `ValueError`: if `mask` is provided (not `None`) but states is not provided (`len(states)` == 0).

Last updated November 2, 2017.