Lab 3 Additional Info

Keras Example

```
encoder_input_data = np.zeros(
    (len(input_texts), max_encoder_seq_length, num_encoder_tokens),
    dtype='float32')
decoder_input_data = np.zeros(
    (len(input_texts), max_decoder_seq_length, num_decoder_tokens),
    dtype='float32')
decoder_target_data = np.zeros(
    (len(input_texts), max_decoder_seq_length, num_decoder_tokens),
    dtype='float32')
```

Lab Example

```
encoder_input_seq = np.zeros( (len(input_text), max_encoder_seq_length), dtype='float32')
decoder_input_seq = np.zeros( (len(target_text), max_decoder_seq_length), dtype='float32')
decoder_target_seq = np.zeros( (len(target_text), max_decoder_seq_length, 1), dtype='float32')
```

```
for i, (input_text, target_text) in enumerate(zip(input_texts, target_texts)):
    for t, char in enumerate(input_text):
        encoder_input_data[i, t, input_token_index[char]] = 1.
    encoder_input_data[i, t + 1:, input_token_index[' ']] = 1.
    for t, char in enumerate(target_text):
        # decoder_target_data is ahead of decoder_input_data by one timestep
        decoder_input_data[i, t, target_token_index[char]] = 1.
        if t > 0:
            # decoder_target_data will be ahead by one timestep
            # and will not include the start character.
            decoder_target_data[i, t - 1, target_token_index[char]] = 1.
    decoder_input_data[i, t + 1:, target_token_index[' ']] = 1.
    decoder_target_data[i, t:, target_token_index[' ']] = 1.
```

```
for i, (error, correct) in enumerate(zip(input_train, target_train)):
    for j, word in enumerate(error):
        encoder_input_seq[i, j] = input_token_index[word]

    for k, word in enumerate(correct):
        index = target_token_index[word]
        decoder_input_seq[i, k] = index
        if k > 0:
            decoder_target_seq[i, k-1, 0] = index
```

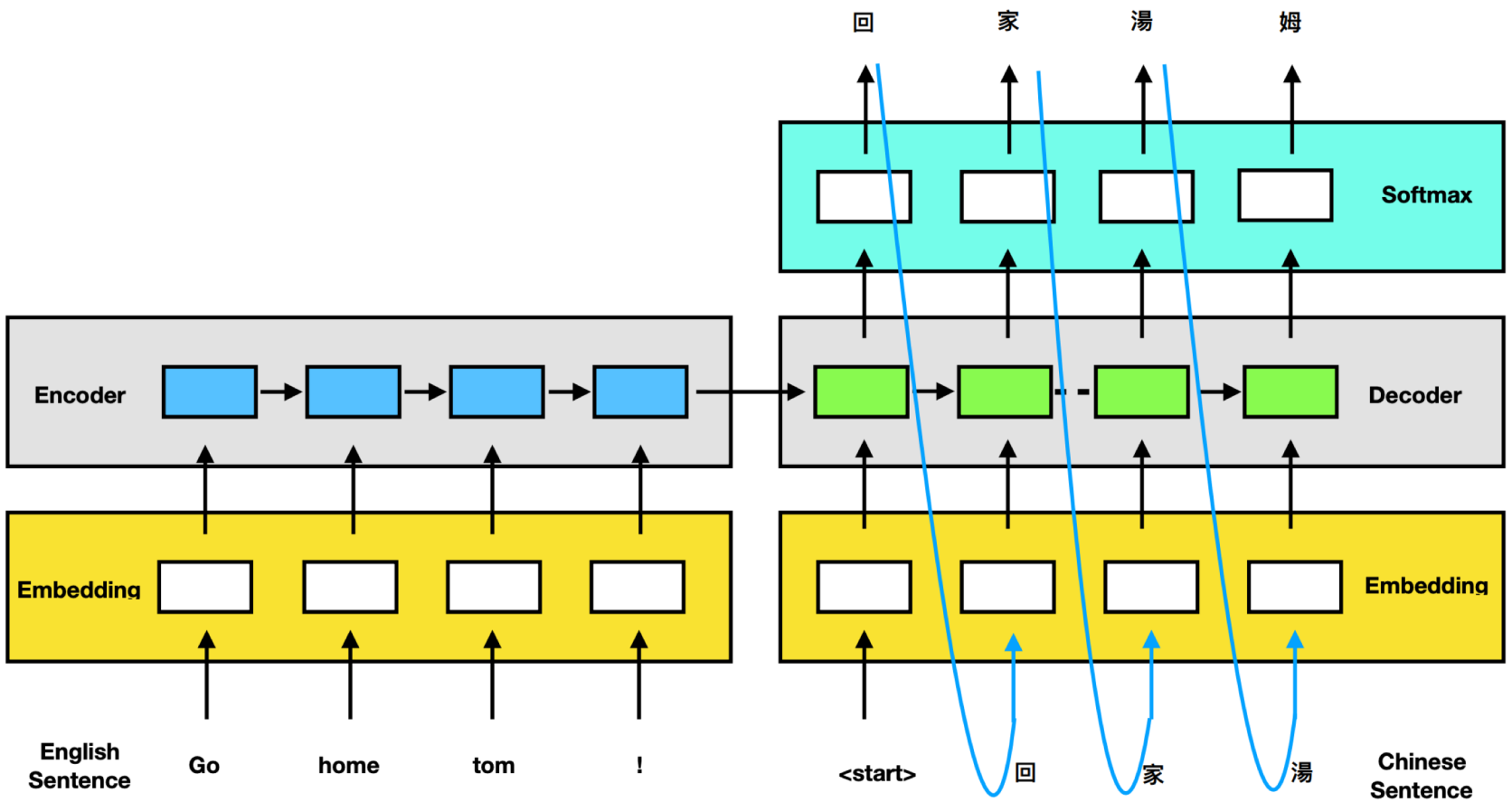
Keras Example

```
# Run training
model.compile(optimizer='rmsprop', loss='categorical_crossentropy',
              metrics=['accuracy'])
model.fit([encoder_input_data, decoder_input_data], decoder_target_data,
          batch_size=batch_size,
          epochs=epochs,
          validation_split=0.2)
```

Lab Example

```
model = Model([encoder_inputs, decoder_inputs], decoder_outputs)
model.compile(optimizer='rmsprop', loss='sparse_categorical_crossentropy')
model.summary()
```

```
model.fit([encoder_input_seq, decoder_input_seq], decoder_target_seq,
          batch_size= 64,
          #epochs=epochs,
          epochs=100,
          validation_data=([val_encoder_input_seq, val_input_seq], val_target_seq))
model.save('etc.h5')
```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Softmax
Encoder
Decoder
Embedding
Embedding
English Sentence
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回
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