Date: ../../..

Ans to Question No- 3

Update Gate and Reset Gate of GRU:

Reset Gate: The reset gate is responsible for the short-term memory of the network. Here is the equation of the Reset gate:

$$r_t = \sigma(x_t \times U_r + H_{t-1} \times W_r)$$

The value of r_t will range from 0 to 1. because of the sigmoid function.

Here U_r and W_r are weight matrices for the reset gate.

Update Gate: Update gate for long-term memory and the equation for the gate is

$$u_t = \sigma(x_t \times U_u + H_{t-1} \times W_u)$$

~~the only difference is of~~

s_t refer to how much of the previous memory is to keep around. s_t controls the information that flows into the memory.

LSTM and GRU Workflow:

LSTM contain a ~~reset~~ gate for forget and input. GRU combine the forget gate and input gate to form update gate. LSTM has information update and cell state update. where GRU combine the information update and cell state update.

GRU is faster in compare to RNN because GRU has less activation function then RNN.