**IST664/CIS668 Final Project Proposal Form**

1. **Your name and degree program:**  
   *Shubham Sharma, MS in Applied Data Science*
2. **Your project type**: *NLPIA Chapter 9 Notebook conversion*
3. **The title of your proposed project:**  
   *Using Long-Short Term Memory networks to capture a long sequence of text*
4. **A brief description of your proposed project:**  
   *Recurrent neural networks (RNN) are the state-of-the-art algorithms for sequential data and are used by Apple's Siri and Google's voice search. Because of their internal memory, RNN’s can remember important things about the input they received, which allows them to be very precise in predicting what’s coming next.   
     
   Standard RNN’s deal with two major issues: vanishing and exploding gradients. In a text, the tokens may be deeply interrelated even when they’re far apart in a sentence. For example, consider a sentence, “Tom, being the gentleman he usually is, helped a man in need.” Here, “helped” verb is related to “Tom” and they are far apart which RNN won’t be able to capture.*

*To mitigate this problem, we will look at LSTMs. With LSTMs, patterns that humans take for granted and process on a subconscious level begin to be available to the model. One of their applications is text generation that can be used in chatbots or suggesting autocompleting text in emails.*

1. **Technology Considerations:**  
   *I will use Google Colab.*
2. **Work Plan:**

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| Week No. |  |
| *1* | *Understanding RNN and why it can’t work for longer sentences* |
| *2* | *Deep diving into LSTM and their advantages over a normal RNN* |
| *3* | *Stacked LSTM* |
| *4* | *Using Keras to generate chatbot and character sequences* |