

Week 7-Session 1: Outline

1. [Before Break: 50 mins] Theory on HMM

- a. [10 min] Lecture Q&A
- b. [40 min] HMM theory problem {[1_W7S1_HMM-Theory](#)}
 - i. [20 min] Theory Questions
 - ii. [10 min] setup the lamda (a) - (c)
 - iii. [10 min] (d), (e)

2. [After Break: 50 mins] Code Exercise

- a. [10 min] **LSTM** - weather forecast {[2_W7S1_LSTM_forecast](#)}
- b. [10 min] Univariate time-series
- c. [15 min] Multivariate time-series
 - i. single-step forecast
 - ii. multi-step forecast
- d. [5 min] Discussion, Q&A, closing

Capstone is released on Moodle

1. Results in Jupiter Notebook Due **11:45PM EST Dec 9th, No Extension**
2. Results and Conclusion in Jupiter Notebook Due **11:45PM EST Dec 15th, No Extension**
3. Capstone functions as **an important test to evaluate whether you mastered the learning objectives of ML. So we, instructors and assistant instructors :**
 - a. **CANNOT tell you HOW to solve the Capstone project;**
 - b. **CANNOT tell you whether your solutions are correct or wrong;**
 - c. **Can explain to you if the capstone project descriptions are not clear.**
4. **You can only discuss your project with your teammates.**

Give one similarity and one difference between HMM and RNN.

For each of the following datasets, is it appropriate to use HMM? Provide a brief reasoning for your answer.

1. Iris Flower
2. Stock Market Price dataset
3. A dataset of movie reviews (e.g. the IMDB database)
4. The precipitation data from the Southeast of the US

For bitcoin price prediction, which method would be appropriate to use?
Provide a brief explanation and reasoning for your answer.

1. CNN
2. DNN
3. RNN
4. LSTM
5. HMM