Week 2

- This week would apply machine learning to the data from last week
- In the dataset, the feature is number value in the time series and the label is the number after it
- **Window size** is the window of data that gets taken out of the graph and trained in machine learning

Preparing Data for Training

- The code below is an example of preparing data for ml training

> https://s3-us-west-2.amazonaws.com/secure.notion-static.com/d28d0d06-71a8-4de9-805d-f9c200a27618/preparing_dataset.ipynb

> https://s3-us-west-2.amazonaws.com/secure.notion-static.com/da5b32e0-7b56-477f-a67a-8767582ce6bf/preparing_dataset.py

Sequence bias

- Sequence bias is when the order of things can impact the selection of things
- For example:
    - If you are asked to choose your favourite tv show out of those options in that order
    - "Game of Thrones", "Killing Eve", "Travellers" and "Doctor Who"
    - you're probably more likely to select 'Game of Thrones' as you are familiar with it

- The order does impact the training so it's important to shuffle the data up

Training Time Series With Single Layer Network

- Code for single layer neural network

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/05e2fc
93-d26b-4eb4-8256-bd167d5c8b48/single_layer_neural_network.py

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/b35ea0
72-6095-463b-bf8b-339ebc6e46b8/single_layer_neural_network.ipynb

Training Time Series With Multi-Layer Network

- To find the optimal learning rate instead of manually testing it by using a callback function called `LearningRateScheduler`
- Here's the code for multi layer network with optimized learning rate:

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/054855
45-1ebd-4fe7-b398-68faf93e9828/single_layer_neural_network.py

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/86f134e
d-5d70-4cc4-b170-e643fd64927e/single_layer_neural_network.ipynb

Exercise

- Code for week 2 exercise:

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/9fc346
31-536e-4db8-969e-ef60d737e7a5/exercise_1_w2.ipynb

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/c3365c51-464d-4e29-abb1-36511cab0fa6/exercise_1_w2.py