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Overview:

Aim is to get the maximum combined score, hence play as long as possible.

Approach:

I am using Q learning to solve this problem.

Parameters:

- *BUFFER_SIZE = int(1e5) # replay buffer size*
- *BATCH_SIZE = 64 # minibatch size (number of episodes that it can learn from)*
- *GAMMA = 0.99 # discount factor*
- *TAU = 1e-3 # for soft update of target parameters*
- *LR = 5e-4 # learning rate (slower the better but too small limits the training speed)*
- *UPDATE_EVERY = 4 # how often to update the network*
- *MEMORY_CAPACITY = 2000*

I use three linear layer simply in my model with the first two layers having the same hidden layers size as environment isn't very complex and I don't need to cater to extract so many features from the input data, I didn't use a batch normalization layer as don't expect the overfitting in this case.

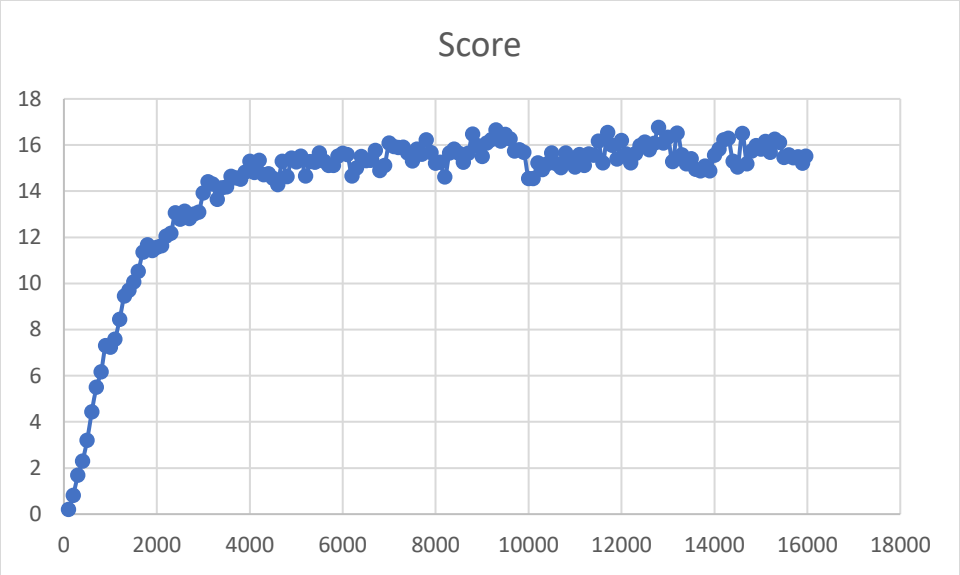
My Policy network is designed like this:

- *super(QNetwork, self).__init__()*
- *self.seed = torch.manual_seed(seed)*
- *self.fc1 = nn.Linear(state_size, fc1_units)*
- *self.fc2 = nn.Linear(fc1_units, fc2_units)*
- *self.fc3 = nn.Linear(fc2_units, action_size)*

Hope this explanation helps.

Training Graphs

Model stabilizes after 6000 episodes but overall average of about 13 was obtained at the 18000 episodes.



Ideas for future Improvement

We can improve the algorithm using DDPG and also try A2C model. This will help to achieve the score much faster than waiting for 15000 episodes.