Deep Learning and Reinforcement Learning

In this part of the assignment, you will implement chess-playing agent with deep reinforcement learning and answer theoretical questions.

**Question 1.** Open the following google colaboratory notebook

https://colab.research.google.com/drive/1Xk9MibJ9Fli5tllDvo88hcZrI76rqZN5

Follow all the steps specified in it. Include link to your solved notebook in your submission. Some parts of the notebook are optional and will not be graded.

**Question 2.** Explain the difference between fully connected layer and a convolutional layer.

**Question 3.** What is a softmax function and where is it used in neural networks?

**Question 4.** Give an example of non-linearities used in neural networks. Why is it necessary to have it in networks?

**Question 5.** What are the loss functions used for regression and classification?

**Question 6.** Using what algorithm gradients are usually computed in neural networks?

**Question 7.** What is the discount factor $\gamma$ and how is it used when computing the reward in reinforcement learning?