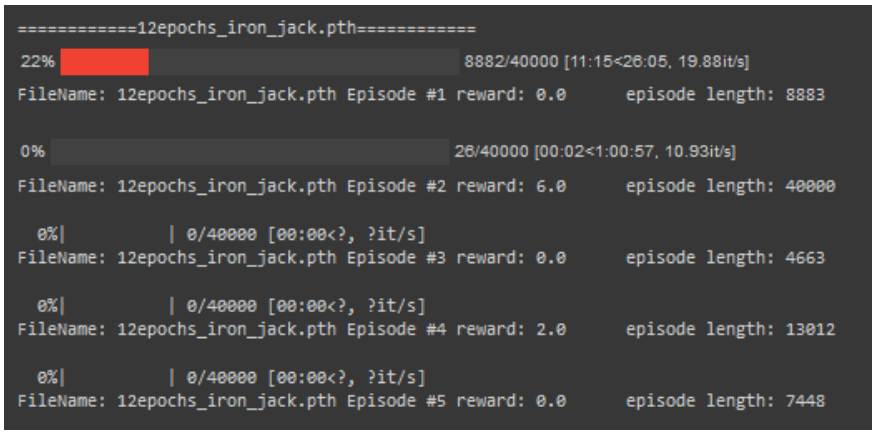
ID 32 Report)
Improve upon our initial training for iron collection.

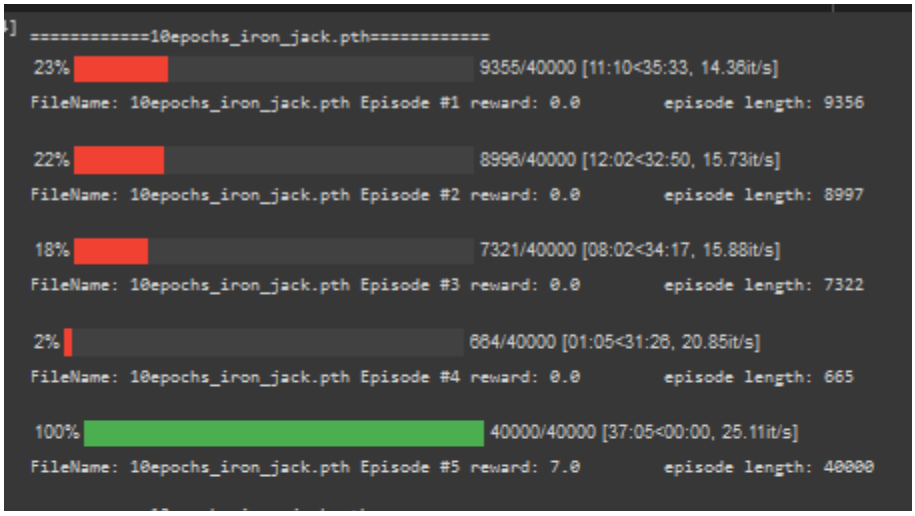
Training
Training overall takes significantly longer than in previous stages. To reduce RAM usage to levels manageable without the use of Colab Pro High RAM, the batch size used must be relatively small (a batch size of 21 was used for most trained models, with models marked with 40 batch using a batch size of 40). This increases the number of iterations and overall time required to train several fold, with the 18 epochs model requiring 1.2 million iterations and over 5 hours with the Colab T4 GPU runtime.

Testing
All models were originally tested in batches of 5 to determine promising candidates for further testing. This allowed us to narrow down our choices from the ten total models we trained for this sprint. Promising models in this series displayed the behaviors of living longer, and collecting iron. Using this initial testing pattern, two immediate winners stood out: our twelve epoch models: 12epochs_iron_jack.pth and 12_epoch_40_batch.pth.

Across a total of 45 tests, the 12epoch_iron_jack.pth models was able to collect at least one piece of iron ore at least 14 times, making its percentage of successful tests ~30%, which is much higher than the low success rates from our previous sprint's best models, which only found iron at below a 10% success rate. Additionally, this model displayed promising behavior across its tests, balancing digging down to reach lower levels with digging outward to explore. No model comes near the understanding of a human player, but his one is definitely much closer than our previous attempts.



A sample of typical performance from the 12epochs_iron_jack.pth model. The model is more consistent than others in finding iron.



The 10epochs_iron_jack.pth model ended up performing the highest in any one testing episode, but as evident from other testing episodes in this sample struggled to consistently find iron, or even consistently stay alive for long.

There is also some concern of overfitting in the process, as models with higher epochs generally performed worse than the previous models. The 18 epoch model in particular had a success rate of around 10% in testing, and often failed to survive half of the duration of the testing episode.