CS 747: Assignment 3

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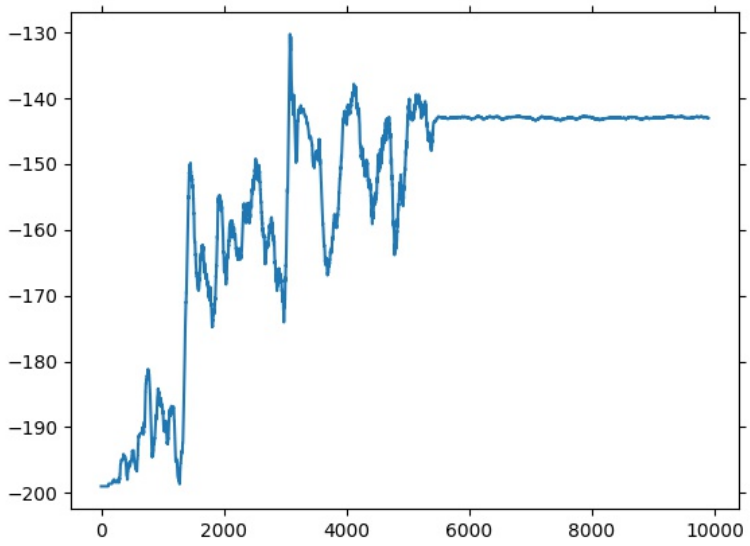
Task 1

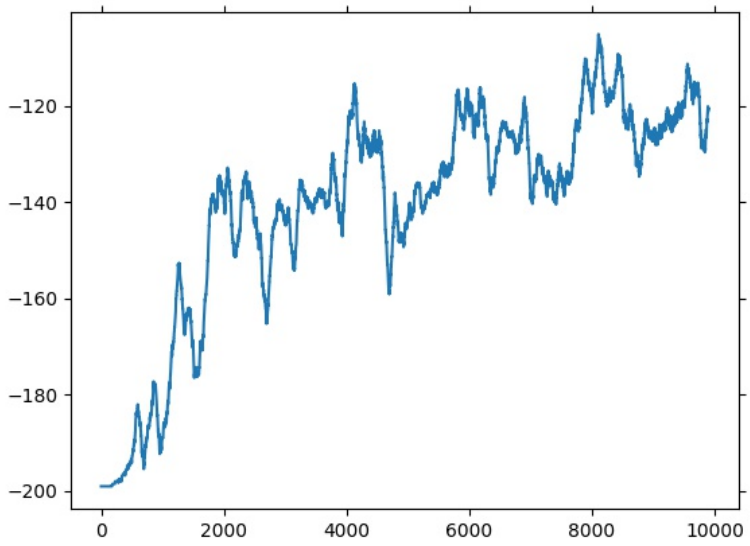
For task 1, I've discretised in intervals of 0.1 for x and 0.07 for v with the upper bounds having their own discrete point and it is flattened to a 1D vector of size 285 with one of them being 1 and the rest being 0. We have $\epsilon = 1e-4$ and $LR = 0.1$.



We observe that reward increases in the first 6000 or so iterations and then stabilises at a value of around -140 in the graph, we get a similar final answer for the test as well at -142.85.

Task 2

For task 1, I've discretised in intervals of 0.1 for x and 0.01 for v with the upper bounds having their own discrete point. We over lap this with states of similar nature by shifted by -0.05 for x and 0.005 for v, hence creating 4 layers. This is then flattened to a 1 D vector.We have $\epsilon = 1e-6$ and $LR = 0.02$.



We observe that reward jumps after every 2000 or so iterations with final values lying around -115 to -130. We get a similar final answer for the test as well at -123.82.