Reinforcement Learning for Business Applications
Eylül Bulut Fıçıcı

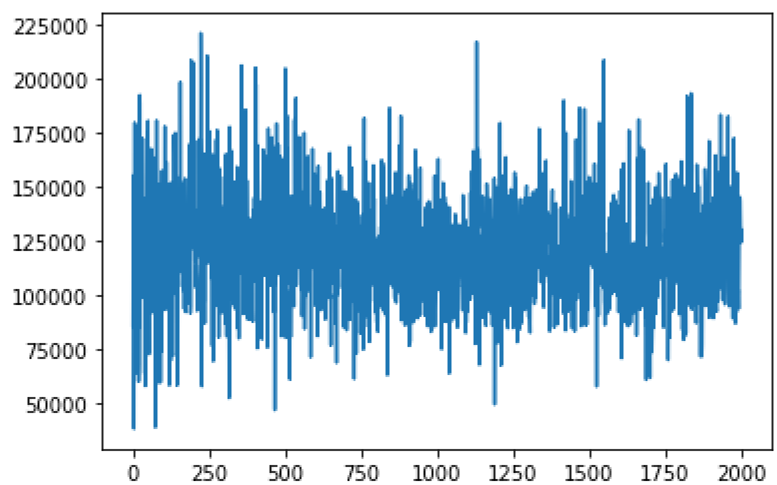
To start with, I tried RBF Kernel to transform the features and make them higher dimensional but it did not go as i planned. I could not feed the features to the model. So tried another approach and used cryptocurrency data to feed the current model. Used Binance API to get the price data.

2 different trials were made:

- 3 different currencies : BTC, ETH, ADA. State with vector size of 7. Action space with 27 elements.
- 4 different currencies : BTC, ETH, ADA, BNB. State with vector size of 9. Action space with 81 elements.

Part A

First trial cost us approximately -5%. Value of our portfolio seems unstable.
Crypto volatility leads to undesirable results.




```
np.mean(TestPortfolio)
```

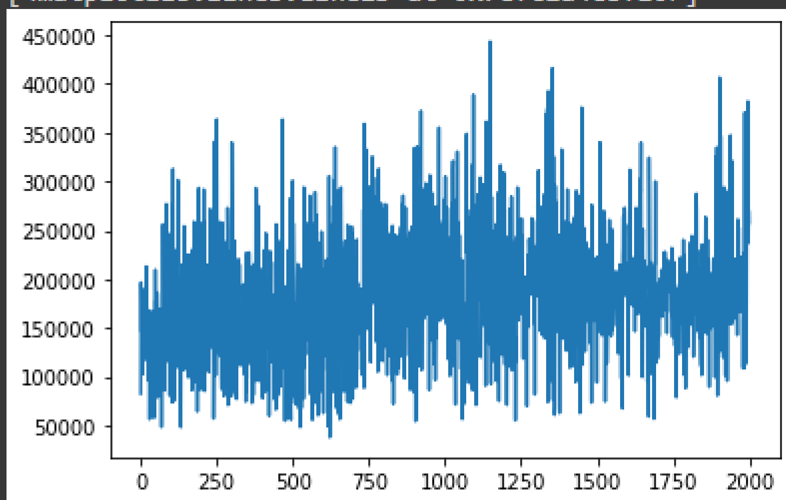
```
19118.775050465956
```

Part B

Second trial was worse. Almost 50% loss happened. Adding another currency led to more complex structures and volatility effects worse than desired.

```
[24] plt.plot(TrainingPortfolio)

[<matplotlib.lines.Line2D at 0x7efc2a4ebf10>]
```




```
[26] np.mean(TestPortfolio)

10874.020362370056
```