Group225\_Assignment 2–PS1 [Crypto Currency]

**Design Considerations:**

We have used greedy method to solve our fractional knapsack problem.

Max heap have used for sorting of coin based on max profitability/coin

**Time complexity**

Fractional knapsack problem time complexity is : O(n)

Time complexity of heap sort is: O(nlogn)

So total time complexity= O(nlogn)

**Approach:**

CryptoCurrency class is created to store attribute of crypto currency. We also add attribute cost which has ratio of profit value and quantity value

CryptoCurrencySelection class has implementation of fractional knapsack problem which uses heap sort for sorting based on max profit value.

MaxHeap class is implementation of sorting value in Descending order.

**Consideration of Greedy Approach over dynamic programming**

We have used Greedy approach as it was permissible to take crypto currency in fraction otherwise dynamic programming approach is the other option. Time complexity of greedy approach is O(nlogn) compare to dynamic programming O(m\*n)