Wednesday, 23 August 2023 11:44

1	2	3	4	5	6	7	8	9	10
16	-20	18	8	-15	14	-19	15	20	20

$n_0 = 100$ $n_5 = 71$ $n_{10} = 121$
$n_1 = 116$ $n_6 = 85$
$n_2 = 96$ $n_7 = 66$ *
$n_3 = 78$ $n_8 = 81$
$n_4 = 86$ $n_9 = 101$

$n_{10} - n_7 = 121 - 66 = 55$

```
no usages
public void maxProfit(int[] dataset) {

    for (int i = 0; i < dataset.length; i++) {
        int currentProfit = 0;

        for (int j = i + 1; j < dataset.length; j++) {
            currentProfit += dataset[j];

            if (currentProfit > maxProfit) {
                maxProfit = currentProfit;
                buyDay = i + 1;
                sellDay = j + 1;
            }
        }
    }
}
```

1 tilordning, n sammenl, n inkr $\} 3n+1$
n tilordning

1 tilordning, 1 addisjon, n sammenl, n inkr $\Rightarrow 2+2n$
n addisjoner, n tabell oppslag $2n$
n sammenl $\Rightarrow n$
1 tilordning $\Rightarrow 1$
1 tilordning, 1 addisjon $\Rightarrow 2$
1 tilordning, 1 addisjon $\Rightarrow 2$
$\} 5n+7$

$f(n) = (5n+7)(3n+1) = 15n^2 + 5n + 21n + 7 = 15n^2 + 26n + 7$

$f(n) \in O(g(n)) \Rightarrow 0 \le f(n) \le c \cdot g(n)$ for alle $n \ge n_0$ $O(g(n)) = n^2$

$0 \le 15n^2 + 26n + 7 \le c \cdot n^2 \mid \div n^2$ $c = 16$ $n_0 = 13 + 4\sqrt{11}$

$\Rightarrow 0 \le 15 + \frac{26}{n} + \frac{7}{n^2} \le 16$

$\Rightarrow -15 \le \frac{26}{n} + \frac{7}{n^2} \le 1 \Rightarrow n \ge 13 + 4\sqrt{11}$

$f(n) \in \Omega(g(n)) \Rightarrow 0 \le c \cdot g(n) \le f(n)$

$\Rightarrow 0 \le c \cdot n^2 \le 15n^2 + 26n + 7 \mid \div n^2$

$\Rightarrow 0 \le c \le 15 + \frac{26}{n} + \frac{7}{n^2}$ $c = 15$

$\Rightarrow 0 \le 15 \le 15 + \frac{26}{n} + \frac{7}{n^2}$ $n_0 = 0$

$\Rightarrow -15 \le 0 \le \frac{26}{n} + \frac{7}{n^2}$

Fordi $\Omega(n^2)$ og $O(n^2)$ blir nedre og øvre grense lik, derfor blir $\Theta(n^2)$

F = (A1, B1)

= (10000, 55)

G = (A2, B2)

= (20000, 212)

H = (A3, B3)

= (40000, 849)

I = (A4, B4)

= (80000, 3049)

J = (A5, B5)

= (160000, 12665)

l1 = {F, G, H, I, J}

= {(10000, 55), (20000, 212), (40000, 849), (80000, 3049), (16

f(x) = FitPoly(l1, 2)

= $0.0000005097\,x^2 - 0.0028720114\,x + 67.7843137255$

\+ Input...