

Polynomial Calculator

NTNU CSIE 41047033S 洪軾凱 Data Structure HW3

```
g++ --std=c++14 main.cpp polynomial.cpp  
./a.out
```

GitHub: https://github.com/skyhong2002/polynomial_calculator

Guide

- 1 to key in a polynomial.
- 2 to show the whole polynomial.
- 3 to show the particular coefficient of the polynomial.
- 4 to edit the particular Non-zero item of the polynomial.
- 5 to do the add+tion.
- 6 to do the subtra-tion.
- 7 to do the multipl*cation.
- 8 to do the d/vision.(Not supported in this version)
- 9 to list all the polynomial created.
- 0 to exit.

Don't forget to press the return button owo

Complexity analysis

Build/Edit a polynomial

push: $O(n)/O(1)$
sort: $O(n \log n)/O(n)$
total complexity: $O(n \log n)/O(n)$

Arithmetic

add+tion, subtra-tion

push: $O(n)$
sort: $O(n \log n)$
total complexity: $O(n \log n)$

multipl*cation

push: $O(n^2)$
sort: $O(n \log n)$
total complexity: $O(n^2)$